

Effects of Smart Phone Dependency On Academic Performance Among BSN Students At Sahara Nursing College Narowal

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Abstract

Smartphones provide powerful features for computing, entertainment, and social media networking, making them essential in daily life. However, excessive use especially among students can result in dependency, which negatively affects the academic performance. The widespread use of smartphone has raised global concerns about overuse addiction, with studies showing inconsistent outcomes regarding its effect on academic achievement. This study intended to evaluate the level of dependency on smartphone with and to explore its association academic performance within BSN students at Sahara Nursing College Narowal.

Research Methodology: A cross sectional correlational research was conducted at Sahara Nursing College, Narowal. A non-Probability convenience sampling was used, involving 249 nursing students. Data collection spanned three months, using validated questionnaires and scales.

Author Details

Keywords: Smart Phone Dependency, Nursing Students, Academic Performance.

Received on 15 Oct 2025

Accepted on 16 Nov 2025

Published on 26 Nov 2025

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Results: Analysis showed that 75.1% of participants were categorized as addicted to smartphone. There is a strong inverse correlation ($r = 0.934$, $p < 0.001$) between the two variables, meaning as one increases, the other tends to decrease significantly.

Conclusions: The study found that nursing students in Narowal who depend more on their smartphones tend to have worse academic performance. Dependency on smartphone was identified as a major predictor of reduced academic success. These findings underscore the importance of raising awareness among students, aiming to enhance educational outcome and patient care quality.

Introduction

Smartphones, initially conceived as communication tools, have evolved into multifunctional devices integral to daily life. Their capabilities now extend far beyond voice calls and text messaging to encompass internet access, social media, educational platforms, and entertainment, making them virtually indispensable (Ahmed, Salman et al. 2020). However, this versatility and ease of use have led to growing concerns about excessive reliance, particularly among students, with potential adverse effects on academic performance, concentration, and mental well-being (Alotaibi, Fox et al. 2022).

Globally, smartphone addiction is recognized as a significant public health issue. Research indicates that younger students, having grown up in a technology-saturated environment, are especially susceptible to developing dependency (Kim and Ha 2024). This prolonged exposure is associated with a range of negative outcomes, including anxiety, depression, academic decline, poor sleep quality, and reduced attention spans in the classroom (Osorio-Molina, Martos-Cabrera et al. 2021);(Qanash, Al-Husayni et al. 2021). The constant stream of notifications and digital distractions can significantly impair learning and the successful completion of academic tasks (Ramjan, Salamonson et al. 2021).

Despite these drawbacks, smartphones offer undeniable benefits, such as instant access to information and collaborative learning tools (Ali, Marshall et al. 2024). Nevertheless, the trend of overdependence highlights the critical need for promoting balanced usage. For nursing students, whose academic and future professional success demands high levels of concentration and discipline, understanding this relationship is paramount (Zhou, Mui et al. 2024). High smartphone usage is linked to poor academic performance as it can reduce self-awareness of limitations, thereby increasing the risk of misuse (Sharma, Vaidya et al. 2022). Furthermore, various studies confirm that smartphone addiction negatively impacts energy levels, sleep habits, diet, physical activity, and ultimately, academic achievement (Alotaibi, Fox et al. 2022).

Among medical students in Karachi revealed that 64.5% spent over four hours daily on their devices (Naeem, Naeem et al. 2024). However, research focusing specifically on smartphone dependency among Pakistani nursing students remains limited. Understanding the extent of this dependency and its consequences is crucial for improving both academic outcomes and overall well-being in this cohort (Ali, Marshall et al. 2024). This study, therefore, seeks to assess smartphone dependency among nursing students at Sahara Nursing College, Narowal, and to explore its associated academic and health-related challenges.

Research Objectives

To examine the impact of smartphone addiction among students of Sahara Nursing College, Narowal

To explore the relationship between smartphone dependency and students' academic performance

Research Questions

What are the consequences of smartphone addiction among students of Sahara Nursing College, Narowal?

In what ways does smartphone dependency influence academic performance?

Research Hypotheses

Null Hypothesis (H_0): There is no significant correlation between smartphone dependency and academic performance among students of Sahara Nursing College, Narowal.

Alternate Hypothesis (H_1): There is a significant correlation between smartphone dependency and academic performance among students of Sahara Nursing College, Narowal.

