

Original Research Article

Clicks and minds: correlation between psychological distress and social media addiction among medical students in a tertiary care hospital in Puducherry

Monisha V.^{1*}, Arulappan G.², S. Rajini¹, R. Sheeba¹, R. Iswarya¹

¹Department of Community Medicine, Sri Lakshmi Narayana Institute of Medical Sciences, BIHER, Puducherry, India

²Department of Forensic Medicine, Indira Gandhi Medical College and Research Institute, Puducherry, India

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*Correspondence:

Dr. Monisha V.,

E-mail: monisha.venkatesan92@gmail.com

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ABSTRACT

Background: Medical students are uniquely vulnerable to psychological distress, and ubiquity of social media introduces new risks for addiction that may exacerbate mental health challenges. This study explores the prevalence of social media addiction (SMA) and psychological distress among medical students and examines their interrelationships with academic performance (AP).

Methods: A cross-sectional study was conducted among 620 MBBS students in a tertiary care medical college of Puducherry over 4 months from October 2024 to January 2025. Multistage systematic random sampling ensured equal representation across all batches (2019-2024). Data were collected using a structured questionnaire- Bergen Social Media Addiction Scale (BSMAS), and Depression, Anxiety, and Stress Scale (DASS-21). Statistical analysis included descriptive statistics, correlation analysis, and linear regression were used to clarify the relationships between main study variable.

Results: Our study population included 56.6% female and 43.4% male, with a mean age of 20.7 ± 0.64 years. The prevalence of social media addiction was 26%. Symptoms of depression, anxiety, and stress were present in 41.6%, 49%, and 37% of students, respectively. SMA was significantly correlated with depressive symptoms ($r=0.804$, $p<0.01$) and negatively correlated with AP ($r=0.475$, $p<0.01$). Linear regression identified depression as a significant predictor of SMA ($\beta=0.47$, $p<0.001$).

Conclusions: SMA is common among medical students and is strongly associated with psychological distress, particularly depression, and poorer academic outcomes. These findings underscore the critical need for holistic wellness programs and digital literacy interventions to bolster mental health and healthier social media habits within medical education, addressing the pressing mental health concerns prevalent among students.

Keywords: Social media addiction, Psychological distress, Medical students

INTRODUCTION

The landscape of medical education is under rapid evolution, with medical students increasingly acknowledged as a vulnerable population facing multifaceted challenges. The transition into medical school is universally recognized as a period of elevated stress, characterized by rigorous academic demands,

integration to new learning environments, as well as the pressure to perform well in both theoretical and clinical domains.^{1,2} This transitional phase is often coupled with emotional and psychological upheaval, which predisposes medical students particularly susceptible to psychological distress such as depression, anxiety, and stress, at rates that surpass those reported in the general population. Concurrently, the digital revolution has fundamentally

altered the fabric of student life. In India, approximately 470 million active social media users, representing about 32.8% of the country's total population, especially among young adults.³ The proliferation of smartphones and affordable internet access has further accelerated this trend, embedding social media deeply into the academic and social experiences of medical students in India.^{4,5} While these platforms offer opportunities for connection and collaboration, their addictive potential has emerged as a growing public health concern. Recent Indian studies have reported that the prevalence of social media addiction among medical students ranges from 24.6% to 44%, highlighting a significant and rising challenge within this demographic.^{6,7}

A growing body of evidence suggests that the relationship between social media use and psychological distress is both complex and bidirectional. On one hand, digital platforms can provide social support and a sense of community; on the other, excessive or maladaptive use may serve as an unhealthy coping mechanism, exacerbating symptoms of depression, anxiety, and stress.^{7,8} Notably, In India, where gaining admission to medical school through the National Eligibility cum Entrance Test (NEET-UG) is an exceptionally competitive and demanding process, often requiring years of intense preparation and dedication. Studies have documented a high prevalence of mental health conditions among Indian medical college students.^{7,9-11} Despite these concerning trends, there remains a paucity of comprehensive research in the Indian context that simultaneously examines the prevalence of social media addiction, its association with psychological distress, and its impact on academic performance among medical students. The present seeks to address the gap estimate the prevalence of social media addiction and psychological distress among medical students and also examining their interrelationship with academic performance medical students in Puducherry.

