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Original Research Article

Prevalence of Gaming Addiction and its Association with Social Anxiety among Medical Students in Rajasthan: A Cross-Sectional Study

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Abstract

Background: Gaming disorder has been formally recognised by the World Health Organization in the 11th Revision of the International Classification of Diseases (ICD-11) and is increasingly reported among young adults. Social anxiety disorder is a common psychiatric morbidity in college students, and recent literature has suggested a bidirectional relationship between problematic gaming behaviour and social anxiety symptoms. Data on this association in Indian medical undergraduates remain limited.

Aim: To estimate the prevalence of gaming addiction among undergraduate medical students and to determine its association with social anxiety disorder.

Materials and Methods: A cross-sectional, web-based questionnaire survey was conducted among undergraduate medical students of a tertiary medical college in Rajasthan over a period of two months. A pre-validated, self-administered Google Form questionnaire was circulated to all undergraduate students. The instrument captured socio-demographic details, the seven-item Gaming Addiction Scale (GAS-7; Lemmens et al. 2009) and the 20-item Social Interaction Anxiety Scale (SIAS; Mattick and Clarke 1998). Gaming addiction was defined as meeting four or more of the seven GAS criteria, and probable social anxiety was defined as a SIAS score of 36 or more (Peters 2000). Data were analysed using SPSS version 21 and Microsoft Excel; chi-square test, independent t-test and Pearson correlation were applied; $p < 0.05$ was considered statistically significant.

Results: A total of 493 medical undergraduates participated. Mean age was 20.71 ± 1.53 years; 54.4% were female; 90.1% resided in hostel/PG accommodation. The prevalence of gaming addiction was 22.1% (109/493) and that of probable social anxiety was 18.1% (89/493). Gaming addiction was significantly more common in male students (28.6% vs 16.8%; $\chi^2 = 9.15$, $p = 0.002$). Probable social anxiety was numerically higher in female students (20.9% vs 14.7%; $p = 0.099$). Gaming-addicted students had significantly higher mean SIAS scores than non-addicted students (28.47 ± 16.68 vs 22.65 ± 12.49; $t = 3.38$, $p < 0.001$). Social anxiety was significantly more prevalent in gaming-addicted students (27.5% vs 15.4%; $\chi^2 = 7.68$, $p = 0.006$; OR 2.09, 95% CI 1.26–3.46). Gaming addiction was significantly associated with hand pain (26.6% vs 12.0%, $p < 0.001$) and eye-related symptoms (28.4% vs 16.1%, $p = 0.006$). The Pearson correlation between GAS-7 and SIAS total scores was significant ($r = 0.207$, $p < 0.001$).

Conclusion: Nearly one in five medical undergraduates in this study population were classified as gaming-addicted, and one in five had probable social anxiety. Gaming addiction was significantly associated with social anxiety, supporting an important and clinically meaningful relationship that warrants targeted screening, counselling and student-wellbeing interventions in Indian medical colleges.

Keywords: Gaming addiction, social anxiety, medical students, GAS-7, SIAS, cross-sectional study.

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Introduction

Gaming disorder is defined in the 11th Revision of the International Classification of Diseases (ICD-11) as a pattern of gaming behaviour characterised by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences [1]. For gaming disorder to be diagnosed, the behaviour pattern must be of

sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning and normally have been evident for at least 12 months.

Social anxiety disorder (SAD) as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) is a persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others [2]. Exposure to the feared situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally pre-disposed panic attack. The avoidance, anxious anticipation or distress in the feared social or performance situations interferes significantly with the person's normal routine, occupational or academic functioning, social activities or relationships. The fear or avoidance is persistent, typically lasting six or more months, and is not attributable to the direct physiological effects of a substance or a general medical condition.

Globally, the burden of gaming disorder among young adults is rising in parallel with the rapid penetration of smartphones, online multiplayer games and internet gaming platforms. In a study conducted at Arizona State University and the California School of Professional Psychology on 394 individuals, greater levels of social anxiety disorder were found to be associated with greater levels of internet gaming disorder [3]. In India, the burden of gaming disorder is still not well documented. In a few studies among college students, the prevalence of social anxiety disorder has been found to vary from 27.2% to 30.18% [4].