Problem Statement

The rapid proliferation of smartphone use has raised concerns regarding its potential to foster dependency and negatively influence students' academic achievements. This is particularly relevant for nursing students, whose rigorous curriculum requires sustained concentration, discipline, and commitment. This study aims to address this gap by investigating the nexus between smartphone dependency and its impact on the academic performance of nursing students in Pakistan.

LITERATURE REVIEW

A descriptive cross-sectional study conducted in Jeddah, Saudi Arabia, between June and December 2019 involved 608 health sciences students from three universities. Outcome measures included GPA, Pittsburgh Sleep Quality Index, and the Smartphone Addiction Scale-Short Version (SAS-SV). The median participant age was 21 years, with 53% reporting poor sleep quality and 32% showing signs of mobile device addiction. Male students and those aged 21 or above were significantly associated with decreased GPA, whereas smartphone addiction and poor sleep quality showed no direct significant effect on reduced GPA (Qanash, Al-Husayni et al. 2021). A meta-analysis of 2,780 nursing students estimated a 22% prevalence of nomophobia. Excessive smartphone use among nursing students was linked to reduced sleep quality, diminished self-confidence, increased social anxiety, decreased perceived social support, and reduced communication skills (Osorio-Molina, Martos-Cabrera et al. 2021).

A scoping review of 39 studies from 15 countries reported that smartphone dependency among nursing students ranged from 19% to 72%, with an average of 40-50%. The I-PACE model identified various contributing factors, including emotional elements such as high stress and learning fatigue, and personal factors like poor social conditions and academic pressure (Zhou, Mui et al. 2024).

A cross-sectional study in India examined Bachelor of Science in Nursing (BScN) and Bachelor of Medicine, Bachelor of Surgery (MBBS) students using the smartphone dependency scale and structured questionnaires. Among 436 students, mean scores for smartphone dependency and academic impact were 48.58 ± 11.46 and 19.92 ± 7.01 , respectively. A significant correlation existed between academic impact and both gender and student category, with dependency also linked to in-class learning outcomes (Sharma, Vaidya et al. 2022).

Smartphone usage has become an integral component of modern education, providing students with easy access to learning materials, communication, and online resources. However, excessive smartphone dependency has been associated with decreased academic performance due to distraction, poor time management, and reduced concentration during study hours. Overuse of smartphones can also lead to sleep disturbances, stress, and a decline in cognitive efficiency, which collectively impair

learning outcomes. Previous research has emphasized that unhealthy behavioral patterns among students, such as physical inactivity and excessive gadget use, can negatively influence both academic success and overall well-being (Anas, Akram et al. 2025). These findings suggest that smartphone dependency may play a significant role in affecting the academic performance of nursing students, highlighting the need for awareness and balanced use of digital technology in educational settings such as Sahara Nursing College, Narowal.

METHODOLOGY

A descriptive, cross-sectional quantitative research design was employed to assess the level of smartphone dependency and its effect on the academic performance of Bachelor of Science in Nursing (BSN) students. This design was chosen because it allows the examination of existing conditions and relationships between variables without manipulating the study environment. The study was conducted at the Private Sahara Nursing College, Narowal, including students from the 1st to 4th years of the BSN program. This setting was selected as it provided access to a diverse student population within the nursing education framework.

The data collection was carried out from August 2024 to November 2024 after obtaining formal approval of the research proposal. The study population comprised BSN nursing students aged between 18 and 25 years, enrolled in different years of study at Sahara Nursing College, Narowal. A total of 249 nursing students participated in the study, with the sample size determined using the OpenEpi software, which provides statistical calculations for epidemiological research. A non-probability convenience sampling technique was used to recruit eligible participants due to its practicality and accessibility in the academic setting.

The inclusion criteria included BSN students enrolled in a private institution (Sahara Nursing College), aged between 18 and 25 years, owning a smartphone (Android or iOS), and willing to provide informed consent. Students without smartphone ownership or those unwilling or unable to give consent were excluded. The independent variable in this study was the level of smartphone dependency, while the dependent variable was academic performance.

Data were collected using two standardized instruments: the Academic Performance Scale (APS), a validated tool for measuring students' academic achievements, and the Smartphone Addiction Scale -Short Version (SAS-SV), an internationally validated 10-item instrument rated on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Total scores range from 10 to 60, with higher scores indicating greater smartphone dependency. The cut-off scores for smartphone addiction are ≥ 31 for males and ≥ 33 for females (Kwon, Kim et al. 2013). After obtaining written informed consent, participants completed self-administered questionnaires collecting demographic information, academic performance data, and smartphone dependency scores. All responses were treated confidentially and anonymously.

