



Profiles of Cyberpornography Use and Sexual Well-Being in Adults

Marie-Pier Vaillancourt-Morel, PhD,¹ Sarah Blais-Lecours, BA,¹ Chloé Labadie, BA,¹ Sophie Bergeron, PhD,² Stéphane Sabourin, PhD,¹ and Natacha Godbout, PhD³

ABSTRACT

Introduction: Although findings concerning sexual outcomes associated with cyberpornography use are mixed, viewing explicit sexual content online is becoming a common activity for an increasing number of individuals.

Aim: To investigate heterogeneity in cyberpornography-related sexual outcomes by examining a theoretically and clinically based model suggesting that individuals who spend time viewing online pornography form three distinct profiles (recreational, at-risk, and compulsive) and to examine whether these profiles were associated with sexual well-being, sex, and interpersonal context of pornography use.

Methods: The present cluster-analytic study was conducted using a convenience sample of 830 adults who completed online self-reported measurements of cyberpornography use and sexual well-being, which included sexual satisfaction, compulsivity, avoidance, and dysfunction.

Main Outcomes Measures: Dimensions of cyberpornography use were assessed using the Cyber Pornography Use Inventory. Sexual well-being measurements included the Global Measure of Sexual Satisfaction, the Sexual Compulsivity Scale, the Sexual Avoidance Subscale, and the Arizona Sexual Experiences Scale.

Results: Cluster analyses indicated three distinct profiles: recreational (75.5%), highly distressed non-compulsive (12.7%), and compulsive (11.8%). Recreational users reported higher sexual satisfaction and lower sexual compulsivity, avoidance, and dysfunction, whereas users with a compulsive profile presented lower sexual satisfaction and dysfunction and higher sexual compulsivity and avoidance. Highly distressed less active users were sexually less satisfied and reported less sexual compulsivity and more sexual dysfunction and avoidance. A larger proportion of women and of dyadic users was found among recreational users, whereas solitary users were more likely to be in the highly distressed less active profile and men were more likely to be in the compulsive profile.

Conclusion: This pattern of results confirms the existence of recreational and compulsive profiles but also demonstrates the existence of an important subgroup of not particularly active, yet highly distressed consumers. Cyberpornography users represent a heterogeneous population, in which each subgroup is associated with specific sexual outcomes.

J Sex Med 2017;14:78–85. Copyright © 2016, International Society for Sexual Medicine. Published by Elsevier Inc. All rights reserved.

Key Words: Cyberpornography; Profile Analysis; Sexual Compulsion; Sexual Well-Being; Sexual Dysfunction

INTRODUCTION

Of the vast repertoire of sexual behaviors, cyberpornography is increasingly becoming a reliable, easily available, constantly renewed source of sexual gratification. Indeed, most men and an

increasing number of women watch cyberpornography, which refers to sexually explicit internet videos or images intended to sexually arouse the viewer.^{1,2} The effect of cyberpornography use on sexual well-being, which encompasses the subjective (eg, satisfaction) and objective (eg, dysfunction and behaviors) evaluation of an individual's sexuality,³ is highly debated and under-researched.^{4–6} Most consumers consider that their use of pornography has never been a problem and report positive sexual effects, including sexual entertainment, a richer sexual repertoire, stronger desire and arousal, and increased sexual knowledge.^{2,7–10} Recent studies have shown that pornography use does not significantly predict sexual satisfaction over time or male sexual dysfunction.^{11,12} In contrast, cross-sectional and longitudinal evidence has suggested that pornography use might

Received June 8, 2016. Accepted October 29, 2016.

¹École de psychologie, Université Laval, Québec, QC, Canada;

²Département de psychologie, Université de Montréal, Montréal, QC, Canada;

³Département de sexologie, Université du Québec à Montréal, Montréal, QC, Canada

Copyright © 2016, International Society for Sexual Medicine. Published by Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jsxm.2016.10.016>

be associated with sexual dissatisfaction, addiction or compulsion, unrealistic expectations, poor sexual decision making, and personal distress.^{4,13,14} The present study examined whether there are different profiles of pornography users and whether these are associated with specific sexual outcomes.

Cyberpornography users could represent a heterogeneous population with distinct profiles of consumers, although this hypothesis has not been examined thoroughly. Drawing from preliminary research findings and clinical experience, Cooper et al¹⁵ put forth a model describing three distinct categories of individuals who use online cyberpornography: (i) recreational users with neutral or positive outcomes, (ii) at-risk users for whom cyberpornography is a self-regulation strategy to cope with anxious-depressive symptoms or situational stressors, and (iii) compulsive users reporting comorbid, recurring, and uncontrollable sexual concerns or practices and adverse relational, occupational, and financial outcomes. The existence of these three distinct profiles could explain the variability in cyberpornography-related sexual outcomes,^{5,14} with recreational users reporting more positive effects than at-risk or compulsive users.