Medical students in India occupy a uniquely demanding academic environment in which prolonged hours of self-study, hostel-based residence away from family, and high competitive pressure may predispose to both problematic gaming behaviour and social anxiety symptoms.

Gaming addiction in this population has direct implications for academic performance — students stay awake until late at night and miss morning classes because of prolonged gaming — and may have downstream consequences for psychological wellbeing, sleep quality and professional development. To date there is paucity of data on the prevalence of gaming disorder in India and its association with social anxiety, particularly among medical undergraduates, who form an important and growing segment of the Indian gaming population.

The present study was therefore planned to estimate the prevalence of gaming addiction among undergraduate medical students at a tertiary medical college in Rajasthan and to determine its association with social anxiety disorder.

Aim and Objectives

1. To estimate the prevalence of gaming addiction among students of a medical college.
2. To find the relation, if any, between gaming addiction and social anxiety disorder.

Materials and Methods

Study Design and Setting

The present investigation was a cross-sectional, descriptive, web-based questionnaire survey conducted among undergraduate medical students of a tertiary care medical college in Rajasthan, India. The Department of Community Medicine, National Institute of Medical Sciences and Research (NIMS&R), Jaipur, was the coordinating department for the study.

Study Population and Period

All undergraduate students enrolled in the medical college (MBBS first year to final year) who were 18 years of age or older and who had access to a smartphone or computer with internet connectivity were eligible for participation. Participation was entirely voluntary. The study was conducted over a period of two months (February to March).

Sample Size

The sample size was calculated using the formula $n = Z^2P(1 - P)/d^2$, where $Z = 1.96$ (corresponding to a 95% confidence level), $P = 50\%$ (assumed proportion in the absence of prior local data), and $d = 7\%$ (absolute precision). This yielded an initial sample size of 196 participants. After inflating by 20% to account for non-response, the final desired sample size was 236. A total of 493 valid responses were obtained, well in excess of the calculated sample size.

Sampling Technique

Purposive sampling was employed. A Google Forms link containing the study questionnaire was distributed through institutional WhatsApp groups and student communication channels, and undergraduates were invited to fill the questionnaire voluntarily after viewing the participant information sheet and providing online informed consent.

Study Tool

A semi-structured, self-administered, pre-validated questionnaire in the English language was administered through Google Forms. Confidentiality and anonymity were maintained throughout. The questionnaire consisted of three sections:

Section 1 — Socio-demographic profile: age, gender, religion, place of stay (hostel/PG or home), marital status, and year of study.

Section 2 — Gaming Addiction Scale (GAS-7): developed by Lemmens et al. in 2009 [9], this scale assesses seven criteria for gaming disorder, namely salience, tolerance, mood modification, withdrawal, relapse, conflict and problems. Each criterion is rated on a five-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often) over the past six months. Using the midpoint as a cutoff (score of 3, 4 or 5 on any item), the criterion is considered met. Participants meeting four or more of the seven criteria were classified as addicted gamers.

Section 3 — Social Interaction Anxiety Scale (SIAS): developed by Mattick and Clarke in 1998 [10], this 20-item self-report scale measures social interaction anxiety, defined as distress when meeting and talking with other people. Each item is rated on a five-point scale (0 = not at all to 4 = extremely). Items 5, 9 and 11 are reverse-scored.

The total score ranges from 0 to 80. A cutoff of 36 or more, as defined by Peters in 2000 [11], indicates probable social phobia.

Statistical Analysis

Data were entered into a Google spreadsheet and analysed using IBM SPSS Statistics version 21 and Microsoft Excel. Descriptive statistics were used to summarise socio-demographic and clinical variables — categorical data as frequencies and percentages and continuous data as mean ± standard deviation. The chi-square test was used for comparison of categorical variables and the independent Student's t-test for continuous variables. Pearson correlation coefficient was computed to examine the linear association between GAS-7 total score and SIAS total score. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

Approval was obtained from the Institutional Ethical Committee of NIMS&R, Jaipur, prior to commencement of the study. Online informed consent was obtained from every participant before they could proceed with the questionnaire. Strict confidentiality was maintained, and the collected data were used solely for academic and research purposes. Participation was entirely voluntary, and respondents could withdraw at any stage.

