

Problematic Mobile Phone Use and Mental Health among Nursing College Students: A Cross-Sectional Correlational Study

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How to cite this article: Rajput PS, Choudhary Z, Kumar A, Kumar R, Singh B, Sharma DK. Problematic Mobile Phone Use and Mental Health among Nursing College Students: A Cross-Sectional Correlational Study. GFNPSS-IJMR 2026; 7:9: 3625-3628 Submitted: 19 September 2026: Accepted: 29 September 2026: Published: 30 September 2026

Abstract

Background: Mobile phones have become an essential part of students' academic and personal lives. However, problematic mobile phone use may be associated with psychological distress, sleep disturbances and difficulties in academic functioning. Nursing students may be particularly affected because of their academic workload and clinical responsibilities.

Methods: A quantitative, descriptive cross-sectional correlational design is proposed. A sample of 100 nursing students will be recruited from a selected nursing college. Data will be collected using a demographic questionnaire, a validated measure of problematic smartphone use and a standardized mental health assessment tool. Descriptive statistics, correlation analysis and appropriate inferential tests will be used.

Results: The proposed analysis will describe the distribution of problematic mobile phone use, psychological distress and their association. Numerical findings must be calculated from actual participant responses before the manuscript can be reported as completed original research.

Conclusion: Assessing problematic mobile phone use alongside mental health indicators may help identify students who could benefit from digital-wellness education and appropriate psychological support. The relationship between these variables should be established using actual study data.

Keywords: Problematic Mobile Phone Use, Smartphone Use, Mental Health, Nursing Students, Anxiety, Depression, Psychological Distress.

INTRODUCTION

Mobile phones and smartphones have become integral to modern education, communication and everyday life. Nursing students use these devices to access educational resources, communicate with classmates, participate in online learning and obtain clinical information. Although these activities can support learning, excessive or poorly controlled use may interfere with sleep, concentration, interpersonal relationships and academic responsibilities.

Problematic mobile phone use refers to a pattern of smartphone use that becomes difficult to control and interferes with daily functioning. It is not synonymous with simply spending many hours on a mobile phone; the consequences for functioning and the individual's ability to regulate use are also important.

Nursing students experience academic examinations, clinical placements, assignments and responsibilities related to patient care. These demands may increase vulnerability to psychological distress, particularly when accompanied by inadequate sleep, reduced physical activity or difficulty maintaining a balance between digital and academic activities.

Research among nursing students has identified associations between problematic smartphone use and psychological or academic difficulties. A systematic review and meta-analysis published in 2021 reported associations with sleep quality, self-esteem, social support and clinical or educational functioning.¹ A 2024 study of 402 nursing students in India also investigated problematic mobile phone use in relation to depression, insomnia, self-esteem and satisfaction with life.²

Mental health is a broad concept encompassing emotional, psychological and social well-being. In a student survey, it may be assessed through indicators such as depression, anxiety and stress rather than treated as a single diagnosis.

Understanding the relationship between problematic mobile phone use and psychological distress may help nursing educators develop appropriate digital-wellness initiatives and identify students who may benefit from further support.

Therefore, the present study is proposed to assess problematic mobile phone use and mental health indicators among nursing college students.

Nursing students increasingly depend on smartphones for educational resources, communication and personal activities. However, difficulty regulating mobile phone use may interfere with study schedules, sleep routines and face-to-face interactions.

Psychological distress can also arise from academic pressure, financial difficulties, clinical responsibilities and personal circumstances. It is therefore important to investigate whether problematic mobile phone use is associated with students' reported mental health rather than assuming that smartphone use alone causes psychological difficulties.

A cross-sectional survey can provide information about the extent of problematic use and the distribution of psychological distress within a selected nursing college. It can also identify groups requiring additional digital-wellness education or mental health support.

The findings may help inform student health programmes, although causal relationships cannot be established through a cross-sectional design.

OBJECTIVES

1. To assess the level of problematic mobile phone use among nursing students.
2. To assess the psychological distress of nursing students using a standardized assessment tool.
3. To determine the relationship between problematic mobile phone use and psychological distress.
4. To examine associations between problematic mobile phone use and selected demographic or academic variables.
5. To identify students' self-reported patterns of mobile phone use and their perceived effects on sleep and academic activities.

HYPOTHESES

H₁: There will be a statistically significant relationship between problematic mobile phone use scores and psychological distress scores among nursing students.

H₂: Problematic mobile phone use scores will differ significantly according to selected demographic or academic characteristics.

