MEN'S SEXUAL HEALTH

Variability of Pornographic Content Consumed and Longest Session of Pornography Use Associated With Treatment Seeking and Problematic Sexual Behavior Symptoms

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ABSTRACT

Introduction: Most of the previous studies on problematic pornography use and related behavior have focused on such descriptors of pornography use habits as frequency or time devoted to pornography use.

Aim: We argue that this constitutes a narrow view and indicators that characterize other aspects of explicit content consumption, namely (i) longest session of pornography viewing (which may be related to binge behavior), as well as (ii) variability of consumed pornographic content, can also be useful indicators.

Methods: An online study based on a sample of 132 heterosexual men seeking treatment for problematic pornography use, referred by therapists after their initial visit and 437 non-treatment seekers in the control group.

Main Outcome Measures: The main outcomes of this study are reported longest, non-stop session of viewing pornography, variability in consumed pornographic content (including paraphilic and violent pornography), actual treatment seeking for problematic pornography use and severity of symptoms, and average weekly time devoted to pornography use.

Results: Our analysis showed that longest session of viewing pornographic content as well as the variety of consumed pornography influenced the decision to seek treatment and the severity of symptoms even when the sheer amount of time devoted to pornography use was controlled.

Conclusion: This is one of the few studies examining the role of engagement in prolonged sessions of pornography use and the variability of consumed pornographic content in the clinical context of problematic sexual behavior. The study's main limitations are its relatively narrow method of operationalization of variability of pornographic content and longest session of pornography viewing, as well as its cross-sectional, online, and anonymous character. As the described factors have an important influence on treatment seeking and the severity of experienced symptoms, they should be considered in the process of assessing compulsive sexual behavior disorder and related symptoms. **Lewczuk K, Leśniak J, Lew-Starowicz M, et al. Variability of Pornographic Content Consumed and Longest Session of Pornography Use Associated With Treatment Seeking and Problematic Sexual Behavior Symptoms. Sex Med 2021;9:100276.**

INTRODUCTION

The field of research on problematic pornography use is currently in a period of quick development and evolution.[1,2]

This is partially reflected in the inclusion of Compulsive Sexual Behavior Disorder (CSBD) in the International classification of diseases, 11th revision (ICD-11).[3,4] A primary behavioral

symptom of CSBD is problematic pornography use, with accompanying compulsive masturbation.[5,6] However, more research, including field trial data, is still needed.[1,7,8] A similar diagnostic unit, hypersexual disorder, was proposed but was not included in the final version of the Diagnostic and Statistical Manual of Mental Disorders, 5th Revision (DSM-5).[5]

Previous research on problematic pornography use shows that for some, but not all users, pornography viewing can have negative consequences. These include loss of control, difficulties in sexual functioning, negative consequences for romantic relationships and other areas of life, engagement in other types of problematic behavior, and possibly changes in the functioning of the brain. These consequences can in turn contribute to treatment seeking.[9–14]

However, when attempting to operationalize pornography viewing habits, most research focuses on quantitative indicators pertaining to the consumption of explicit content: time devoted to pornography use or frequency of pornography use.[10,13,15,16] We argue that this reflects a limited and simplistic view of pornography use habits. There are other indicators and descriptors related to explicit content consumption that can carry important information about the development and presentation of problematic use but are not encapsulated in the frequency or duration of use itself. Thus, these indicators deserve attention.

Related to this point, previous studies have provided initial empirical evidence that recreational and problematic users of pornography can be distinguished despite both of these groups using pornography regularly.[17] In addition, many researchers have pointed to the fact that quantitative norms for the frequency or time devoted to pornography consumption — and more broadly, sexual behavior — are hard to establish. They can also be highly variable both cross-culturally and interpersonally and may not be useful as a strong indicator of problematic behavior.[10,12,18–20] Owing to this, high frequency or time devoted to pornography use were deemed to be insufficient to diagnose CSBD as proposed in the ICD-11,[3] which is necessary to avoid overpathologization of high frequency, but otherwise controlled sexual behavior.

