

ORIGINAL ARTICLE

Gender differences in problematic pornography use: associations with personality traits and attachment styles

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BACKGROUND

While pornography use is widespread and typically non-problematic, a subset of individuals report symptoms associated with problematic pornography use (PPU). Previous research suggests that the severity and prevalence of PPU are strongly influenced by gender and are linked to specific personality traits and attachment styles. The primary aim of this study was to explore the relationship between the Big Five personality traits, attachment styles, and PPU, taking gender into account as a moderating factor. Additionally, the study examined the reliability, validity, and measurement invariance of the Problematic Pornography Consumption Scale (PPCS-6) across genders.

PARTICIPANTS AND PROCEDURE

The sample comprised 591 Polish young adults: 318 women and 273 men. The data were gathered using both paper-and-pencil and online surveys. The PPCS-6 was used to measure PPU. Relations between the Big Five personality traits, attachment styles, and PPU were analyzed using correlational and hierarchical regression analyses.

RESULTS

Almost half (46.5%) of women and 16.8% of men had the lowest possible score on this scale, indicating a substantial

floor effect. The PPCS-6 showed partial scalar invariance between genders. Negative correlations of PPU with emotional stability, conscientiousness, extraversion, and agreeableness were significant only among men. In regression analysis, emotional stability was related to PPU only in men. The association between attachment anxiety and PPU was pronounced in both genders, although it was significantly stronger among men.

CONCLUSIONS

The results are congruent with the notion that PPU among men may be associated with unfavorable individual predispositions. Results concerning women leave the open question of why and how women develop PPU. Lastly, the Polish version of the PPCS-6 is a valid and reliable tool for future research.

KEY WORDS

compulsive sexual behavior disorder; gender differences; impulse control disorders; personality; problematic pornography use

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BACKGROUND

New forms of media and technological innovations contribute to the development of the pornographic industry (Keilty, 2018). The popularity of pornographic materials on the Internet is associated with low distribution costs, easy access, and almost infinite forms of presenting sexuality (Beyens & Eggermont, 2014; Rosenberg & Kraus, 2014). Pornography use has become widespread and, for most individuals, does not appear to lead to significant distress or impairment (Grubbs et al., 2018). A subset of individuals experience difficulties related to excessive or uncontrolled pornography consumption, commonly referred to as problematic pornography use (PPU; Bőthe et al., 2024). The literature concerning pornography use and PPU remains divided, including perspectives conceptualizing PPU within addiction frameworks (Young, 2008), emphasizing generally non-problematic use (Ley et al., 2014), or highlighting the need for further empirical investigation (Montgomery-Graham et al., 2015).

This study concentrates on PPU, a construct often discussed in relation to compulsive sexual behavior disorder (CSBD), as outlined in the ICD-11 (World Health Organization, 2022). PPU refers to uncontrollable and frequent pornography consumption, leading to significant distress and impairment of life quality. PPU is linked to unsuccessful efforts to control or limit pornography use, even when it leads to harmful outcomes and receiving less or no satisfaction (Bőthe et al., 2020). Some researchers suggest that self-perceived PPU may also be influenced by contextual factors, including moral incongruence, shame, and social norms, rather than solely by behavioral dysregulation (Grubbs et al., 2018). Prior research has explored the associations between personality traits, attachment styles, and PPU, indicating that personality traits, particularly neuroticism, conscientiousness, and agreeableness, are associated with PPU (Efrati et al., 2021; Zilberman et al., 2018). Attachment styles, such as anxious or avoidant attachment, have also been shown to influence individuals' susceptibility to compulsive behaviors such as PPU (Brennan et al., 1998; Weinstein et al., 2015). This study aims to deepen our understanding by considering how these factors interact and potentially differ by gender. PPU was assessed using the Problematic Pornography Consumption Scale (PPCS-6), a valid and reliable measure (Bőthe et al., 2024).

THE ROLE OF GENDER IN PPU

The influence of gender on PPU remains poorly understood (Atroszko et al., 2021). However, pornography use and PPU are more frequently reported among men. The prevalence of PPU varies from

1.2% to 7% among women and from 4.4% to 18.3% among men, depending on the country and the conceptualization of the problem (Grubbs et al., 2020). Much fewer women (50%) than men (90%) report consuming cyberpornography (Blais-Lecours et al., 2016). Men are more likely to be at risk of PPU (Bőthe et al., 2017) and tend to use pornography more frequently in general (Grubbs et al., 2018). Symptoms associated with PPU, such as an urge to use pornography, compulsion, and high frequency of pornography use, are repeatedly reported to be more common among men; e.g., 3% of men and 1% of women endorse statements such as "I am addicted to pornography" (Kowalewska et al., 2020). Some authors suggest that gender differences in self-reported PPU may also be influenced by social norms, religiosity, and moral incongruence related to pornography (Grubbs et al., 2018; Lewczuk et al., 2017). Additionally, religious beliefs and societal norms may influence whether pornography use is perceived as problematic and may motivate treatment-seeking, particularly among women (Lewczuk et al., 2017).

