Insomnia and Pornography Addiction in Rhode Island Young Adults

JONATHAN K. NOEL, PhD, MPH; STEVE JACOB; SHERIYAH L. HICKS; KELSEY A. GATELY, OTD, OTR/L; SAMANTHA R. ROSENTHAL, PhD, MPH

ABSTRACT

OBJECTIVE: The current study examined the association between insomnia and pornography addiction in Rhode Island young adults.

METHODS: Data from the 2024 Rhode Island Young Adult Survey (n=1008) was used. The Problematic Pornography Consumption Scale and Insomnia Severity Scale were used to assess pornography addiction and insomnia symptoms, respectively. Logistic regression models estimated main effects after adjusting for age, sexual/gender status, race, ethnicity, and social status. Interactive effect of sexual/gender status was explored.

RESULTS: Overall, 56.7% of participants viewed pornography and 7.9% screened positive for addiction. Screening positive for insomnia was associated with higher odds of pornography addiction (OR[95%CI]=2.35 [1.35,4.11]), although the effect was limited to cisgender heterosexual males.

CONCLUSIONS: Young adult men with symptoms of insomnia should be screened for pornography addiction. Gender-specific sex education programs and male-based university support groups should be established to lower addiction risk.

KEYWORDS: pornography; insomnia; men; young adults

INTRODUCTION

The prevalence of pornography consumption and addiction is not typically included in nationally representative surveillance studies, and interested stakeholders are required to rely on single surveys or small epidemiological investigations. Yet, the evidence from these smaller sources shows alarming trends. For example, a 2022 survey of Rhode Island (RI) young adults suggested that 54% of young adults aged 18–25 years viewed pornography,[1] and a separate sample of university students in the United States (US) reported that 56.6% consumed pornography in their lifetime.[2] Compared to females (40.9%), pornography use was significantly higher among males (87.6%).[2] Similarly, 83.8% of Polish university students aged 18-26 years old indicated current pornography consumption,[3] and between 2004 and 2016, the proportion of Polish adults who used online pornography rose from 7.7% to 24%.[4] In the Second Australian Study of Health and Relationships (ASHR), 84% of men and 54% of women reported lifetime pornography use, and past year use was 76% and 41% among men and women respectively.[5] Rates were even greater in a nationally representative study of 14–60 year olds in the United States (US), where lifetime pornography use was reported among 94.1% of men and 86.8% of women.[6] Early exposure to pornography may also be common. In the same study, the mean age of first pornography exposure was 13.8 among men and 17.5 among women.[6] Moreover, among 14–18 year olds in the US, lifetime use was 68.4%,[7] and a cross-sectional study of young Australians, 15–29 years old, reported that monthly and daily pornography use rates were 20% and 15%, respectively.[8]

Pornography addiction is not consistently defined and is not yet listed in the Diagnostic and Statistical Manual of Mental Disorders.[9] However, sources define pornography addiction as the persistent consumption of pornographic content accompanied by uninhibited self-control despite efforts to cease use.[10,11] Despite lack of recognition from diagnostic manuals, researchers have identified numerous risk factors associated with pornography addiction. Studies suggest males are 53% more likely to develop pornography addiction compared to females,[12] and males who use the internet are 20% more likely to note past month porn use compared to female internet users.[4,] Similarly, young adults also have a higher likelihood for pornography addiction, as 50% of young adults under 25 report weekly porn consumption.[12] In addition, individuals with alcohol use disorder report a greater average score on the problematic pornography use scale relative to those without alcohol use disorder.[13] Among Rhode Island young adults, 6.2% of individuals displayed signs of pornography addiction, and compared to cisgender females, the odds of pornography addiction were 13.4 times for cisgender males and 3.7 times for sexual or gender minority (SGMs).[1] Internationally, 9.5% of Iranian university students were classified as problematic pornography users.[14] Likewise, 4% of the 76% active male pornography users in the ASHR and 3% of German adult women aged 18–77 years reported pornography addiction.[5,15] Moreover, among Hungarian young adults, 4.4% met the criteria for Pornography-Watching Disorder (PWD), and males were 1.89 times more likely to report PWD compared to females.[12]