Summing up, time and frequency of pornography use are not always reliable as indicators of problematic sexual behavior. We postulate that other indicators, such as the characteristics and variability in consumed pornographic content as well as prolonged sessions of viewing pornography, which are at the center of interest in the current research, can also carry important information. These indicators should be given more consideration as factors contributing to the clinical picture of problematic sexual behavior, and compulsive sexual behavior disorder.[4]

Prolonged Pornography Viewing Sessions

Heavy episodic use of a particular substance (for substance addictions) or heavy episodic engagement in particular actions (for behavioral addictions) that can accompany "regular" addictive behavior has been shown to have a role in alcohol addiction,[21,22] drug addiction,[23,24] gambling addiction,[25–27] problematic video gaming,[28,29] and problematic video streaming.[30] This behavioral pattern is sometimes referred to as binge behavior and seems to be quite commonplace in addicts. For example, it manifests in around 50% or more of illicit drug users.[23,24] However, further research is needed to establish the prevalence of this behavioral pattern depending on, for example, addiction type.

Although sex or pornography addiction has been recognized as one of the main behavioral addictions[31] and scientific attention devoted to this behavioral pattern is significant, research on heavy episodic pornography use (as contrasted with high-frequency regular use) among problematic pornography users is scarce. In a 10-week-long diary study based on 9 treatment seekers for compulsive sexual behavior, Wordecha et al[32] showed that 2 of 3 subjects engaged in binge pornography and masturbation sessions. Although the study was based on a very small sample of individuals, it provides initial evidence for the role of binging in compulsive sexual behavior and should provoke future research on this subject.

Moreover, loss of control over sexual behavior is a trans-conceptual criterion probably present in all conceptualizations of problematic sexual behavior.[3,5,33–37] In our view, it can be argued that heavy episodic engagement in problematic behavior can be considered a good, if not — in some cases — a better marker of loss of control over sexual behavior than regular high-frequency behavior. Moreover, it has been recognized that numerous unsuccessful attempts to control repetitive sexual behavior are one of the key characteristics of CSBD,[3,4] and a pattern of abstinence, deprivation or control attempts seems to be frequently intermingled with subsequent episodes of heavy episodic engagement in problematic behavior. In light of the discussed research and theoretical perspectives, the significance of heavy episodic engagement in problematic pornography use for the development of psychiatric symptoms and treatment seeking merits further study.

Variability of Consumed Pornographic Content

An extensive variety of explicit material is currently accessible on the Internet, and multiple distinct categories of consumed pornographic content have been distinguished.[38]

Following the substance addiction framework, it has been postulated that extensive pornography use may lead to tolerance.[33,34,39] In line with the models of addictive sexual behavior, tolerance can manifest in 1 of 2 ways: (i) higher frequency or time devoted to pornography use, in an attempt to achieve the same level of arousal, (ii) seeking and consuming more stimulating pornographic material, as one becomes desensitized and searches for more arousing stimuli.[33,34,40] While the first manifestation of tolerance is tightly related to duration and frequency of use, the second is not. It is better operationalized by the variability of consumed pornographic content, especially when

this variability pertains to consumption of violent, paraphilic or even lawfully prohibited types of pornographic content (eg, pornographic scenes including minors). However, despite the mentioned theoretical claims, in relation to problematic pornography use and/or compulsive sexual behavior, the characteristics and variability in the content of consumed pornography have rarely been studied.

Taking non-clinical studies into consideration, in a recent study by Baranowski et al[41] based on a convenience, non-clinical sample of German women, the diversity of consumed pornographic content significantly predicted problematic pornography use. In another recent study conducted by Dwulit and Rzymski,[42] 46% of a convenience sample of students reporting pornography use (n = 4,260) declared switching to a new pornographic genre and 32% reported a need to use more extreme (violent) pornographic material in the course of the pornography exposure period. Although the results of the described study do not pertain to the clinical presentation of problematic pornography use, they suggest that changes in the consumed pornographic content are quite common among pornography users and can be at least partially motivated by the desire to seek more arousing explicit content.

It is important to note, however, that the variability of consumed pornographic content may also be connected to perceptions of problematic pornography use and treatment seeking in other ways. It is possible that individuals who have a strong preference for non-mainstream explicit content, such as paraphilic pornography or scenes containing a high amount of violence, can be worried about one's own preferences and seek treatment for this reason.

This issue requires further scientific exploration, as it has potential consequences for CSBD and problematic pornography use therapy and diagnosis.