METHODS

An analytical cross-sectional study was conducted among 620 Medicine and Bachelor of Surgery (MBBS) students in a tertiary care hospital at Puducherry from October 2024 to January 2025. The students enrolled from the academic year 2019-2024 were included in the sampling frame and students not giving consent or discontinuing the course were excluded from the study. Considering the prevalence of depression among private medical college students in South India 7 as 59%, a margin of error 5%, confidence interval of 95%, and a 10% non-response rate, the minimum required sample size was calculated to be 413. After adjusting for a design effect of 1.5, the final sample size was increased to 620. Systematic random sampling was applied to select the 124 eligible students from the first year to the fourth year of MBBS, including the students' ongoing internship for equal representation to fulfill the sample size of 620. The self-administered questionnaire consists of socio demographic profile,

personal characteristics, academic performances, two standardized instruments such as Bergen social media addiction scale (BSMAS) and Depression Anxiety Stress Scale 21 (DASS 21). The responses were recorded via Google Forms questionnaire. The BSMAS assessed the extent of social media addiction among participants through 6 addiction symptoms, such as salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse.⁶ The scale was validated and used in Indian studies, and it was rated on a 5-point Likert scale, and participants rated their frequency of symptoms ranging from 1 (very rarely) to 5 (very often), yielding a total minimum score of 6 to a maximum of 30. It is based on the higher the score in BSMAS, the stronger the addiction to social media, and a total score of more than 19 indicates addiction.¹² Cronbach's alpha for the BSMAS was 0.834 in this study, suggesting its high internal consistency. The DASS 21 questionnaire is pre-validated and standardized short scale that evaluates psychological distress levels with three subscales depression, anxiety, and stress.¹³ Each subscale contains 7 items rated on a four-point scale, where higher scores indicate greater psychological distress. The total scores of each subscale were calculated by multiplying the raw total scores by 2. The cutoff points of 10, 8, and 16 were used to screen for clinically relevant depression, anxiety, and stress symptoms.

Statistical analysis

The data were entered in MS Excel 2019 and analyzed using Statistical Package for the Social Sciences (SPSS) Inc. Released 2007. SPSS for Windows, version 16.0. Chicago, SPSS Inc. The quantitative variables were represented in mean, and the qualitative variables in proportion and frequencies.

Chi-square test was used to examine the association between sociodemographic profile with social media addiction and psychological distress. Correlation coefficient and linear regression analysis to identify the relationship between psychological distress parameters, academic performance, and BSMAS among undergraduate MBBS students.

RESULTS

A total of 620 MBBS students participated in this study, with a mean age of 20.7±0.64 years. The gender distribution was nearly equal, with 269 (43.4%) males and 351 (56.6%) females. The majority of students (66.5%) resided in hostels, reflecting the institution's diverse intake of students from various regions of India.

In terms of academic performance, the majority of participants (72.1%) scored between 51-75% in their most recent university examinations, but for the first year of MBBS, the recent assessment was considered the yardstick to classify the participants based on the grade. (Table 1).

Table 1: Characteristics of study participants (n=620).

Variable	n (%)
Age (years)	≤20
	218 (35.2)
>20	402 (64.8)
Gender	Male
	269 (43.4)
Female	351 (56.6)
Grade of the participant in previous exams	<50%
	83 (13.4)
	51-75%
≥75	447 (72.1)
	90 (14.5)
Residential Status	Hosteller
	412 (66.5)
Non-hosteller	208 (33.5)
Daily use of social media (min)	<30
	67 (10.8)
	31-60
	213 (34.3)
61-120	195 (31.5)
	>120
	145 (23.4)

Social media addiction was present in 161 students (26%), while remaining 459 (74%) did not meet the threshold for addiction. A significant proportion of students (42.2%) with social media addiction reported spending more than two hours daily on social media which is statistically significant ($p<0.001$). The majority of social media-addicted students (62.1%) were females compared to males (37.9%) and hostellers constituted a

higher proportion (64.6%). Regarding psychological distress, 258 (41.6%) students reported depressive symptoms, 304 (49%) reported anxiety, and 229 (37%) reported stress. Some students were affected by more than one emotional state. Depression, anxiety, and stress were significantly more prevalent among females (p -value <0.05) and also participants with academic performances of 51-75% (p -value <0.01). Increased time spent on social media was strongly associated with higher rates of depression (38%) among those using more than 2 hours per day (p -value <0.05) (Table 2).

Correlation analysis revealed a strong positive relationship between social media addiction and depression, which is statistically significant (p -value <0.01), and moderate correlations with anxiety (p -value <0.05) and stress (p -value <0.01). Academic performance was negatively correlated with social media addiction (p -value <0.01), which implies that participants with social media addiction tend to have poorer academic performance (Table 3). Linear regression further identified depression as a significant predictor of social media addiction (p value = 0.000). These findings underscore that students who experience higher levels of depressive symptoms are substantially more likely to exhibit addictive patterns of social media use (Table 4).

Table 2: Distribution of social media addiction, depression, anxiety and stress among study participants based on the study variables (n=620).

