Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/nzxfg273

SOCIAL MEDIA USE AS A PREDICTOR FOR PERCEIVED ISOLATION, SOCIAL DISCONNECTEDNESS, AND ACADEMIC FAILURE AMONG MEDICAL STUDENTS: A PILOT STUDY

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Abstract

Background: The widespread use of social media has revolutionized communication, particularly among young adults. Medical students, owing to academic pressure and limited face-to-face interaction, are increasingly vulnerable to negative psychological effects of excessive social media use, including perceived isolation and poor academic outcomes.

Objectives: To understand and explore the relationship between social media usage patterns and their impact on perceived isolation, social disconnectedness, and academic performance among medical students.

Methods: A two staged cross-sectional and mixed method model study was conducted among 70 medical students. Failed students were screened and surveyed using standardized validated tools, including UCLA Loneliness Scale, Internet Addiction Test (IAT), WHO-5 Well-being Index, Lubben Social Network Scale (LSNS-6), Patient Health Questionnaire-2 (PHQ-2), and Generalized Anxiety Disorder-2 (GAD-2). Data was analysed using descriptive and inferential statistics to assess correlations and predictive values.

Results: A total of 70 medical students from all semester participated, with a nearly equal gender distribution. Excessive social media use (>6 hours daily) was significantly associated with higher loneliness (UCLA score 52±7.5), internet addiction (IAT score 55±10), anxiety (GAD-2 score 3.1±1.4), and depressive symptoms (PHQ-2 score 3±1.5). Students reporting suicidal ideation (17.10%) or self-harm (8.57%) had significantly higher loneliness (UCLA, p=0.045) and higher social media integration (SMUIS, p=0.015) alongside reduced well-being (suicidal ideation group: 50 ± 21 vs. 75 ± 22, $p = 0.010$; self-harm group: 47 ± 20 vs. 70 ± 21, $p = 0.018$). No significant correlation was observed between social connectedness (LSNS-6), cognitive performance (Web-cog), and psychological scales.

Conclusion: Excessive social media use is significantly linked to loneliness, anxiety, depression, and poor well-being among Indian medical students. Targeted interventions are needed to mitigate these risks.

Keywords: Social Media, Perceived Isolation, Social Disconnectedness, Academic Failure, Mental Health

Introduction

The widespread adoption of social media has substantially influenced patterns of communication, information exchange, and social interaction among young adults. In the context of Indian medical education, platforms such as WhatsApp, Facebook, and Instagram have become integrated into students' academic and social routines.[1] While these platforms offer avenues for academic collaboration and peer engagement, there is growing concern regarding their potential adverse effects on psychological well-being and academic performance.[2,3]

Perceived isolation, defined as the subjective experience of feeling socially excluded despite the presence of social contacts, has been strongly associated with depression, anxiety, and compromised mental health.[4] Medical students, by virtue of demanding academic schedules and reduced opportunities for in-person interaction, may be particularly susceptible to these negative outcomes.[5] Social disconnectedness, characterized by an objective lack of meaningful social ties or networks, represents an additional risk factor for impaired well-being and reduced social functioning.[6] Furthermore, while social media may facilitate academic communication, excessive or unregulated use has been implicated in increased academic distractions and a heightened risk of academic underperformance or failure.[7,8]

Despite these concerns, there remains a paucity of empirical data exploring the complex relationships between social media use, perceived isolation, social disconnectedness, and academic outcomes among Indian medical students. Given the unique socio-cultural context and increasing digital dependence within this population, such research is imperative.[9]

The study aimed to address this gap by systematically evaluating these associations to inform targeted interventions that promote mental health and academic success among medical students in India.

Materials and Methods

This two-stage, cross-sectional, mixed-method study assessed associations between social media use, perceived isolation, social disconnectedness, and academic failure among 70 MBBS students, following approval from the Institutional Ethics Committee (IEC Approval No: STU/IEC/2024/312). Eligible participants were aged 18-30, experienced academic failure (such as failing a subject or course) at any point during their medical education, used social media for at least one hour daily over the past six months, and provided informed consent. Exclusion criteria included no academic failure, less than one hour social media use, incomplete responses, or completed internships. Data were collected via a secure online questionnaire using validated tools such as the UCLA Loneliness Scale, IAT, LSNS-6, PHQ-2, GAD-2, Social Media Use Integration Scale, and Mini-Cog Test. Analyses were performed using SPSS with descriptive statistics, correlation, and regression. p less than 0.05 was considered statistically significant.