THE ROLE OF PERSONALITY IN PPU

Some personality traits are consistently associated with PPU, whereas others show mixed findings. A review conducted by Efrati et al. (2021) indicated that elevated levels of neuroticism were consistently linked to CSBD in eight studies, while lower conscientiousness was observed in seven of the nine studies. Lower agreeableness was correlated with CSBD in four studies. These findings align with broader research showing that high neuroticism, which is defined by emotional instability, makes individuals more prone to seeking external sources of comfort, such as pornography. Low conscientiousness, characterized by poor impulse control and disorganization, is also a significant predictor of PPU, as individuals with this trait often struggle to regulate their consumption habits. Openness to experience and extraversion showed occasional correlations with CSBD and other addictive behaviors, suggesting a lesser role in PPU. Low agreeableness often associated with social isolation and a lack of empathy may also encourage solitary behaviors such as excessive pornography use. In summary, neuroticism emerges as the most consistent predictor of PPU, whereas findings for other traits are mixed.

Attachment insecurity has been linked to various social dysfunctions (Efrati et al., 2021). Attachment theory posits two dimensions of insecurity: anxiety and avoidance. Attachment anxiety involves fearfulness and increased sensitivity to rejection and abandonment, whereas attachment avoidance manifests as unease with intimacy, dependence, and close relationships (Brennan et al., 1998). Those with an anxious

attachment style may engage in pornography use as a maladaptive way to ease fears of being rejected or abandoned. Studies show that anxious and avoidant attachment styles are positively linked to sexual compulsivity and frequent pornography use among men and women (Weinstein et al., 2015). Attachment insecurity has been shown to be associated with an increased likelihood and greater symptom severity of CSBD (Efrati et al., 2021).

PRESENT STUDY

This study examines relationships between PPU, Big Five personality traits, attachment styles, and gender differences. This is one of the few such studies to include women. Another objective was to assess the reliability and validity of the Polish adaptation of the short Problematic Pornography Consumption Scale (PPCS-6; Bõthe et al., 2020) and its measurement invariance between genders.

The following hypotheses were formulated: The short version of PPCS is expected to show good reliability and validity in a sample of women and men (H1); PPU is expected to be positively related to neuroticism and negatively related to agreeableness and conscientiousness, and these associations are expected to be stronger among men than women (H2); PPU in women and men is expected to be positively related to attachment anxiety (H3). Due to inconsistent findings, the associations between PPU and attachment avoidance were treated as exploratory.

PARTICIPANTS AND PROCEDURE

SAMPLE

The initial sample included 1187 individuals from Poland: 836 women (70.4%), 343 men (28.9%), and eight participants (0.7%) who chose not to disclose their gender. Five hundred forty-eight participants who reported no pornography use were excluded from further analyses. An additional 48 participants were removed from the dataset due to missing information on key variables. The final sample included 591 participants (49.8% of the original pool): 318 women (53.8%) and 273 men (46.1%), with an average age of $M = 21.61$ years ($SD = 2.66$). Most participants (91.8%) were university students. Regarding sexual orientation, 505 respondents were heterosexual (85.4%). The data collection used a combination of online surveys and traditional paper-and-pencil cross-sectional methods. Paper-and-pencil data collection was conducted during university classes and lectures at several universities in northern Poland. Researchers obtained permission from instructors to briefly invite students to participate and complete the question-

naires during class time. Participation was voluntary, anonymous and unrelated to academic evaluation. Online participants were recruited using snowball sampling. The survey link, hosted on Facebook, was distributed primarily through student groups, university-related online communities, and local community groups. Participants were also encouraged to share the survey invitation further through their personal profiles. Before starting the questionnaire, participants were informed about the purpose and anonymous nature of the study. Data collection took place between November 2017 and March 2018. Half of the final sample (50.2%) was recruited through paper-and-pencil surveys, while the remaining 49.8% participated via online surveys. The estimated response rate in the paper-and-pencil survey exceeded 95%. No financial, material, or academic incentives were provided for participation.