In addition to pornography addiction, a significant portion of young adults report insomnia. Incidence of insomnia is estimated to range between 13–30% globally,[16] and a meta-analysis of 13 articles suggested that the odds of chronic insomnia were 1.58 times greater for heterosexual cisgender females compared to males.[17] Similar findings were reported in a study of Norwegian young adult university students, with 34.2% of females and 22.2.% of males meeting the DSM-5 criteria for insomnia.[18] Numerous studies have linked insomnia with poor health outcomes. For example, approximately 24.6% of young adult students aged 18–24 who slept between 0–4 hours daily reported cardiovascular disease compared to 7.1% who slept between 7–8 hours.[19] Reduced immune health is common, and in a 2022 study of young adults, individuals who self-reported impaired wound healing had a higher likelihood of insomnia, with 31.9–45.2% screening positive for insomnia compared to 25.8% in the control group.[20] Additionally, poor sleep has been tied to metabolic disorders, with young adult men who sleep less than seven hours reporting a 1.4 unit increase in mean BMI compared to men who slept seven-nine hours.[21] Moreover, insomnia is a major risk factor for psychological problems in adults.[22] Adults with chronic insomnia have 2.27 times the risk of developing depression,[23] 1.61 times the odds of using non-cannabis drugs,[22] and 1.75 times the hazard of developing alcohol use disorder.[24]

Few studies have suggested a relationship between insomnia and pornography addiction, and those few are largely exclusive to male samples or measure other psychological constructs. Tangentially, studies that consider pornography addiction a form of problematic internet use have consistently linked pornography use to the onset and maintenance of sleep disorders.[25] Literature also suggests that internet pornography addiction may share basic mechanisms with substance addiction and heavy substance use, such as alcohol, among young adults with insomnia, who may be motivated by desires to improve sleep efficiency.[26,27] Further, insomnia is common among individuals attempting to cease substance use and is a contributor to relapse.[28]

Despite prior studies investigating the prevalence of pornography and pornography addiction, there is still limited information on the behavior in young adults, particularly in Rhode Island (RI), and additional investigations are warranted to better understand the association between insomnia and pornography addiction. The current study sought to estimate the prevalence of pornography addiction in RI young adults, examine the association between insomnia and pornography addiction, and investigate whether this association is moderated by sexual/gender status (SGS). It was hypothesized that insomnia would be positively associated with pornography addiction, and that this association would be particularly pronounced among cisgender heterosexual males.

METHODS

The current analysis is a secondary analysis of data from the 2024 Rhode Island Young Adult Survey (RIYAS), which was a cross-sectional survey administered to Rhode Island young adults to assess mental health and related behaviors in that population.

Sample

The RIYAS was developed by the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities & Hospitals and administered between June and September 2024 to 18–25 year olds who lived in Rhode Island for at least part of the year. Participants were recruited through advertising on social media platforms (e.g., Instagram), Spotify, and recruitment was supplemented using flyers and emails to students at local colleges and universities. Responses were collected electronically via the Qualtrics survey platform, and all data was self-reported by participants. Informed consent was completed via affirmation, and participants were compensated with a $10 electronic gift card after survey completion. The study was approved by the university Institutional Review Board, and N = 1,008 participants with complete data are included in the analysis.

Measures

Pornography use was assessed using: *In an average month, how many days do you view porn?* Numeric responses were collected, and any participant indicating any pornography viewing completed the Problematic Pornography Consumption Scale (PPCS-6).[29] Consisting of six items, the PPCS-6 assessed symptoms of addiction (e.g., neglecting leisure activities, tolerance) in the context of pornography viewing over the past six months. Responses were collected on a 7-point Likert scale ranging from *never* (coded as 1) to *all the time* (coded as 7). Responses across items were aggregated via summation ($\alpha = 0.87$). A dichotomous variable was then created to identify participants who screened positive for pornography addiction (i.e., PPCS score ≥20, coded as 1).

Insomnia was measured using the 7-item Insomnia Severity Scale, which measures difficulties with sleep and the impact of sleep problems on quality of life.[30] Responses were collected on 5-point Likert scales, with specific response categories varying across items. For each Likert scale, the least severe response (i.e., *none*, *not at all*, *very satisfied*) was coded as 0, and the most severe response (i.e., *very severe*, *very much*, *very dissatisfied*) was coded as 4. Responses across items were aggregated via summation ($\alpha = 0.89$). A dichotomous variable was created where participants with scores ≥8 were classified as screening positive for insomnia (coded as 1).