Results

Our study included participants predominantly aged 21-23 years (56%), with 44% in the 19-20 age group. The gender distribution was nearly equal, comprising 52% females and 48% males. Instagram emerged as the most popular platform, used by 80% of participants, followed by YouTube (72%) and Snapchat (40%). OTT platforms were used by 48%, while Facebook accounted for 32%. Usage of LinkedIn and Twitter was minimal (4% each). Additionally, 20% of participants reported using other social media platforms beyond the listed options.

The distribution of social media usage across age groups revealed that the majority of medical students, regardless of age, reported moderate to high daily engagement on social media platforms. Notably, 19.4% of students aged 19-20 years and 12.8% of those aged 21-23 years reported excessive use exceeding six hours daily, suggesting a significant proportion of students are at risk for problematic usage patterns (Table 1).

Table 1: Daily Social Media Use by Age Group

Age (Years)	Total Number of Persons	1–2 Hours (%)	2–6 Hours (%)	>6 Hours (%)
19–20	31	11 (35.5%)	14 (45.2%)	6 (19.4%)
21–23	39	14 (35.9%)	20 (51.3%)	5 (12.8%)
Total	**70**	**25 (35.7%)**	**34 (48.6%)**	**11 (15.7%)**

Excessive social media use (>6 hours) was associated with higher loneliness, internet addiction, anxiety, and greater daily life integration of social media. Significant correlations were noted between SMUIS scores, anxiety, and perceived connectedness, highlighting psychological risks of heavy usage (Table 2).

Table 2: Correlation Between Social Media Usage and Various Scores

Scores	Social Media Usage				Correlation Analysis		
	1-2 Hours (Mean ± SD)	2-6 Hours (Mean ± SD)	>6 Hours (Mean ± SD)	p-value	IAT Scoring (r p-value)	SMUIS Score (r p-value)	p-value
Web-Cog/Mini-Cog[10] score	3.6 ± 1.2	3.9 ± 1.4	2.8 ± 1.3	0.14	-0.230 (p=0.280)	0.050 (p=0.850)	0.880
UCLA-3[11] Scoring	43 ± 5.5	49 ± 8.5	52 ± 7.5	0.08	-0.210 (p=0.330)	0.100 (p=0.620)	0.640
IAT[12] Scoring	34 ± 8	39 ± 9	55 ± 10	0.045	0.240 (p=0.270)	-0.030 (p=0.870)	0.870
LSNS-6[13] Scoring	13 ± 4.5	12 ± 5	11 ± 5.5	0.74	0.220 (p=0.290)	0.480 (p=0.018)	0.018
PHQ-2[14] Scoring	2.1 ± 1.1	2.3 ± 1.3	3 ± 1.5	0.052	0.280 (p=0.180)	0.140 (p=0.520)	0.520
GAD-2[15] Scoring	1.4 ± 1.5	2 ± 1.9	3.1 ± 1.4	0.048	0.480 (p=0.018)	0.870 (p=0.010)	0.010
SMUIS[16] Score	22 ± 9.5	44 ± 7.5	65 ± 8.5	0.028	0.870 (p=0.010)	0.480 (p=0.018)	0.018
WHO-5 Wellbeing Index (%)[17]	61 ± 31	64 ± 20	55 ± 25	0.25	-0.350 (p=0.080)	-0.280 (p=0.180)	0.180