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics, including frequencies, percentages, and means, were used to summarize demographic data and variable distributions. Pearson's correlation coefficient was applied to assess the relationship between smartphone dependency and academic performance, and linear regression analysis was used to predict academic performance based on smartphone dependency levels.

Ethical considerations were strictly followed throughout the study. Written informed consent was obtained from all participants, and confidentiality and anonymity were maintained. Participation was voluntary, and participants had the right to withdraw at any time without any consequences. No participant was exposed to harm or risk, and all collected data were securely stored and accessed only by the researcher.

RESULTS

This study analyzed data from 249 undergraduate nursing students at Sahara Nursing College, Narowal.

Demographic Characteristics

This research examined data collected from 249 undergraduate nursing students enrolled at Sahara Nursing College, Narowal. The gender distribution revealed a marked predominance of male students (93.2%, $n = 232$) compared to female students (6.8%, $n = 17$). In terms of age, 45.4% ($n = 113$) of participants were between 18 and 21 years old, while 54.6% ($n = 136$) were in the 22 to 25 years age group. Regarding the year of study, 33.7% ($n = 84$) of students were enrolled in their second year, 42.6% ($n = 106$) were in their third year, and 23.7% ($n = 59$) were in their fourth year. These demographic distributions are summarized in (Table 1).

Table 01: Demographic Characteristics

Characteristic	Category	Frequency (n)	Percent (%)
Gender	Male	232	93.2
	Female	17	6.8
Age Group	18-21 years	113	45.4
	22-25 years	136	54.6
Year of Study	2nd year	84	33.7
	3rd year	106	42.6
	4th year	59	23.7
Total Participants		249	100.0

Smartphone Dependency

Scores on the Smartphone Dependency Scale ranged from 10 to 60, with cut-off points of ≥ 31 for males and ≥ 33 for females indicating addiction. Based on these criteria, 75.1% ($n = 187$) of participants were classified as addicted, while 24.9% ($n = 62$) were non-addicted (Table 10, Figure 9). Analysis of individual item responses revealed notable behavioral patterns: 48.6% of students reported skipping planned work due to smartphone use, 46.9% experienced difficulty concentrating during academic tasks, 59.5% were unable to tolerate being without their smartphone, and 49% frequently checked social media to avoid missing conversations. These results indicate that excessive smartphone use is prevalent among the participants and often disrupts academic focus as well as daily responsibilities (Table 02).

Table 02: Rating on Smartphone Dependency Scale

Item	Strongly Disagree n (%)	Disagree n (%)	Weakly Disagree n (%)	Weakly Agree n (%)	Agree n (%)	Strongly Agree n (%)
1. Skipping planned work due to smartphone use	28 (11.2)	26 (10.4)	23 (9.2)	51 (20.5)	84 (33.7)	37 (14.9)
2. Difficulty focusing during class assignments/work due to smartphone use	24 (9.6)	38 (15.3)	24 (9.6)	46 (18.5)	86 (34.5)	31 (12.4)
3. Pain in wrist or neck while using smartphone	28 (11.2)	34 (13.7)	18 (7.2)	36 (14.5)	95 (38.2)	38 (15.3)
4. Unable to tolerate being without a smartphone	27 (10.8)	25 (10.0)	23 (9.2)	26 (10.4)	111 (44.6)	37 (14.9)
5. Feeling restless/anxious without smartphone	16 (6.4)	35 (14.1)	16 (6.4)	41 (16.5)	91 (36.5)	50 (20.1)
6. Thinking about smartphone even when not in use	22 (8.8)	33 (13.3)	21 (8.4)	35 (14.1)	83 (33.3)	55 (22.1)
7. Continuing smartphone use despite negative impact	20 (8.0)	43 (17.3)	15 (6.0)	42 (16.9)	68 (27.3)	61 (24.5)
8. Checking social media to avoid missing conversations	14 (5.6)	27 (10.8)	26 (10.4)	60 (24.1)	71 (28.5)	51 (20.5)
9. Spending more time on smartphone than planned	18 (7.2)	43 (17.3)	26 (10.4)	48 (19.3)	58 (23.3)	56 (22.5)
10. Others mention excessive smartphone use	16 (6.4)	53 (21.3)	30 (12.0)	43 (17.3)	53 (21.3)	54 (21.7)

Academic Performance

Scores on the Academic Achievement Measurement Scale ranged from 8 to 40 and were categorized into five performance levels: Failing (0-8) 5.6% (n = 14), Poor (9-16) 59.0% (n = 147), Moderate (17-24) 10.8% (n = 27), Good (25-32) 2.0% (n = 5), and Excellent (33-40) 22.5% (n = 56). Overall, nearly two-thirds (64.6%) of students fell into the failing or poor categories, highlighting a generally low level of academic achievement among the participants (**Table 03**).