H₃: There will be a statistically significant association between problematic mobile phone use category and psychological distress category.

These hypotheses should be tested using actual data and an appropriate statistical analysis plan.

RESEARCH METHODOLOGY

Research Approach

A quantitative research approach will be adopted.

Research Design

A descriptive cross-sectional correlational design will be used.

Research Setting

The study will be conducted in a selected nursing college. The final manuscript should specify the actual institution, city and state.

Population

The target population will consist of undergraduate nursing students enrolled in the selected college.

Sample Size

The proposed sample size is 100 nursing students.

The final sample size should ideally be justified using a power calculation based on the expected correlation, significance level, statistical power and anticipated non-response.

Sampling Technique

Convenience sampling may be used if participants are recruited from available classes and clinical groups. The limitations of this method should be acknowledged.

Inclusion Criteria

Students who:

1. are enrolled in the selected nursing college;
2. are 18 years or older;
3. use a mobile phone or smartphone;
4. are willing to participate;
5. provide informed consent.

Exclusion Criteria

Students who:

1. do not provide informed consent;
2. submit substantially incomplete questionnaires according to predefined criteria;
3. submit duplicate responses that can be identified using an ethically appropriate procedure.

Study Variables

Primary exposure variable: Problematic mobile phone use score.

Primary outcome variable: Psychological distress score.

DESCRIPTION OF THE DATA COLLECTION TOOLS

Section A: Demographic and Mobile Phone Use Information

This section will include age, gender, year of study, average daily mobile phone use, primary purpose of use, nighttime use, sleep duration and previous experience of mental health support where relevant and voluntarily reported.

Section B: Problematic Smartphone Use

The Smartphone Addiction Scale–Short Version (SAS-SV) is one possible instrument for assessing problematic smartphone use. It contains 10 items, with a total score ranging from 10 to 60. Higher scores indicate greater problematic use.

The investigator must select an appropriate validated language version and verify the instrument's use conditions. Any proposed classification into low, moderate or high problematic use should follow an appropriate validation source for the population rather than using arbitrary cut-offs.

Section C: Mental Health Assessment

The Depression Anxiety Stress Scales–21 (DASS-21) may be considered for measuring symptoms of depression, anxiety and stress over the preceding week. It contains 21 items divided into three seven-item subscales.

The DASS-21 measures self-reported symptoms and does not by itself establish a psychiatric diagnosis. The appropriate language version, scoring instructions, validity and use permissions should be verified before administration.

DATA COLLECTION PROCEDURE

After obtaining the necessary institutional permission and ethics approval, eligible students will be invited to participate.

ETHICAL CONSIDERATIONS

- Ethical approval will be obtained from the appropriate Institutional Ethics Committee before data collection, where required.
- Permission will be obtained from the nursing college administration.
- Informed consent will be obtained from participants.

STATISTICAL ANALYSIS

The collected data will be analysed using suitable statistical software.

- Frequency and percentage: To summarize demographic characteristics and phone-use patterns.
- Mean and standard deviation: To summarize questionnaire scores when appropriate.
- Pearson correlation: To assess the relationship between continuous scores when assumptions are met.
- Spearman correlation: To assess relationships when data are ordinal or assumptions for Pearson correlation are not met.
- Chi-square test or Fisher's exact test: To assess associations between categorical variables.
- Multivariable regression: May be considered to adjust for potential confounders such as age, sleep duration and academic workload, provided the sample size and model assumptions permit.

A two-sided p value below 0.05 may be considered statistically significant. Effect estimates and 95% confidence intervals should be reported where appropriate.

RESULTS

Table 1. Distribution of Nursing Students According to Demographic Characteristics (N = 100)

Demographic variable	Frequency (n)	Percentage (%)
Age		
18–20 years	43	43.0
21–23 years	47	47.0
24 years and above	10	10.0
Gender		
Male	34	34.0
Female	66	66.0
Year of study		
First year	28	28.0
Second year	27	27.0
Third year	25	25.0
Fourth year	20	20.0
Total	100	100.0

Interpretation: The illustrative distribution shows that 47% of students were aged 21–23 years, while 66% were female. First-year students constituted the largest group by year of study.

Table 2. Distribution According to Daily Mobile Phone Usage (N = 100)

Daily mobile phone usage	Frequency (n)	Percentage (%)
Less than 2 hours	20	20.0
2–4 hours	45	45.0
More than 4 hours	35	35.0
Total	100	100.0

Interpretation: In this illustrative sample, 45% of students reported using their mobile phones for 2–4 hours daily, while 35% reported more than 4 hours of daily use.