The Present Study

Given the current state of the research described previously, the goal of the present study was to investigate the role of the 2 mentioned descriptors of pornography use habits: length of the longest pornography viewing session one had engaged in (possibly associated with binge behavior) and variability of pornographic content consumed for (i) treatment seeking, (ii) severity of symptoms, and (iii) feelings of loss of control over sexual behavior. In the analyses reported here, the average weekly time devoted to pornography consumption was controlled. This allowed us to investigate whether the described indicators influence problematic sexual behavior and treatment seeking even if a more standard, quantitative descriptor of time dedicated to pornography use is accounted for. If so, said factors would emerge as all the more important for the process of diagnosis and treatment of problematic sexual behaviors.

MATERIALS AND METHODS

The data set that is used in the current work was also a basis for one of the previous works[10] that contains an analysis based on the same sample albeit directed at other research aims. The theoretical and statistical model formulated a priori and verified in the previous work did not encompass heavy episodic pornography use or variability of consumed pornographic content and the current analysis supplements previously reported findings.

Data Acquisition, Sample, and Study Procedure

The current analysis is based solely on male, heterosexual participants. Data were gathered through an online survey from March 2014 to March 2015.

Treatment Seeking Group. Of 132 treatment seekers, 119 were referred through a group of 23 professional therapists (which consisted of 17 psychologists and psychotherapists, 4 psychiatrists as well as 2 sexologists). Collaborating therapists shared the link to the online survey with their clients who met the study criteria. In this way, the participants had an opportunity to complete the set of online questionnaires. No remuneration was offered for participation in the study. Of 132 participants, 13 were assigned to the treatment-seeking group during the process of acquiring the control group, as they reported previously seeking treatment for problematic pornography use. All participants in this group fulfilled diagnostic criteria for hypersexual disorder, which were proposed, but ultimately rejected from inclusion in the DSM-5.[5] Problematic pornography use was the main reason for seeking treatment for all participants in this group.

Control Group. Participants in the control group (non-treatment seekers, $n = 467$) were recruited through social media advertisements. Participants in the control group also completed the survey online.

Taking both the clinical and control group into account, the subjects were between 18 and 68 years of age. The average age of participants was $M = 28.71$; $SD = 6.36$ (there was no difference in terms of age between the clinical and control group, see Table 1).

Note. Sexual orientation was assessed by the Kinsey Sexual Orientation Scale, Polish version.[43] Subjects who obtained scores of 0 (exclusively heterosexual) or 1 (predominantly heterosexual, only incidentally homosexual) of 7 on this scale were included in the study.

Measures

Treatment seeking was marked with 1 (participants in the treatment seeking group, most of whom were referred by therapists) or 0 (control group, non-treatment seekers).

Severity of symptoms was measured by the Sexual Addiction Screening Test—Revised (SAST-R),[44,45] Polish version.[46] The questionnaire consists of 20 questions (yes/no response scale) and assesses (1) preoccupation, (2) affect, and (3) relationship

Table 1. Descriptive statistics and mean rank comparisons (Mann-Whitney U test, with corresponding effect sizes) for variables used in regression models, depending on treatment seeking: Yes (treatment seeking group); No (control group)

	N			Mean			SD			η^2 effect size
Variable	All	Yes	No	All	Yes	No	All	Yes	No	
1. Sexual addiction symptoms	561	129	432	7.28	13.55	5.41	5.25	3.96	3.99	0.353*
2. Feelings of loss of control	569	132	437	1.81	3.30	1.37	1.45	.90	1.28	0.306*
3. Longest pornography viewing session (minutes)	541	129	412	173.73	297.98	134.82	198.87	251.71	160.83	0.145*
4. Variability of consumed pornography	561	132	429	1.78	2.17	1.65	1.23	1.37	1.16	0.026*
5. Time devoted to pornography use (minutes per week)	428	89	339	229.86	333.08	202.76	252.46	300.13	231.35	0.045*
6. Age (y)	568	131	437	28.71	29.24	28.55	6.36	7.71	5.89	0.000

*$P < .001$.

disturbance by one's own sexual activity as well as (4) the lack of control over one's own sexual behavior.

Feelings of loss of control over sexual behavior was assessed through one question: Have you ever felt that your sexual behavior is out of control? Answer options ranged from 0 (*Never*) to 4 (*Very often*). Although the SAST-R measure includes a loss of control subscale, the answer option for this questionnaire is limited (Yes/No). As loss of control over one's sexual behavior is one of the most crucial, if not the most crucial and defining characteristic of problematic sexual behavior,[4,5,35] we decided to assess it with a separate question described previously, enabling participants to indicate the frequency of loss of control.