Results

A total of 493 undergraduate medical students completed the survey and were included in the final analysis. The mean age of the participants was 20.71 ± 1.53 years (range 17–26 years). The majority (54.4%) were female, 90.1% resided in hostel or paying-guest accommodation and 97.6% were unmarried. Third-year students formed the largest single cohort (51.5%). The socio-demographic profile of the study population is summarised in Table 1.

Table 1: Socio-demographic Profile of the Study Population (N = 493)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Mean ± SD	20.71 ± 1.53	—
	< 20	109	22.1
	20 – 21	235	47.7
	22 – 23	136	27.6
	≥ 24	13	2.6
Gender	Female	268	54.4
	Male	224	45.4
	Other	1	0.2
Year of Study	1st year	149	30.2
	2nd year	75	15.2
	3rd year	254	51.5
	Final year	15	3.0
Place of Stay	Hostel / PG	444	90.1
	Home	47	9.5
	Not reported	2	0.4
Marital Status	Unmarried	481	97.6
	Married	11	2.2
	Not reported	1	0.2

Out of the 493 participants, 109 were classified as gaming-addicted using the GAS-7 criteria (≥ 4 criteria met), giving an overall prevalence of gaming addiction of 22.1%. Eighty-nine participants had a SIAS total score of 36 or more, indicating probable social anxiety, giving a prevalence of probable social anxiety of 18.1%. The distribution of GAS-7 criteria met and SIAS scores is shown in Table 2.

Table 2: Prevalence of Gaming Addiction and Probable Social Anxiety (N = 493)

Variable	Category	Frequency (n)	Percentage (%)
Gaming addiction (GAS-7 ≥ 4 criteria met)	Addicted	109	22.1
	Not addicted	384	77.9
Probable social anxiety (SIAS ≥ 36)	Present	89	18.1
	Absent	404	81.9
GAS-7 total score (range 7 – 35)	Mean ± SD	12.95 ± 5.20	—
SIAS total score (range 0 – 80)	Mean ± SD	23.94 ± 13.72	—

The distribution of gaming addiction by gender, year of study, place of stay and age group is shown in Table 3. Gaming addiction was significantly more common among male students (28.6%) than female students (16.8%), with a highly significant intergroup difference ($\chi^2 = 9.15$, df = 1, p = 0.002). No statistically significant association was observed between gaming addiction and year of study, place of stay, or age group, although the prevalence was numerically highest in third-year students (23.2%) and lowest in final-year students (13.3%).

Table 3: Distribution of Gaming Addiction by Socio-demographic Variables

Variable	Category	Addicted n (%)	Not addicted n (%)	χ^2 (p-value)
Gender	Male (n = 224)	64 (28.6)	160 (71.4)	**9.15 (0.002)**
	Female (n = 268)	45 (16.8)	223 (83.2)	
Year of Study	1st year (n = 149)	32 (21.5)	117 (78.5)	0.92 (0.821)
	2nd year (n = 75)	16 (21.3)	59 (78.7)	
	3rd year (n = 254)	59 (23.2)	195 (76.8)	
	Final year (n = 15)	2 (13.3)	13 (86.7)	
Place of Stay	Hostel/PG (n = 444)	95 (21.4)	349 (78.6)	1.28 (0.258)
	Home (n = 47)	14 (29.8)	33 (70.2)	
Age group	< 20 (n = 109)	27 (24.8)	82 (75.2)	0.67 (0.880)
	20 – 21 (n = 235)	49 (20.9)	186 (79.1)	
	22 – 23 (n = 136)	30 (22.1)	106 (77.9)	
	≥ 24 (n = 13)	3 (23.1)	10 (76.9)	

The pattern of gaming behaviour in terms of time of day most commonly devoted to playing games and self-reported physical symptoms in the previous six months is summarised in Table 4. The most frequent time of play was evening (41.4%) followed by night (32.0%). Among physical symptoms, headache (29.6%) and neck pain (26.2%) were most frequently reported, followed by eye-related symptoms (18.9%) and hand pain (15.2%). A substantial proportion of participants (45.2%) reported no physical symptoms in the past six months.

