

## Nomophobia as Emerging Disorder: A Study to find its Relation with Anxiety, Depression and Insomnia

Salma Salman<sup>1\*</sup>, Afshan Siddiqui<sup>2</sup>, Darshan Kumar<sup>3</sup>, Kanza Shahid<sup>4</sup>, Iftekhhar Ahmed<sup>5</sup>

<sup>1</sup>Senior Registrar, Department of Medicine, Dow University of Health Sciences, Ojha Campus, Karachi, Sindh-Pakistan

<sup>2</sup>Assistant Professor, Department Of Medicine, Dow University of Health Sciences, Ojha Campus, Karachi, Sindh-Pakistan

<sup>3</sup>Professor, Department of Medicine, Dow University of Health Sciences, Ojha campus, Karachi, Sindh-Pakistan

<sup>4</sup>Senior Registrar, Department of Medicine, Baqai University, Karachi, Sindh-Pakistan

<sup>5</sup>Dean, Faculty of Medicine and Allied, Dow University of Health Sciences, Karachi, Sindh-Pakistan

**Correspondence:** salma.salman@duhs.edu.pk

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### ABSTRACT

**OBJECTIVE:** To determine the frequency of Nomophobia in undergraduate students and also to determine the relationship of Nomophobia with anxiety, depression and insomnia among undergraduate students.

**METHODOLOGY:** This Analytical Cross-sectional study was conducted from September 2023 to March 2024 at colleges within the domain of Dow University of Health Sciences. Students of medicine, dentistry, physiotherapy, and nursing were included. 365 undergraduate students were included in this study. Participants completed validated self-report scales Nomophobia Questionnaire (NMP-Q), Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), along with the Insomnia Severity Index (ISI) through an online link.SPSS was used for statistical analysis. Chi-square for qualitative variables

**RESULTS:** The majority of 52.6% participants experienced significant nomophobia symptoms; at the same time, 26% participants revealed the most extreme nomophobic tendencies. A portion of 40.6% experienced mild to severe anxiety symptoms, and 41.1% exhibited moderate to severe depression symptoms. A large number of 45.2% individuals encountered sleep disturbances, but their cases of insomnia remained moderate. This study revealed that a significant association exists between Nomophobia and anxiety ( $\chi^2= 79.4$ ,  $p< 0.005$ ), depression ( $\chi^2= 79.4$ ,  $p< 0.005$ ), and insomnia ( $\chi^2= 37.034$ ,  $p< 0.005$ ).

**CONCLUSION:** Our findings indicate that Nomophobia is significantly related to anxiety, depression, and insomnia at the undergraduate level. Such results implied the need for specific actions to support health in the digital life and to raise awareness of mental health problems.

**KEYWORDS:** Nomophobia, anxiety, depression, insomnia, mental health

## **INTRODUCTION**

Digital transformation has made smartphones an essential tool in daily life, especially among young adults. According to Lazarus S et al.<sup>1</sup>, fear of being without a mobile phone is termed Nomophobia. It is an emerging psychological issue characterized by an irrational fear of being unable to access or use a mobile device.<sup>2</sup> Nomophobia is increasingly recognized as a potential mental health concern, particularly among undergraduate students, due to their growing dependency on smartphones.<sup>3</sup>

Research suggests that individuals with Nomophobia often experience various psychological and behavioral issues, including heightened anxiety, depressive symptoms, and sleep disturbances.<sup>4</sup> Anxiety and depression levels tend to rise in direct correlation with increased smartphone use, primarily due to the separation anxiety felt when access to mobile devices is restricted.<sup>5</sup> In severe cases, excessive smartphone use—especially before bedtime—can disrupt sleep patterns and contribute to insomnia.<sup>6</sup>

Studies have reported high nomophobia prevalence rates in countries such as Saudi Arabia (51.2%), Jordan (53%), and the United Kingdom.<sup>7</sup> University students in Canada, Ghana, and Turkey have also demonstrated significant symptoms of Nomophobia.<sup>8</sup> Although awareness of Nomophobia is increasing, there remains a lack of comprehensive research exploring its prevalence and its association with anxiety, depression, and insomnia among undergraduate populations.<sup>9</sup> Students are considered particularly vulnerable due to their reliance on smartphones for academic, social, and recreational purposes.