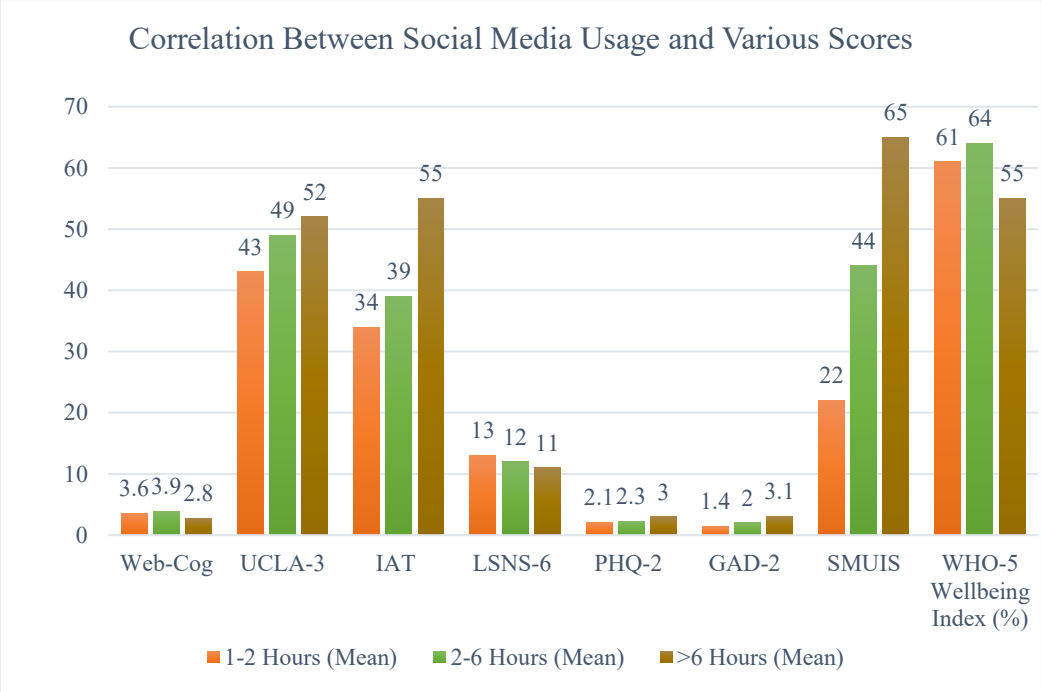

Figure 1: Correlation Between Social Media Usage and Various Scores

Students with suicidal ideation, self-harm, or eating disorders had significantly higher loneliness, addiction, depression, anxiety, and lower well-being scores, underscoring the mental health impact of problematic social media use (Table 3).

Table 3: Scores and Suicidal Ideation, Self-Harm, Eating Disorder

Scores	Suicidal Ideation			Self-Harm			Eating Disorder		
	Yes (Mean ± SD)	No (Mean ± SD)	p-value	Yes (Mean ± SD)	No (Mean ± SD)	p-value	Yes (Mean ± SD)	No (Mean ± SD)	p-value
Web-cog/Mini score	3.1 ± 1.7	3 ± 1.4	0.91	2.90 ± 1.50	3.20 ± 1.30	0.140	2.75 ± 1.60	3.20 ± 1.50	0.180
UCLA Scoring	50 ± 7	44 ± 8	0.020	57.00 ± 8.50	46.00 ± 9.00	0.045	59.00 ± 7.50	44.00 ± 8.00	0.038
IAT Scoring	45 ± 13	34 ± 20	0.07	65.00 ± 12.00 (Moderate)	40.00 ± 19.00 (Mild)	0.020	60.00 ± 13.00 (Moderate)	42.00 ± 18.00 (Mild)	0.040
LSNS-6 Scoring	13 ± 4	15 ± 6.5	0.39	12.00 ± 4.50	14.50 ± 6.00	0.300	11.50 ± 5.00	14.00 ± 5.50	0.250
PHQ-2 Scoring	2 ± 1.3	1.9 ± 1.2	0.7	3.30 ± 1.10	2.10 ± 1.20	0.040	3.10 ± 1.20	2.10 ± 1.00	0.048
GAD-2 Scoring	2.3 ± 1.6	1.4 ± 1.5	0.13	3.40 ± 1.30	1.80 ± 1.50	0.030	3.20 ± 1.30	1.90 ± 1.10	0.050
SMUIS Score	33 ± 10.5	28 ± 10	0.24	53.00 ± 9.00 (Moderate)	35.00 ± 8.50 (Low)	0.015	55.00 ± 10.00 (Moderate)	33.00 ± 9.00 (Low)	0.020
WHO-5 Wellbeing Index (%)	50 ± 21	75 ± 22	0.010	47.00 ± 20.00	70.00 ± 21.00	0.018	42.00 ± 22.00	65.00 ± 23.00	0.040

