Pornography: A Concealed Behavior with Serious Consequences

JONATHAN K. NOEL, PhD, MPH; SHARON JACOB; JENNIFER E. SWANBERG, PhD, MMHS, OTR/L; SAMANTHA R. ROSENTHAL, PhD, MPH

ABSTRACT

OBJECTIVES: The purpose of the current study was to estimate prevalence of pornography use and addiction in Rhode Island young adults, identify sociodemographic disparities, and determine if use and addiction were associated with mental illness.

METHODS: Data from n=1022 participants of the Rhode Island Young Adult Survey were used. Pornography use and addiction, depression, anxiety, and suicide ideation were assessed. Multivariable logistic regressions controlled for age, social status, sex, gender, sexual orientation, and race/ethnicity.

RESULTS: 54% indicated pornography use; 6.2% met the criteria for addiction. Odds of pornography use were 5 times higher (95%CI=3.18,7.71), and addiction 13.4 times higher (95%CI=5.71,31.4) among heterosexual cis-males. Pornography addiction was associated with increased odds of depression (OR=1.92, 95%CI=1.04,3.49) and suicide ideation (OR=2.34, 95%CI=1.24,4.43).

CONCLUSIONS: Pornography use is highly prevalent, and addiction may be associated with mental illness. New screenings, media literacy training, and developing new therapeutic interventions should be considered.

KEYWORDS: Pornography, Addiction, Depression, Suicide, Young Adults

INTRODUCTION

Epidemiology

Pornography use and pornography addiction are not routinely measured in surveillance studies, and prevalence estimates are derived from either single surveys or small epidemiological investigations. For example, 54% of men, 18–39 years old, self-reported past year pornography use in the 2008-2014 General Social Survey, which was twice the rate as women (27%).[1] In the 2014 Relationships in American (RIA) survey, 69% of men and 40% of women reported past year pornography use.[1] Past week use was 46% and 16%, respectively.[1] Among 18–23 year old men, past year use was 68% and 66% in the 2012 New Family Structures Study (NFSS) and 2008 National Study of Youth and Religion (NSYR) studies, respectively.[1] Rates among women were 38% and 33%, respectively.[1] Further, 47% of men in the NFSS studies viewed pornography more than once a month, compared to 14% of men in the NSYR study.[1] In a sample of college students, 73% reported seeing online pornography before the age of 18, and the prevalence of lifetime pornography use was 57% in a separate sample of U.S. college students.[2,3] Data from 1,565 male Italian high school seniors suggested that 22% considered pornography part of their routine schedule.[4]

Data on the prevalence of pornography addiction is scarce, potentially because pornography addiction has yet to be accepted by the American Psychiatric Association (APA) as a diagnosis and has not been listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).[5] Among a sample of 1,056 adults in the United States (US) who viewed some pornography within the past year, 11% of men and 3% of women self-reported pornography addiction.[6] Among approximately 9,000 US adults who had used the internet to access sex-related content, 8% reported problems consistent with a behavioral disorder, while 50.7% of US college students with recent pornography use displayed symptoms of problematic or addictive use.[3,7] There is ongoing discussion on whether the development and maintenance of the disorder is similar to other behavioral addictions, such as gambling or gaming, or if it is a distinct disease, specifically because those addicted have a lack of ability in controlling their thoughts, fantasies and viewing of pornography despite its negative consequences.[5]

Risk Factors

There are individual, social, and structural risk factors for pornography use and addiction. Demographically, men are more likely to visit pornographic websites than women.[8] Socially, women have reported decreased pornography use because of greater parental supervision of online behaviors, which prevented them from staying on the internet for long periods of time and limited their chances of visiting pornographic websites.[8] Structurally, online pornography use is enhanced by the "Triple A factors."[9] Consisting of accessibility, affordability, and anonymity, these three factors are strongly correlated to problematic online pornography use (POPU).[9] The anonymous nature of online communications and website viewing allows pornography to be viewed

without being connected to identifying information.[9] Online pornography is low cost, and often free, which increases the proportion of the population that can access such material, and the nature of digital media allows pornography content to be easily accessed on demand to any individual with an internet connection.[9]