Table 4: Time of Play and Self-reported Physical Symptoms (N = 493)

Variable	Category	Frequency (n)	Percentage (%)
Time of day most frequently playing games	Morning	27	5.5
	Afternoon	70	14.2
	Evening	204	41.4
	Night	158	32.0
	Not reported	34	6.9
Physical symptoms in last 6 months	Headache	146	29.6
	Pain in neck	129	26.2
	Itchy / red / watery eyes	93	18.9
	Pain in hands	75	15.2
	None of the above	223	45.2

The relationship between gaming addiction and physical symptoms is summarised in Table 5. Gaming-addicted students had significantly higher prevalence of hand pain (26.6% vs 12.0%, p < 0.001) and eye-related symptoms (28.4% vs 16.1%, p = 0.006) compared with their non-addicted peers. The prevalence of headache and neck pain did not differ significantly between the two groups.

Table 5: Physical Symptoms by Gaming Addiction Status

Symptom	Addicted (n = 109) n (%)	Not addicted (n = 384) n (%)	χ^2	p-value
Headache	35 (32.1)	111 (28.9)	0.28	0.598
Pain in neck	30 (27.5)	99 (25.8)	0.06	0.809
Itchy / red / watery eyes	31 (28.4)	62 (16.1)	7.60	**0.006**
Pain in hands	29 (26.6)	46 (12.0)	12.97	**< 0.001**

The primary outcome of the study — the association between gaming addiction and probable social anxiety — is presented in Table 6.

Probable social anxiety was significantly more prevalent in gaming-addicted students (27.5%) than in non-addicted students (15.4%), with a statistically significant intergroup difference (χ^2 = 7.68, df = 1, p = 0.006). The crude odds ratio for the association between gaming addiction and probable social anxiety was 2.09 (95% CI 1.26 – 3.46), indicating that gaming-addicted students had approximately twice the odds of having probable social anxiety compared with their non-addicted peers.

The mean SIAS total score was also significantly higher in gaming-addicted students (28.47 ± 16.68) compared with non-addicted students (22.65 ± 12.49), with t = 3.38 and p < 0.001.

Table 6: Association between Gaming Addiction and Social Anxiety

Gaming Status	Social anxiety present n (%)	Social anxiety absent n (%)	Total
Gaming addicted	30 (27.5)	79 (72.5)	109
Not addicted	59 (15.4)	325 (84.6)	384
Total	**89 (18.1)**	**404 (81.9)**	**493**

Chi-square = 7.68, df = 1, p = 0.006 (highly significant). Crude odds ratio = 2.09 (95% CI 1.26 – 3.46).

A comparison of GAS-7 and SIAS scores between gaming-addicted and non-addicted students is presented in Table 7.

Pearson correlation analysis between GAS-7 total score and SIAS total score across the entire study population revealed a statistically significant positive correlation of weak-to-moderate strength (r = 0.207, p < 0.001), indicating that higher gaming addiction scores were associated with higher social anxiety scores.

Table 7: Comparison of GAS-7 and SIAS Scores by Gaming Addiction Status

Score	Addicted (n = 109) Mean ± SD	Not addicted (n = 384) Mean ± SD	t-value	p-value
GAS-7 total (range 7 – 35)	19.94 ± 4.16	10.98 ± 3.42	—	—
SIAS total (range 0 – 80)	28.47 ± 16.68	22.65 ± 12.49	3.38	**< 0.001**
Pearson correlation between GAS-7 and SIAS total scores	**r = 0.207**			**< 0.001**

Social anxiety distribution by gender showed that female students had a numerically higher prevalence of probable social anxiety (20.9%) compared with male students (14.7%), although the intergroup difference did not reach statistical significance (χ^2 = 2.73, p = 0.099). Overall, the findings collectively support a statistically significant and clinically meaningful association between gaming addiction and social anxiety disorder in this Indian medical undergraduate population.

Discussion

The present cross-sectional study of 493 undergraduate medical students at a tertiary medical college in Rajasthan demonstrated a prevalence of gaming addiction of 22.1% and a prevalence of probable social anxiety of 18.1%, with a significant association between the two conditions (OR 2.09, 95% CI 1.26 – 3.46, p = 0.006). The findings are consistent with the international literature suggesting that problematic gaming behaviour and social anxiety frequently co-occur, and they extend that evidence base to an Indian medical undergraduate population in which empirical data have hitherto been limited.

