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Psychosocial Correlates of Problematic Pornography Use Among Adolescents in Bangladesh: A Cross-Sectional Study

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Abstract

Background

Problematic pornography use (PPU) is an emerging concern among adolescents globally. Emotional distress and social factors may shape vulnerability, but their interrelationships are poorly understood, particularly in low- and middle-income country contexts where sexual health education is limited.

Objectives

To examine psychosocial correlates of PPU among Bangladeshi adolescents, with a focus on direct and indirect pathways through anxiety, loneliness, perceived social support, and self-esteem.

Methods

A cross-sectional study enrolled 601 adolescents (mean age 17.07 ± 0.99 years; 55.6% male) from educational institutions in Bangladesh. The Brief Pornography Screen (BPS), GAD-7, UCLA Loneliness Scale, Multidimensional Scale of Perceived Social Support (MSPSS), and Rosenberg Self-Esteem Scale (RSES) were administered. Pearson correlations, structural equation modelling (SEM), and multivariable linear regression were applied.

Results

The mean PPU score was 5.13 ± 3.30, with males scoring significantly higher than females. Anxiety and loneliness were the strongest direct predictors of PPU in the SEM (GAD-7: $\beta = 0.257$, $p < 0.001$; UCLA: $\beta = 0.232$, $p < 0.001$). Perceived social support showed a positive association with PPU ($\beta = 0.221$, $p < 0.001$), challenging assumptions about its protective role. Self-esteem was not a direct predictor but was inversely related to anxiety ($r = -0.128$, $p < 0.01$), suggesting an indirect protective pathway. The multivariable model explained 51.4% of PPU variance. Over half of participants reported repeated failed attempts to stop use.

Conclusions

PPU among Bangladeshi adolescents is primarily driven by emotional vulnerability, particularly anxiety and loneliness. The positive social support association likely reflects

peer-enabled exposure in a context of absent formal sex education. Interventions should target underlying mental health and incorporate digital literacy components.

Introduction

Adolescence is a critical developmental period characterised by rapid biological, psychological, and social transitions.[1,2] The widespread availability of digital media has substantially increased access to sexually explicit content, particularly through internet-enabled devices.[3,4] Online pornography is often described as highly accessible, affordable, and anonymous, which may lower the threshold for exposure among young people.[5]

Pornography use has been reported across diverse adolescent and young adult populations, with consistently higher rates among males.[3,6] A systematic review spanning 20 years of research found that most adolescents who use pornography do not report significant harm, but a subgroup develops patterns consistent with problematic use.[21] Problematic pornography use (PPU) involves impaired control, compulsive engagement, and continued use despite negative consequences.[7] Existing reviews suggest that PPU may be linked to adverse psychological and social outcomes, although evidence remains heterogeneous.[5,8]

Whether PPU reflects a primary behavioural disorder or a coping response to pre-existing emotional distress remains unresolved. This distinction carries direct implications for prevention design and clinical management.[8,9,13] The mood management theory proposes that individuals use media to regulate negative emotional states, and pornography may serve this function when other coping resources are unavailable.[22] Loneliness and anxiety are particularly relevant within this framework, as socially isolated or anxious adolescents may turn to online content as a form of compensation or escape.[14,15]

Perceived social support and self-esteem are also relevant, though their relationship with PPU is less well characterised. Both may operate indirectly through their effects on emotional distress rather than directly influencing pornography use behaviour. The cultural context of Bangladesh warrants specific attention: sexuality discussions are socially constrained, formal sexual health education is largely absent, and internet access through personal devices is rapidly expanding.[16] These conditions may both increase exposure and limit the resources adolescents have to manage it.

This study aimed to examine psychosocial correlates of PPU among adolescents in Bangladesh. Specific objectives were to: (i) describe PPU levels and behavioural patterns; (ii) examine bivariate associations among psychosocial variables; (iii) model direct and indirect structural pathways using SEM; and (iv) identify independent predictors of PPU using multivariable regression.

Methods

Study Design and Setting

This was a cross-sectional study conducted among adolescents attending educational institutions in Bangladesh. Structured self-administered questionnaires were used for data collection. The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from North South University (#20221ORNSU/lRB/1203), and written informed consent was obtained from all participants. For participants under 18 years, parental or guardian consent was obtained as well. Data was collected from November 2023 to August 2024.