Pornography and Mental Health

Research suggests that individuals who view pornography may become fixated on thoughts associated with pornographic content, which diminishes their ability to form interpersonal relationships and causes them to withdraw from social settings.[10] Despite this, there are few studies that have explored the relationship between pornography use or addiction and mental health. Among US college students, depression, anxiety, and stress scores were highest among participants with recent pornography use, and the relationship was consistent among men and women.[3] Pornography use has been previously associated with psychosomatic symptoms of mental illness, such as headache, stomachache, nervousness, irritation, stress, and trouble sleeping.[11] Pornography use may influence the development of depression symptoms in some adolescents.[11] Anxiety symptoms, including feeling of irritation and agitation, may occur when pornographic material cannot be accessed as well as due to sleep deprivation caused by the continuous watching of pornography.[3] Finally, problematic pornography use was associated with depression, anxiety, post-traumatic stress disorder, and insomnia, but not suicide ideation, in US veterans.[12]

Current Study

There is limited information on the use of pornography and prevalence of pornography addiction. There is also limited information on the mental health effects of pornography use. In response, the current study sought to a) estimate the prevalence of pornography use and addiction; b) identify sociodemographic disparities in pornography use and addiction; and c) identify associations between pornography use or addiction and mental illness in a sample of US young adults. It was hypothesized that pornography use and addiction would be higher among men, and that pornography use and addiction would be positively associated with depression, anxiety, and suicide ideation.

METHODS

Sample

A cross-sectional analysis was conducted using data from the 2022 Rhode Island Young Adult Survey (RIYAS). A full description of RIYAS methodology was previously published.[13] Briefly, n = 1022 young adults, 18–25 years old, who lived in Rhode Island for at least part of the year, were recruited to complete a web-based survey from May through August 2022.

Measures

Pornography use was assessed by asking how many days in an average month participants viewed pornography. Because of a zero-heavy, positively skewed distribution, responses were dichotomized into those who did not view pornography in an average month and those who viewed pornography 1 or more times in an average month. Pornography addiction was assessed using the Problematic Pornography Consumption Scale (PPCS-6).[14] The PPCS-6 contains 6 items, with each measure based on one component of the 6-component addiction model (i.e., salience, tolerance, mood modification, relapse, withdrawal, conflict measures).[15] Responses were collected on 7-point Likert scales ranging from never (coded as 1) to all the time (coded as 7).[14] Responses were aggregated across items through summation ($\alpha = 0.87$, range = 6-42). Pornography addiction was defined as having an aggregate score ≥ 20 on the PPCS-6. Previous research suggests that the PPCS-6 has a sensitivity of 84.2% and specificity of 90.1% in population-based samples.[14]

Depression was assessed using the Center of Epidemiologic Studies Depression Scale, 10-item version (CES-D10), which contains 10 items with responses collected on 4-point Likert scales ranging from rarely or none of the time (coded as 0) to most of the time (coded as 3).[16,17] Responses were aggregated across items by summation ($\alpha = 0.75$), and scores ≥ 10 indicated depression.[17] Anxiety was measured using the Generalized Anxiety Disorder 7-item scale (GAD-7).[18] Responses were collected on 4-point Likert scales ranging from not at all (coded as 0) to nearly every day (coded as 3) and aggregated by summation ($\alpha = 0.93$).[18] Scores of ≥ 10 indicate clinically significant anxiety.[18] Suicide ideation was measured using a single item: During the past 12 months, did you ever seriously consider attempting suicide? with response options of no and yes.

Sociodemographic variables included age, social status, sex, gender, sexual orientation, race/ethnicity, student status, and employment status. Social status was measured using the MacArthur Scale of Subjective Social Status, which asks participants to rank themselves relative to others in the community on a scale from worst off (coded as 1) to best off (coded as 10).[19] Sex, gender, and sexual orientation were collapsed into heterosexual cis-female, heterosexual cis-male, and any sexual or gender minority (SGM). Race/ethnicity categories included Asian, Black/African American, Hispanic, White, and Other or more than 1 race. Student and employment status were collapsed to categorize participants as not a student/employed, student/not employed, student/employed, and not a student/not employed.