The overall gaming addiction prevalence of 22.1% in our cohort is appreciably higher than the 1.41% reported by Wittek et al. in their national sample of Norwegian gamers [5] but considerably more consistent with the 7.6 – 9.9% pathological gaming prevalence reported by Gentile et al. in their longitudinal Singaporean school study [6], and broadly comparable to the elevated rates documented in studies focusing specifically on heavy users and college-aged populations.

The substantially higher prevalence in our study may reflect a combination of factors: the specific selection of an undergraduate medical college cohort with high academic stress, ubiquitous smartphone use, hostel residence away from family

supervision (90.1% in our cohort), and use of the GAS-7 monothetic threshold of four or more criteria met.

Wittek et al. identified being male, being young in age, low conscientiousness, high neuroticism and poor psychosomatic health as significant predictors of video game addiction [5], all of which align with our finding of significantly higher gaming addiction prevalence among male medical students (28.6%) compared with female students (16.8%, p = 0.002). This male predominance is among the most consistently replicated findings in the gaming addiction literature and is thought to reflect both differential exposure to and engagement with multiplayer competitive online games and possibly distinct motivational profiles in male and female gamers.

The prevalence of probable social anxiety (18.1%) in our population is lower than the 27.2 – 30.18% range reported by Sridhar and Rekha in their study of urban college students in Bangalore [4] and the 23.1% prevalence of probable specific social phobia documented by Honnekeri et al. in Mumbai medical students [8], but it is broadly consistent with the international ranges reported for university populations and may reflect the use of a relatively stringent SIAS cutoff of 36 (Peters 2000). Female students in our study had a numerically higher prevalence of social anxiety compared with male students (20.9% vs 14.7%), although this did not achieve statistical significance — a finding broadly consistent with the higher female-to-male ratio for social anxiety disorder reported in community psychiatric studies.

The central finding of our study — the significant association between gaming addiction and probable social anxiety — is consistent with the broader international literature. Sioni et al. in their study at Arizona State University and the California School of Professional Psychology demonstrated that greater levels of social anxiety disorder were significantly associated with greater levels of internet gaming disorder in a cohort of 394 individuals, and proposed that identifying with one's virtual self may partially mediate this association [3]. Wei et al. in their large internet survey of online gamers in Taiwan demonstrated that longer weekly gaming hours were significantly associated with higher Social Phobia Inventory (SPIN) scores and higher Chen Internet Addiction Scale (CIAS) scores, and that the regression model identified higher SPIN as an independent predictor of depressive symptom severity in online gamers [7]. Gentile et al. in their longitudinal Singaporean cohort demonstrated that youths who became pathological gamers experienced concurrent increases in depression, anxiety and social phobia, and conversely those who stopped being pathological gamers showed reductions in these symptom domains over time, suggesting a bidirectional relationship [6]. Our cross-sectional findings cannot establish causal direction, but they are consistent with this body of evidence and support the importance of dual screening for both conditions in the at-risk young adult population.

Two complementary causal mechanisms have been proposed in the literature to account for the gaming-anxiety association observed in our study and in international cohorts. First, social anxiety may predispose vulnerable individuals to escape into virtual gaming environments, where face-to-face social demands are minimised and where avatar-mediated interaction may feel less threatening; this 'self-medication' or escapism hypothesis is supported by the observation that gaming addiction was significantly associated in our data with higher endorsement of items measuring playing 'to forget about real life', 'to release stress' and 'to feel better'. Second, prolonged gaming may, over time, reduce real-world social skill development, increase social isolation, disrupt sleep patterns, and degrade emotional regulation capacity, all of which may contribute to the emergence or worsening of social anxiety symptoms. In our cohort, the most common time of play was evening (41.4%) and night (32.0%), and a substantial proportion of participants reported sleep deprivation and neglect of academic and social activities related to their gaming, suggesting that both mechanisms may be operative simultaneously.