Participants

Adolescents aged 15 to 19 years currently enrolled at participating institutions were eligible. Those unable to complete the questionnaire due to cognitive impairment were excluded. A total of 601 adolescents were included in the final analysis (mean age 17.07 ± 0.99 years; 55.6% male). The majority resided in urban areas (78.9%).

Measures

Problematic Pornography Use. The Brief Pornography Screen (BPS) is a five-item instrument validated across multiple clinical and community samples.[7] Items assess inability to control use, failed cessation attempts, difficulty resisting urges, emotional coping through use, and continued use despite guilt. Cronbach's $\alpha = 0.843$ in this sample.

Anxiety. The Generalised Anxiety Disorder 7-item scale (GAD-7) assessed anxiety symptoms over the prior two weeks.[17] Scores range from 0 to 21. Cronbach's $\alpha = 0.820$.

Loneliness. The UCLA Loneliness Scale (Version 3) is a 20-item measure of subjective loneliness.[18] Higher scores reflect greater loneliness. Cronbach's $\alpha = 0.823$.

Perceived Social Support. The Multidimensional Scale of Perceived Social Support (MSPSS) assessed perceived support from significant others, family, and friends.[19] Cronbach's $\alpha = 0.904$.

Self-Esteem. The Rosenberg Self-Esteem Scale (RSES) is a 10-item measure of global self-worth.[20] Cronbach's $\alpha = 0.824$.

Sociodemographic Variables. Age, sex, residence, monthly household expenditure, smoking, alcohol use, sleep problems, age at first exposure to pornography, and primary access

medium were recorded.

Statistical Analysis

Descriptive statistics summarised participant characteristics. Pearson correlation coefficients and Cronbach's alpha assessed bivariate associations and scale reliability, respectively. SEM examined direct and indirect structural pathways, specifying paths from GAD-7, UCLA, MSPSS, and RSES to PPU, and a path from UCLA to GAD-7 based on a priori theoretical reasoning. Model fit was evaluated using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Residual (SRMR). Multivariable linear regression identified independent predictors of PPU, with all variables entered simultaneously. Analyses were conducted in SPSS version 25 and AMOS. Statistical significance was set at $p < 0.05$.

Results

Participant Characteristics

A total of 601 adolescents were included. Males comprised 55.6% and females 44.4%, with a mean age of 17.07 ± 0.99 years. Most participants (78.9%) resided in urban settings. Smoking was reported by 17.8% and alcohol use by 3.5%. Sleep problems were present in 32.1%. Nearly half (48.1%) first encountered pornography between ages 13 and 15, and 13.6% before age 12. The internet was the most common primary access medium (60.7%), followed by mobile/social media platforms (29.1%). The mean PPU score was 5.13 ± 3.30, with males scoring substantially higher than females (6.04 ± 3.41 vs. 3.97 ± 2.98). Participant characteristics are presented in Table 1.

Table 1
Sociodemographic and Behavioural Characteristics of Participants (N = 601)

Variable	Category	n (%)
Sex	Male	334 (55.6)
	Female	267 (44.4)
Age (Mean ± SD)		17.07 ± 0.99
Residence	Urban	474 (78.9)
	Semi-urban	69 (11.5)
	Rural	27 (4.5)
Smoking	No	494 (82.2)
	Yes	107 (17.8)
Alcohol use	No	580 (96.5)
	Yes	21 (3.5)
Sleep problems	Yes	193 (32.1)
Age at first exposure	< 12 years	82 (13.6)
	13–15 years	289 (48.1)
	16–19 years	230 (38.3)
Primary access medium	Internet	365 (60.7)
	Mobile/social media	175 (29.1)
	TV/DVD/downloaded	61 (10.2)
PPU score (Mean ± SD)		5.13 ± 3.30
PPU score – Males		6.04 ± 3.41
PPU score – Females		3.97 ± 2.98

Scale Reliability and Bivariate Correlations

All scales showed good internal consistency ($\alpha = 0.820–0.904$). As illustrated in the correlation heatmap (Fig. 1), PPU clustered most strongly with loneliness ($r = 0.382$, $p < 0.01$) and anxiety ($r = 0.358$, $p < 0.01$). Perceived social support also correlated positively with PPU ($r = 0.276$, $p < 0.01$). The PPU-self-esteem correlation was small and non-significant ($r = 0.061$). Self-esteem was inversely associated with anxiety ($r = -0.128$, $p <$

0.01). Loneliness and anxiety showed a strong positive correlation ($r = 0.482$, $p < 0.01$). Full results are presented in Table 2.