Variable		SMA n=161 (26%)	Depression n=258 (41.6%)	Anxiety n=304 (49%)	Stress n=229 (37%)
Age (years)	≥20	52 (32.3%)	93(36%)	115(37.8%)	85(37.1%)
	>20	109 (67.7%)	165(64%)	189(62.2%)	144(62.9%)
Gender	Male	61 (37.9%)	107(41.5%)*	116(38.2%)*	86(37.6%)*
	Female	100 (62.1%)	151(58.5%)*	188(61.8%)*	143(62.4%)*
AP	<50%	29 (18%)	48(18.6%)**	53(17.4%)*	43(18.8%)**
	51-75%	112 (69.6%)	179(69.4%)**	214(70.4%)*	161(70.3%)**
	≥75%	20 (12.4%)	31(12%)**	37(12.2%)*	25(10.9%)**
Residential status	Hosteller	104 (64.6%)	167(64.7%)	199(65.5%)	141(61.6%)
	Non-hosteller	57 (35.4%)	91(35.3%)	105(34.5%)	88(38.4%)
Time spent in social media	<30 mins	7 (4.3%)**	26(10.1%)*	34(11.2%)	23(10%)
	31-60 mins	20 (12.4%)**	60(23.2%)*	94(30.9%)	73(31.9%)
	61-120 mins	66 (41%)**	74(28.7%)*	92(30.3%)	66(28.8%)
	>120 mins	68 (42.2%)**	98(38%)*	84(27.6%)	67(29.3%)

*P value <0.05 is statistically significant; **P value <0.01 is statistically significant; SMA - Social Media Addiction; AP - Academic Performance.

Table 3: Correlation between the social media addiction and psychological distress with academic performance among medical students.

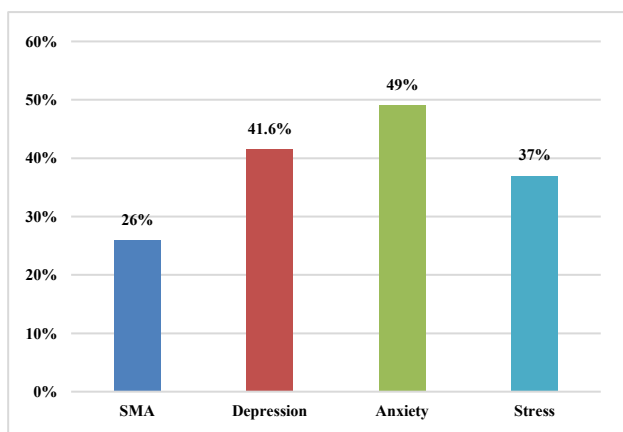
Variable		BSMAS	Depression	Anxiety	Stress	AP
BSMAS	Correlation Coefficient	1				
Depression	Correlation Coefficient	0.804**	1			
Anxiety	Correlation Coefficient	0.432*	0.651	1		
Stress	Correlation Coefficient	0.217**	0.771	0.640	1	
AP	Correlation Coefficient	-0.475**	-0.475	-0.119	-0.130	1

** Correlation is significant at the 0.01 level; * Correlation is significant at the 0.05 level, BSMAS- Bergen social media addiction scale; AP- academic performance.

Table 4: Linear regression showing relationship between psychological distress parameters, academic performance and BSMAS.

Variables	Unstandardized Coefficients	Standardized Coefficients	t	P value	95% CI for Bound	
	B	Beta			Lower Bound	Upper Bound
Depression	0.63	0.47	7.55	<0.001	0.51	0.78
Anxiety	0.048	0.099	1.314	0.189	-0.024	0.120
Stress	-0.034	-0.068	-0.953	0.341	-0.103	0.036
AP	-0.599	-0.063	-1.841	0.066	-1.238	0.040

AP- academic performance; CI- Confidence interval.

**Figure 1: Distribution study participants based on social media addiction and psychological distress states.**

DISCUSSION

The present study was aimed at determining the prevalence of social media addiction and psychological distress among medical students of a tertiary care hospital in Puducherry and the interrelationships that exist between these factors and academic performance. The prevalence of social media addiction in our study was 26% as measured by the Bergen Social Media Addiction Scale (BSMAS). This prevalence is in line with the growing Indian studies highlighting the ubiquity of digital addiction among medical undergraduates. For instance, Parmar et al reported a social media addiction prevalence of 32.1% among medical students in Gujarat, India, and Arora et al identified 18% of students at risk for developing social media addiction in their study conducted in New Delhi, India.^{6,10} Likewise, Awasthi et al observed that 43.8% of medical students in Uttarakhand exhibited smartphone addiction, and Das et al concluded that 25.2% of young adults in Delhi were smartphone addicts, attributing a significant proportion of them used social media most frequently.^{5,14} However, some studies have reported lower prevalence rates - a study utilizing the BSMAS in a different context found only 4.1% of participants meeting the threshold for social media addiction.¹⁵ These variations may be attributed to

differences in regional digital penetration and sociocultural factors influencing technology use.