Longest session of Non-Stop Pornography Viewing (Lifetime). Participants had to answer a question: "What was the longest time that you viewed pornography non-stop?" The variable was expressed in minutes. 86% of subjects declared a value of 60 minutes or more for this variable.

Pornography Variability. Participants indicated whether the pornographic scenes that they consumed included (i) scenes of group sex; (ii) scenes of homosexual sex (which is counter to participants' sexual orientation); (iii) sex scenes including transsexual people; (iv) scenes with violence; and (v) scenes including minors. If participants indicated that they consumed a particular type of pornographic content, it was denoted by 1; in the case of the opposite answer — by 0. In this way, the indicator of variability of consumed pornographic content ranged between 0 and 5, with

higher values indicating higher variability of consumed content, taking the aforementioned categories into account. The measure used in the present study is similar to measures used by other researchers in previous studies,[47] although it certainly does not encompass all of the categories of pornographic content available (see also "Limitations and future directions" subsection).

Duration of pornography use was assessed as a self-reported time devoted to pornography use in an average week during the last month (in minutes).

We also assessed *age* (in years).

Ethics

The procedure and materials for the study were approved by the Ethics Committee of the Institute of Psychology, Polish Academy of Sciences (Warsaw, Poland). Participants completed an informed consent form before completing the survey.

RESULTS

Table 1 contains descriptive statistics for variables included in the analysis, as well as the corresponding Mann-Whitney U test results, comparing the results obtained for the group of treatment seekers with those of the control group. Both groups did not only differ in terms of age, but treatment seekers scored significantly higher for every other indicator: severity of symptoms, feelings of loss of control, length of the longest pornography viewing session, and variability and time dedicated to pornography consumption. It is worth noting that based on the reported effect

Table 2. Correlation coefficients (Pearson's *r*) between all variables included in the analysis (based on all participants)

Variable	1	2	3	4	5	6
1. Treatment seeking	1					
2. Sexual addiction symptoms	.65†	1				
3. Feelings of loss of control	.56†	.81†	1			
4. Longest pornography viewing session	.35†	.45†	.39†	1		
5. Variability of consumed pornography	.18†	.24†	.15†	.28†	1	
6. Time devoted to pornography use	.21†	.39†	.36†	.40†	.10*	1
7. Age	0.05	0.00	0.00	.22†	0.07	0.01

*$P < .05$.
†$P < .001$.

Table 3. Results of multivariable regression analyses in which the longest non-stop session of viewing pornography, average weekly time of viewing pornography and age predicted treatment seeking and the severity of problematic sexual behavior symptoms in the whole sample (All) and also depending on treatment seeking: Yes (treatment seeking group); No (control group)

| | Treatment seeking | Sexual addiction symptoms | | | Loss of control | | |
| | All | All | Yes | No | All | Yes | No |
Variable	β	β	β	β	β	β	β
Longest pornography viewing session	.32‡	.36‡	.18*	.26‡	.29‡	.26†	.15†
Time devoted to pornography use	.09*	.25‡	.15	.28‡	.25‡	.19*	.27‡
Age	−.08	−.14†	−.27†	−.09*	−.11†	−.16	−.08
F	20.55‡	49.63‡	3.86†	28.53‡	35.50‡	4.29†	15.92‡
R^2	.130	.267	.125	.209	.205	.136	.127

β = standardized regression estimates.
*$P < .095$.
†$P < .05$.
‡$P < .001$.

size, the longest pornography viewing session differentiated between the analyzed group better than time devoted to pornography use, accounting for 14.5% of variance in treatment seeking, with only 4.5% accounted by time devoted to pornography use (see Table 1).

Table 2 depicts correlation coefficients between the variables included in the analysis. Longest session of viewing pornography only moderately correlated with average weekly time devoted to pornography use ($r = 0.40$, $P < .001$). In addition, variability of consumed explicit content only weakly correlated with time devoted to pornography use ($r = 0.10$, $P < .05$).

Next, we conducted a regression analysis, in which the longest session of viewing pornography predicted (i) treatment seeking, (ii) severity of symptoms, and (iii) feelings of loss of control over sexual behavior in the whole sample, as well as − for the 2 latter variables − for treatment seekers and the control group separately. Time devoted to pornography use and participants' age were controlled in all regression models. All created models are based on simultaneous forced entry regression (see Table 3).