Table 2
Correlation Matrix and Internal Consistency (Cronbach's α) for All Study Variables

Variable	α	PPU (BPS)	MSPSS	RSES	UCLA	GAD-7
PPU (BPS)	0.843	—	0.276**	0.061	0.382**	0.358**
MSPSS	0.904	0.276**	—	0.154**	0.040	0.031
RSES	0.824	0.061	0.154**	—	−0.011	−0.128**
UCLA Loneliness	0.823	0.382**	0.040	−0.011	—	0.482**
GAD-7	0.820	0.358**	0.031	−0.128**	0.482**	—

*Note: PPU = Brief Pornography Screen; MSPSS = Multidimensional Scale of Perceived Social Support; RSES = Rosenberg Self-Esteem Scale; UCLA = UCLA Loneliness Scale; GAD-7 = Generalised Anxiety Disorder scale. ** p < 0.01.*

Structural Equation Model

The structural pathways are illustrated in Fig. 2. Anxiety ($\beta = 0.257$, $SE = 0.044$, $p < 0.001$) and loneliness ($\beta = 0.232$, $SE = 0.041$, $p < 0.001$) were significant positive predictors of PPU. Perceived social support also showed a significant positive direct path to PPU ($\beta = 0.221$, $SE = 0.042$, $p < 0.001$). Loneliness was strongly associated with anxiety ($\beta = 0.508$, $SE = 0.031$, $p < 0.001$), suggesting a potential upstream role within the distress pathway. Self-esteem did not show a significant direct path to PPU ($\beta = 0.094$, $p = 0.17$). Model fit indices indicated acceptable to good model fit ($\chi^2(3) = 8.74$, $p = 0.033$; CFI = 0.973; TLI = 0.941; RMSEA = 0.056, 90% CI [0.018–0.098]; SRMR = 0.029). These results are presented in Table 3.

Table 3
Structural Equation Model: Direct Path Estimates

Path	β	SE	t-value	p-value
GAD-7 → PPU	0.257	0.044	5.84	< 0.001
UCLA Loneliness → PPU	0.232	0.041	5.56	< 0.001
MSPSS → PPU	0.221	0.042	4.90	< 0.001
UCLA Loneliness → GAD-7	0.508	0.031	16.62	< 0.001
RSES → PPU	0.094	0.115	1.36	0.17

*Note: β = standardised path coefficient; SE = standard error. *Authors should add model fit indices (CFI, TLI, RMSEA, SRMR) from AMOS output.*

Multivariable Regression: Independent Predictors of PPU

The final model explained 51.4% of PPU variance ($R^2 = 0.514$). Male sex was the strongest independent predictor ($\beta = 0.26$, $p < 0.001$). Higher household expenditure (middle and upper categories) was also associated with greater PPU. Loneliness ($\beta = 0.11$, $p = 0.002$) and anxiety ($\beta = 0.12$, $p < 0.001$) remained significant after adjustment. Self-esteem was not significant ($\beta = 0.01$, $p = 0.716$). Notably, mobile and social media platforms were associated with the highest PPU scores; participants accessing pornography primarily via internet ($\beta = -0.14$, $p = 0.035$) or TV/DVD/downloaded content ($\beta = -0.44$, $p < 0.001$) scored lower, likely reflecting the continuous algorithmic accessibility of mobile platforms. Regression results are shown in Table 4.

Table 4
Multivariable Linear Regression: Independent Predictors of PPU (N = 601)

Predictor	β	95% CI	p-value
Male sex	0.26	[0.19, 0.33]	< 0.001
Family expenditure (51,000–100,000 BDT)	0.12	[0.00, 0.24]	0.043
Family expenditure (> 100,000 BDT)	0.13	[0.01, 0.25]	0.037
Loneliness score (UCLA)	0.11	[0.04, 0.18]	0.002
Anxiety score (GAD-7)	0.12	[0.07, 0.17]	< 0.001
Primary medium: Internet (vs. mobile/social media)	−0.14	[− 0.27, − 0.01]	0.035
Primary medium: TV/DVD/downloaded (vs. mobile/social media)	−0.44	[− 0.57, − 0.31]	< 0.001
Self-esteem (RSES)	0.01	[− 0.05, 0.07]	0.716

Note: R^2 = 0.514. Reference categories: sex = female; family expenditure = ≤ 50,000 BDT; primary access medium = mobile/social media. β = standardised coefficient; CI = confidence interval.