INSTRUMENTS

Problematic pornography use. The PPCS-6 consists of six items, each aligned with fundamental addiction components (Griffiths, 2005). The questionnaire items assess symptoms participants experienced within the last 12 months. The overall result consists of the sum of the all six items. Participants responded using a 7-point Likert scale, with options ranging from 1 (*never*) to 7 (*always*). Elevated scores reflect more severe levels of PPU. The Cronbach's alpha reliability coefficient in the present sample was .81. The translation procedure is described in the Supplementary materials.

Big Five personality traits. To assess the five-factor personality model (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience), the Polish version (Atroszko, 2015) of the Ten Item Personality Inventory (TIPI; Gosling et al., 2003) was used. Responses were given on a 7-point Likert scale, from 1 (*strongly disagree*) to 7 (*strongly agree*). In this sample, the Spearman-Brown reliability coefficient was .78 for extraversion, .30 for agreeableness, .74 for conscientiousness, .65 for emotional stability, and .43 for openness to experience. These values were comparable to those reported for the original version of the scale (.68, .40, .50, .73, and .45, respectively). Due to the small number of items per dimension, reliability estimates should be interpreted cautiously (Gosling et al., 2003). Despite relatively low internal consistency for some dimensions, the TIPI demonstrates acceptable convergent validity and test-retest reliability, with six-week correlations ranging from .62 to .77.

Attachment. Adult attachment was assessed using the abbreviated Polish version (Lubiewska et al., 2016) of the Experience in Close Relationships-Revised (ECR-R) scale developed by Fraley et al. (2000).

The shortened ECR-R includes 16 items, divided equally between attachment anxiety and attachment avoidance subscales. Participants rated their responses on a 7-point Likert scale, from 1 (*strongly disagree*) to 7 (*strongly agree*). In this sample, Cronbach's alpha reliability coefficients were .88 for attachment anxiety and .90 for attachment avoidance.

STATISTICAL ANALYSES

To examine the reliability and validity of the PPCS-6, confirmatory factor analysis (CFA) was performed, comparing the model's fit based on gender (descriptions and cut-off points of used estimators are included in the Supplementary materials). Following previous research (Böthe et al., 2020), a one-factor model was assumed to reflect the latent construct of PPU. To assess the measurement invariance of PPU between genders, multiple-group procedures were used (parameters were progressively constrained across three hierarchically nested models). Configural, metric, and scalar invariance were tested to assess construct equivalence across groups. Metric invariance was assessed to evaluate whether the matrix of factor loadings was consistent across groups. Scalar invariance was examined to determine the equality of item thresholds. Since the models for each invariance level were embedded in the earlier models, they were evaluated using the changes in fit indices (Putnick & Bornstein, 2016). Measurement invariance was supported when a change in CFI (ΔCFI) did not exceed .01 and when a change in RMSEA (ΔRMSEA) was less than .015 (Chen, 2007). The extent to which the change in SRMR (ΔSRMR) is significant varies based on the level of measurement invariance; a change greater than or equal to .03 is proposed for testing metric invariance; when testing scalar invariance, a change greater than or equal to .01 is suggested as significant (Chen, 2007). To test whether the data collection method influenced the results, measurement invariance of PPU was examined between the online and paper-and-pencil groups. The results indicated that the two groups achieved scalar invariance, and almost achieved strict invariance, which strongly supports analyzing them jointly (see Table S3 in the Supplementary materials).

Descriptive statistics, including means, standard deviations, percentages, and correlation coefficients, were computed. Z-tests showing gender differences in correlations between PPU and other study variables were calculated using the *concor* package in R (R Core Team, 2024). Hierarchical regression analyses were calculated, with PPU measured by the short version of PPCS as the dependent variable. Age (step 1), Big Five personality traits (step 2), attachment anxiety, and attachment avoidance (step 3) were included as independent variables. Separate hierarchical multiple regression analyses were executed for women

and men. A power analysis in G*Power 3.1.9.7 (Faul et al., 2009) indicated that $N = 204$ is required to detect a moderate effect ($f^2 = .10$) in hierarchical regression, with $\alpha = .05$ and power = .95. The current sample size was sufficient to identify such effects among women and men. Prior to the regression analyses, preliminary assessments confirmed that the assumptions of normality, linearity, multicollinearity, and homoscedasticity were not violated. All tests were two-tailed, with a significance threshold of $\alpha = .05$. Statistical analyses were carried out using IBM SPSS Statistics 27.0 and R 4.3.0 (R Core Team, 2024). The *lavaan* package was used to perform confirmatory factor analyses (Rosseel, 2012).