Table 03: Academic Performance

Score Range	Performance Category	Frequency (n)	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
0-8	Failing Performance	14	5.6	5.6	5.6
9-16	Poor Performance	147	59.0	59.0	64.6
17-24	Moderate Performance	27	10.8	10.8	75.4
25-32	Good Performance	5	2.0	2.0	77.4
33-40	Excellent	56	22.5	22.5	100.0
	Performance				
Total		249	100.0	100.0	

elation & Regression Analysis

Regression analysis indicated that smartphone dependency accounted for

Table 04: Correlation between Smartphone Dependency and Academic Performance

	Smartphone Dependency	Academic Performance
Smartphone Dependency	1.000	-0.934
Academic Performance	-0.934	1.000

Note: Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis revealed a strong negative relationship between smartphone dependency and academic performance ($r = -0.934$, $p < 0.01$). This indicates that higher smartphone dependency is associated with lower academic achievement among students at Sahara Nursing College, Narowal. The result supports the study's alternative hypothesis (H_a).

Table 05: Regression Analysis Predicting Academic Performance from Smartphone Dependency

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-0.934a	0.873	0.873	0.46350

Predictors: (Constant), Smartphone Dependency

The regression results indicate that smartphone dependency is a strong predictor of academic performance. The correlation coefficient ($R = -0.934$) confirms a very strong negative association. The R Square value (0.873) shows that 87.3% of the variance in academic performance is explained by smartphone dependency. The Adjusted R Square remains at 0.873, confirming the model's robustness. The Standard Error of the Estimate (0.4635) represents the average deviation of observed values from the regression line, indicating a close fit between predicted and actual scores.

Summary of Key Findings

High prevalence of smartphone dependency:

75.1% ($n = 187$) of students met the criteria for smartphone addiction (cut-off ≥ 31 for males, ≥ 33 for females).

Problematic smartphone behaviors:

Nearly half (48.6%) skipped planned work, 46.9% struggled to concentrate on academic tasks, 59.5% could not tolerate being without their phone, and 49% frequently checked social media to avoid missing conversations.

Low academic achievement levels:

Scores ranged from 8 to 40; 5.6% failed, 59.0% performed poorly, 10.8% had moderate performance, 2.0% performed well, and 22.5% excelled academically. Almost two-thirds (64.6%) had failing or poor results.

Strong negative correlation:

A significant inverse relationship was observed between smartphone dependency and academic performance ($r = -0.934$, $p < 0.01$).

High explanatory power of smartphone dependency:

Regression analysis showed smartphone dependency accounted for 87.3% of the variation in academic performance ($R^2 = 0.873$).

DISCUSSION

This study, conducted at Sahara Nursing College, Narowal, examined the prevalence of smartphone dependency among undergraduate nursing students and its impact on academic performance. The results revealed a high rate of smartphone dependency alongside a substantial proportion of students with low academic achievement. Statistical analysis demonstrated a strong and significant negative relationship between smartphone dependency and academic performance, suggesting that increased dependency is associated with reduced academic outcomes.

The prevalence of smartphone dependency in this study was found to be 75.1%, indicating that the majority of students exhibited high levels of usage. This aligns with findings from (Alotaibi, Fox et al. 2022);(Osorio-Molina, Martos-Cabrera et al. 2021), which reported similarly high prevalence rates among university students globally. Likewise, studies conducted in Pakistan, such as (Ali, Marshall et al. 2024) have highlighted the growing concern of excessive smartphone use among nursing students, attributing it to both academic and non-academic activities.

Regression analysis in the present study indicated that smartphone dependency accounts for 87.3% of the variance in academic performance, underscoring its substantial influence. This level of explanatory power is comparable to the findings of (Ahmed, Salman et al. 2020);(Sharma, Vaidya et al. 2022), who also noted that academic outcomes are highly sensitive to changes in smartphone use patterns. The findings of (Ramjan, Salamonson et al. 2021) further support these results, showing that nursing students' academic performance is particularly vulnerable due to the dual academic and clinical demands of their training.