Alcohol use disorder, an important risk factor for pornography addiction, was assessed using the 10-item Alcohol Use Disorders Identification Tests (AUDIT).[31,32] Items assess frequency and intensity of alcohol consumption, and severity of alcohol-related consequences. Responses were collected

on 5-point Likert scales, with response options varying across items. Response options were coded from 0 (e.g., *never*, *no*) to 4 (e.g., *daily or almost daily*, *yes during the last year*). Responses were aggregated via summation ($\alpha = 0.83$), and participants with scores ≥ 8 were classified as screening positive for alcohol use disorder (coded as 1).

Several covariates were included as well, including age, sexual/gender status, race, ethnicity, and social status. Race and ethnicity were assessed in a single question and included *White, non-Hispanic; Black, non-Hispanic; Hispanic; Asian, non-Hispanic;* and *Other/Multiracial, non-Hispanic.* SGS categories were *cisgender heterosexual male*, *cisgender heterosexual female*, and *sexual or gender minority*. The MacArthur Scale of Subjective Social Status was used to measure social status.[33]

Analysis

The distributions of continuous variables were examined and deemed normally distributed. Descriptive statistics are reported for all variables, and a logistic regression model was used to assess the main effects after adjusting for alcohol use disorder and the covariates. Interaction effects involving SGS were also tested due to previously identified differences in pornography consumption between SGS groups.[1] Reference groups included not screening positive for pornography addiction, insomnia, or alcohol use disorder; cisgender heterosexual males; and White, non-Hispanic. Stata Version 15 (College Station, TX: StataCorp LLC) was used to conduct the analysis, and statistical significance was determined using 95% confidence intervals (CIs) at $\alpha = 0.05$.

Table 1. Descriptive statistics and bivariate correlations (N = 1,008)*

	Overall (%)	Positive Pornography Addiction Screen n = 80 (7.9%)	Negative Pornography Addiction Screen n = 928 (92.1%)	*p*
Age [Mean (SE)]	21.3 (0.07)	20.6 (0.24)	21.1 (0.07)	**0.045****
Sexual/Gender Status				**0.001*****
Cisgender Heterosexual Male	203 (20.1)	25 (31.3)	178 (19.2)	
Cisgender Heterosexual Female	363 (36.0)	14 (17.5)	349 (37.6)	
Sexual or Gender Minority	442 (43.9)	41 (51.3)	401 (43.2)	
Race/Ethnicity				**0.036*****
White, non-Hispanic	579 (57.4)	35 (43.8)	544 (58.6)	
Black, non-Hispanic	77 (7.6)	11 (13.8)	66 (7.1)	
Hispanic	197 (19.5)	18 (22.5)	179 (19.3)	
Asian, non-Hispanic	86 (8.5)	11 (13.8)	75 (8.1)	
Other/Multiracial, non-Hispanic	69 (6.9)	5 (6.3)	64 (6.9)	
Social Status [Mean (SE)]	5.7 (0.06)	5.5 (0.21)	5.7 (0.06)	0.248**
Alcohol Use Disorder				**<0.001*****
Yes	31 (3.1)	8 (10.0)	23 (2.5)	
No	977 (96.9)	72 (90.0)	905 (97.5)	
Insomnia				**<0.001*****
Yes	167 (16.6)	25 (31.3)	142 (15.3)	
No	841 (83.4)	55 (68.8)	786 (84.7)	

*bold indicates statistical significance; **two-sample t-test; ***chi-square test

RESULTS

Briefly, a plurality of the sample identified as a sexual or gender minority (43.9%), and a majority identified as White, non-Hispanic (57.4%), while mean age was 21.3 years old (SE = 0.07) (**Table 1**). Overall, 56.7% of participants self-reported pornography use and 7.9% screened positive for pornography addiction. Among pornography users, 14.0% screened positive for addiction. Additionally, 16.6% and 3.1% screened positive for insomnia and alcohol use disorder, respectively.