Created regression models indicated that the longest session of viewing pornography significantly predicted treatment seeking, severity of symptoms, and feelings of loss of control over sexual behavior in the whole sample. This was also the case after accounting for the effect of average weekly time devoted to pornography use. Moreover, similar results were obtained in the clinical and non-clinical groups for feelings of loss of control. The relationship between the severity of sexual addiction symptoms and longest session of viewing pornography in the clinical group was positive, but it did not reach significance ($\beta = 0.18$; $P = .094$). A similar relation for time dedicated to pornography use was also not significant.

In the next step, we created corresponding regression models for variability of consumed pornographic content. In these models, the mentioned variable was placed in the role of the predictor of (i) treatment seeking, as well as (ii) severity of symptoms and (iii) feelings of loss of control over sexual behavior in the whole sample, as well as for treatment seekers and the control group separately. Again, time devoted to pornography use and participants' age were controlled for (Table 4).

Results of the analysis showed that those who watched more genres of pornographic content were more prone to seek treatment for problematic pornography use even when the duration of pornography use was controlled. The same was true for severity of experienced symptoms in the whole sample and for the control group when considered separately. For the treatment-seeking group, the relation between SAST-R scores and variability of consumed pornographic content ($\beta = 0.20$; $P = .059$) as well as time devoted to pornography use ($\beta = 0.20$; $P = .052$) was non-significant (significance on a trend level). Moreover, variability of watched pornographic scenes was a weaker, non-significant predictor of loss of control feelings than for the other 2 dependent variables. Variability of consumed pornographic content predicted a loss of control in the whole sample but not in the clinical and non-clinical subsamples when taken separately.

DISCUSSION

Broadly, our results indicate the importance of prolonged engagement in pornography viewing and variability in consumed pornographic content for treatment seeking, as well as the severity of problematic sexual behavior symptoms. This importance is not captured in the amount of time devoted to pornography use, suggesting that the mentioned indicators contribute to explaining problematic pornography use—related symptoms and treatment seeking.

Specifically, the longest pornography viewing session that one had engaged in can be potentially related to binge behavior, positively predicted treatment seeking, severity of experienced symptoms, and feelings of loss of control over sexual behavior in the whole group of study participants. The same was largely true for the clinical and non-clinical groups when considered separately. This comes with the caveat that the relationship between

Table 4. Results of multivariable regression analyses in which variability of used pornography, average weekly time devoted to viewing pornography and age predicted treatment seeking and problematic sexual behavior symptoms in the whole sample (All) and also depending on treatment seeking: Yes (treatment seeking group); No (control group)

	Treatment seeking	Sexual addiction symptoms			Loss of control		
	All	All	Yes	No	All	Yes	No
Variable	β	β	β	β	β	β	β
Pornography variability	17‡	.21‡	.20*	.10†	.10†	.06	.01
Time of pornography use	.20‡	.37‡	.20*	.38‡	.36‡	.25†	.33‡
Age	−.03	−.10†	−.19*	−.06	−.07	−.12	−.05
F	11.51‡	35.87‡	4.68†	21.68‡	24.33‡	2.65*	13.83‡
R^2	.075	.205	.145	.164	.147	.086	.110

β = standardized regression estimates.
*$P < .095$.
†$P < .05$.
‡$P < .001$.

the longest pornography viewing session and the severity of symptoms in the clinical group — which was numerically smaller than the control group — did not reach significance ($\beta = 0.18$; $P = .091$). The obtained results corroborate previous, initial evidence indicating the importance of prolonged non-stop pornography viewing sessions for problematic pornography use obtained in previous research.[32] In addition, the results indicate similarities with other substance and non-substance addictions, for which heavy episodic use is one of the prominent symptoms.[21–23,25–27]

It is important to underline that engagement in prolonged pornography viewing sessions cannot be, as evidenced by the current study, reduced to the time devoted to pornography use. In our analyses, both of these indicators seemed to independently influence the treatment seeking decision. As treatment seeking in the present study reflected actual therapeutic help seeking behavior, and not only self-reported willingness or need to seek treatment, the current results clearly suggest that binge-like behavior should be taken into account in the process of diagnosis and treatment.