Research findings tend to support this three-profile hypothesis of cyberpornography users and sexual well-being correlates. First, based on the few available studies of cyberpornography users, 75% to 90% of individuals might be classified as recreational users searching online for sexually explicit material out of curiosity, to improve sexual skills and knowledge, or to increase their sexual enjoyment of and interest in sex, thus reporting increased subjective sexual well-being.^{7,9,10,16–18} Second, in a study of men who have sex with men, 14% of participants met the criteria for an at-risk intermediate profile.¹⁶ These individuals reported more sexual partners, more alcohol use, lower odds of being in a long-term relationship, and less sexual satisfaction. Other studies of community or undergraduate samples have reported that some individuals use cyberpornography as a form of avoidant coping or self-treatment for anxious-depressive symptoms or in response to stressors or attachment-related insecurities.^{17,19} Given this tendency of dealing with emotional issues through pornography use, individuals with this intermediate profile might be at risk of developing a compulsive viewing style.¹⁵ Third, cross-sectional studies have indicated that a small group of individuals shows clinically significant sexual compulsions in which cyberpornography plays an important role. General estimates vary from 5% to 9% and these individuals evidence a large array of sexual behaviors, moderate to severe self-destructive impulses, and a lack of concern for the adverse effects of their cyberpornography use.^{7,16,19} Yet, to better understand cyberpornography-related sexual outcomes, a multidimensional perspective is needed, using subjective and objective indicators of sexual well-being such as sexual satisfaction, compulsivity, avoidance, and dysfunction.²⁰

Some studies have classified cyberpornography users into different groups based on time spent viewing sexually explicit material, qualitative pathologic indicators, or type of

pornographic content.^{8,16,18,21} However, these subgroups are generally formed using cutoff scores based on a single criterion. In addition, the amount of time spent watching pornography might not fully differentiate between potential subgroups because viewing time does not take into account the perceived affective, cognitive, and behavioral reactions to consumption. The simultaneous analysis of affective, cognitive, and behavioral indicators using classification analyses might allow a more in-depth examination of the distinct profiles hypothesis that parallels the categories of Cooper et al.¹⁵

Sex and interpersonal context of use might be under- or over-represented in specific profiles. Compared with women, men use pornography more often, more intensely, and for different reasons.^{19,22} Previous studies have documented that women tend to view pornography with their partners, whereas men's viewing is more often solitary.^{22–24} These differences in consumption patterns associated with findings stating that men's solitary pornography use might be associated with negative couple and sexual outcomes, whereas women's dyadic use is not,^{11,24,25} suggest that men and solitary users might be over-represented in the compulsive profile, whereas women and dyadic users might be more prevalent in the recreational profile.¹⁸

AIMS

The aim of this study was to test the hypothesis of distinct profiles of cyberpornography users using three dimensions of personal reactions toward viewing sexually explicit videos or images on the internet: compulsivity, intensity of efforts to access pornography, and emotional distress associated with consumption. Based on the categories proposed by Cooper et al,¹⁵ we hypothesized that three distinct profiles of cyberpornography users would emerge: recreational, at-risk, and compulsive. We expected that individuals in the recreational profile would report lower scores on the dimensions of cyberpornography use and on time spent viewing cyberpornography, those in the at-risk profile would have moderate scores, and those in the compulsive profile would have higher scores. Individuals in the recreational profile were expected to report higher sexual well-being (ie, higher sexual satisfaction and lower compulsivity, avoidance, and dysfunction) than individuals in the two other profiles, whereas individuals in the compulsive profile would report lower sexual well-being than individuals in the two other profiles. Further, we hypothesized that the proportion of women and dyadic users would be larger in the recreational profile, whereas the proportion of men and solitary users would be larger in the compulsive profile.

METHODS

Participants and Procedure

A convenience sample of North American men and women at least 18 years old was recruited through university electronic lists, classified advertisement web sites, and social networks. Interested

participants signed a consent form electronically, which guaranteed confidentiality and specified that the online survey examined the determinants of sexuality in adulthood. The study protocol was approved by an institutional review board. Of the 1,329 eligible participants who began the survey, 830 (62.5%) completed the Cyber Pornography Use Inventory. No significant differences were observed between responders and non-responders on sociodemographic characteristics. In the final sample, 71.8% were women ($n = 596$) and 28.2% were men ($n = 234$) 18 to 78 years old (mean = 25.20, $SD = 8.00$). Most participants self-identified as heterosexual (81.8%, $n = 679$), 5.8% as homosexual ($n = 48$; 21 lesbians and 27 gays), and 11.6% as bisexual or as endorsing other sexual orientations ($n = 96$). A total of 35.8% were in a committed relationship (ie, married or cohabiting; $n = 297$), 29.0% were dating ($n = 241$), and 35.2% were single ($n = 292$).