In bivariate analyses, insomnia ($p < 0.001$), alcohol use disorder ($p < 0.001$), and sexual/gender status ($p < 0.001$) were associated with pornography addiction (**Table 1**). In the adjusted analysis, odds of pornography addiction were over two times those in participants who screened positive for insomnia (OR[95%CI] = 2.35 [1.35, 4.11]) and nearly four times those of participants who screened positive for alcohol use disorder (OR[95%CI] = 3.96 [1.59, 9.87]) (**Table 2**). Odds were significantly lower among participants who identified as cisgender heterosexual female (OR[95%CI] = 0.30 [0.15, 0.61]) relative to cisgender heterosexual males, and there was a significant interaction between screening positive for insomnia and sexual/gender status ($p < 0.001$). Specifically, the association between insomnia and pornography addiction was only significant among cisgender heterosexual males (**Figure 1**).

DISCUSSION

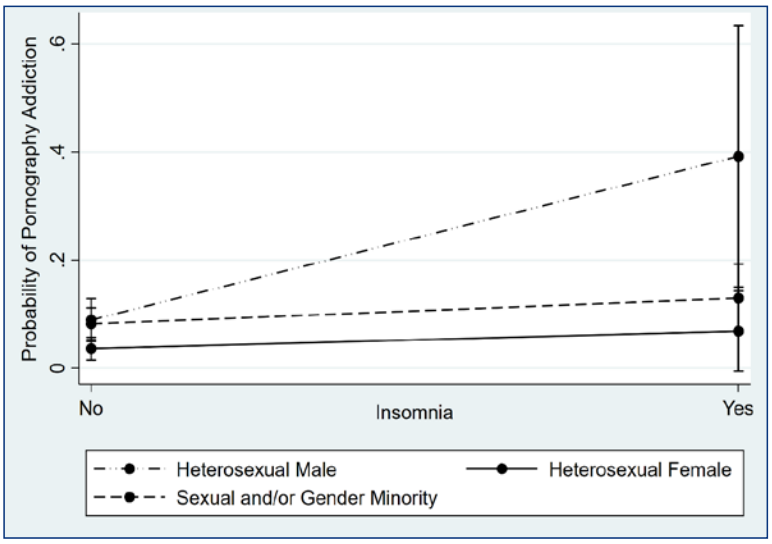
The majority of RIYAS participants regularly viewed pornography, and one in seven pornography users were identified as having a pornography addiction. Individuals who screened positive for insomnia had greater odds of pornography addiction, although the relationship between insomnia and addiction only occurred in young adults who identify

Table 2. Crude and adjusted odds of screening positive for pornography addiction*

	Crude OR	95% CI	Adjusted OR	95% CI
Age	**0.90**	**0.81, 0.99**	0.90	0.81, 1.01
Sexual/Gender Status				
Cisgender Heterosexual Male	1.00	ref	1.00	ref
Cisgender Heterosexual Female	**0.29**	**0.14, 0.56**	**0.30**	**0.15, 0.61**
Sexual or Gender Minority	0.73	0.43, 1.23	0.68	0.39, 1.21
Race/Ethnicity				
White, non-Hispanic	1.00	ref	1.00	ref
Black, non-Hispanic	**2.59**	**1.26, 5.34**	**2.77**	**1.30, 5.93**
Hispanic	1.56	0.86, 2.83	1.44	0.78, 2.67
Asian, non-Hispanic	**2.28**	**1.11, 4.68**	**2.80**	**1.32, 5.95**
Other/Multiracial, non-Hispanic	1.21	0.46, 3.21	1.19	0.44, 3.23
Social Status	0.93	0.82, 1.05	0.94	0.83, 1.07
Alcohol Use Disorder				
Yes	**4.37**	**1.89, 10.12**	**3.96**	**1.59, 9.87**
No	1.00	ref	1.00	ref
Insomnia				
Yes	**2.52**	**1.52, 4.17**	**2.35**	**1.35, 4.11**
No	1.00	ref	1.00	ref

*bold indicates statistical significance

Figure 1. Interaction between insomnia and sexual/gender status on screening positive for pornography addiction ($p < 0.001$)



as cisgender heterosexual males. These findings are somewhat consistent with previous literature, but the moderation by sexual/gender status is novel.