Analysis

Descriptive statistics for key variables were computed. The analysis then proceeded in two steps. First, multivariable logistic regression models were specified to determine if any of the sociodemographic variables were associated

with pornography use and pornography addiction. Age and social status were included as normally distributed continuous variables. For the categorical variables, heterosexual cis-females, White, and not a student/not employed participants were the reference groups. Second, unadjusted and adjusted logistic regression models were specified to determine if pornography use and pornography addiction were associated with depression, anxiety, and suicide ideation. Adjusted models controlled for age, social status, sex/gender status, race/ethnicity, and student/employment status. The analysis was conducted with SPSS v28.0 (Armonk, NY: IBM Corp), and statistical significance was determined using 95% confidence intervals (CI).

RESULTS

Demographic and mental health characteristics of the sample have been previously described.[13] Briefly, mean age was 21.3 years old (SD = 2.1); approximately 45% of the sample were heterosexual cis-females, with 43% identifying as a SGM; and the sample was predominantly White, non-Hispanic (59.8%) (**Figure 1**). A majority of participants (55%) were current students who were also actively employed, and mean social status was 5.0 (SD = 1.7). A majority (51.0%) self-reported depression, with approximately 38% and 15% reporting anxiety and suicide ideation, respectively. Among the full sample, 54% of participants indicated pornography use, and 6.2% met the criteria for pornography addiction (**Figure 2**). The prevalence of pornography use and addiction are depicted in **Figures 3 and 4**, respectively.

In multivariable analysis, there were several sociodemographic predictors of pornography use. The odds of pornography use for heterosexual cis-males were approximately 5 times (OR[95%CI] = 4.95 [3.18, 7.71]) and for SGMs 2.7 times (OR[95%CI] = 2.67 [2.02, 3.54]) those of heterosexual cis-females (**Figure 2**). Odds of pornography use increased with each one-year increase in age (OR[95%CI] = 1.14 [1.06, 1.22]). Odds of pornography use were also 93% higher among persons identifying as Asian (OR[95%CI] = 1.93 [1.07, 3.49]) and 72% higher among persons identifying as Other or more than 1 race (OR[95%CI] = 1.72 [1.05, 2.82]) relative to those identifying as White, non-Hispanic. (**Figure 5**)

The odds of pornography addiction for heterosexual cis-males were approximately 13.4 times (OR[95%CI] = 13.4 [5.71, 31.4]) and for SGMs 3.7 times (OR[95%CI] = 3.67 [1.64, 8.22]) those of heterosexual cis-females (**Figure 3**). No other disparities in addiction were noted. (**Figure 6**)

In the unadjusted analysis, odds of depression (OR[95%CI] = 1.36 [1.07, 1.74]) and suicide ideation (OR[95%CI] = 1.68 [1.17, 2.41]) were increased among participants with average monthly pornography use (**Table 1**). However, these relationships were not maintained after adjustment for sociodemographic variables. Conversely, pornography addiction remained significantly associated with depression and

Figure 1. Participant sociodemographic characteristics

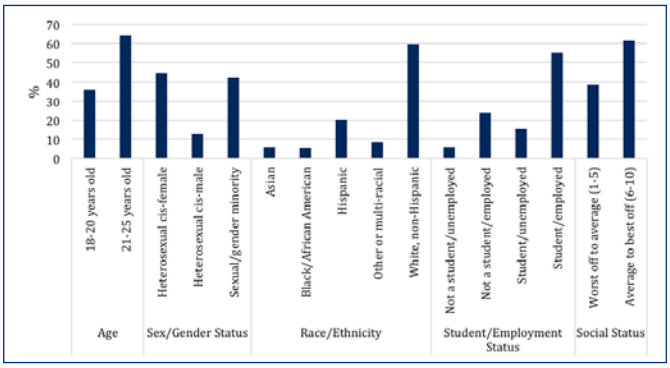


Figure 2. Prevalence of [**A**] pornography use and [**B**] pornography addiction

