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A Comparative Analysis of Nomophobia and Social Media Addiction Among Medical and Non-Medical Undergraduates in the Andaman and Nicobar Islands, India

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Abstract

Objective: Nomophobia and social media addiction are prevalent, interrelated conditions driven by the psychological need for constant connectivity. Their impact on the mental well-being and academic performance of high-stress populations like medical students requires urgent investigation. ***Design & Methods:*** A cross-sectional study was conducted among undergraduate medical students using a structured online questionnaire. Data were collected using validated scales: the Nomophobia Questionnaire (NMP-Q), the Bergen Social Media Addiction Scale (BSMAS), the Pittsburgh Sleep Quality Index (PSQI), and the International Physical Activity Questionnaire (IPAQ). ***Results***: This study reveals a high prevalence of nomophobia among students at both ANIIMS and JNRM in the Andaman and Nicobar Islands, with less than 2% of participants reporting no symptoms. JNRM students exhibited a broader spread across severity levels, including higher proportions of severe nomophobia, whereas ANIIMS students were predominantly in the moderate category. ***Conclusions***: In conclusion, this study confirms the high prevalence of nomophobia among students in the Andaman and Nicobar Islands, while revealing key inter-institutional differences. The JNRM cohort, characterized by heavier usage, showed a greater tendency toward severe nomophobia and poorer sleep quality compared to ANIIMS.

Keywords ***Nomophobia, Social Media Addiction, BSMAS, PSQI, IPAQ, NMP-Q.***

Introduction

The 21st-century digital revolution, cantered on the smartphone, promises unparalleled connectivity but fosters a paradox of "connected isolation." This has precipitated a significant public health challenge: behavioural addictions like Nomophobia (No-Mobile-Phone Phobia) and Social Media Addiction (SMA). These conditions are particularly prevalent among young adults, whose development is intertwined with digital media. [1,2].

The Indian context, with the world's largest youth population and explosive smartphone growth, presents a critical vulnerability. University students are a high-risk group, using these technologies to navigate academic and social transitions. Within this demographic, medical students face a uniquely intense stressor load, potentially increasing their dependency on digital platforms for coping. [3].

However, a clear comparative understanding between medical and non-medical cohorts is lacking. This study addresses this gap by investigating the prevalence and interplay of Nomophobia and SMA among students from distinct institutions in the Andaman and Nicobar Islands, exploring their association with crucial lifestyle factors like sleep and physical activity.

Methods

Study Design and Setting

A comparative cross-sectional study was conducted at two distinct institutions: the Andaman & Nicobar Islands Institute of Medical Sciences (ANIIMS), representing a medical stream, and Jawaharlal Nehru Rajkeeya Mahavidyalaya (JNRM), representing a non-medical academic stream.

Study Population

The study included students from all academic years at ANIIMS, and 1st to 3rd-year students at JNRM. The minimum sample size, calculated based on a presumed 68.6% prevalence of nomophobia, was 528 (264 per institution). A consecutive sampling method was employed to recruit eligible, consenting students aged over 18 years.

Data Collection and Instruments

Data were collected via a self-administered digital questionnaire. The instrument captured:

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- Socio-demographics and smartphone usage patterns.
- Nomophobia: Assessed using the 20-item Nomophobia Questionnaire (NMP-Q), scored from 20-140 and categorized as none, mild, moderate, or severe.
- Sleep Quality: Measured with the Pittsburgh Sleep Quality Index (PSQI); a global score >5 indicated poor sleep quality.
- Social Media Addiction: Evaluated using the 6-item Bergen Social Media Addiction Scale (BSMAS).
- Physical Activity: Quantified with the International Physical Activity Questionnaire (IPAQ), with results in MET-minutes/week.

Procedure

Following ethical approval and a pilot study, the final questionnaire was administered over one week. Electronic informed consent was obtained from all participants prior to their involvement.

Results

Prevalence and Severity of Nomophobia

The study demonstrated a near-universal prevalence of nomophobia among the 605 participants, with only 1.5% (n=9) reporting no symptoms. However, distinct inter-institutional patterns emerged in severity distribution. At ANIIMS, the majority of affected students (57.81%) exhibited moderate nomophobia, with smaller proportions in mild (26.58%) and severe (13.62%) categories. In contrast, the JNRM cohort showed a broader severity distribution, with significantly higher proportions of both mild (32.24% vs. 26.58%) and severe (17.11% vs. 13.62%) cases, while moderate nomophobia represented a smaller majority (49.67%) (**Table 1**).