ETHICS

The study adhered to the principles outlined in the Declaration of Helsinki. IRB approval was obtained from the Ethics Committee at the Institute of Psychology, University of Gdansk, with reference number 15/2019. The collected data were anonymous, and participants received comprehensive information about the study and their involvement, including their right to withdraw from participation at any time. Formal written informed consent was deemed unnecessary; the voluntary completion of the questionnaires was considered indicative of consent.

RESULTS

Based on the cut-off point of 20 points and higher proposed by Böthe et al. (2020), 1.6% ($n = 5$) of women and 14.3% ($n = 39$) of men met the criteria for PPU. A total of 46.5% of women and 16.8% of men had the lowest possible score on this scale, indicating a substantial floor effect and restricted variance in the female subsample (see Table S1 included in the Supplementary materials).

The single-factor model of PPU showed good fit for women and men. The standardized factor loadings on items were .53, .55, .63, .60, .57, and .65 for women, and .58, .65, .56, .65, .70, and .69 for men. The results showed configural and metric invariance. When scalar invariance was tested, the RMSEA change slightly exceeded the acceptance threshold (see Table 1). Other indices of scalar invariance suggested that the model fits the data. After examining modification indices, the equality constraint of Item 6 was relaxed. This modified partial scalar model showed adequate changes in all the fit indices. Previous studies also relaxed the equality constraint of Item 6 when examining measurement invariance (Böthe et al., 2020).

Table 2 shows mean scores, standard deviations, percentages, correlation coefficients, and gender differences in correlations of PPU with other variables.

Table 1

Model fit indices for measurement model of PPCS-6

Model	χ^2	df	CFI	Δ CFI	SRMR	Δ SRMR	RMSEA	90% CI	Δ RMSEA
Baseline women	6.81	9	1.00	–	.024	–	.000	[.000, .054]	–
Baseline men	9.17	9	.997	–	.046	–	.007	[.000, .062]	–
Configural invariance	15.95	18	1.00	–	.031	–	.000	[.000, .044]	–
Metric invariance	20.85	23	1.00	0	.040	.009	.000	[.000, .041]	.000
Scalar invariance	30.58	28	.990	–.010	.048	.008	.017	[.000, .048]	.017
Partial scalar invariance	28.32	27	.995	–.005	.046	.006	.013	[.000, .047]	.013

Note. PPCS-6 – Problematic Pornography Consumption Scale.

Results of analyses performed on the entire sample are provided in the Supplementary materials (see Table S2). The negative relationship between PPU and extraversion, agreeableness, conscientiousness, and emotional stability was significant among men. These relationships were not statistically significant among women. The gender difference in the relation of emotional stability to PPU was statistically significant. Attachment anxiety was correlated with PPU in men and women. This relationship was significantly stronger among men.

Regression analyses for PPU (see Table 3) revealed that the independent variables accounted for 3% of the variance for women ($F(8, 309) = 1.20, p = .299$) and 14.4% for men ($F(8, 264) = 5.56, p < .001$). In Step 3, anxious attachment remained a significant predictor for women and men. The substantially lower explained variance and restricted variability in PPU scores among women should be considered when interpreting gender differences in the regression results. Variance inflation factors indicated negligible multicollinearity among predictors. The residual plot is provided in the Supplementary materials.

DISCUSSION

The goal of this study was to examine potential associations between Big Five personality traits, attachment, and PPU across genders. Moreover, CFA was conducted to assess the reliability and validity of the PPCS-6. The single-factor solution of the PPCS-6 demonstrated an adequate fit to the data and partial scalar invariance between genders, supporting H1. This result aligns with previous findings (Böthe et al., 2020).

PPU among men was inversely correlated with emotional stability, agreeableness, and conscientiousness, while the expected associations were not statistically significant among women, partially supporting H2. Higher neuroticism (i.e., lower emotion-

al stability) and lower conscientiousness showed the strongest associations with PPU. These two associations have also been among the most consistently reported findings in the literature concerning CSBD (Efrati et al., 2021). Extraversion, which has been occasionally associated with CSBD, was negatively associated with PPU among men. Extraversion has been reported to be associated with subjective well-being (Li et al., 2015), suggesting PPU may be related to reduced well-being. This finding contrasts with evidence showing no association between gaming addiction and extraversion (Akbari et al., 2021), highlighting the need for further research.