Measurements

Cyberpornography Use

The Cyber Pornography Use Inventory²⁶ was used to assess the three dimensions of pornography use: compulsivity to pornography (three items; eg, I believe I am addicted to internet pornography), intensity of efforts to access pornography (three items; eg, At times, I rearrange my schedule to be alone to view pornography), and emotional distress (ie, ashamed, disgusted, and depressed) associated with pornography use (three items; eg, I feel ashamed after viewing pornography). These subscales demonstrated good internal consistency (Cronbach α range = 0.65–0.94).^{13,26} The three dimensions are related to hypersexuality and psychological distress even when controlling for social desirability and time spent viewing pornography.^{13,26} In the present study, Cronbach α ranged from 0.68 to 0.91. Participants also indicated the average time (in minutes) spent weekly consuming cyberpornography based on the past 6 months and whether they viewed cyberpornography with their partner (0 = never and 1 = sometimes to always).

Sexual Satisfaction

The Global Measure of Sexual Satisfaction²⁷ was used to evaluate global satisfaction with one's sexual life. This questionnaire included five items (good-bad, pleasant-unpleasant, positive-negative, satisfying-unsatisfying, valuable-worthless) that are rated on a seven-point bipolar scale to provide a sum ranging from 5 to 35, where higher scores indicate greater sexual satisfaction. This scale demonstrated good internal consistency (Cronbach $\alpha = 0.94$), good 2-week and 2-month test-retest reliability ($r = 0.84$ and 0.72), and good convergent validity.^{27,28} In the present study, Cronbach α was 0.91.

Sexual Compulsivity

The Sexual Compulsivity Scale²⁹ was used to assess a unidimensional construct that included difficulties to manage sexual thoughts, intrusive preoccupations or behaviors, and the effects

of these on daily functioning. Rated on a four-point Likert-type scale (1 = not at all like me to 4 = very much like me), the 10 items are summed to provide a total score ranging from 10 to 40, with a higher score indicating higher levels of sexual compulsivity. This scale demonstrated good internal consistency (Cronbach $\alpha = 0.89$ and 0.92), high 3-month test-retest reliability ($r = 0.80$), and good construct validity.^{30–32} In the present study, Cronbach α was 0.83.

Sexual Avoidance

The Sexual Avoidance Subscale³³ was used to evaluate the general tendency to avoid sexual situations and interactions with a partner. Rated on a four-point Likert-type scale (1 = not at all like me to 4 = very much like me), the 10 items are summed to provide a total score ranging from 10 to 40, with a higher score corresponding to a greater tendency to avoid sexual activity. This subscale showed good internal consistency (Cronbach $\alpha = 0.87$), high 1-month test-retest reliability ($r = 0.90$), and good construct validity.^{33–35} In the present study, Cronbach α was 0.86.

Sexual Dysfunction

The Arizona Sexual Experiences Scale^{36,37} was used to assess six types of sexual difficulties experienced in the previous week: strength of sex drive, ability to be aroused (eg, How easily are you sexually aroused?), ability to have vaginal lubrication or penile erection, ability to reach orgasm, satisfaction with orgasm, and frequency of sexual pain. Rated on a six-point Likert type scale (eg, 1 = extremely easily to 6 = never), the six items are summed to provide a total score ranging from 6 to 36, with a higher score indicating more sexual dysfunction. This scale achieved good internal consistency (Cronbach $\alpha = 0.91$), good 2-week test-retest reliability ($r = 0.80$ and 0.89), and good construct validity.³⁶ In the present study, Cronbach α was 0.73.

Statistical Analyses

The software program SAS (SAS Institute, Cary, NC, USA) was used to perform a cluster analysis using a hierarchical clustering algorithm with the Ward minimum variance method. This method separated participants into groups (ie, clusters) based on their similarities (ie, distance similarity) on the three dimensions of cyberpornography use: compulsivity, intensity of efforts to access sexual material, and emotional distress associated with consumption. Before profile formation, data were Z-transformed and screened for multivariate outliers and multicollinearity ($r = 0.11$ – 0.62). To determine the best number of homogeneous profiles (1 to 15), three fit statistics were examined: the cubic clustering criterion (CCC) for within-profile homogeneity, the pseudo F statistic, and the pseudo τ^2 statistic for between-profile heterogeneity. The best combination of these three indices (local peaks of the CCC and pseudo F with a small pseudo τ^2 and a larger pseudo τ^2 for the next cluster) indicated the number of profiles that best fitted the data and this conclusion was confirmed by an examination of the dendrogram.