Behavioural Patterns of Problematic Use

Item-level BPS responses, illustrated in Fig. 3, revealed marked dysregulation across the sample. Over half (56.9%) reported 'very often' failing to stop or reduce use. Continued use despite guilt (37.3%), difficulty resisting urges (34.9%), and use beyond intended duration (34.6%) were also frequent. Use for emotional coping was endorsed 'very often' by 28.5%, reinforcing the affective regulation role of pornography in this population. Response distributions are detailed in Table 5.

Table 5
Brief Pornography Screen (BPS) Item Response Distribution (N = 601)

BPS Item	Never (%)	Occasionally (%)	Very Often (%)
Use more than intended	35.8	29.6	34.6
Failed attempts to stop	20.3	22.8	56.9
Difficulty resisting urges	44.8	20.3	34.9
Use for emotional coping	45.3	26.3	28.5
Continued use despite guilt	32.6	30.1	37.3

Note: BPS = Brief Pornography Screen. Values represent percentage of participants endorsing each response category.

Discussion

This study examined psychosocial correlates of PPU among Bangladeshi adolescents using a multi-method approach. The main findings were: anxiety and loneliness were the strongest direct psychosocial predictors of PPU; perceived social support was positively rather than inversely associated with PPU, which is the study's most novel finding; self-esteem operated indirectly through its inverse relationship with anxiety; male sex and higher household income were independent predictors; and a substantial proportion of participants showed behavioural dysregulation consistent with compulsive patterns.

The mean PPU score (5.13 ± 3.30) and the pronounced male-female difference (6.04 vs. 3.97) are consistent with prior evidence. Carroll et al. documented substantial sex differences in pornography acceptance and use among emerging adults, with males reporting higher frequency and greater permissiveness.[6] Peter and Valkenburg's 20-year review confirmed male sex as one of the most robust predictors of adolescent pornography use across settings.[21] In Bangladesh, these differences are likely amplified by gendered digital access norms, in which male adolescents encounter less social disapproval for online sexual behaviour.[16]

The finding that nearly half of participants first encountered pornography between ages 13 and 15 is consistent with evidence from both European[8] and North American samples,[6] and highlights the urgency of age-appropriate education before this developmental window. In Bangladesh, where no such education infrastructure exists, the internet functions as an unmediated primary source of sexual information.

Anxiety was a significant direct predictor of PPU in both the SEM and multivariable regression, consistent with the mood management framework.[22] Camilleri et al. identified emotional dysregulation as a central mechanism linking compulsive pornography use to anxiety and depression in a US university sample.[9] Grubbs et al. similarly found that psychological distress predicted perceived pornography addiction concurrently and over time.[10] Longitudinal evidence from Rousseau et al. confirmed that higher baseline negative emotions predicted greater PPU over a three-year follow-up in male adolescents, supporting a directional interpretation.[22] De Alarcón et al.'s systematic review further identified anxiety disorders as among the most commonly co-occurring conditions in PPU.[5]

In a context with limited mental health services and high psychological stigma, the reinforcement cycle in which pornography temporarily alleviates anxiety but maintains or worsens underlying distress may be particularly difficult to interrupt without targeted support.

Loneliness was the strongest bivariate correlate of PPU ($r = 0.382$) and the structural model identified a strong loneliness-to-anxiety pathway ($\beta = 0.508$), indicating that social isolation may contribute to PPU both directly and by generating anxiety as an intermediary. Efrati and Amichai-Hamburger found that loneliness and lack of social ties predicted online pornography use among Israeli adolescents, with peer exclusion partially mediating this effect.[14] Vescan et al. extended this to adults, showing that the loneliness-PPU relationship was strongest among those with poor emotion regulation.[15] Štulhofer et al. demonstrated that PPU symptom structure is stable over six months in adolescent males,[23] suggesting that once established, these patterns persist without intervention.