Smartphone Usage Patterns

Marked differences in smartphone usage patterns provided a compelling explanation for the severity disparity. JNRM students reported substantially heavier non-academic use, with 53% using their devices for over 5 hours daily (30.26% for 5-7 hours; 22.7% for >7 hours) compared to only 15% at ANIIMS (11.3% for 5-7 hours; 3.65% for >7 hours). Conversely, the majority of ANIIMS students (51.5%) reported 1-3 hours of daily use (**Table 2**). Behavioural patterns showed both cohorts frequently checked phones immediately upon waking (≈43%) and felt anxious when separated from their devices (≈16%).

Predictors of Nomophobia

Multivariable logistic regression identified consistent predictors across both cohorts. Female gender significantly increased odds of nomophobia (ANIIMS AOR: 1.76, 95% CI: 1.12-2.62, p=0.015; JNRM AOR: 1.82, 95% CI: 1.18-2.79, p=0.007). Daily smartphone use exceeding 3 hours was the strongest predictor (ANIIMS AOR: 2.89, 95% CI: 1.77-4.72, p<0.001; JNRM AOR: 3.05, 95% CI: 1.97-4.71, p<0.001), as was frequent social media use (ANIIMS AOR: 2.33, 95% CI: 1.41-3.85, p=0.001; JNRM AOR: 2.11, 95% CI: 1.31-3.39, p=0.002) (**Tables 3,4**). Notably, age and academic year showed no significant association with nomophobia in either cohort.

Health Correlates

Sleep quality emerged as a significant differentiator. JNRM students demonstrated markedly poorer outcomes across all PSQI components, with 57.2% classified as poor sleepers (global PSQI >5) versus 37.9% at ANIIMS. JNRM students also reported longer sleep latency, shorter sleep duration, and greater daytime dysfunction (**Table 5**). A paradoxical weak positive correlation was observed between physical activity and nomophobia scores in both groups (ANIIMS: r=0.32, p=0.001; JNRM: r=0.29, p=0.002) (**Table 6**). Distinct anthropometric profiles were noted, with JNRM showing high underweight prevalence (32.57%) compared to ANIIMS' overweight/obesity prevalence (25.91%).

Table 1: Comparative Distribution of Nomophobia Severity Levels among Participants from ANIIMS and JNRM

Nomophobia Level	ANIIMS		JNRM	
	Frequency (N)	%	Frequency (N)	%
None	6	1.99	3	0.99
Mild	80	26.58	98	32.24
Moderate	174	57.81	151	49.67
Severe	41	13.62	52	17.11

Table 2: Distribution of Study Participants by Duration of Daily Smartphone Usage

Smartphone Usage & Patterns	ANIIMS			JNRM	
	N		%	N	%
Do you own a smartphone?	Yes	299	99.3	304	100
	No	2	0.7	0	0
On a typical day, how many hours do you spend on your smartphone for non-academic/non-work-related activities (e.g., social media, entertainment, gaming)?	<1 hour	24	7.97	22	7.24
	1-3 hours	155	51.5	78	25.66
	3-5 hours	77	25.58	43	14.14
	5-7hours	34	11.3	92	30.26
	>7 hours	11	3.65	69	22.7
Which of the following devices do you use regularly?	Smartphone	300	99.6	304	100
	Laptop/Desktop	5	1.66	180	59.2
	Tablet	32	10.6	39	12.8
	Smart TV	76	25.2	88	28.9
	Other (Please specify)	1	0.33	0	0
Do you feel anxious when you don't have access to your phone?	Yes	48	15.95	47	15.46
	No	165	54.82	133	43.75

	Sometimes	88	29.24	124	40.79
Do you check your phone immediately after waking -up?	Yes	127	42.19	131	43.09
	No	103	34.22	94	30.92
	Sometimes	71	23.59	79	25.99
Preferred time of using phone/social media	Morning-6am-12pm	37	12.29	48	15.79
	Afternoon-12pm-6pm	61	20.26	80	26.31
	Evening-6pm-10pm	156	51.83	157	51.64
	Late night-10pm-6am	47	15.61	19	6.25
Most used social media platform *	Instagram	205	68.07	270	88.8
	Whatsapp	301	100	298	98.0
	Youtube	234	77.7	278	91.4
	Snapchat	58	19.2	43	14.1
	Telegram	39	12.9	50	16.4
	Facebook	300	99.6	296	97.3
	Others	6	1.99	3	0.9
Have you ever tried digital detox?	Yes, successfully	77	25.58	79	25.99
	Yes, but struggled No, but planning to	53	17.61	48	15.79
	No, not interested	88	29.24	92	30.26
How many times do you check your phone in an hour?	<5 times	83	27.57	85	27.96
	5-10 times	145	48.17	90	29.61
	11-20 times	124	41.2	141	46.38
	>20 times	19	6.31	27	8.88
Do you find yourself spending more time on social media than you originally intended?	Always	38	12.62	44	14.47
	Never	12	3.99	20	6.58
	Often	79	26.25	30	9.87
	Rarely	37	12.29	49	16.12
	Sometimes	135	44.85	161	52.96
Do you neglect other important activities (e.g.,	Always	18	5.98	42	13.82
studies, hobbies, social gatherings) due to social media use?	Never	43	14.29	78	25.66
	Often	48	15.95	17	5.59
	Rarely	81	26.91	45	14.8
	Sometimes	111	36.88	122	40.13