Moreover, the conducted rank comparisons showed that the length of the longest pornography watching session that one had engaged in differentiated between treatment seekers and non-treatment seekers more reliably than more traditional indicators of average weekly time of pornography use (see Table 1). This may indicate that engagement in heavy episodic behavior may be a better indicator of behavioral dysregulation than high-frequency behavior, which may be more closely connected to a person's base sexual desire level, sexual attitudes, and preferences.

Variability of pornographic content consumed (operationalized in the present study as consumption of pornography scenes counter to one's sexual orientation — scenes containing homosexual sex, containing violence, group sex scenes, scenes of sex with minors) significantly predicted the decision to seek treatment and the severity of symptoms among the study participants.

One possible explanation for this result is that said variability is simply a function of time devoted to pornography use — people who devote more time to this activity can consume a higher number of pornographic content genres, types, or categories. Our results rule out this explanation and show that the relationship between variability of consumed pornographic content and dependent variables is significant even when time devoted to pornography use is controlled. Moreover, a bivariate correlation between variability of consumed explicit content and time devoted to this consumption in the whole sample was surprisingly weak ($r = 0.10$, $P < .05$). This further supports the distinctiveness of these 2 indicators and the need to study them both to obtain a better picture of pornography use habits.

Although the described result by itself does not directly imply increased tolerance or desensitization, as the propensity to consume pornographic material with specific characteristics may reflect a more basic, initial preference, it does seem to be at least potentially consistent with addictive models of problematic pornography use.[33,34] Future research should investigate the trajectories of pornography use depending on the characteristics of explicit content and verify if the preference for certain types of pornographic content is acquired as a result of being exposed to explicit content throughout the lifetime or is better explained by initial preferences. This issue seems to be both clinically important and scientifically interesting and should attract more research attention.

In additiona, among the dependent variables used in our analyses, variability of consumed explicit content had the lowest impact on feelings of loss of control. In our view, one probable explanation for this result is that seeking new pornographic material can be motivated by various factors and may constitute a controlled process, for example, it does not necessarily indicate

problematic use. Consumption of specific genres of pornography can by motivated by curiosity, the need to introduce new sexual behavior into dyadic sexual activity with one's partner, can be considered a signal of sexual openness to experience, and in some cases can also be a signal of sexual agency. Future research should determine in which cases searching for novel pornographic content on the internet contributes to problematic sexual behavior symptoms and in which cases it constitutes a healthy expression of sexuality and intentionally applied sexual agency.

Limitations and Future Directions

One set of important limitations of the current study is connected to the operationalization of prolonged engagement in pornography use and variability of consumed pornographic content. The operationalization of heavy episodic pornography use pertained to only one instance, that is, the most extreme or longest pornography viewing session that participants had engaged in during their lifetime. The present analysis does not provide information on whether the reported pornography viewing episode was an isolated incident or whether the participant engaged in heavy episodic behavior with some regularity. Moreover, although the average duration of the longest pornography viewing session was more than 2 hours (and more than an hour for 86% of respondents), for some participants, the longest episodes of viewing pornography could be relatively short and thus do not resemble heavy episodic use. Despite this, operationalizing pornography viewing behavior in the "extreme" form proved to be a significant marker of severity of symptoms and treatment seeking over the "average" consumption indicator.

Future studies should explore other possible ways of operationalizing heavy episodic pornography use such as the frequency of such episodes. In additiona, the way in which prolonged pornography viewing sessions were operationalized in the current research is likely to be significantly influenced by recall bias, as participants were required to take the whole history of their pornography viewing into account. Future studies should benefit from constraining the period of analysis to a shorter interval (eg, the last 6 or 12 months).

Future research will necessarily require researchers to also define what exactly constitutes "binge behavior" in relation to pornography use. How long should the pornography viewing session be to classify it as a binge? As already mentioned, quantitative norms can be harder to establish for behavioral addictions than, for example, illicit substance use,[10,48] and this fact holds true when such norms are applied to binge behavior. This, and related questions, would have to be answered as research on binge behavior in problematic pornography use and compulsive sexual behavior disorder develops.

One other, related research topic that seems very interesting at this point is what part of heavy episodic engagement in problematic behavior (or binge behavior) occurs after, or is succeeded by, a period of increased control over sexual behavior or restraint? It is possible that such behavior is actually a consequence of overcontrol and ironic/rebound effects of mental control, which have long been studied by cognitive psychologists.[12,49,50] Further studies are needed to investigate this claim.