Contrary to expectations, PPU in women was unrelated to any of the personality traits from the Big Five model. Although this pattern may suggest gender-related differences in the associations between personality and PPU, the findings should be interpreted cautiously given the substantial floor effect observed in the female subsample. Previous research suggests that the associations between personality traits and PPU may differ by gender. Borgogna and Aita (2019) found that neuroticism was more consistently associated with problematic pornography viewing dimensions among men than women. Similarly, Charzyńska et al. (2021) identified PPU as more characteristic of men. One possible explanation is that personality traits associated with problematic behaviors may manifest differently across genders and behavioral domains. Supporting this interpretation, Arpaci and Kocadag Unver (2020) identified personality traits characteristic of addiction (e.g., high neuroticism and low conscientiousness) among women with smartphone addiction, but not among men. Nevertheless, the lack of significant personality correlates among women in this study should be interpreted cautiously.

Attachment anxiety was positively related to PPU in both genders, and attachment avoidance was not associated with PPU (partially supporting H3). After controlling for personality traits and attachment

Table 2

Mean scores, standard deviations (SD), percentages, correlations between study variables, and gender differences in correlations with PPU

Variable	Mean (SD)/percentages		1.	2.	3.	4.	5.	6.	7.	8.	9.	95% CI		z
	Women	Men										Women	Men	
1. PPU	8.35 (3.62)	12.50 (6.28)	–	–.03	–.13*	–.13*	–.17*	–.23**	–.09	.30**	.11			
2. Age	21.56 (2.69)	21.60 (2.60)	–.03	–	.00	.01	–.01	.04	.07	–.10	.07	[–.13, .08]	[–.14, .09]	0.00
3. Extraversion	8.73 (3.11)	8.31 (3.26)	–.03	–.05	–	.08	.14*	.06	.28**	–.17**	–.35**	[–.13, .08]	[–.24, –.02]	1.30
4. Agreeableness	9.57 (2.29)	9.48 (2.46)	–.04	.09	.01	–	.10	.27**	–.04	–.09	–.19**	[–.14, .07]	[–.24, –.01]	1.13
5. Conscientiousness	9.07 (2.76)	8.71 (2.88)	–.04	.07	.09	.17**	–	.15*	.13*	–.16**	–.09	[–.15, .06]	[–.28, –.05]	1.57
6. Emotional stability	7.40 (2.79)	9.06 (2.86)	–.01	.07	.14**	.39**	.31**	–	–.15*	–.38**	–.04	[–.12, .10]	[–.34, –.12]	2.86**
7. Openness to experience	10.35 (2.21)	9.89 (2.50)	.02	–.02	.32**	–.01	.14*	.10	–	–.03	–.23**	[–.08, .13]	[–.20, .03]	1.43
8. Attachment anxiety	29.43 (11.08)	28.31 (10.55)	.13*	–.01	–.10	–.08	–.19**	–.34**	–.03	–	.08	[.02, .23]	[.19, .40]	–2.29*
9. Attachment avoidance	21.03 (9.97)	24.07 (9.63)	.04	–.04	–.36**	–.12*	–.21**	–.09	–.23**	.24**	–	[–.06, .15]	[–.01, .22]	–0.79

Note. PPU = problematic pornography use. Correlations below the diagonal represent results for women, and correlations above the diagonal represent results for men; * $p < .05$, ** $p < .01$.

styles, attachment anxiety was the only significant predictor of PPU in both genders. The relationship between attachment anxiety and PPU was stronger in men than it was in women, suggesting that gender moderates this relationship. Studies show that attachment anxiety has negative associations with emotional stability (Noftle & Shaver, 2006). These two constructs likely have a shared component, and when both are included in a single model, attachment anxiety explains the variance of PPU better. People with an anxious style of attachment more often pursue sexual encounters to find comfort without emotional intimacy (Zapf et al., 2008). Engaging in sexual activity without the responsibilities of conventional relationships may mitigate fears of neglect and isolation, making it particularly appealing to individuals with anxious attachment styles. In turn, individuals with avoidant attachment may be less likely to turn to pornography when dealing with attachment distress, preferring instead to stay emotionally independent.

