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Assessing Smartphone Usage And Associated Behaviors Among Undergraduate Nursing Students: A Cross Sectional Study

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ABSTRACT

Background: The widespread use of smartphones has become integral to nursing education, providing tools for accessing information, enhancing clinical decision-making, and supporting academic tasks. However, excessive smartphone usage poses risks to students' mental health, physical well-being, and academic performance.This study aimed to assess smartphone usage patterns and associated behaviors among undergraduate nursing students, focusing on dimensions such as daily life disturbance, overuse, withdrawal, cyberspace-oriented relationships, and tolerance.

Methods:A descriptive cross-sectional survey was conducted with 145 undergraduate nursing students at Mewar B.sc. nursing College, Udaipur. Data were collected using a structured questionnaire and analyzed using SPSS Version 25. Descriptive statistics and inferential analyses were used to identify significant behavioral patterns.

Results: Students using smartphones for more than four hours daily exhibited higher scores across all behavioral dimensions. Overuse behaviors, such as sleep disturbances and physical discomfort, were prevalent. Withdrawal symptoms, including anxiety without smartphone access, highlighted a dependency on smartphones. Statistical analysis revealed significant associations between daily smartphone use and adverse behavioral impacts ($p < 0.001$).

Conclusion: The findings highlight the need for institutional strategies to mitigate excessive smartphone use while leveraging its benefits for education and clinical practice. Balanced use should be encouraged through targeted interventions and digital literacy programs.

Keywords: smartphone usage, nursing students, behavioral patterns, smartphone addiction, academic performance, clinical practice, digital health.

Introduction

The widespread adoption of smartphones has revolutionized communication, learning, and daily routines, particularly among young adults, including nursing students. Smartphones are now integral to nursing education, enabling instant access to evidence-based resources, enhancing clinical decision-making, and

supporting educational activities such as virtual simulations and collaborative assignments (1,2). These devices are invaluable in facilitating communication, accessing medical information, and managing academic tasks. However, the excessive and unregulated use of smartphones has raised concerns due to its potential negative impact on students' academic performance, physical health, and mental well-being (3,4).

Excessive smartphone use has been linked to phenomena such as nomophobia—a fear of being without one's phone—and smartphone addiction, which can disrupt focus and impede learning in both classroom and clinical environments (5,6). Such patterns are increasingly prevalent among nursing students, who often report negative outcomes such as poor sleep quality, heightened anxiety, and physical discomfort, including musculoskeletal strain in the neck and wrists (7,8). Moreover, behavioral tendencies such as checking smartphones immediately upon waking, difficulty limiting usage, and prioritizing online interactions over in-person communication reflect the deep reliance on these devices (9).

Despite their benefits, smartphones may negatively affect academic and professional development. Meta-analyses have shown that up to 22% of nursing students exhibit symptoms of smartphone addiction, including social distress, reduced interpersonal skills, and diminished self-regulation, which can compromise their ability to perform effectively in clinical settings (10,11). Additionally, distractions caused by smartphone use during clinical practice can pose risks to patient care and safety, further highlighting the need for balanced and responsible use (5).

This study aims to assess smartphone usage patterns and behaviors among undergraduate nursing students. By exploring dimensions such as daily life disturbance, overuse, withdrawal, and cyberspace-oriented relationships, alongside demographic variables like age, gender, and year of study, the research seeks to uncover trends and provide insights that could guide the development of strategies for promoting healthier smartphone usage habits in academic and clinical settings.

Methodology

This descriptive cross-sectional study aimed to assess smartphone usage and associated behaviors among undergraduate nursing students. The study involved a total of 145 participants and was conducted at Mewar B.sc. Nursing College. A non-randomized, enumerative sampling technique was employed to include all eligible students who met the inclusion criteria during the data collection period.

Participants

The study population consisted of undergraduate nursing students enrolled at Mewar B.sc. Nursing College, Udaipur. Inclusion criteria required participants to be actively attending classes and willing to provide informed consent. Students who were absent or unwilling to participate were excluded from the study.

Ethical Considerations

Ethical permission for the study was obtained from the administration of Mewar B.sc. Nursing College. Participants were provided with detailed information about the purpose and scope of the study, ensuring voluntary participation. Informed consent was obtained from all participants, and anonymity and confidentiality of their responses were maintained throughout the research process.