Table 3: Logistic Regression for Predictors of Nomophobia- ANIIMS

Predictor Variable	Crude OR (95% CI)	Adjusted OR (95% CI)	p-value
Age ≥27 years	1.42 (0.95–2.13)	1.31 (0.84–2.04)	0.217
Gender (Female)	1.87 (1.28–2.74)	1.76 (1.12–2.62)	0.015
Daily use > hours	3.46 (2.21–5.42)	2.89 (1.77–4.72)	<0.001
Social media use	2.58 (1.64–4.05)	2.33 (1.41–3.85)	0.001

Table 4: Logistic Regression for Predictors of Nomophobia- JNRM

Predictor Variable	Crude OR (95% CI)	Adjusted OR (95% CI)	p-value
Age ≥27 years	1.29 (0.83–2.00)	1.17 (0.71–1.91)	0.413
Gender (Female)	1.94 (1.30–2.89)	1.82 (1.18–2.79)	0.007
Daily use > hours	3.71 (2.43–5.68)	3.05 (1.97–4.71)	<0.001
Social media use	2.33 (1.52–3.57)	2.11 (1.31–3.39)	0.002

Table 5: Components of PSQI scale among ANIIMS and JNRM student groups of smartphone users

Variable		ANIIMS (n=301)		JNRM (n=304)	
		n	%	n	%
Subjective Sleep quality	Very good	54	17.9	35	11.5
	Fairly good	146	48.5	110	36.2
	Fairly bad	86	28.6	118	38.8
	Very bad	15	5.0	41	13.5
Sleep latency	<15 min	82	27.2	45	14.8
	15-30 min	128	42.5	90	29.6
	31-60 min	71	23.6	112	36.8
	>60 min	20	6.7	57	18.8
Sleep duration	7 h	74	24.6	41	13.5

	6-7 h	126	41.9	94	30.9
	5-6 h	81	26.9	117	38.5
	<5 h	20	6.6	52	17.1
Habitual sleep efficiency	>85%	142	47.1	84	27.6
	75-84%	92	30.6	95	31.3
	65-74%	49	16.3	79	26.0
	<65%	18	6.0	46	15.1
Sleep disturbances	Not during past month	89	29.6	48	15.8
	< once/ week	128	42.5	92	30.3
	1-2 times/ week	66	21.9	104	34.2
	≥ 3 times/ week	18	6.0	60	19.7
Use of sleep medications	Not during past month	256	85.0	230	75.7
	< once/ week	28	9.3	41	13.5
	1-2 times/ week	12	4.0	21	6.9
	≥ 3 times/ week	5	1.7	12	3.9
Daytime dysfunction	No problem	126	41.8	72	23.7
	Slight problem	112	37.2	101	33.2
	Somewhat a problem	49	16.3	97	31.9
	Very big problem	14	4.7	34	11.2
Global PSQI score (>5)		114 (37.9)		174 (57.2)	

Table 6: Distribution of Physical Activity Levels and Their Correlation with Nomophobia among ANIIMS and JNRM Students

Variable	ANIIMS (n=301)	JNRM (n=304)	Total (n=605)
Low activity	86 (28.6%)	107 (35.2%)	193 (32.0%)
Moderate activity	133 (44.2%)	129 (42.4%)	262 (43.3%)
High activity	82 (27.2%)	68 (22.4%)	150 (24.7%)
Correlation with Nomophobia	r = 0.32, p=0.001*	r = 0.29, p=0.002*	r = 0.31, p<0.001*

Discussion

This comparative study provides a nuanced understanding of nomophobia (NMP) among young adults in the unique sociocultural context of the Andaman and Nicobar Islands. The findings not only confirm the pervasive nature of smartphone dependency but also reveal critical, institution-specific patterns in its severity, predictors, and associated health correlates, moving beyond a monolithic view of the phenomenon.