Our finding that hand pain (26.6% vs 12.0%, p < 0.001) and eye-related symptoms (28.4% vs 16.1%, p = 0.006) were significantly more prevalent in gaming-addicted students compared with non-addicted peers is consistent with the well-established somatic morbidity profile associated with prolonged screen use and repetitive controller or touchscreen manipulation. While headache and neck pain were numerically more frequent in gaming-addicted students, these differences did not reach statistical significance, possibly reflecting the high baseline prevalence of these symptoms among medical undergraduates from other sources of postural strain such as prolonged textbook study. The somatic morbidity findings have important clinical implications for student health services and ergonomic counselling in the hostel environment.

The Pearson correlation of r = 0.207 (p < 0.001) between GAS-7 and SIAS total scores represents a statistically significant association of modest magnitude. The relatively modest effect size is consistent with the multifactorial aetiology of both conditions and with the inherent heterogeneity of the medical undergraduate population, which encompasses a wide spectrum of personality types, social engagement profiles and academic stress responses. The robust statistical significance despite a modest effect size reflects the substantial

sample size of our study and supports the reproducibility and clinical meaningfulness of the observed association.

The strengths of our study include the substantial sample size of 493 participants — well in excess of the calculated minimum sample of 236 — the use of internationally validated and widely used screening instruments (GAS-7 and SIAS) with established cutoffs, the comprehensive socio-demographic profiling of participants, and the integrated analysis of physical symptom burden alongside the primary gaming-anxiety association. The web-based questionnaire delivery facilitated anonymous reporting and may have reduced social desirability bias for sensitive items related to gaming behaviour and anxiety symptoms.

Several limitations of the study should be acknowledged. First, the cross-sectional design precludes inferences about causal direction in the gaming-anxiety association. Second, the study was conducted at a single tertiary medical college in Rajasthan, which limits the generalisability of the findings to other educational settings, geographic regions, or non-medical undergraduate populations. Third, purposive sampling through institutional WhatsApp groups may have introduced selection bias, with more engaged or technologically proficient students being more likely to participate.

Fourth, the self-report nature of the questionnaire is subject to recall bias and social desirability bias, despite the anonymous online format. Fifth, the GAS-7 monothetic threshold may have overestimated gaming addiction relative to the more stringent ICD-11 criteria requiring 12-month symptom persistence and functional impairment — our prevalence should therefore be interpreted as 'probable gaming addiction' rather than clinically diagnosed gaming disorder. Sixth, the study did not assess potentially important confounders such as personality traits, depressive symptoms, parental relationships, academic performance, and sleep quality, which may mediate or moderate the gaming-anxiety association.

Notwithstanding these limitations, our findings have important implications for medical education and student health services in India. The observation that approximately one in five medical undergraduates meets criteria for probable gaming addiction and a similar proportion exhibits probable social anxiety, with significant overlap between the two conditions, calls for systematic screening, awareness programmes, and accessible counselling services within medical colleges. Hostel wardens, faculty mentors and student welfare committees should be sensitised to the warning signs of problematic gaming behaviour and its association with mental health symptoms. Targeted interventions might include structured time management training, cognitive-behavioural therapy for social anxiety, peer support groups, and limits on late-night Wi-Fi or gaming access in hostel environments. Future research should prioritise longitudinal designs to establish causal direction, multi-centre studies to enhance generalisability, and integrated assessment of related morbidities including depression, sleep disorders, and academic performance.

Conclusion

In this cross-sectional study of 493 undergraduate medical students at a tertiary medical college in Rajasthan, the prevalence of probable gaming addiction was 22.1% and the prevalence of probable social anxiety was 18.1%.

Gaming addiction was significantly more common in male students, and probable social anxiety was numerically higher in female students. The primary outcome of the study — the association between gaming addiction and probable social anxiety — was statistically highly significant, with gaming-addicted students having approximately twice the odds of having probable social anxiety compared with their non-addicted peers (OR 2.09, 95% CI 1.26 – 3.46). Gaming addiction was additionally associated with significantly higher prevalence of hand pain and eye-related symptoms.

The findings underscore the considerable hidden burden of problematic gaming behaviour and social anxiety among Indian medical undergraduates and the strong overlap between the two conditions, supporting the case for systematic dual screening, mental health awareness programmes, ergonomic counselling, and accessible psychological support services within medical colleges. Larger, multi-centre, longitudinal studies are needed to establish causal direction and to inform evidence-based intervention strategies for this important and growing public health concern.

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