Recent studies from Karachi have shown that 55% of young physical therapy students and 40.88% of medical and dental undergraduates suffer from severe Nomophobia.<sup>10</sup>

This study aims to address this gap by investigating the prevalence of nomophobic behavior among undergraduate students and its association with anxiety, depression, and insomnia. The findings will contribute to a deeper understanding of Nomophobia as a mental health concern and support the development of strategies to promote healthy smartphone usage among young adults.

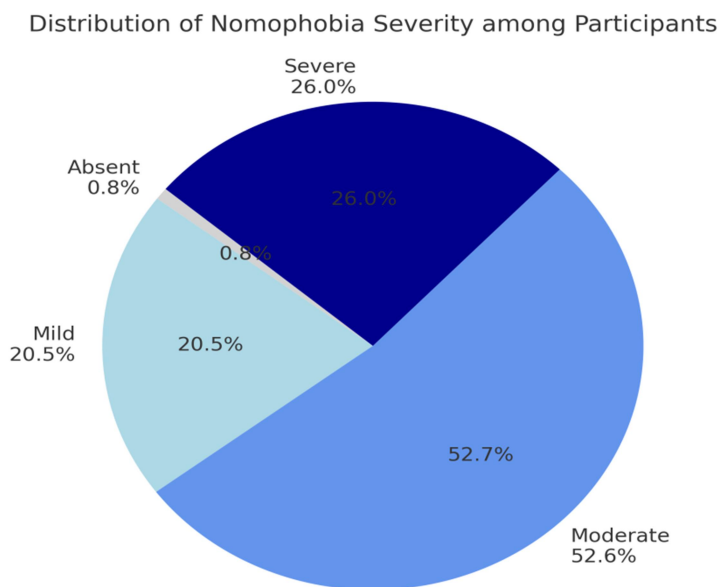
**METHODOLOGY**

This Analytical Cross-sectional study was conducted from September 2023 to March 2024 at colleges within the domain of Dow University of Health Sciences. Students of medicine, dentistry, physiotherapy, and nursing were included. Sample size was calculated using the RaoSoft sample size calculator. A 5% margin of error at the 95% confidence level, alongside a response distribution of 40.85% among undergraduate students, yielded a required sample size of 365 participants. The study utilized convenience sampling. All undergraduate students who volunteered were included. The study excluded participants with chronic illnesses and alcohol abuse histories, along with smokers and individuals taking psychiatric medication, to reduce influences on study findings. The data collection instrument consisted of a structured questionnaire. The survey contained two essential parts: demographic Information and Assessment Scale. The demographic segment included gender, age, socioeconomic status, marital status, area of study, and whether the college was public or private. The assessment scale included the Nomophobia Questionnaire (NMP-Q)<sup>2</sup>, a validated 20-item measure of nomophobia severity levels. The researchers used a 7-point Likert scale, ranging from 1 (mildest symptoms) to 7 (most severe symptoms), to measure each statement.

The assessment yielded scores between 20 and 140 points, based on the scoring key: 20: Absence of Nomophobia; 21–59: Mild Nomophobia; 60–99: Moderate Nomophobia; 100–140: Severe Nomophobia. The assessment of anxiety levels employed the Generalised Anxiety Disorder-7 (GAD-7) scale. The Patient Health Questionnaire-9 (PHQ-9) served to evaluate depression in patients. The Insomnia Severity Index (ISI) was used to assess the severity of insomnia symptoms. Google Forms were used for data collection, and analysis was conducted through SPSS version 22. Frequencies and percentages were recorded for all qualitative measurements. The chi-square test was used to check the statistical significance of Nomophobia with anxiety, depression and insomnia severity. P-value <0.05 was considered statistically significant.

RESULTS

The data shows the age distribution of 365 students, with the most common age being 22 (19.7%). Ages range from a minimum of 18 years to a maximum of 41 years, with a mean of 22.89, SD ± 4.059, and variance of 16.411. The data shows that out of 365 students, 103 are male (28.2%) and 262 are female (71.8%). The majority of students are female. Out of 365 students, 174 are studying MBBS (47.7%), 87 are pursuing BDS (23.8%), and 101 are in other fields (27.7%). The majority of respondents (52.6%) fall into the moderate nomophobia category, followed by severe Nomophobia (26%), mild Nomophobia (20.5%), and absent Nomophobia (0.8%). **Figure 1**



**Figure 1: Nomophobia Severity Among Participant**

Figure 1: The GAD-7 anxiety categories show that the majority of respondents experience mild anxiety, with 33.2%. A significant portion (26.3%) has minimal anxiety, while 21.1% report moderate anxiety and 19.5% experience severe anxiety. Overall, most respondents have mild to minimal levels of anxiety, with only a smaller proportion reporting moderate to severe anxiety.