Table 3. Distribution According to Mobile Phone Use Patterns (N = 100)

Multiple responses permitted.

Mobile phone use characteristic	Frequency (n)	Percentage (%)
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Uses phone within 30 minutes before sleeping	72	72.0
Uses phone for educational purposes	81	81.0
Uses phone for social media or entertainment	76	76.0
Reports difficulty limiting phone use	58	58.0
Reports phone use interfering with studies	43	43.0

Interpretation: Educational activities were a common purpose of mobile phone use (81%). However, 58% of students reported difficulty limiting their use, and 43% reported interference with their studies.

Table 4. Level of Problematic Mobile Phone Use (N = 100)

Illustrative category	Frequency (n)	Percentage (%)
Lower problematic-use score	28	28.0
Moderate problematic-use score	42	42.0
Higher problematic-use score	30	30.0
Total	100	100.0

Interpretation: The distribution indicates that 42% of students were in the middle category and 30% were in the higher-score category. Final categories must be based on a justified scoring method for the selected instrument.

Table 5. Descriptive Statistics of Problematic Mobile Phone Use and Mental Health Scores (N = 100)

Study variable	Mean	Standard deviation	Minimum–Maximum
Smartphone Addiction Scale–Short Version (SAS-SV)	31.93	8.77	10–58
Depression score (DASS-21 raw subscale)	7.16	4.18	0–17
Anxiety score (DASS-21 raw subscale)	6.17	4.00	0–16
Stress score (DASS-21 raw subscale)	8.08	3.85	0–18

Interpretation: The illustrative mean SAS-SV score was 31.93. The mean raw DASS-21 subscale scores were 7.16 for depression, 6.17 for anxiety and 8.08 for stress. Higher scores indicate greater symptoms on the respective measures.

Distribution of Students According to Mental Health Symptom Categories (N = 100)

DISCUSSION

The proposed study examines problematic mobile phone use and psychological distress among nursing students. Its main contribution will be to establish whether higher problematic-use scores are associated with higher depression, anxiety or stress scores in the selected sample.

Previous research provides a rationale for examining these relationships. Osorio-Molina et al. reported associations between problematic smartphone use and several psychosocial factors among nursing students.¹ Jose et al. investigated problematic mobile phone use and mental health-related outcomes among Indian nursing students.² A more recent systematic review also highlighted associations with stress, anxiety and sleep disturbance.⁴

If a positive correlation is observed, it would indicate that higher problematic mobile phone use scores tend to occur alongside higher psychological distress scores. It would not demonstrate that mobile

phone use caused the distress. Psychological distress may also influence phone-use patterns, and both variables may be affected by factors such as sleep, academic pressure or personal circumstances.

If no significant correlation is observed, this may reflect a genuinely weak relationship in the sample, measurement limitations, restricted variability or insufficient statistical power. Interpretation should therefore consider effect sizes and confidence intervals rather than relying solely on statistical significance.

The cross-sectional design also prevents conclusions about the direction of the relationship. Longitudinal studies and intervention research would be required to determine whether changes in phone-use behaviour lead to improvements in mental health.

CONCLUSION

Problematic mobile phone use is an important topic for nursing education because smartphones serve both educational and personal functions. Assessing problematic use alongside psychological distress may help identify students who could benefit from digital-wellness education, healthy sleep routines and appropriate mental health support.

The proposed cross-sectional correlational study can describe these patterns among 100 nursing students. Final conclusions about the strength or significance of the relationship must be based on actual collected and analysed data.

RECOMMENDATIONS

1. Similar studies may be conducted in multiple nursing colleges.
2. Larger samples and more representative sampling methods may be used.
3. Future studies may examine sleep quality and academic workload as potential explanatory factors.
4. Longitudinal research may clarify the direction of associations.
5. Digital-wellness and sleep-hygiene education may be evaluated through intervention studies.
6. Colleges should ensure that students experiencing psychological distress can access appropriate professional support.

IMPLICATIONS FOR NURSING

Nursing Education: The findings may inform digital-wellness education and awareness about balanced smartphone use.

Student Health: Assessment may help identify students who could benefit from further mental health evaluation or support.

Nursing Administration: Institutions may consider guidance for appropriate smartphone use during lectures and clinical placements while preserving legitimate educational uses.

Nursing Research: Further research can examine whether improving digital habits produces measurable changes in sleep and psychological well-being.

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