Table 1. Pornography use, sexual well-being, sex, and interpersonal context of use across pornography use profiles*

	Recreational profile	Highly distressed non-compulsive profile	Compulsive profile		
Dimensions of pornography use, mean (SD)					
Compulsivity	1.41 (0.83) ^a	1.49 (0.78) ^a	4.57 (1.12) ^b	F _{2,827}	η ²
Efforts to access	1.09 (0.27) ^a	1.08 (0.25) ^a	2.62 (1.20) ^b	580.36 [†]	0.584
Emotional distress	1.47 (0.72) ^a	4.85 (0.97) ^b	3.00 (1.57) ^c	423.93 [†]	0.511
Pornography time use, mean (SD)					
Weekly time use	24.00 (51.65) ^a	16.74 (29.42) ^a	110.07 (97.82) ^b	F _{2,825}	η ²
				101.45 [†]	0.197
Sexual well-being, mean (SD)					
Sexual satisfaction	27.28 (6.09) ^a	24.78 (7.41) ^b	24.01 (6.44) ^b	F _{2,818}	η ²
Sexual compulsivity	14.15 (3.98) ^a	14.52 (4.14) ^a	20.22 (6.08) ^b	16.03 [†]	0.038
Sexual avoidance	12.24 (3.52) ^a	14.77 (5.92) ^b	14.65 (5.60) ^b	84.15 [†]	0.171
Sexual dysfunction	15.86 (4.16) ^a	18.03 (4.91) ^b	14.90 (4.11) ^c	26.46 [†]	0.061
Sex, % (n)					
Women	77.5 (486) ^a	78.1 (82) ^a	28.6 (28) ^b	χ ² ₂	φ
Men	22.5 (141) ^a	21.9 (23) ^a	71.4 (70) ^b	102.62 [†]	0.352
Interpersonal context of use, % (n)					
Solitary use	64.8 (386) ^a	82.3 (79) ^b	75.8 (69) ^{ab}	χ ² ₂	φ
Dyadic use	35.2 (21) ^a	17.7 (17) ^b	24.2 (22) ^{ab}	14.47 [†]	0.136
Relationship status, % (n)					
Committed relationship	35.9 (225)	33.3 (35)	37.8 (37)	χ ² ₄	φ
Dating	30.5 (191)	30.5 (32)	18.4 (18)		
Single	33.7 (211)	36.2 (38)	43.9 (43)	7.19	0.093
Orientation status, % (n)					
Heterosexual	83.8 (521)	84.5 (87)	72.4 (71)	χ ² ₄	φ
Homosexual	5.1 (32)	6.8 (7)	9.2 (9)	8.63	0.102
Bisexual or others	11.1 (69)	8.7 (9)	18.4 (18)		

[†]P < .001.

*Means with different superscript letters (a vs b vs c) differ at P < .05.

SPSS software (SPSS, Inc, Chicago, IL, USA) was used to examine the distinctive features of the identified profiles. First, a multivariate analysis of variance (MANOVA) followed by least-significant-difference comparisons was conducted to compare means among profiles on the three dimensions of pornography use. Second, an analysis of variance (ANOVA) was performed to compare average time spent viewing pornography. Third, a second MANOVA was conducted to compare means among profiles on sexual well-being variables (sexual satisfaction, compulsivity, avoidance, and dysfunction). Fourth, χ² analyses were conducted to compare the proportion of men vs women and dyadic vs solitary users across profiles.

RESULTS

Identification and Description of Profiles

The fit statistics of the cluster analysis showed that a three-profile solution was the most suitable (CCC = -2.9; pseudo F = 560; pseudo t² = 65.2) compared with the two-profile option (CCC = -3.8; pseudo F = 514; pseudo t² = 600) and the four-profile option (CCC = -2.9; pseudo F = 517; pseudo t² = 386). The visual examination of the dendrogram

confirmed the presence of three distinct profiles that were parsimonious while capturing distinct underlying clusters. Means and SDs of pornography use dimensions for each profile are presented in Table 1. The first profile, designated as a recreational profile, included 75.5% of the sample (n = 627) and was characterized by low scores on the three dimensions of pornography use. The second profile, labeled a highly distressed non-compulsive profile, defined 12.7% of the sample (n = 105) and was represented by low scores on compulsivity to pornography and intensity of efforts to access pornography but high scores on emotional distress associated with pornography use. The third profile, named the compulsive profile, included 11.8% of the sample (n = 98) and was characterized by high scores on compulsivity to pornography and intensity of efforts to access pornography and moderate scores on emotional distress associated with pornography use.

This classification was validated through a MANOVA comparing mean scores on compulsivity to pornography, intensity of efforts to access pornography, and emotional distress associated with pornography use among the three profiles (Table 1). Results yielded a significant multivariate large effect (F_{6,1650} = 513.92, P < .001, η² = 0.651, Wilks λ = 0.122).