While smartphones offer educational benefits such as quick access to medical resources and communication platforms this study's results confirm the overwhelming evidence that uncontrolled use often leads to distractions, procrastination, and disrupted sleep cycles. Research by (Qanash, Al-Husayni et al. 2021) highlighted similar mechanisms, including late-night use and reduced sleep quality, which impair cognitive functioning and learning outcomes.

In the context of Sahara Nursing College, the results point to the urgent need for targeted interventions. These may include awareness campaigns, digital well-being workshops, and structured guidelines for balanced smartphone use. As emphasized by (Kim and Ha 2024);(Anas, Akram et al. 2025), integrating digital literacy into nursing curricula could help students develop healthier technology habits while still benefiting from the educational advantages of smartphones.

In conclusion, the findings of this study clearly indicate that high smartphone dependency is prevalent among nursing students and is strongly associated with poor academic performance. Addressing this issue requires multifaceted strategies that combine institutional policies, student education, and personal responsibility to promote balanced use. Without such measures, the negative academic and professional implications of excessive smartphone dependency may persist, potentially impacting future healthcare delivery.

CONCLUSION

This study revealed a notably high prevalence of smartphone dependency among nursing students at Sahara Nursing College, Narowal, with 75.1% of participants meeting the criteria for addiction. A statistically significant and strong inverse relationship ($r = -0.934$, $p < 0.01$) was identified between smartphone dependency and academic performance, indicating that greater dependency corresponded to lower academic achievement. Regression analysis further demonstrated that smartphone dependency accounted for 87.3% of the variance in academic performance, underscoring its substantial impact.

Notably, 59% of the participants exhibited poor academic performance, while only 22.5% achieved excellent results. These findings highlight an urgent need for educators, policymakers, and healthcare professionals to address smartphone dependency within nursing education. Reducing excessive smartphone use could improve academic success, safeguard student well-being, and ultimately enhance the delivery of safe and effective patient care.

Recommendations

Longitudinal studies to examine the long-term effects of smartphone dependency on nursing students' academic achievement and professional competence.

Comparative research across different socioeconomic and cultural contexts to understand variability in the impact of smartphone use

Exploration of contributing factors, such as stress, anxiety, and peer influence, that may drive dependency.

Development and validation of nursing-specific tools to assess smartphone dependency

Demographic analysis of patterns in smartphone dependency and academic performance by age, gender, and ethnicity

Institutional strategies such as smartphone-free zones, time-management training, and digital literacy programs to encourage responsible usage

Policy-level interventions incorporating guidelines for smartphone use in educational settings, including integration of digital literacy and online safety into curricula

Study Strengths

Use of **validated measurement tools** (Smartphone Dependency Scale and Academic Performance Scale) ensuring accuracy and reliability

Large sample size of 249 participants, strengthening the generalizability of findings within the study population

Statistically robust results, with a clear and significant relationship between smartphone dependency and academic performance

Regional relevance, as this is the first known study to assess smartphone dependency among nursing students in Sahara Nursing College, Narowal.

Timely significance, addressing a pressing issue in the context of rapid digitalization
Contribution to the **existing literature**, enriching the global discourse on smartphone dependency in healthcare education

Establishment of a **foundation for future research** into interventions and preventive strategies

Study Limitations

Cross-sectional design, limiting causal inferences between smartphone dependency and academic performance

Reliance on **self-reported data**, which may be influenced by social desirability bias

Geographic specificity, meaning findings may not be fully generalizable to other cultural or institutional contexts.

Limited demographic scope, as the study only included nursing students.

Exclusive use of **quantitative measures**, without qualitative exploration of students' personal experiences and perceptions

Implications

The findings underscore the need for proactive measures at multiple levels:

Educational institutions should monitor and manage students' smartphone use, offering counseling and targeted interventions for at-risk individuals.

Healthcare organizations and nurse managers should implement workplace policies on smartphone use to prevent distractions and maintain patient safety.

Families and guardians should be informed about responsible smartphone use and encouraged to support balanced digital habits in students.

Policymakers should integrate digital literacy and responsible technology use into nursing curricula as part of broader educational reforms.

Addressing smartphone dependency requires a **collaborative, multifaceted approach** involving educators, healthcare leaders, policymakers, and families. By fostering responsible smartphone use, we can improve academic outcomes, protect student well-being, and ensure high standards in patient care delivery. Future research should prioritize the design and evaluation of evidence-based interventions tailored to nursing education.

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