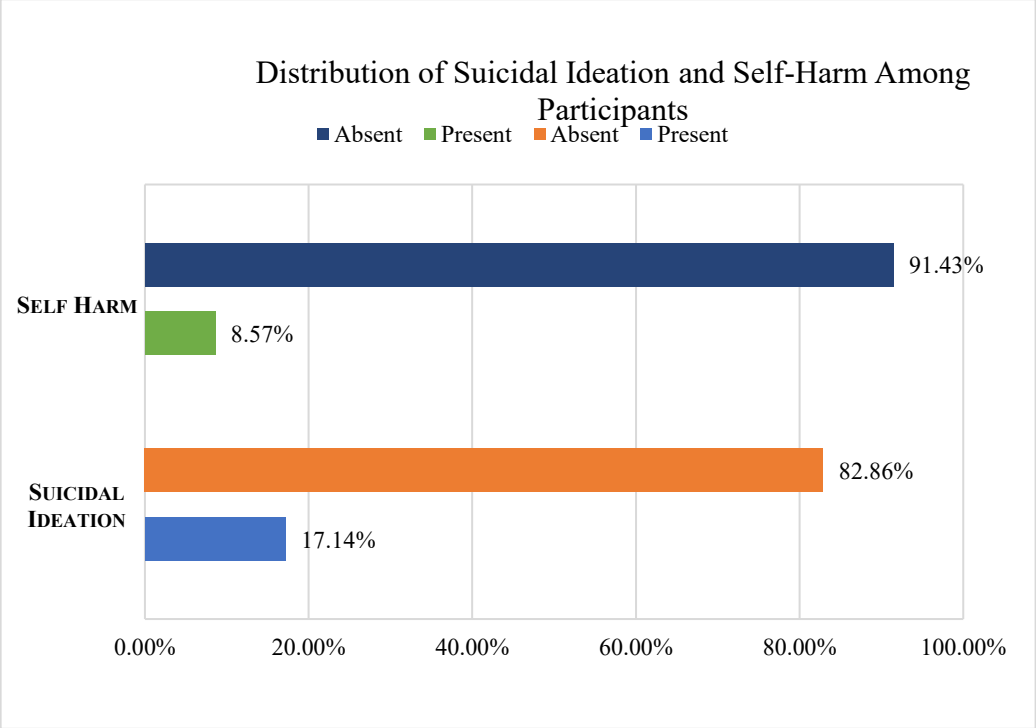

Figure 2: Distribution of Suicidal Ideation and Self-Harm Among Participants

No significant correlations were found between cognitive performance (Web-cog) and psychological scales, suggesting minimal direct impact of social media on cognitive function **(Table 4)**.

Table 4: Correlation of Web-cog Scores with Psychological Scales and Well-being Measures

Scores	Web-cog (r)	p- Value
UCLA	-0.093	0.472
IAT	-0.251	0.080
LSNS-6	0.050	0.732
PHQ-2	-0.206	0.155
GAD-2	-0.234	0.108
SMUIS	-0.172	0.231
WHO-5 Wellbeing Index (%)	0.072	0.623

Discussion

Perceived isolation and social disconnectedness are on the rise globally and have been studied primarily in non-medical populations. A prominent nationwide study conducted in Denmark in 2021 by Santini et al.[18] found that adolescents faced a significantly higher risk of mental health problems when experiencing isolation and social disconnectedness. Their large-scale study, involving over 29,000 students, highlighted that social disconnectedness and loneliness were directly linked to a wide range of mental health problems, including depression, anxiety, sleep disturbances, suicidal thoughts, and self-harm.

The authors of the present study intended to understand and explore whether medical students who are academically lagging and failed also going through similar predisposition of high social medial use, perceived isolation and social disconnectedness. To our knowledge, this is the first study from India investigating these predictors in academic failures which remains neglected and overlooked in medical parlance.

We found in our study that medical students who spent more time on social media experienced significantly higher levels of loneliness, anxiety, depression, and problematic internet use, along with

poorer overall well-being. Similarly, Zeng et al.[19] from the Center for Teacher Education Research at Xinjiang Normal University, China, also pointed out that excessive smartphone use, often driven by feelings of social isolation, contributes to higher academic anxiety and problematic technology use, a pattern that resonates with what we observed among students who reported excessive social media engagement. These findings closely reflect the observations made by Santini et al.[18]

We also found that students who reported suicidal ideation, self-harm, or eating disorders had significantly higher loneliness scores, internet addiction levels, and mental health problems compared to their peers. These patterns are again consistent with Santini et al.[18], who clearly demonstrated how loneliness and poor social support systems increase the risk for self-harm, suicidal thoughts, and other psychological difficulties. Likewise, Zeng et al.[19] emphasized how the combination of social isolation and academic stress exacerbates harmful behaviors, supporting the strong association between these factors in our group of students. These comparisons are summarized in Table 5, which contrasts our findings with those from existing literature (Table 5: Comparison of Present Study Findings with Existing Literature).