Post hoc univariate analyses indicated that individuals with the compulsive profile compared with those with the two other profiles reported higher compulsivity to pornography ($P < .001$) and higher intensity of efforts to access pornography ($P < .001$). Individuals with the highly distressed non-compulsive profile reported higher emotional distress associated with pornography use compared with those with the two other profiles ($P < .001$). Participants with the compulsive profile reported higher emotional distress associated with pornography use than those with the recreational profile ($P < .001$). Results of an ANOVA indicated that, compared with individuals with the two other profiles ($P < .001$), those with the compulsive profile spent significantly more time viewing pornography.

Sexual Well-Being Across Profiles

A MANOVA comparing mean differences in the three profiles on sexual satisfaction, compulsivity, avoidance, and dysfunction yielded a significant multivariate effect ($F_{8,1630} = 28.40$, $P < .001$, $\eta^2 = 0.122$, Wilks $\lambda = 0.770$; Table 1). Post hoc univariate analyses indicated that participants with the recreational profile reported higher sexual satisfaction and lower sexual avoidance than those with the two other profiles ($P < .001$). As expected, participants with the compulsive profile reported higher sexual compulsivity than those with the two other profiles ($P < .001$). Individuals with the highly distressed non-compulsive profile reported more sexual dysfunction than those with the two other profiles ($P < .001$), whereas individuals with the recreational profile reported more sexual dysfunction than those with the compulsive profile ($P = .039$).

Sex and Interpersonal Context of Use Across Profiles

χ^2 analyses compared the distribution of women vs men and of dyadic vs solitary users among the three profiles (Table 1). Results indicated that the proportion of women and of dyadic users was significantly larger in the recreational profile. The proportion of men was significantly larger in the compulsive profile and the proportion of solitary users was significantly larger in the highly distressed non-compulsive profile. Exploratory χ^2 analyses showed that the distribution of relationship status and sexual orientations did not vary significantly across profiles.

DISCUSSION

Contemporary views of cyberpornography are often polarized, sometimes referring to self-centered activities that impair sexuality with a partner and foster unhealthy sexual attitudes and other times to a modern digital way to expand one's sexual repertoire and fulfill sexual needs.³⁸ The aims of the present study were to investigate the variability in cyberpornography-related sexual outcomes by examining the presence of different profiles of pornography use and their associations with specific sexual outcomes, sex, and the interpersonal context of use.

The present results partly support the proposal of Cooper et al¹⁵ in yielding three distinct profiles: recreational users, highly distressed non-compulsive users, and users with a compulsive profile. These results suggest a conceptualization of cyberpornography use based on a continuum, ranging from recreational to compulsive, with an important distinct subgroup of highly distressed, less active individuals whose pornography use tends to result in shame and self-disgust. Recreational users reported more positive sexual outcomes than the two other groups, with highly distressed non-compulsive users reporting more sexual dysfunction and users with a compulsive profile being more generally sexually compulsive. Women and dyadic users were more prevalent in the recreational profile, whereas men were over-represented in the compulsive profile and solitary users were over-represented in the highly distressed non-compulsive profile.

The recreational profile was composed of a larger proportion of women and dyadic users who spent a moderate amount of time viewing pornography (ie, mean = 24 minutes weekly). They reported low levels on the three dimensions of problematic pornography use. Compared with participants with the other profiles, these individuals reported higher sexual satisfaction and lower levels of sexual compulsivity, avoidance, and dysfunction. These findings suggest that, for most people, pornography use might promote an active and open sexuality or, at the very least, not compromise general sexual well-being. This is consistent with past findings identifying a non-compulsive or non-problematic subgroup^{16,17} and those reporting positive or neutral sexual outcomes of pornography use.^{8,11,12}

The compulsive profile consisted of a larger proportion of men who spent the most time using pornography (ie, mean = 110 minutes weekly). They reported the highest level of compulsivity to pornography, intensity of efforts to access sexual material, and higher emotional distress associated with pornography use. Previous studies have described these cyberpornography users as having poor sexual coping strategies, less effective emotion regulation skills, and being prone to enter into a compulsive cycle of recurrent and intense sexual urges, which are associated with significant personal distress and/or impairments in important areas of functioning.^{39,40} The present findings show that individuals with a compulsive profile evidenced higher sexual avoidance and lower sexual satisfaction than recreational users and higher general sexual compulsivity and lower sexual dysfunction than individuals with the other profiles. Sexual behaviors reported by these individuals suggest that their pornography use might be framed into a broader pattern of compulsive sexuality that includes avoidance of sexual interactions with a partner.⁴¹ This pattern of activity was associated with sexual dissatisfaction but was not related to sexual dysfunction, a result that disconfirms our hypothesis and might seem counterintuitive. As Hald⁴² suggested, very few studies have investigated the relation between pornography use and common sexual dysfunctions. Our result is in line with those from such studies in men reporting that a higher frequency of

pornography use is not associated with erectile dysfunction and might even improve desire and arousal.^{8,12}