Psychological distress was high among the study participants, with 41.6% of students reporting depressive symptoms, 49% reporting anxiety, and 37% reporting stress. These findings are consistent with several recent Indian studies. Raja et al found depression in 59%, anxiety in 43%, and stress in 11% of medical students in South India.⁷ Parmar et al reported that 46.2% of medical students were in stress, 41.9% in anxiety, and 37.6% in depression.¹⁰ Iqbal et al reported even higher rates, with 51.3% experiencing depression, 66.9% anxiety, and 53% stress among medical undergraduates in Bhubaneswar.⁹ Shiraly et al similarly found depression in 44.4%, anxiety in 37.7%, and stress in 37.4% among medical students.¹¹ Collectively, included studies underscore a substantial burden of psychological morbidity among Indian medical students is a concern that warrants urgent attention from educators and policymakers. Our study observed that female students experienced higher rates of depression, anxiety, and stress. This gender disparity is consistent with the previous studies.^{7,16,17} This difference might be multifactorial, including societal expectations, differences in coping strategies, and greater willingness among female students to report psychological symptoms. Notably, the present study showed the strong association between the amount of time spent on social media and both addiction and psychological distress. Nearly half (42.2%) of students with social media addiction reported spending more than two hours daily on social media. This pattern is consistent with both Shiraly et al and Haand et al have both demonstrated that increased duration of social media use is associated with higher rates of addiction and psychological distress.^{11,15} Importantly, our study also found a significant negative impact of social media addiction on academic performance: 18% of addicted students had grades below 50%, compared to 11.8% among non-addicted peers. This relationship has been well-documented in the literature, with excessive social media use linked to reduced study time and lower academic achievement.^{11,15,18} Our regression analysis identified depression as the most significant predictor of social media addiction ($\beta=0.47$, $p<0.001$), while academic performance showed a negative trend. This suggests that students experiencing depressive symptoms may be more

likely to engage in maladaptive social media use, possibly as a coping mechanism for psychological distress. This interpretation is supported by both Indian and international research which consistently reflected that psychological distress particularly depression, could drive individuals toward excessive digital engagement as a form of escape or to elevate the mood.^{19,20} But the directionality of this relationship remains a subject of debate, as some evidence suggests that social media addiction itself may contribute to the onset or worsening of depressive symptoms, creating a vicious cycle.²¹ However, it is noteworthy that not all studies have found depression to be the strongest predictor of social media addiction. For instance, Tullett-Prado et al. in Melbourne found that anxiety and stress symptoms pertain to having a greater influence on social media addiction than depression.²² It underscores the interplay between various psychological distress and social media addiction being complex and might be influenced by contextual and cultural factors.

The high prevalence of social media addiction and psychological distress among medical students in our study highlights the need for a paradigm shift in medical education and institutional policy in India. Traditional approaches that focus solely on academic achievement are insufficient to address the complex interplay between digital behavior, mental health, and learning outcomes. The National Medical Commission (NMC) has recently recommended the integration of holistic wellness programmes that include yoga, mindfulness, and stress management into the undergraduate medical curriculum.²³ Such programs have demonstrated efficacy in improving resilience, reducing psychological distress, and promoting healthier habits. In addition, digital literacy education should be prioritized to empower students to use technology responsibly and recognize the signs of addiction. A key strength of our study is the use of validated instruments (BSMAS and DASS-21) to assess both social media addiction and psychological distress. Recommendations for future research should prioritize the adoption of longitudinal and multicentric designs along with qualitative methodologies such as in-depth interviews.

Limitations

The single-institution setting in this study might limit the generalizability of the findings to medical students in other regions. The absence of qualitative insights restricts a deeper understanding from the student's point of view. Additionally, unmeasured confounding factors such as socioeconomic background and family support systems could have influenced the observed outcomes.

CONCLUSION

This study underscores the profound interplay between social media addiction, psychological distress, and academic performance among medical students, revealing

critical implications for medical education. Social media addiction is not merely a behavioural concern but a significant mental health risk, exacerbating depressive symptoms and impairing academic achievement. The bidirectional relationship between digital overuse and psychological distress demands a fundamental change in how medical institutions support student well-being. To attenuate these risks, holistic interventions must integrate digital literacy, mental health support, and resilience-building strategies into the core of medical education. Proactive measures like mandatory wellness programs, accessible counselling, and faculty mentorship which can empower students to develop healthier coping mechanisms and responsible digital habits. By fostering a culture that prioritizes both academic excellence and emotional well-being, medical colleges can cultivate resilient, balanced future physicians equipped to navigate the complexities of modern healthcare.

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