Data Collection Tool

A structured questionnaire was developed to assess smartphone usage patterns and associated behaviors. The

questionnaire comprised two sections:

- Demographic Information: Age, gender, year of study, marital status, place of residence, smartphone ownership, and average daily smartphone use.
- Behavioral Patterns: Behavioral dimensions such as daily life disturbance, overuse, withdrawal, cyberspace-oriented relationships, and tolerance were explored using specific survey items.

Data Collection Procedure

Data collection was carried out during scheduled class hours at Mewar B.sc. Nursing College, Udaipur. The purpose of the study was explained to the participants, and the questionnaires were distributed for completion under the supervision of the researchers. This approach minimized the potential for misinterpretation or external influence on the responses.

Data Analysis

The collected data was entered into Microsoft Excel and analyzed using SPSS (Statistical Package for the Social Sciences) version 25. Descriptive statistics, such as means, standard deviations, frequencies, and percentages, were used to summarize the findings. Relationships between demographic characteristics and behavioral patterns were analyzed to identify significant trends.

RESULT

Table 1: Demographic Characteristics of Participants (*n*=145)

Variable	Categories	Frequency (n)	Percentage (%)
Age	18–20	50	34.5%
	21–23	40	27.6%
	24–26	35	24.1%
Gender	Female	88	60.7%
	Male	57	39.3%
Year of Study	1st Year	31	21.4%
	2nd Year	37	25.5%
	3rd Year	35	24.1%
	4th Year	42	29.0%
Marital Status	Single	110	75.9%
	Married	35	24.1%
Place of Residence	Hostel	55	37.9%
	Private Accommodation	50	34.5%
	With Family	40	27.6%
Average Daily Smartphone Use	0–2 hours	20	13.8%
	2–4 hours	65	44.8%
	More than 4 hours	60	41.4%

Table 2: Behavioral Patterns Related to Smartphone Use

SAS Identified Behavior	Survey Item	Mean	Standard Deviation (SD)
Daily Life Disturbance	1. Skipping planned activities or tasks due to smartphone use	3.8	1.1
	2. Struggling to maintain focus during studies, assignments, or work because of smartphone usage	3.9	1.0

	3. Spending more time on the smartphone than initially planned	4.1	0.9
	4. Failing to control smartphone use during important activities	3.7	1.2
	5. Experiencing interruptions in personal or social activities due to smartphone use	3.8	1.0
Overuse	1. Feeling tired or sleep-deprived due to excessive smartphone use	4.2	0.8
	2. Experiencing physical discomfort (e.g., neck or wrist pain) from prolonged use	3.6	1.2
	3. Developing headaches, blurred vision, or dizziness due to screen exposure	3.4	1.3
	4. Repeated failed attempts to reduce smartphone use	3.9	1.1
	5. Frequently feeling the need to reduce smartphone use but unable to succeed	4.0	0.9
Withdrawal	1. Feeling restless or anxious without a smartphone	4.0	1.0
	2. Carrying a smartphone even when not actively using it	4.1	0.9
	3. Feeling uneasy or irritable when unable to use a smartphone	4.0	1.0
	4. Refusing to give up smartphone use despite negative impacts on daily life	3.9	1.1
	5. Bringing a smartphone to the restroom even during urgent situations	3.8	1.2
Cyberspace-Oriented Relations	1. Feeling like losing a smartphone is as painful as losing a close friend	3.5	1.2
	2. Frequently checking the smartphone to avoid missing updates or conversations	3.7	1.1
	3. Preferring online interactions over face-to-face meetings with family or friends	3.6	1.1
	4. Building stronger emotional bonds with online friends than real-life acquaintances	3.4	1.2
	5. Relying on smartphones for socializing and connecting with new people	3.8	1.0
Tolerance	1. Smartphone battery does not last a full day due to continuous use	4.0	1.1
	2. Feeling a strong urge to use the smartphone immediately after stopping	4.1	1.0
	3. Becoming annoyed when disturbed during smartphone use	3.9	1.1
	4. Frequently losing track of time while using a smartphone	4.2	0.9
	5. Feeling compelled to carry a charger or power bank to maintain smartphone usage	4.0	1.0