The highly distressed non-compulsive profile was composed of a larger proportion of solitary users who spent the least time viewing cyberpornography (ie, mean = 17 minutes weekly). Although they presented lower levels of compulsivity to pornography and intensity of efforts to access sexual material, they reported the highest level of emotional distress associated with pornography use. This suggests that distress associated with viewing cyberpornography is not necessarily a function of frequency of use. This runs counter to the traditional conceptualization of sexual addiction or compulsion³⁹ but is in line with results of an online survey of Croatian women reporting that distress associated with one's sexual behaviors was not related to frequency of sexual activities.⁴³ For this significant minority of users, high distress might be the result of shame, self-disgust, and self-punishment after watching pornography. This internalized shame state, potentially based on strict societal, moral, relational, or religious disapproval, is associated with less sexual satisfaction and compulsivity and more sexual dysfunction and avoidance. Thus, the association between sexual dysfunction and pornography use might be determined more by emotional reactions after consumption than by the compulsive nature of the experience. This could explain past incoherent results about this association, with some studies reporting that pornography use is related to sexual dysfunction and others showing no significant association, suggesting that outcomes would be predicted more by distress than by frequency of use.^{8,12}

The over-representation of women in the recreational profile and of men in the compulsive profile is coherent with past studies¹⁸ and confirms that women and men display differences on duration and frequency of consumption.^{2,7,44,45} The interpersonal context of use also might help explain between-profile differences because dyadic use was more prevalent in the recreational profile. These results are in line with sex differences reported in consumption patterns; compared with women who tend to use pornography with their partner as part of their sexual activities, men are more attracted to a wider range of materials and prefer to use pornography for arousal and masturbation.^{2,22,25} These past results could help explain why women tend to use pornography in a more recreational manner, whereas men might be more easily trapped in a compulsive cycle. The larger proportion of solitary users in the highly distressed non-compulsive profile confirms past results reporting that, compared with dyadic use, solitary use is particularly detrimental to sexual satisfaction and relationship functioning.^{24,25,46}

Even if the results of the present study are consistent with previous theoretical and clinical proposals,¹⁵ it is important to interpret them in light of potential limitations. The use of a convenience sample with an over-representation of women limits the generalizability of our results. Profiles can vary within a representative sample that includes participants more ethnically diverse, older, less educated, in longer-term

relationships, and engaging in more pornography use. Some biases also can be induced by the use of self-report measurements and the potential circularity between variables used to create profiles and sexual outcomes. In addition, other factors overlooked in the present study might explain the pattern of results. Emotions associated with cyberpornography use in the highly distressed non-compulsive profile could be explained by the content of pornography viewed, secrecy surrounding the solitary use, or even factors unrelated to pornography such as psychopathology, personality, and cultural or religious backgrounds.

Despite these limitations, the present cross-sectional findings suggest that cyberpornography users represent a heterogeneous population in which engaging in this activity does not appear maladaptive for most individuals, whereas a small proportion might benefit from interventions targeting the presence or absence of compulsions and associated distress. Future studies using a representative sample need to replicate the observed profiles and sexual well-being correlates but also take into account the amount of time spent on the internet, socioemotional adjustment, the environmental context in which viewing occurs, and personality characteristics. Longitudinal studies could help determine whether pornography use follows a stable trajectory or whether it represents a continually evolving phenomenon in which some users progress from one profile to another.

ACKNOWLEDGMENT

We thank H el ene Paradis and Bei Feng for their assistance with the statistical analyses.

Corresponding Author: Marie-Pier Vaillancourt-Morel, PhD,  cole de Psychologie, Universit  Laval, Pavillon F lix-Antoine-Savard, 2325 rue des Biblioth ques, bureau 1234, Qu bec, QC G1V 0A6, Canada. Tel: +1-418-656-2131, ext 8145; E-mail: marie-pier.vaillancourt-morel.1@ulaval.ca

Conflicts of Interest: None.

Funding: Marie-Pier Vaillancourt-Morel was supported by doctoral fellowships from the Social Sciences and Humanities Research Council (SSHRC) and the Fonds de recherche du Qu bec—Soci t  et Culture (FRQ-SC). Natacha Godbout was supported by a research scholar grant from the Fonds de recherche du Qu bec—Sant  (FRQ-S).