The PHQ depression categories show that 30.1% of respondents fall into the mild depression category, followed by 28.8% in the minimal depression range. Moderate depression affects 17.5% of respondents, while 9.9% fall into the moderate to severe depression category and 13.7% report severe depression.

The distribution of participants according to the insomnia severity index (ISI) into four groups: No clinical insomnia: 34.2% (n = 125), Sub-threshold insomnia: 45.2% (n = 165), Moderate severity clinical insomnia: 18.1% (n = 66), Severe clinical insomnia: 2.5% (n = 9). The group with subthreshold insomnia presented as the most common case at 45.2%, while no clinical insomnia came in second at 34.2%. A smaller proportion (20.6%) experienced moderate to severe clinical insomnia.

**Table I** shows a significant association between Nomophobia and insomnia, with a P-value <0.001. Most respondents with mild to moderate nomophobia experience subthreshold insomnia or moderate-severity clinical insomnia.

**Table I: Cross Tabulation Of NMQ and Insomnia Severity Index**

Nomophobia category	Insomnia index category				Total (n)
	No clinical insomnia (n)	Subthreshold insomnia (n)	Moderate severity clinical insomnia (n)	Severe clinical insomnia (n)	
Absent Nomophobia plus Mild Nomophobia	43	25	7	3	78
Moderate Nomophobia	64	83	42	3	192
Severe Nomophobia	18	57	17	3	95
TOTAL	125	165	66	9	365
P value	<0.001				
Chi-square value	37.034				

**TABLE II:** The table illustrates the relationship between the severity of Nomophobia and levels of anxiety, as measured by the GAD-7 scale, with data from 365 participants. This indicates that higher levels of Nomophobia are strongly correlated with increased anxiety. Individuals with moderate to severe Nomophobia tend to have higher anxiety levels, particularly in the moderate and severe anxiety categories. This suggests a notable link between more severe Nomophobia and higher anxiety.

**Table II: Cross Tabulation of Nomophobia Category and GAD 7 Categories**

Nomophobia category	GAD 7 category				Total (n)
	Minimal anxiety (n)	Mild anxiety (n)	Moderate anxiety (n)	Severe anxiety (n)	
Absent Nomophobia plus Mild Nomophobia	22	34	19	3	70
Moderate Nomophobia	65	48	45	34	192
Severe Nomophobia	9	39	13	34	95
TOTAL	96	121	77	71	365
P value	<0.001				
Chi square	54.009				

**TABLE III:** The table shows the relationship between nomophobia severity and depression levels, with data from 365 participants. There is a significant association (p-value <0.001 ), indicating that higher levels of Nomophobia are linked to more severe depression.

**Table III: Cross Tabulation of Nomophobia Category and PHQ Categories**

Nomophobia Category	PHQ Category					Total (n)
	Minimal (n)	Mild depression (n)	Moderate depression (n)	Moderate to severe depression (n)	Severe depression(n)	
Absent Nomophobia plus Mild Nomophobia	39	20	3	3	13	78
Moderate Nomophobia	53	61	48	15	15	192
Severe Nomophobia	13	29	13	18	22	95
<b>TOTAL</b>	<b>105</b>	<b>110</b>	<b>64</b>	<b>36</b>	<b>50</b>	<b>365</b>
P value		< 0.001				
Chi square		79.4				

## DISCUSSION

This study reveals important information about nomophobic incidents linked to depression and insomnia, together with anxiety among the Dow University of Health Sciences undergraduate students. The research data shows that subjects with higher degrees of Nomophobia experience significant anxiety, depression and insomnia. People who experienced serious Nomophobia presented worse outcomes for depression and anxiety, along with subclinical insomnia measures, according to study results. The research demonstrates that intense smartphone use leads to significant psychological problems and behavioural changes among users.