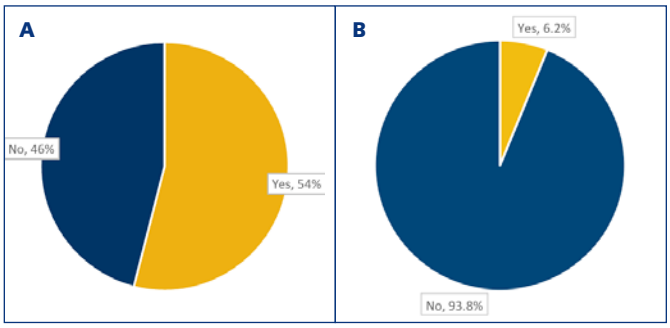


Figure 3. The prevalence of pornography use by sociodemographic characteristics

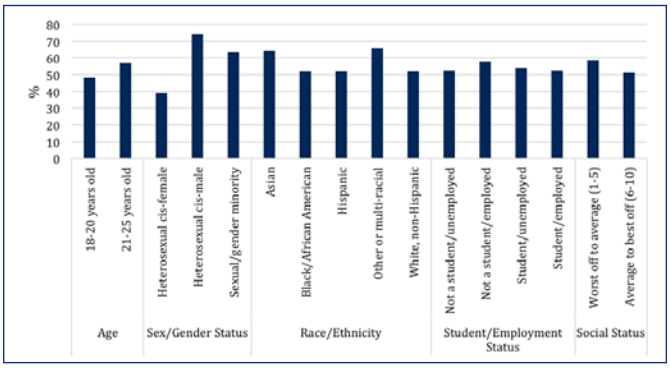


Figure 4. The prevalence of pornography addiction by sociodemographic characteristics

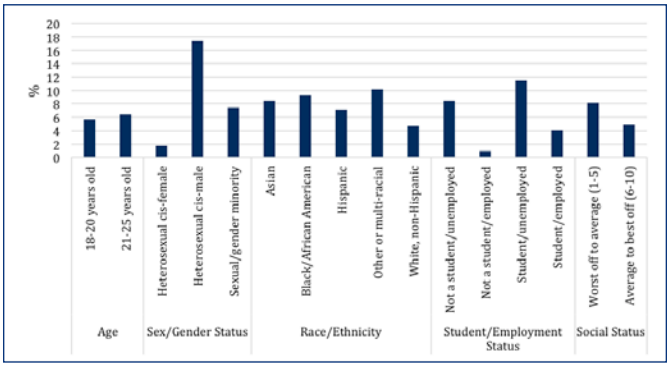
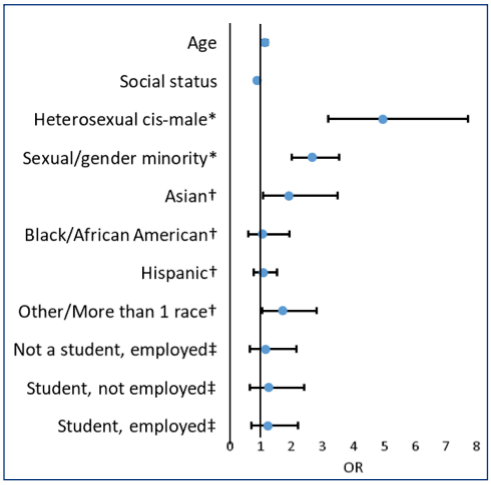
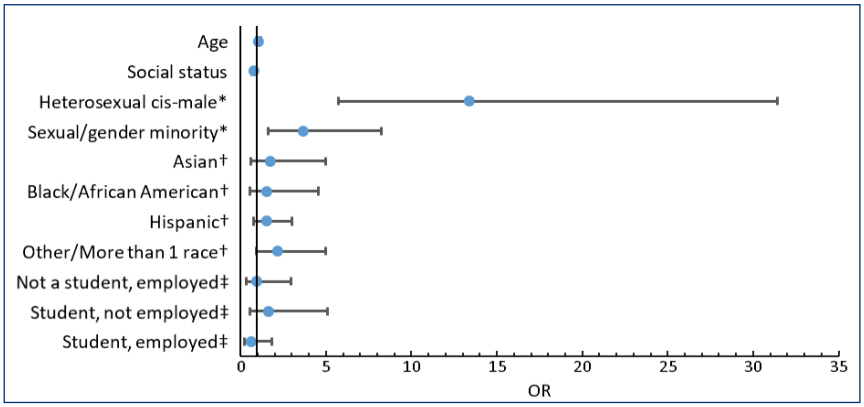


Figure 5. Forest plot of the adjusted odds of pornography use by sociodemographic variables



*Relative to heterosexual cis-females; †relative to White, non-Hispanic; ‡ relative to not a student/not employed.