STATEMENT OF AUTHORSHIP

Category 1

(a) Conception and Design

Marie-Pier Vaillancourt-Morel; Sarah Blais-Lecours; Chlo  Labadie; St phane Sabourin; Natacha Godbout

(b) Acquisition of Data

Marie-Pier Vaillancourt-Morel; Sarah Blais-Lecours; Chlo  Labadie; St phane Sabourin; Natacha Godbout

(c) Analysis and Interpretation of Data

Marie-Pier Vaillancourt-Morel; Sarah Blais-Lecours; Chloé Labadie; Sophie Bergeron; Stéphane Sabourin; Natacha Godbout

Category 2**(a) Drafting the Article**

Marie-Pier Vaillancourt-Morel; Sarah Blais-Lecours; Chloé Labadie; Stéphane Sabourin; Natacha Godbout

(b) Revising It for Intellectual Content

Marie-Pier Vaillancourt-Morel; Sophie Bergeron; Stéphane Sabourin; Natacha Godbout

Category 3**(a) Final Approval of the Completed Article**

Marie-Pier Vaillancourt-Morel; Sarah Blais-Lecours; Chloé Labadie; Sophie Bergeron; Stéphane Sabourin; Natacha Godbout

REFERENCES

- Regnerus M, Gordon D, Price J. Documenting pornography use in America: a comparative analysis of methodological approaches. *J Sex Res* 2016;53:873-881.
- Morgan EM. Associations between young adults' use of sexually explicit materials and their sexual preferences, behaviors, and satisfaction. *J Sex Res* 2011;48:520-530.
- Alatartseva E, Barysheva G. Well-being: subjective and objective aspects. *Procedia Soc Behav Sci* 2015;166:36-42.
- Ley D, Prause N, Finn P. The emperor has no clothes: a review of the 'pornography addiction' model. *Curr Sex Health Rep* 2014;6:94-105.
- Hald GM, Seaman C, Linz D. Sexuality and pornography. In: Tolman DL, Diamond LM, Bauermeister JA, et al., eds. *APA handbook of sexuality and psychology, vol. 2: contextual approaches to APA handbooks in psychology*. Washington, DC: American Psychological Association; 2014. p. 3-35.
- Montgomery-Graham S, Kohut T, Fisher W, et al. How the popular media rushes to judgment about pornography and relationships while research lags behind. *Can J Hum Sex* 2015;24:243-256.
- Cooper A, Morahan-Martin J, Mathy RM, et al. Toward an increased understanding of user demographics in online sexual activities. *J Sex Marital Ther* 2002;28:105-129.
- Prause N, Pfaus J. Viewing sexual stimuli associated with greater sexual responsiveness, not erectile dysfunction. *Sex Med* 2015;3:90-98.
- Hald GM, Malamuth NM. Self-perceived effects of pornography consumption. *Arch Sex Behav* 2008;37:614-625.
- Hald GM, Smolenski D, Rosser BR. Perceived effects of sexually explicit media among men who have sex with men and psychometric properties of the Pornography Consumption Effects Scale (PCEs). *J Sex Med* 2013;10:757-767.
- Muusses LD, Kerkhof P, Finkenauer C. Internet pornography and relationship quality: a longitudinal study of within and between partner effects of adjustment, sexual satisfaction and sexually explicit Internet material among newly-weds. *Comput Hum Behav* 2015;45:77-84.
- Landripet I, Štulhofer A. Is pornography use associated with sexual difficulties and dysfunctions among younger heterosexual men? *J Sex Med* 2015;12:1136-1139.
- Grubbs JB, Stauner N, Exline JJ, et al. Perceived addiction to Internet pornography and psychological distress: examining relationships concurrently and over time. *Psychol Addict Behav* 2015;29:1056-1067.
- Döring NM. The Internet's impact on sexuality: a critical review of 15 years of research. *Comput Hum Behav* 2009;25:1089-1101.
- Cooper A, Putnam DE, Planchon LA, et al. Online sexual compulsivity: getting tangled in the net. *Sex Addict Compulsivity* 1999;6:79-104.
- Rosser BRS, Noor SWB, Iantaffi A. Normal, problematic and compulsive consumption of sexually explicit media: clinical findings using the Compulsive Pornography Consumption (CPC) scale among men who have sex with men. *Sex Addict Compulsivity* 2014;21:276-304.
- Wetterneck CT, Burgess AJ, Short MB, et al. The role of sexual compulsivity, impulsivity, and experiential avoidance in Internet pornography use. *Psychol Rec* 2012;62:3-18.
- Ballester-Arnal R, Castro-Calvo J, Gil-Llario MD, et al. Relationship status as an influence on cybersex activity: cybersex, youth, and steady partner. *J Sex Marital Ther* 2014;40:444-456.
- Paul B, Shim JW. Gender, sexual affect, and motivations for Internet pornography use. *Int J Sex Health* 2008;20:187-199.
- Snell WEJ. Measuring multiple aspects of the sexual self-concept: the Multidimensional Sexual Self-Concept Questionnaire. In: Snell WEJ, ed. *New directions in the psychology of human sexuality: research and theory*. Cape Girardeau, MO: Snell Publications; 2001.
- Hald GM, Štulhofer A. What types of pornography do people use and do they cluster? Assessing types and categories of pornography consumption in a large-scale online sample. *J Sex Res* 2016;53:849-859.
- Hald GM. Gender differences in pornography consumption among young heterosexual Danish adults. *Arch Sex Behav* 2006;35:577-585.
- Traeen B, Nilson TS. Use of pornography in traditional media and on the Internet in Norway. *J Sex Res* 2006;43:245-254.
- Maddox AM, Rhoades GK, Markman HJ. Viewing sexually-explicit materials alone or together: associations with relationship quality. *Arch Sex Behav* 2011;40:441-448.
- Bridges AJ, Morokoff PJ. Sexual media use and relational satisfaction in heterosexual couples. *Pers Relatsh* 2011;18:562-585.
- Grubbs JB, Volk F, Exline JJ, et al. Internet pornography use: perceived addiction, psychological distress, and the validation of a brief measure. *J Sex Marital Ther* 2015;41:83-106.
- Lawrance K-A, Byers SE. Sexual satisfaction in long-term heterosexual relationships: the interpersonal exchange model of sexual satisfaction. *Pers Relatsh* 1995;2:267-285.