STRENGTHS AND LIMITATIONS

This is one of the few studies that focuses on gender differences in PPU. Most studies only consider mixed genders or male subjects, while the present study also examines this problem among women. Nevertheless, the findings should be interpreted with caution. The study was based on a convenience sample consisting primarily of students; therefore, the results should not be generalized to other populations. The sample size was also not sufficient to detect small effects separately for men and women. Data collection relied exclusively on self-report measures, making the findings vulnerable to reporting biases, particularly given the sensitive and potentially stigmatized nature of pornography use. Social desirability, moral incongruence, and concerns regarding anonymity may have influenced participants' responses, especially among women. Additionally, although anonymity was emphasized, collecting part of the data in classroom settings may nevertheless have influenced participants' willingness to disclose sensitive information. Another important limitation concerns the substantial floor effect observed among women, with nearly half of the female participants obtaining the minimum possible score on the PPCS-6. Restricted variance within the female subsample may have reduced the ability to detect associations between PPU and personality traits. Personality traits were assessed using the TIPI, a very brief personality inventory that tends to yield low internal consistency estimates for

Table 3

Results of hierarchical multiple regression analyses in which age, Big Five personality traits, anxious attachment, and avoidant attachment were regressed on PPU

Predictor	Women				Men			
	β	95% CI for unstandardized B	VIF	ΔR^2	β	95% CI for unstandardized B	VIF	ΔR^2
Step 1				.00				.00
Age	-.02	[-.17, .13]	1.00		-.03	[-.35, .22]	1.00	
Step 2				.01				.10**
Age	-.01	[-.16, .14]	1.02		-.02	[-.31, .24]	1.01	
Extraversion	-.02	[-.16, .11]	1.13		-.11	[-.45, .01]	1.12	
Agreeableness	-.03	[-.24, .14]	1.17		-.09	[-.52, .09]	1.07	
Conscientiousness	-.05	[-.21, .10]	1.15		-.11	[-.49, .01]	1.06	
Emotional stability	-.02	[-.14, .18]	1.28		-.20**	[-.71, -.18]	1.12	
Openness to experience	.05	[-.11, .27]	1.13		-.07	[-.47, .13]	1.16	
Step 3				.03*				.04**
Age	-.01	[-.17, .13]	1.02		.00	[-.26, .28]	1.02	
Extraversion	-.02	[-.16, .12]	1.24		-.09	[-.40, .07]	1.22	
Agreeableness	-.05	[-.26, .11]	1.19		-.09	[-.53, .07]	1.11	
Conscientiousness	-.03	[-.19, .12]	1.18		-.09	[-.45, .05]	1.07	
Emotional stability	.07	[-.08, .26]	1.41		-.12	[-.55, .01]	1.28	
Openness to experience	.04	[-.13, .25]	1.15		-.06	[-.44, .16]	1.20	
Attachment anxiety	.17**	[.02, .09]	1.18		.22**	[.06, .20]	1.22	
Attachment avoidance	.02	[-.05, .06]	1.25		-.01	[-.10, .09]	1.20	
Total R^2				.03				.14**

Note. VIF – variance inflation factor. * $p < .05$, ** $p < .01$.

some dimensions due to the small number of items. Although the TIPI demonstrates acceptable validity and test-retest reliability (Gosling et al., 2003), lower reliability may have attenuated some of the observed associations. In addition, the specific predictors for PPU (e.g., borderline personality disorder, sociosexual orientation, stimulation-seeking) were not included.

FUTURE RESEARCH DIRECTIONS AND CONCLUSIONS

Longitudinal studies should be conducted for better insight into how personality traits and related constructs affect the development of PPU. Future studies should also attempt to investigate PPU in populations of adolescents and children (Ybarra & Mitchell, 2005). Further research aimed at understanding the popula-

tion of women who use pornography problematically could include more specific variables such as shyness (Mandal, 2023), religious beliefs (Lewczuk et al., 2017), moral incongruence, social norms, and shame related to pornography use to identify key correlates of PPU among women.

In conclusion, this study contributes to the growing literature on PPU by examining its associations with personality traits and attachment styles separately among women and men. The findings suggest stronger and more consistent associations between PPU, personality traits, and attachment anxiety among men, whereas the findings among women were less clear and should be examined further. The demonstrated partial scalar invariance supports future use of the PPCS-6. Considering the low prevalence of PPU among women in current and previous research (Kowalewska et al., 2020), using larger or more specific

samples might be necessary for broadening our understanding of the relatively understudied phenomenon of problematic pornography use in women.

Supplementary materials are available on the journal's website.

DISCLOSURES

This research received no external funding.

The study was approved by the Ethics Committee at the Institute of Psychology, University of Gdansk (Approval No. 15/2019).

The authors declare no conflict of interest.

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