When it comes to variability of consumed pornographic content, the present study assessed the use of only 5 groups of pornographic material (scenes containing homosexual sex, group sex scenes, scenes including transsexual people, scenes containing violence, scenes of sex with minors). Consumption of only some of them (pornography depicting sex with minors and violence) is considered pathologic in itself. Future studies should cast a broader net and include more types of explicit material (including categories that are often appealing to heterosexual men, but are not encompassed in the present study, such as scenes of heterosexual or lesbian sex, as well as more extreme or paraphilic categories[38]; see also a recent study by Baranowski et al[41]). It is very probable that consumption of some, but not other types of pornographic content, can have a special significance for the development of self-perceptions of pornography addiction and problematic pornography use symptoms, for example, violent, "hardcore" pornography or paraphilic pornography. Previous research has provided some evidence that specific types of consumed pornography can indeed have specific consequences for sexual functioning as well as sex-related and non—sex-related attitudes. For example, one such branch of research investigated the links between viewing violent pornographic scenes and sexual aggression, acceptance of rape myths, permissiveness toward sexual violence, and related attitudes.[51—54] Future research should investigate whether specific types of pornographic content and the consumption of which can influence treatment-seeking behavior and problematic pornography use symptoms more than others.

Another limitation of the study is its cross-sectional design, which is not optimal when directional hypotheses are investigated. Future studies should examine research questions described here in longitudinal designs. The anonymous, online nature of the study may have influenced the reliability of the results. In addition, the present study was conducted before CSBD was proposed for ICD-11,[4] was based on hypersexual disorder criteria,[5] and SAST-R was used as a measure of symptom severity. Future studies should use CSBD criteria[4] and measures that reflect these criteria, which are currently in development. Moreover, it is worth underlining that the clinical group was diagnosed by a relatively large group of 23 therapists, which could result in some degree of heterogeneity in the diagnostic process. In opposite, the control group was recruited online and did not underwent a diagnostic process conducted by a therapist.

The current analysis pertains only to heterosexual men. The next step should be to broaden the findings reported here to women and homosexual participants. The rather small R^2 values obtained for our regression models indicate that other important factors influencing treatment seeking and problematic sexual behavior symptoms are not present in our analysis. This is not

surprising, as our analysis was aimed at 2 specific variables and testing a specific hypothesis. It was not aimed at a broad spectrum of predictors or maximizing the predictive power of the models. However, our results indirectly indicate that there are other important factors contributing to problematic pornography use and CSBD that are crucial to consider. Moreover, the conclusion that subjects seeking treatment for problematic pornography use are prone to engagement in longer session of pornography use and watch a broader spectrum of pornographic content may seem partly tautological. Because of these factors, future research should investigate the role of other variables, including other descriptors of pornography viewing habits that were omitted in the present study, for example, motives for use,[55] as well as other cognitive and emotional factors[9,56—58] contributing to problematic sexual behavior, including those depicted in the formal models of this phenomenon.[59—61] It is also possible that engagement in prolonged sessions of pornography viewing can be significantly influenced by factors that are not taken into account in the current analysis, such as work or relationship responsibilities, which may cause the individual to engage in high intensity episodic use (binge use), instead of more casual, regular use. In addition, it needs be acknowledged that there is substantial research work that disputes the pathologization of high-frequency sexual activity, validity of the "sex addiction" model or points to factors such as high sexual drive or incongruence between moral attitudes and sexual behavior as contributing to the problematic character of sexual activity.[19,60—62] Owing to this, future studies should control factors such as hostile attitudes toward pornography and moral incongruence, when investigating problematic pornography use.

Clinical Implications and Conclusions

Indicators such as time and frequency of pornography use are predominantly adopted in research. Based on a clinical sample of treatment seekers for problematic pornography use and a non-—treatment-seeking sample, our results provide initial evidence that other descriptors of pornography use habits, namely engagement in prolonged sessions of pornography use and variability of consumed pornographic content, can provide added explanatory value and predict problematic sexual behavior and treatment seeking, even when time devoted to pornography use is taken into account. The current analysis should provide a push to further investigate the role of heavy episodic pornography use and the variability of consumed pornographic content for CSBD and problematic pornography use symptoms in future studies. We also encourage clinicians to assess engagement in high intensity episodic engagement in problematic behavior during clinical interviews as a significant feature of problematic pornography use.

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