Insomnia may be associated with pornography addiction in young adult cisgender heterosexual males for several reasons. First, fMRI studies suggest that men with problematic pornography use display increased activation in the ventral striatum in response to anticipation of explicit content, provoking a craving-like response that mirrors other behavioral addictions.[34] This effect may be intensified since, compared to women, visual sexual stimuli elicit stronger neural activation, with differences occurring at the cognitive processing stage, enabling powerful physiological and subjective arousal in men.[35] Further, significant sleep deprivation impairs cognitive function in the prefrontal lobes, which are charged with decision-making, and impairment is associated with impulsive tendencies.[36] As men are more likely to engage in risky behaviors in response to sleep loss compared to women, it is possible men experience greater impairment.[37] Consequently, men with insomnia may view pornography as a form of gratification from immediate cravings, developing into consistent viewing given their coupled susceptibility. Second, because insomnia among young adults is often motivated by anxiety or stress related to college or work, men may use pornography as a maladaptive coping strategy for reducing stress.[38] When this stress cannot be readily resolved, men are more likely than women to use avoidance coping strategies as a means of denial or emotional detachment, and because pornography is readily attainable and late-night hours provide greater privacy, young men may seek out pornography for quick avoidance of current stressors.[3,39] In comparison, women tend to employ more emotional coping methods such as positive self-talk, verbal self-expression, and social support, and therefore, may not use pornography in the same manner as men.[39]

Implications

Healthcare providers should consider screening for excessive pornography use and pornography addiction among patients, particularly those exhibiting symptoms of insomnia. The PPCS-6, containing only six items, is a valid and reliable questionnaire that may be an effective screening tool for persons thought to be at risk for pornography addiction.[29] As pornography addiction in cisgender heterosexual males is uniquely affected by insomnia, targeted screening may be warranted. Among males

with a pre-existing insomnia diagnosis, cognitive-behavioral therapy for insomnia (CBT-I) may be used as an effective means of reducing insomnia symptoms, which may subsequently lower the risk of pornography addiction.[40] Acceptance and Commitment Therapy (ACT) is a widely used intervention for problematic pornography use and may be integrated with CBT-I to reduce avoidance coping.[41] Further, mindfulness-based practices, such as mediation or ACT, which have been shown to reduce impulsivity by allowing greater emotional regulation and cognitive control, may decrease the desire to consume pornography due to stronger emotional control.[42]

Sex education programs should be evaluated to emphasize pornographic literacy and greater sexual awareness. Additionally, gender-specific sex education programs or media campaigns that target males and discuss challenges with conforming to perceived societal stereotypes should be considered.[43] Within a university setting, administrators should consider establishing communities that can offer males positive spaces for informative discussions on the significance of pornography, reduction of stigma associated with help-seeking, and alternative methods to alleviate stress and anxiety associated with pornography. These communities should also promote healthier masculinity norms that discourage avoidant coping strategies and encourage the use of mental health services when necessary.[44] Finally, additional research is needed on the role of pornography in young adulthood across all SGS groups to better understand how pornography consumption turns into pornography addiction.

Limitations

There are several study limitations to consider. Since persons identifying as a sexual or gender minority are overrepresented, the sample is unlikely to be representative of all young adults, and generalizability will be limited. The data are cross-sectional, and causality cannot be inferred. Additionally, recall bias is a concern as items as varying time constraints. Social desirability bias is also a concern due to stigma associated with pornography use and substance use, and rates of pornography addiction and alcohol use disorder are likely under-estimated.