Figure 6. Forest plot of the adjusted odds of pornography addiction by sociodemographic variables



*Relative to heterosexual cis-females; †relative to White, non-Hispanic; ‡ relative to not a student/not employed.

Table 1. Unadjusted and adjusted odds of depression, anxiety, and suicide ideation by pornography use and pornography addiction status*

		Depression		Anxiety		Suicide Ideation	
Variable		OR	95% CI	OR	95% CI	OR	95% CI
Unadjusted Models							
Pornography Use	Yes	**1.36**	**1.07, 1.74**	1.27	0.98, 1.63	**1.68**	**1.17, 2.41**
	No	.	.	.	.	.	.
Pornography Addiction	Yes	**2.34**	**1.35, 4.07**	1.24	0.75, 2.09	**2.97**	**1.69, 5.20**
	No	.	.	.	.	.	.
Adjusted Models							
Pornography Use	Yes	1.12	0.85, 1.47	1.16	0.88, 1.54	1.37	0.92, 2.02
	No	.	.	.	.	.	.
Pornography Addiction	Yes	**1.92**	**1.04, 3.49**	1.20	0.68, 2.12	**2.34**	**1.24, 4.43**
	No	.	.	.	.	.	.

*Bold indicates statistical significance

suicide, but not anxiety, after adjustment for the covariates. For those with pornography addiction, odds of depression (OR[95%CI] = 1.92 [1.04, 3.49]) and suicide (OR[95%CI] = 2.34 [1.24, 4.43]) were approximately 2 times those of their unaddicted counterparts.

DISCUSSION

Approximately half of Rhode Island's young adults in this sample viewed pornography and 1 in 16 met the criteria for pornography addiction. Use and addiction were particularly high among heterosexual cis-males and individuals who identify as a sexual or gender minority (SGM). Pornography use may also be higher in individuals identifying as Asian, more than 1 race, or Other. Of particular concern, pornography addiction was associated with depression and suicide ideation.

The current findings are consistent with, and add to, previous research. The overall rate of pornography use described here is similar to that previously reported for compulsive internet pornography use (56.6%), and the prevalence of pornography addiction in a nationally represented sample was 11% and 3% among men and women respectively.[6] Together, the findings suggest a consistent pattern of high pornography use but lower levels of pornography addiction.[6] Furthermore, others have reported the link between pornography and poor mental health outcomes, including increased suicide ideation.[3]

Young adult men may view pornography as a confidential method of accessing sex-related information, whether for information regarding the act of sex itself, for sexual curiosity, or to satisfy sexual urges.[8,20,21] These behaviors often start in adolescence, and the increased rates reported here among men are likely a continuation of behaviors that started in an earlier developmental period.[20,21] Conversely, individuals identifying as SGM may see pornography and pornographic websites as a safe space to explore and confirm their sexual identities and understand new sexual activities that fit their identities.[22] The confidential nature of the internet provides SGM individuals with a layer of psychological privacy and physical protection that actively engaging in sexual intercourse cannot.

The increased use of pornography, but not addiction, among some racial identities is an interesting result and there is limited relevant literature explaining this

association. For individuals identifying as Asian, the topic of sex may be a cultural taboo, and pornography use may be illegal in home countries, which suggests pornography may be used for either education purposes or as a purposefully defiant behavior.[23,24] Additionally, Asian Americans, particularly Asian American males, may have higher rates of problematic internet use, which has been reported as a risk factor for pornography use.[25]

The link between pornography addiction and poor mental health is alarming, and more research is needed on this connection. Because pornography is part of the entertainment industry, it is often changed to fit and capture the most interest and is unlikely to depict realistic or healthy sexual behaviors.[20] Consequently, excessive pornography use may lead to irrational perspectives on sex and relationships.[20] When the relationships and behaviors depicted in pornography are not realized in real-world dating environments, men may be more likely to experience insecure attachments, fear of being single, loneliness, and depressive symptoms.[26]