The finding that perceived social support was positively associated with PPU in both bivariate analysis ($r = 0.276$) and the SEM ($\beta = 0.221$, $p < 0.001$) is the most analytically novel result of this study. This challenges the conventional assumption that social support is uniformly protective and suggests that, in this context, peer-connected environments may actively facilitate exposure to and normalisation of pornography use. Willoughby et al. identified peer norms as among the strongest predictors of pornography use, noting that social networks can reinforce consumption behaviour.[3] Vanden Abeele et al. found that perceived peer pressure was a significant predictor of mobile pornography use among adolescents, with higher-popularity adolescents reporting greater exposure.[4]

In Bangladesh, where messaging platforms are the primary social infrastructure for peer communication, MSPSS scores may partly capture active peer social networks through which sexually explicit content is shared and normalised. This interpretation is further supported by the absence of any protective relationship between MSPSS and anxiety or loneliness in this sample, suggesting the scale captures social engagement rather than emotionally buffering support. This distinction has direct implications for intervention design: programmes targeting social norms around pornography may be as important as those targeting emotional distress.

Self-esteem was not a direct predictor of PPU in either the SEM or regression, but its inverse association with anxiety supports an indirect protective role. Grubbs et al. proposed that self-appraisal moderates the distress experience around pornography use, particularly where personal values and behaviour conflict.[24] Perry and Maddock et al. similarly found that low self-worth amplified the depression-pornography association through perceived moral incongruence.[11,12] That self-esteem operates through anxiety rather than directly on PPU is consistent with a model in which protective factors buffer emotional vulnerability, which in turn reduces the need for pornography as a coping mechanism.

The high proportion of participants reporting failed attempts to stop (56.9% 'very often') and continued use despite guilt (37.3%) is consistent with the loss-of-control criteria that

distinguish compulsive from recreational use. Bőthe et al. demonstrated that it is precisely this control failure that differentiates clinically relevant PPU from high-frequency use that carries no functional impairment.[13] The Problematic Pornography Consumption Scale similarly operationalises these dimensions within an addictive behaviour framework.[25] The high coping-use rate (28.5% very often) reinforces the mood regulation interpretation throughout: adolescents appear to be using pornography deliberately to manage negative affect, creating the reinforcement conditions for escalation.

Mobile and social media platforms were associated with the highest PPU scores. These platforms combine continuous accessibility, algorithm-driven content recommendations, and peer sharing features that may amplify habitual engagement in ways that fixed media cannot. Higher family expenditure was also an independent predictor, likely reflecting greater private device access and reduced parental monitoring. The convergence of rising smartphone penetration, limited filtering infrastructure, and absent sex education in Bangladesh creates a structural context in which individual psychological vulnerability is readily exploited.

Theoretical and Clinical Implications

This study contributes to the literature by providing empirical support for a psychosocial distress framework of PPU, in which emotional vulnerability and social context jointly shape behavioural outcomes. Anxiety and loneliness function as proximal drivers, while self-esteem and the nature of social relationships serve as moderating conditions. The positive social support finding extends this framework by demonstrating that peer social context is not inherently protective and may constitute a risk amplifier in specific cultural environments.

Clinically, these findings suggest that school-based mental health screening programmes in Bangladesh should incorporate anxiety and loneliness assessment, and that positive screening should prompt enquiry about PPU as a co-occurring problem. School-based digital literacy interventions addressing critical engagement with online sexual content represent a feasible entry point in a system that currently lacks formal sex education infrastructure. Clinicians treating adolescents with anxiety or social difficulties should be alert to PPU as a common coping behaviour that may be maintaining emotional dysregulation.

Strengths and Limitations

Strengths include a reasonably large sample in an underrepresented LMIC context, use of validated scales across all constructs, SEM to model structural relationships simultaneously, and a regression model with high explanatory power ($R^2 = 0.514$). Limitations include the cross-sectional design, which precludes causal inference, and self-

report measurement, which may be subject to social desirability bias given cultural taboos. The sample is predominantly urban and school-enrolled, limiting generalisability to rural or out-of-school adolescents. SEM fit indices should be reported in the final version. Residual confounding from unmeasured factors such as impulsivity, personality traits, and family dynamics cannot be excluded. The positive MSPSS-PPU association requires replication before firm conclusions can be drawn about mechanism.

Conclusion

PPU among Bangladeshi adolescents is primarily driven by emotional vulnerability, particularly anxiety and loneliness, and is further shaped by peer social context and mobile access conditions. The high rates of behavioural dysregulation indicate a subgroup with clinically significant compulsive patterns. Self-esteem exerts an indirect protective effect by buffering against anxiety. The unexpected positive association between perceived social support and PPU challenges the assumption that social connectedness is uniformly protective, and suggests that peer networks in this context may facilitate rather than inhibit pornography use.