Most participants exhibited moderate levels of Nomophobia (52.6%), and 26.0% had severe Nomophobia according to the study. Therefore, research confirms Nomophobia continues to be an increasing challenge for young adults who heavily depend on smartphones during their academic life<sup>2</sup>. Nomophobia was first introduced by Yildirim C 2015<sup>2</sup> as a psychological condition that develops from fear of being separated from mobile devices.

An extensive amount of research has established the strong relationship between nomophobia symptoms and anxiety symptoms. Our research findings demonstrate that people with higher levels of Nomophobia have a greater likelihood of experiencing anxiety based on statistical data ( $\chi^2 = 79.4$ ,  $p < 0.005$ ). Most participants in moderate to severe Nomophobia scored their anxiety levels as mild to severe, yet severe anxiety was prevalent exclusively among those with severe Nomophobia. Bragazzi NL 2019<sup>11</sup> investigated how severe Nomophobia relates to avoidance-based coping mechanisms and established that people with significant nomophobia problems use such methods that intensify both anxiety and depression. The research results favor our findings that severe Nomophobia leads students to exhibit greater anxiety alongside depressive symptoms. The research findings of Daraj LR 2023<sup>12</sup> showed that Nomophobia corresponds moderately with anxiety levels ( $r = 0.31$ , 95% CI: 0.25 to 0.38). According to Güneş 2021<sup>13</sup> the scores for Nomophobia elevated anxiety primarily in male subjects.

Our study revealed a strong association between nomophobia and sleep disturbances. A significant association between nomophobia and insomnia symptoms exists according to Daraj LR 2023<sup>12</sup> ( $r = 0.56$ , 95% CI: 0.38 to 0.75). Several studies indicate that people who look at their smartphones right before bedtime develop disrupted sleep patterns because smartphones emit blue light and provide psychological stimulation through their constant connectivity<sup>15,16</sup>. Screen blue light suppresses the body's melatonin production, thereby delaying the onset of sleep. The biochemical irregularities in dopamine signaling pathways cause people to develop addictive behavior towards phones and lead to depression among other mood disorders<sup>17</sup>.

Abnormal Nomophobia in students leads to elevated academic tension as well as impaired concentration abilities and enhanced digital burnout, which intensifies their mental health problems<sup>18</sup>.

Data from our study, alongside other studies, demonstrates a necessity for wide-scale awareness initiatives that aim to help people manage Nomophobia along with linked mental health problems. Academic institutions, along with medical centres, need to build programs for mental health support and digital withdrawal assistance, along with stress-related interventions, to create better smartphone use patterns. The public must learn about the harmful physical and mental effects that arise when people use smartphones excessively to establish healthier connections between people and technology. Research demonstrates an urgent need for specific programs which would fight the negative mental impacts of excessive student smartphone addiction.

Educational institutions, together with psychological health professionals, need to take the following actions:

- Healthcare institutions should develop digital wellbeing strategies as part of their initiatives to teach students better screen-time practices.
- Mental health professionals should deliver CBT-based therapy to students who develop depression and anxiety because of smartphone addiction.
- Educational programs should teach students to establish sleep routines that avoid using smartphones at night.
- Limitations and Future Research: This research used a cross-sectional design from a single centre to examine the variables, but this limited the investigators' ability to demonstrate actual cause-and-effect relationships. More extensive research on the health impact of Nomophobia requires monitoring the same population over time. The study depended on respondents to answer surveys through self-report methods that might contain reporting errors linked to memory and response preference. The collected data comprised undergraduate students from a single university, thereby limiting the broad applicability of the research results.

## CONCLUSION

The results suggest that Nomophobia is significantly associated with anxiety, depression, and sleep problems; however, no causal inferences can be made due to the cross-sectional design. Educational institutions and mental health professionals in Pakistan should work together to develop university-based programs that help reduce harmful smartphone use and support students' mental wellbeing. These programs should include regular digital detox activities, education on healthy screen time habits, and accessible mental health support services built into the college environment.

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**Data Sharing Statement:** The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

## AUTHOR CONTRIBUTION

Salman S: Drafting, intellectual content, analysis, final approval  
Siddiqui A: Analysis, critical work, intellectual content, final approval  
Kumar D: Manuscript writing, analysis, final approval  
Shahid K: Interpretation, analysis, final approval  
Ahmed I: Design, analysis, interpretation, final approval

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