Implications

The internet is a resource for sexual health information, and clinicians should actively discuss where young adult patients are receiving sexual health information, the role of pornography, and reliable sources of sexual health information.[20] Providers should consider screening for pornography addiction and other psychological constructs that are associated with pornography addiction, such as impulsivity, sexual obsession, and lack of self control.[27] Screening efforts should target young adult men and individuals who identify as SGM. For individuals with pornography addiction, therapeutic interventions, including mindfulness practices and self-compassion techniques, can assist with changing patient mindsets and reducing illness severity.[5]

Prior to reaching young adulthood, parents should discuss media literacy with their children to ensure greater awareness of media messages and greater critical thinking skills when coming across material that encourages unhealthy behaviors.[20] Community-based workshops, which build trust and create safe spaces for participants, can provide effective forums for discussions around sex, sexual health, relationship building, and pornography.

Limitations

There are several limitations. The data are cross-sectional and causality cannot be inferred. A convenience sample was used, and participants may not be representative of all young adults. For example, the percent of heterosexual cis-males was disproportionately low. Rates of pornography use, addiction, and other mental health measures are likely underreported because of social desirability bias and the stigma surrounding these topics. Data were self-reported, and recall bias is also a concern.

CONCLUSIONS

Pornography use and addiction are prevalent in Rhode Island's young adult population, particularly young men, and pornography addiction may be associated with depression and suicide ideation. Targeted screening programs should be considered.

References

1. Regnerus M, Gordon D, Price J. Documenting Pornography Use in America: A Comparative Analysis of Methodological Approaches. J Sex Res. 2016;53(7):873-881. doi:10.1080/00224499.2015.1096886
2. Sabina C, Wolak J, Finkelhor D. The nature and dynamics of internet pornography exposure for youth. Cyberpsychol Behav. 2008;11(6):691-693. doi:10.1089/cpb.2007.0179
3. Camilleri C, Perry JT, Sammut S. Compulsive Internet Pornography Use and Mental Health: A Cross-Sectional Study in a Sample of University Students in the United States. Front Psychol. 2021;11:613244. doi:10.3389/fpsyg.2020.613244
4. Pizzol D, Bertoldo A, Foresta C. Adolescents and web porn: a new era of sexuality. Int J Adolesc Med Health. 2016;28(2):169-173. doi:10.1515/ijamh-2015-0003
5. Cashwell CS, Giordano AL, King K, Lankford C, Henson RK. Emotion Regulation and Sex Addiction among College Students. International Journal of Mental Health and Addiction. 2016;15(1):16–27. https://doi.org/10.1007/s11469-016-9646-6
6. Grubbs JB, Kraus SW, Perry SL. Self-reported addiction to pornography in a nationally representative sample: The roles of use habits, religiousness, and moral incongruence. J Behav Addict. 2019;8(1):88-93. doi:10.1556/2006.7.2018.134
7. Cooper A, Scherer CR, Boies SC, Gordon BL. Sexuality on the Internet: From sexual exploration to pathological expression. Professional Psychology: Research and Practice. 1999; 30(2):154–164. https://doi.org/10.1037/0735-7028.30.2.154
8. Frangos CC, Frangos CC, Sotiropoulos I. Problematic Internet Use among Greek university students: an ordinal logistic regression with risk factors of negative psychological beliefs, pornographic sites, and online games. Cyberpsychol Behav Soc Netw. 2011;14(1-2):51-58. doi:10.1089/cyber.2009.0306
9. de Alarcón R, de la Iglesia JI, Casado NM, Montejo AL. Online Porn Addiction: What We Know and What We Don't-A Systematic Review. J Clin Med. 2019;8(1):91. doi:10.3390/jcm8010091
10. Setyawati R, Hartini N, Suryanto S. The Psychological Impacts of Internet Pornography Addiction on Adolescents. Humaniora. 2020;11(3):235-244. https://doi.org/10.21512/humaniora.v11i3.6682
11. Mattebo M, Tydén T, Häggström-Nordin E, Nilsson KW, Larsson M. Pornography consumption and psychosomatic and depressive symptoms among Swedish adolescents: a longitudinal study. Ups J Med Sci. 2018;123(4):237-246. doi:10.1080/03009734.2018.1534907
12. Shirk SD, Saxena A, Park D, Kraus SW. Predicting problematic pornography use among male returning US veterans. Addict Behav. 2021;112:106647. doi:10.1016/j.addbeh.2020. 106647
13. Swanberg JE, Rosenthal SR, Benitz AM, Noel JK. The mental health consequences of losing a loved one to COVID-19. RIMJ. 2023
14. Bőthe B, Tóth-Király I, Demetrovics Z, Orosz G. The Short Version of the Problematic Pornography Consumption Scale (PPCS-6): A Reliable and Valid Measure in General and Treatment-Seeking Populations. J Sex Res. 2021;58(3):342-352. doi:10.1080/002 24499.2020.1716205
15. Griffiths M. A 'components' model of addiction within a biopsychosocial framework. Journal of Substance Use. 2005;10(4):191-197. https://doi.org/10.1080/146598905001 14359

16. Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). Am J Prev Med. 1994;10(2):77-84.
17. Björgvinsson T, Kertz SJ, Bigda-Peyton JS, McCoy KL, Aderka IM. Psychometric properties of the CES-D-10 in a psychiatric sample. Assessment. 2013;20(4):429-436. doi:10.1177/1073191113481998
18. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166(10):1092-1097. doi:10.1001/archinte.166.10.1092
19. Adler NE, Epel ES, Castellazzo G, Ickovics JR. Relationship of subjective and objective social status with psychological and physiological functioning: preliminary data in healthy white women. Health Psychol. 2000;19(6):586-592. doi:10.1037//0278-6133 .19.6.586
20. Braun-Courville DK, Rojas M. Exposure to sexually explicit Web sites and adolescent sexual attitudes and behaviors. J Adolesc Health. 2009;45(2):156-162. doi:10.1016/j.jadohealth.2008.12.004
21. DeLamater J, Friedrich WN. Human sexual development. J Sex Res. 2002;39(1):10-14. doi:10.1080/00224490209552113
22. McCormack M, Wignall L. Enjoyment, Exploration and Education: Understanding the Consumption of Pornography among Young Men with Non-Exclusive Sexual Orientations. Sociology. 2017;51(5):975-991. doi:10.1177/0038038516629909
23. Biota I, Dosil-Santamaria M, Mondragon NI, Ozamiz-Etxebarria N. Analyzing University Students' Perceptions Regarding Mainstream Pornography and Its Link to SDG5. Int J Environ Res Public Health. 2022;19(13):8055. doi:10.3390/ijerph19138055
24. Pornography in Asia. Wikipedia. https://en.wikipedia.org/wiki/Pornography_in_Asia. Published Nov 8, 2022.
25. Liu TC, Desai RA, Krishnan-Sarin S, Cavallo DA, Potenza MN. Problematic Internet use and health in adolescents: data from a high school survey in Connecticut. J Clin Psychiatry. 2011;72(6):836-845. doi:10.4088/JCP.10m06057
26. Sparks B, Zidenberg AM, Olver ME. Involuntary Celibacy: A Review of Incel Ideology and Experiences with Dating, Rejection, and Associated Mental Health and Emotional Sequelae. Curr Psychiatry Rep. 2022;24(12):731-740. doi:10.1007/s11920-022-01382-9
27. Kraus SW, Martino S, Potenza MN. Clinical Characteristics of Men Interested in Seeking Treatment for Use of Pornography. J Behav Addict. 2016;5(2):169-178. doi:10.1556/2006.5.2016.036

Authors

Jonathan K. Noel, PhD, MPH, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI.

Sharon Jacob, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI.

Jennifer E. Swanberg, PhD, MMHS, OTR/L, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI.

Samantha R. Rosenthal, PhD, MPH, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI; Department of Epidemiology, Brown School of Public Health, Providence, RI.

Funding

This work was supported by the Substance Abuse and Mental Health Services Administration Award number 1H79SP080979. The funders had no role in the design, implementation, analysis, or writing of this study. The views and opinions contained in the publication do not necessarily reflect those of SAMHSA or the U.S. Department of Health and Human Services. The authors would like to acknowledge Karen Flora, the Project Director of the Partnerships for Success II grant which supported this work, as well as the support of the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities & Hospitals.

Correspondence

Samantha R. Rosenthal, PhD, MPH
8 Abbott Park Place
Providence, RI 02903
401-598-1253
srosenthal@jwu.edu