References

1. Noel JK, Jacob S, Swanberg JE, Rosenthal SR. Pornography: A Concealed Behavior with Serious Consequences. R I Med J (2013). 2023 Apr 3;106(3):29-34. PMID: 36989095.
2. 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 Jan 12;11:613244. PMID: 33510691; PMCID: PMC7835260.
3. Dwulit AD, Rzymski P. Prevalence, Patterns and Self-Perceived Effects of Pornography Consumption in Polish University Students: A Cross-Sectional Study. Int J Environ Res Public Health. 2019 May 27;16(10):1861. PMID: 31137778; PMCID: PMC6571756.
4. Lewczuk K, Wójcik A, Gola M. Increase in the Prevalence of Online Pornography Use: Objective Data Analysis from the Period Between 2004 and 2016 in Poland. Arch Sex Behav. 2022 Feb;51(2):1157-1171. PMID: 34750777; PMCID: PMC8888374.
5. Rissel C, Richters J, de Visser RO, McKee A, Yeung A, Caruana T. A Profile of Pornography Users in Australia: Findings From the Second Australian Study of Health and Relationships. J Sex Res. 2017 Feb;54(2):227-240. PMID: 27419739.
6. Herbenick D, Fu TC, Wright P, Paul B, Gradus R, Bauer J, Jones R. Diverse Sexual Behaviors and Pornography Use: Findings from a Nationally Representative Probability Survey of Americans Aged 18 to 60 Years. J Sex Med. 2020 Apr;17(4):623-633. PMID: 32081698.
7. Wright PJ, Herbenick D, Paul B. Adolescent Condom Use, Parent-adolescent Sexual Health Communication, and Pornography: Findings from a U.S. Probability Sample. Health Commun. 2020 Nov;35(13):1576-1582. PMID: 31403326.
8. Lim MSC, Agius PA, Carrotte ER, Vella AM, Hellard ME. Young Australians' use of pornography and associations with sexual risk behaviours. Aust N Z J Public Health. 2017 Aug;41(4):438-443. PMID: 28664609.
9. 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.
10. 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 Jan 15;8(1):91. PMID: 30650522; PMCID: PMC6352245.
11. Jiang X, Wu Y, Zhang K, Bőthe B, Hong Y, Chen L. Symptoms of problematic pornography use among help-seeking male adolescents: Latent profile and network analysis. J Behav Addict. 2022 Sep 5;11(3):912-927. PMID: 36067020; PMCID: PMC9872529.
12. Erdős C, Kelemen O, Pócs D, Paulik E, Papp A, Horváth E, Golan A, Széll K. Pornography-Watching Disorder and Its Risk Factors Among Young Adults: Cross-Sectional Survey. J Med Internet Res. 2025 Jan 8;27:e49860. PMID: 39778200; PMCID: PMC11754984.
13. Moisson J, Potenza MN, Shirk SD, Hoff RA, Park CL, Kraus SW. Psychopathology and Hypersexuality among Veterans with and without Histories of Alcohol-use Disorders. Am J Addict. 2019 Sep;28(5):398-404. PMID: 31393652.
14. Pouralijan Z, Bőthe B, Farnam F. Pornography use, demographic and sexual health characteristics among university students: a gender-based comparative study of non-users, non-problematic users, and problematic users. Reprod Health. 2024 Jul 10;21(1):103. PMID: 38987845; PMCID: PMC11234758.
15. Baranowski AM, Vogl R, Stark R. Prevalence and Determinants of Problematic Online Pornography Use in a Sample of German Women. J Sex Med. 2019 Aug;16(8):1274-1282. PMID: 31277972.
16. Yang M, Li L. Insomnia among college students: A bibliometric analysis from 2003 to 2022. Medicine (Baltimore). 2024 May 17;103(20):e38227. PMID: 38758861; PMCID: PMC11098171.
17. Zeng LN, Zong QQ, Yang Y, Zhang L, Xiang YF, Ng CH, Chen LG, Xiang YT. Gender Difference in the Prevalence of Insomnia: A Meta-Analysis of Observational Studies. Front Psychiatry. 2020 Nov 20;11:577429. PMID: 33329116; PMCID: PMC7714764.
18. McArdle N, Ward SV, Bucks RS, Maddison K, Smith A, Huang RC, Pennell CE, Hillman DR, Eastwood PR. The prevalence of common sleep disorders in young adults: a descriptive population-based study. Sleep. 2020 Oct 13;43(10):zsaa072. PMID: 32280974.
19. Nautiyal H, Roy D, Arya A, Maheshwari S, Agarwal P, Patel N, Sethi Y. Sleep Attributes Influencing Cardiovascular Morbidity Among Young Adults Pursuing Professional Courses in Dehradun, India: A Cross-Sectional Study. Cureus. 2024 Jan 21;16(1):e52647. PMID: 38380200; PMCID: PMC10877308.
20. Balikji J, Hoogbergen MM, Garssen J, Roth T, Verster JC. Insomnia Complaints and Perceived Immune Fitness in Young Adults with and without Self-Reported Impaired Wound Healing. Medicina (Kaunas). 2022 Aug 4;58(8):1049. PMID: 36013516; PMCID: PMC9412748.
21. Meyer KA, Wall MM, Larson NI, Laska MN, Neumark-Sztainer D. Sleep duration and BMI in a sample of young adults. Obesity (Silver Spring). 2012 Jun;20(6):1279-87. PMID: 22282051; PMCID: PMC3406736.
22. Roane BM, Taylor DJ. Adolescent insomnia as a risk factor for early adult depression and substance abuse. Sleep. 2008 Oct;31(10):1351-6. PMID: 18853932; PMCID: PMC2572740.