Interestingly, students who were more deeply integrated with social media, as reflected in their higher SMUIS scores, were also more likely to report self-harm, eating disorders, and lower well-being. These findings relate to the dual nature of social media use described by Lahiry et al.[20], who acknowledged both positive and negative impacts of social media on students' academic and interpersonal experiences. While their work focused more on academic performance, our study adds to the conversation by showing how deeper social media involvement can be linked to more serious psychological struggles.

It is noteworthy that objective social connectedness, as measured by the LSNS-6 scale, did not significantly differ between those with and without mental health issues. This suggests that it is not just the size of a person's social circle, but the quality of their connections and their subjective feelings of isolation that play a more important role in their mental well-being. Lahiry et al.[20] similarly hinted at this complexity in how students perceive and experience social relationships, particularly in the digital era.

Additionally, our study uniquely explored how these psychological factors relate to cognitive performance, assessed through Web-cog scores. We found only weak, non-significant associations between cognitive performance and loneliness, depression, anxiety, and internet addiction. While Santini et al.[18] discussed the mental health consequences of social disconnectedness, they did not explore its direct relationship with cognitive function, making this an area where our findings add new insight, even though the associations were not statistically strong.

Table 5: Comparison of Present Study Findings with Existing Literature

Parameter	Our Study (n=70)	Goh et al. 2022[2]	Lahiry et al. 2019[20]	Santini et al. 2021[18]	Bhandarkar et al. 2021[21]	Zeng et al. 2022[19]
Age Group	19–20 yrs: 44%; 21-23 yrs: 56%	Young adults; not specified	Medical students; not specified	Adolescents; not specified	Medical students; not specified	Undergraduates; not specified
Excessive Social Media Use (>6 hrs)	15.7%; more among 19-20 yrs (19.4%)	Isolation linked to problematic use	High use for academics, mixed effects	Linked to mental health risks	More in lower-performing students	Smartphone addiction linked to isolation, anxiety

Loneliness	Higher in >6 hrs use (UCLA Mean 52); higher in suicidal/self-harm group	Isolation linked to problematic internet use	Negative interpersonal impact in 45% students	Loneliness mediated mental health problems	Not assessed	Positive correlation with isolation, anxiety
Internet Addiction (IAT)	Mean 55 in >6 hrs use; higher in suicidal/self-harm group	Linked to isolation	Not assessed	Not assessed	Not assessed	Addiction linked to isolation and anxiety
Anxiety (GAD-2)	Mean 3.1 in >6 hrs use; higher in suicidal/self-harm group	Isolation contributes to distress	Not assessed	Linked to disconnectedness and loneliness	Not assessed	Anxiety linked to isolation and smartphone use
Social Media Integration (SMUIS)	Deepens with >6 hrs use; higher in self-harm/eating disorder group	Not assessed	High academic use; mixed effects	Not assessed	Academic use common; excessive use problematic	Non-communicative use worsens isolation
Social Connectedness (LSNS-6)	No significant difference across groups	Perceived isolation more influential	Not assessed	Disconnectedness linked to mental health risks	Not assessed	Not assessed
Cognitive Performance (Web-Cog)	No significant correlation with psychological distress	Long-term cognitive impact possible	Not assessed	Not assessed	Not assessed	Not assessed

Our study was comprehensive and mixed-method in nature, incorporating multi-level evaluation, multiple variables, and psychiatric referral for students reporting suicidal ideation or self-harm. Nevertheless, certain limitations were present, such as small sample size, single-center setting, reliance on self-reported data, and the absence of longitudinal follow-up to assess long-term psychological or academic impacts. A larger, multicentric phase of the study is currently underway to address these limitations.

Conclusion

We concluded that rising social media use among medical students, especially beyond six hours daily, is closely linked to feelings of loneliness, anxiety, depression, and reduced overall well-being. The study also revealed that students experiencing suicidal thoughts, self-harm, or eating disorders

demonstrated significantly higher psychological distress and poorer mental health scores. Despite these emotional difficulties, cognitive performance remained unaffected. These findings highlighting the urgent need for awareness and interventions to address these mental health risks.

Conflict of Interest: None.
Funding: None.
Ethical Approval: Obtained.
Consent: Written consent secured.

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