The near-universal prevalence of nomophobia (98.5%) in our cohort aligns with global meta-analyses reporting exceptionally high rates among young adults [7]. This underscores the smartphone's transformation from a luxury to a fundamental, indispensable component of daily life. However, the significant divergence in severity distribution between ANIIMS and JNRM is a pivotal finding. The concentration of ANIIMS students in the 'moderate' category (57.81%) suggests a potentially functional, albeit dependent, relationship with their devices. This may be moderated by the demanding curriculum of medical education, where smartphones are often repurposed as essential tools for accessing academic resources, clinical communication, and educational apps, potentially mitigating purely recreational overuse. [5,6].

In stark contrast, the JNRM cohort exhibited a broader, more concerning distribution across the severity spectrum, with significantly higher proportions of both 'mild' and 'severe' cases. This pattern is directly explicable by the stark disparity in self-reported usage. The finding that 53% of JNRM students engaged in over 5 hours of daily non-academic screen time—more than triple the proportion at ANIIMS-establishes a clear dose-response relationship. This heavier, likely more recreational usage at JNRM appears to be a primary driver propelling students towards the more extreme ends of the nomophobia spectrum.

Our multivariate analysis identified a robust and consistent set of predictors across both institutions. The strong association between female gender and higher odds of nomophobia corroborates a substantial body of literature [4]. This is frequently attributed to gendered communication styles, wherein females may utilize mobile phones more intensively for social connection and relationship maintenance, thereby experiencing greater anxiety upon separation from their social network.

The potency of usage duration as a predictor is unequivocal. Daily use exceeding three hours increased the odds of nomophobia approximately threefold in both cohorts. This, coupled with the significant predictive power of frequent social media use, reinforces the addictive potential of the intermittent variable rewards (likes, notifications, messages) engineered into these platforms, which tap into core neurobiological reward pathways [8]. The fact that age and academic year were non-significant predictors within the university-age range is instructive; it suggests that the mere integration of the smartphone into the adolescent lifestyle is the pivotal factor, with minor age variations within this group being less consequential [9, 10, 11].

The health correlates identified paint a concerning picture, particularly for the JNRM cohort. The significantly poorer sleep quality among JNRM students-across all components of the PSQI, from sleep latency and duration to efficiency and daytime dysfunction-strongly suggests that their heavier smartphone use is directly encroaching upon and degrading sleep architecture. The blue light emission from screens suppresses melatonin production, while the psychologically stimulating nature of social media content can heighten cognitive arousal, creating a barrier to restful sleep [12, 13]. The finding that over half of JNRM students were classified as poor sleepers is a major public health concern, given the established links between poor sleep and impaired cognitive function, academic performance, and mental well-being [14].

The weak positive correlation between physical activity and nomophobia scores presents a counterintuitive finding. Rather than displacing screen time, physical activity appears to coexist with it. This paradox can be explained by the contemporary integration of smartphones into exercise routines-for listening to music, tracking workouts via apps, or accessing online fitness content. This indicates that promoting physical activity, while beneficial for overall health, may not be a sufficient standalone strategy for reducing nomophobia and requires coupling with dedicated digital mindfulness practices.

The distinct anthropometric profiles of the two cohorts further highlight their different lifestyles. The high prevalence of underweight individuals at JNRM (32.57%) versus the higher combined overweight/obesity prevalence at ANIIMS (25.91%) points to underlying differences in nutrition, socioeconomic factors, and possibly the physiological stress associated with their respective academic environments. While not directly linked to nomophobia in this study, these baseline health disparities underscore the need for holistic, multi-faceted health promotion strategies.

The findings of this study compellingly argue for a departure from broad digital wellness advisories towards precisely targeted interventions. For institutions like JNRM, characterized by the most extensive usage and poorest sleep outcomes, primary and intensive interventions are imperative. These should encompass mandatory sleep hygiene education, the institutional implementation of "phone-free zones" in key academic areas, and proactive campaigns to curtail recreational screen time. In contrast, for professional colleges like ANIIMS, where usage is more moderated yet pervasive, the emphasis should be on secondary prevention and fostering mindful usage through digital wellness workshops, managing late-night engagement, and leveraging the device's educational potential while curbing its distractibility.

For all student populations, health promotion must be strategically "tech-aware," advocating for physical activity that is disentangled from screen use and integrating mental health screening to address the underlying anxiety and stress that often fuel compulsive use. In conclusion, while nomophobia presents as a universal challenge, this research establishes that its severity and health consequences are distinctly shaped by local institutional and lifestyle factors. Therefore, effective public health strategy must be equally nuanced, developing tailored solutions that address the specific risk profiles of different student cohorts to effectively protect their digital and physical well-being.

Declarations

Ethical Clearance

Ethical clearance for the study was obtained from the Institutional Ethics Committee (ISRC), Andaman and Nicobar Islands Institute of Medical Sciences (ANIIMS) Medical College.

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Conflict of interest

The authors declare no conflict of interest.

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Trial details

NA

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