23. Li L, Wu C, Gan Y, Qu X, Lu Z. Insomnia and the risk of depression: a meta-analysis of prospective cohort studies. BMC Psychiatry. 2016 Nov 5;16(1):375. PMID: 27816065; PMCID: PMC5097837.
24. Lin CL, Sun JC, Lin CP, Chung CH, Chien WC. Risk of alcohol use disorders in patients with insomnia: A population-based retrospective cohort study. Alcohol. 2020 Dec;89:123-128. PMID: 33038457.
25. Musetti A, Gori A, Alessandra A, Topino E, Terrone G, Plazzi G, Cacioppo M, Franceschini C. The Interplay Between Problematic Online Pornography Use, Psychological Stress, Emotion Dysregulation and Insomnia Symptoms During the COVID-19 Pandemic: A Mediation Analysis. Nat Sci Sleep. 2022 Jan 20;14:83-92. PMID: 35082545; PMCID: PMC8786338.
26. Love T, Laier C, Brand M, Hatch L, Hajela R. Neuroscience of Internet Pornography Addiction: A Review and Update. Behav Sci (Basel). 2015 Sep 18;5(3):388-433. PMID: 26393658; PMCID: PMC4600144.
27. Miller MB, Freeman LK, Deroche CB, Park CJ, Hall NA, McCrae CS. Sleep and alcohol use among young adult drinkers with Insomnia: A daily process model. Addict Behav. 2021 Aug;119:106911. PMID: 33773200; PMCID: PMC8113078.
28. Ek J, Jacobs W, Kaylor B, McCall WV. Addiction and Sleep Disorders. Adv Exp Med Biol. 2021;1297:163-171. PMID: 33537944.
29. 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 Mar-Apr;58(3):342-352. PMID: 31995398.
30. Morin CM, Belleville G, Bélanger L, Ivers H. The Insomnia Severity Index: psychometric indicators to detect insomnia cases and evaluate treatment response. Sleep. 2011 May 1;34(5):601-8. PMID: 21532953; PMCID: PMC3079939.
31. Morelli M, Bianchi D, Baiocco R, Pezzuti L, Chirumbolo A. Sexting behaviors and cyber pornography addiction among adolescents: The moderating role of alcohol consumption. Sexuality Research and Social Policy. 2016 May 4;14(2):113–21.
32. Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption--II. Addiction. 1993 Jun;88(6):791-804. PMID: 8329970.
33. 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 Nov;19(6):586-92. PMID: 11129362.
34. Gola, M., Wordecha, M., Sescousse, G., Lew-Starowicz, M., Kossowski, B., Wypych, M., Makeig, S., Potenza, M. N., & Marchewka, A. (2017). Can Pornography be Addictive? An fMRI Study of Men Seeking Treatment for Problematic Pornography Use. Neuropsychopharmacology: official publication of the American College of Neuropsychopharmacology, 42(10), 2021–2031.
35. Rupp HA, Wallen K. Sex differences in response to visual sexual stimuli: a review. Arch Sex Behav. 2008 Apr;37(2):206-18. PMID: 17668311; PMCID: PMC2739403.
36. Brunet JF, McNeil J, Doucet É, Forest G. The association between REM sleep and decision-making: Supporting evidences. Physiol Behav. 2020 Oct 15;225:113109. PMID: 32730842.
37. Ferrara M, Bottasso A, Tempesta D, Carrieri M, De Gennaro L, Ponti G. Gender differences in sleep deprivation effects on risk and inequality aversion: evidence from an economic experiment. PLoS One. 2015 Mar 20;10(3):e0120029. PMID: 25793869; PMCID: PMC4368427.
38. Carrión-Pantoja S, Prados G, Chouchou F, Holguín M, Mendoza-Vinces A, Expósito-Ruiz M, Fernández-Puerta L. Insomnia Symptoms, Sleep Hygiene, Mental Health, and Academic Performance in Spanish University Students: A Cross-Sectional Study. J Clin Med. 2022 Apr 2;11(7):1989. PMID: 35407597; PMCID: PMC8999350.
39. Tasket ME, Neal AM. Differences between College Males and Females' Coping Mechanisms in Relation to the COVID-19 Pandemic. Issues Ment Health Nurs. 2024 Oct;45(10):1090-1096. PMID: 39116412.
40. Rossman J. Cognitive-Behavioral Therapy for Insomnia: An Effective and Underutilized Treatment for Insomnia. Am J Lifestyle Med. 2019 Aug 12;13(6):544-547. PMID: 31662718; PMCID: PMC6796223.
41. Roza TH, Noronha LT, Shintani AO, Massuda R, Lobato MIR, Kessler FHP, Passos IC. Treatment Approaches for Problematic Pornography Use: A Systematic Review. Arch Sex Behav. 2024 Feb;53(2):645-672. PMID: 37880509.
42. Abo Hamza E, Yoon A, Liu L, Garg A, Richard Y, Frydecka D, Helal A, Moustafa AA. The Relationship between Mindfulness and Readiness to Change in Alcohol Drinkers. Int J Environ Res Public Health. 2023 May 1;20(9):5690. PMID: 37174208; PMCID: PMC10178867.
43. Dawson K, Nic Gabhainn S, MacNeela P. Toward a Model of Porn Literacy: Core Concepts, Rationales, and Approaches. J Sex Res. 2020 Jan;57(1):1-15. PMID: 30624090.
44. Sileo KM, Kershaw TS. Dimensions of Masculine Norms, Depression, and Mental Health Service Utilization: Results From a Prospective Cohort Study Among Emerging Adult Men in the United States. Am J Mens Health. 2020 Jan-Feb;14(1):1557988320906980. PMID: 32079448; PMCID: PMC7036518.