28. Mark KP, Herbenick D, Fortenberry JD, et al. A psychometric comparison of three scales and a single-item measure to assess sexual satisfaction. *J Sex Res* 2014;51:159-169.
29. Kalichman SC, Johnson JR, Adair V, et al. Sexual sensation seeking: scale development and predicting AIDS-risk behavior among homosexually active men. *J Pers Assess* 1994;62:385-397.
30. Kalichman SC, Rompa D. Sexual sensation seeking and sexual compulsivity scales: reliability, validity, and predicting HIV risk behavior. *J Pers Assess* 1995;65:585-601.
31. Ventuneac A, Rendina HJ, Grov C, et al. An item response theory analysis of the sexual compulsivity scale and its correspondence with the hypersexual disorder screening inventory among a sample of highly sexually active gay and bisexual men. *J Sex Med* 2015;12:481-493.
32. Kalichman SC, Rompa D. The sexual compulsivity scale: further development and use with HIV-positive persons. *J Pers Assess* 2001;76:379-395.
33. Katz RC, Gipson M, Turner S. Brief report: recent findings on the Sexual Aversion Scale. *J Sex Marital Ther* 1992;18:141-146.
34. Reissing ED, Andruff HL, Wentland JJ. Looking back: the experience of first sexual intercourse and current sexual adjustment in young heterosexual adults. *J Sex Res* 2012;49:27-35.
35. La Rocque CL, Cioe J. An evaluation of the relationship between body image and sexual avoidance. *J Sex Res* 2011;48:397-408.
36. McGahuey CA, Gelenberg AJ, Laukes CA, et al. The Arizona Sexual Experience Scale (ASEX): reliability and validity. *J Sex Marital Ther* 2000;26:25-40.
37. Brassard A, Bourassa M. Traduction française du Arizona Sexual Experiences Scale (ASEX) [French translation of the Arizona Sexual Experiences Scale (ASEX)]; Psychology department, Université de Sherbrooke; 2012.
38. Griffiths MD. Internet sex addiction: a review of empirical research. *Addict Res Theory* 2012;20:111-124.
39. Kafka MP. Hypersexual disorder: a proposed diagnosis for DSM-V. *Arch Sex Behav* 2010;39:377-400.
40. Kraus SW, Voon V, Potenza MN. Should compulsive sexual behavior be considered an addiction? *Addiction* doi:10.1111/add.13297. E-pub ahead of print.
41. Szymanski DM, Stewart-Richardson DN. Psychological, relational, and sexual correlates of pornography use on young adult heterosexual men in romantic relationships. *J Mens Stud* 2014;22:64-82.
42. Hald GM. Comment on: Is pornography use associated with sexual difficulties and dysfunctions among younger heterosexual men? *J Sex Med* 2015;12:1140-1141.
43. Štulhofer A, Bergeron S, Jurin T. Is high sexual desire a risk for women's relationship and sexual well-being? *J Sex Res* 2016;53:882-891.
44. Traeen B, Spitznogle K, Beverfjord A. Attitudes and use of pornography in the Norwegian population 2002. *J Sex Res* 2004;41:193-200.
45. Cooper A, Månsson S-A, Daneback K, et al. Predicting the future of Internet sex: online sexual activities in Sweden. *Sex Relatsh Ther* 2003;18:277-291.
46. Campbell L, Kohut T. The use and effects of pornography in romantic relationships. *Curr Opin Psychol* 2017;13:6-10.