School-based mental health screening for anxiety and loneliness, combined with digital literacy interventions addressing online sexual content, represents a feasible and context-appropriate strategy. Policy should address structural facilitators including unregulated mobile device access and the absence of sexual health education in national curricula. Longitudinal and qualitative research is needed to clarify the direction of key relationships and to develop interventions that are responsive to Bangladesh's sociocultural context.

Declarations

Ethics approval and consent to participate

- The study protocol was approved by the Institutional Review Board of North South University (Ref: #20221ORNSU/lRB/1203).
- The research was conducted in accordance with the principles of the Declaration of Helsinki.
- Written informed consent was obtained from all participants before enrollment.
- For participants under 18 years of age, additional written consent was obtained from their parents or legal guardians.

Consent for publication

Not applicable, as the manuscript contains only anonymized, aggregate data and no individual person’s data in any form.

Availability of data and materials

- The datasets generated and analyzed during the current study are available from the corresponding author, Mustari Nailah Tabassum, on reasonable request.
- The study utilized standard validated instruments, including the Brief Pornography Screen (BPS), GAD-7, UCLA Loneliness Scale, MSPSS, and RSES.

Competing interests

- The authors declare that they have no competing interests.

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Authors' contributions

According to the ICMJE guidelines, the contributions are as follows:

- **Conceptualization and Design:** FHR, AAZ and MDHH.
- **Methodology and Statistical Analysis:** FHR, AAZ, and MDHH.
- **Data Curation and Field Investigation:** AAZ, RKR, FHRi, QMR, TYS, RIC, and AI.
- **Drafting of the Manuscript:** FHR, AAZ, and MNT.
- **Critical Revision of the Manuscript for important intellectual content:** MNT, RKR, FHRi, QMR, TYS, RIC, AI, and MDHH.
- **Supervision:** MDHH.
- All authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

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Figures



Figure 1

Correlation heatmap of psychosocial variables and PPU. Red cells indicate positive correlations; blue cells indicate inverse associations. PPU clustered most strongly with loneliness and anxiety. ** $p < 0.01$.

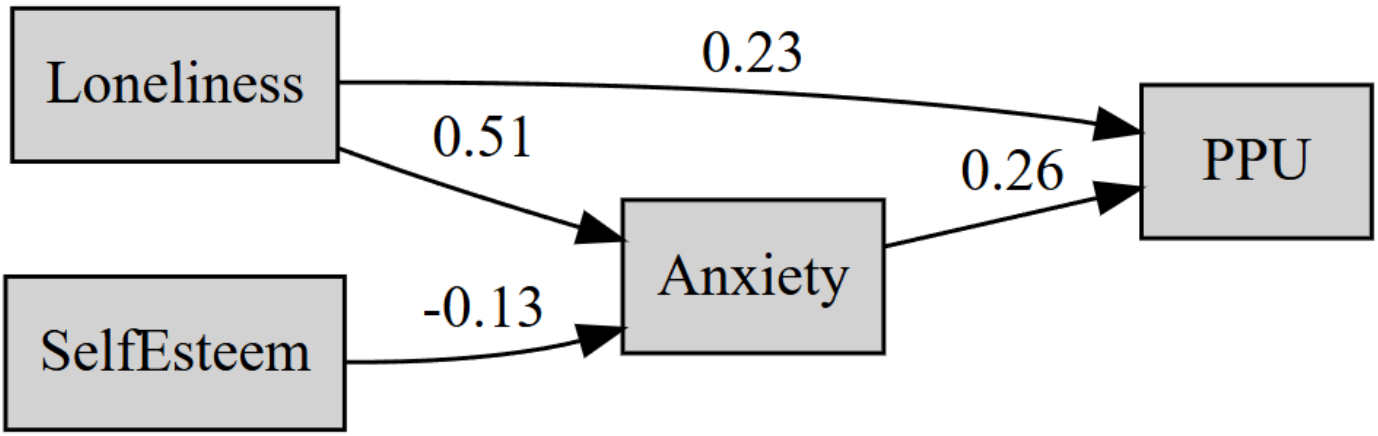


Figure 2

Structural equation model of psychosocial predictors of problematic pornography use. Standardised path coefficients (β) are shown. Solid lines indicate significant paths ($p < 0.001$); dashed line indicates a non-significant path. Upstream loneliness-to-GAD-7 path ($\beta = 0.51$) shown on left.