Authors

Jonathan K. Noel, PhD, MPH, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI; Center for Student Research & Interdisciplinary Collaboration (CSRIC), Johnson & Wales University, Providence, RI.

Steve Jacob, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI; Center for Student Research & Interdisciplinary Collaboration (CSRIC), Johnson & Wales University, Providence, RI.

Sheriyah L. Hicks, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI; Center for Student Research & Interdisciplinary Collaboration (CSRIC), Johnson & Wales University, Providence, RI.

Kelsey A. Gately, OTD, OTR/L, Department of Health Science, College of Health & Wellness, Johnson & Wales University, Providence, RI; Center for Student Research & Interdisciplinary Collaboration (CSRIC), Johnson & Wales University, Providence, RI.

Samantha R. Rosenthal, PhD, MPH, Department of Health Science, College of Health and Wellness, Johnson & Wales University, Providence, RI; Center for Student Research & Interdisciplinary Collaboration (CSRIC), Johnson & Wales University, Providence, RI; Department of Epidemiology, Brown School of Public Health, Brown University, Providence, RI.

Disclosures

Acknowledgments: The authors would like to acknowledge Karen Flora, the Project Director of the Partnerships for the Success II grant as well as the support of the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities and Hospitals.

Funding: Research reported in this publication was supported in part by the Institutional Development Award (IDeA) Network for Biomedical Research Excellence from the National Institute of General Medical Sciences of the National Institutes of Health under grand number P20GM103430. 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.

Correspondence

Samantha R. Rosenthal, PhD, MPH

Johnson & Wales University

8 Abbott Park Place, Providence, RI, 02903

samantha.rosenthal@jwu.edu