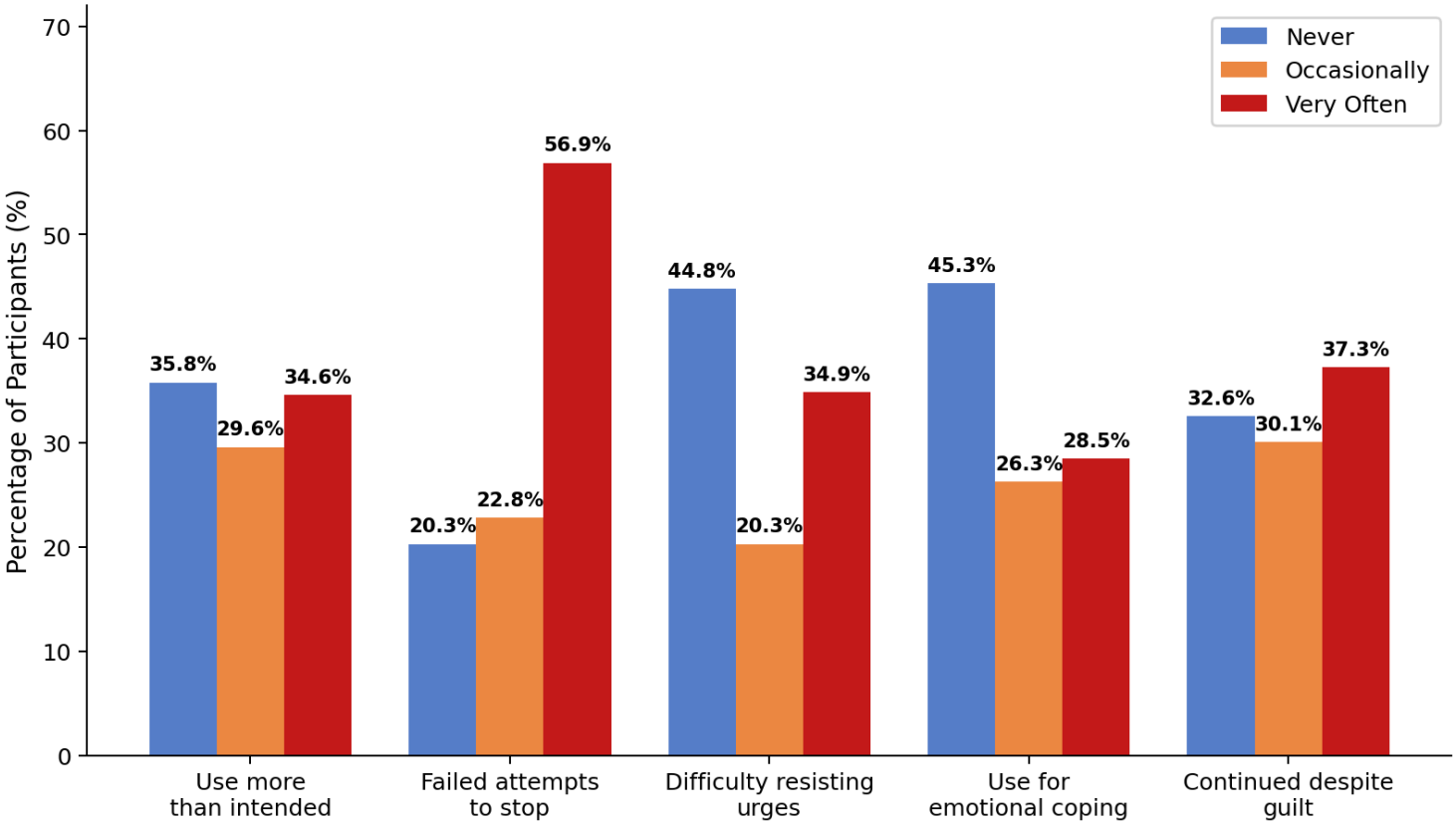


Figure 3

Distribution of problematic pornography behaviour patterns across BPS items (N = 601). Proportions endorsing 'Never,' 'Occasionally,' and 'Very Often' are shown for each item. Failed attempts to stop and continued use despite guilt were the most prevalent 'very often' responses.