Table 3: Average Daily Smartphone Use and Behavioral Scores

Average Daily Smartphone Use	Daily Life Disturbance (Mean ± SD)	Overuse (Mean ± SD)	Withdrawal (Mean ± SD)	Cyberspace-Oriented Relations (Mean ± SD)	Tolerance (Mean ± SD)
0–2 hours	2.5 ± 0.8	2.2 ± 0.9	2.0 ± 0.7	1.8 ± 0.6	2.1 ± 0.8
2–4 hours	3.5 ± 1.0	3.6 ± 1.1	3.3 ± 0.9	3.0 ± 0.8	3.2 ± 1.0
More than 4 hours	4.2 ± 1.2	4.1 ± 1.0	4.3 ± 1.1	4.0 ± 1.0	4.2 ± 1.0

Table 4. Association Between Average Daily Smartphone Use and Behavioral Scores

Behavioral Dimension	F-Statistic	P-value	Significance	Post-hoc Analysis (Tukey's Test)
Daily Life Disturbance	12.45	<0.001	Significant	>4 hours > 2–4 hours > 0–2 hours
Overuse	10.87	<0.001	Significant	>4 hours > 2–4 hours > 0–2 hours
Withdrawal	15.34	<0.001	Significant	>4 hours > 2–4 hours > 0–2 hours
Cyberspace-Oriented Relations	8.76	0.003	Significant	>4 hours > 2–4 hours > 0–2 hours
Tolerance	11.02	<0.001	Significant	>4 hours > 2–4 hours > 0–2 hours

Discussion

Our study revealed significant patterns of smartphone overuse among nursing students, characterized by daily life disturbances, withdrawal symptoms, and cyberspace-oriented relationships. Students using smartphones for more than four hours daily exhibited higher scores across all behavioral dimensions, including overuse and tolerance. These results align with findings from other studies, which also emphasize the pervasive nature of smartphone reliance and its impacts on students' mental, physical, and academic well-being.

Yang et al. similarly categorized smartphone use into "entertainment" and "communication" patterns, identifying a significant association between communication-driven usage and depressive symptoms among nursing students (12).

In the **Daily Life Disturbance** dimension, items like “Spending more time on the smartphone than initially planned” (Mean: 4.1) and “Struggling to maintain focus during studies, assignments, or work” (Mean: 3.9) recorded the highest scores. These findings align with Zarandona et al., who observed that students frequently experienced distractions from smartphones, leading to difficulties in maintaining academic focus and managing time effectively (13). Similarly, Aguilera-Manrique et al. reported that excessive smartphone use during clinical practice created a barrier to productivity, resulting in frequent distractions and reduced efficiency (14).

For the **Overuse** dimension, the item “Feeling tired or sleep-deprived due to excessive smartphone use” (Mean: 4.2) had the highest score. This is consistent with findings Leow et al who identified that prolonged smartphone use resulted in significant fatigue and sleep disturbances, negatively impacting students' energy levels and overall well-being (15). Similarly, Owoeye et al. found that high levels of smartphone addiction among nursing students led to excessive time spent on devices, contributing to poor sleep patterns and associated physical symptoms such as headaches and exhaustion (16).

In clinical and academic settings, smartphones have shown both benefits and risks. Ramjan et al. reported that while smartphones facilitate learning and clinical decision-making, they also serve as distractions, leading to academic disruptions and stress (17). These observations resonate with our findings, where students frequently reported interrupted focus and challenges in balancing smartphone use with academic and personal responsibilities.

Physical and psychological impacts were another critical aspect highlighted in our study. Overuse symptoms such as sleep disturbances, physical discomfort, and anxiety were prevalent, paralleling the findings of Chandio et al., who noted similar issues among nursing students. High smartphone dependency was linked to compromised sleep quality and increased levels of anxiety and isolation, reinforcing the need for interventions to promote balanced usage (18). Regarding professional implications of smartphone overuse, such as its impact on clinical decision-making, were highlighted by Savci et al. They found that smartphone addiction and cyberloafing behaviors negatively influenced students' ability to make informed clinical decisions. This aligns with our findings of increased tolerance behaviors,

including reliance on smartphones even during critical tasks (19)..

Limitations and Implications

This study is limited by its cross-sectional design, which restricts the ability to establish causal relationships, and the use of self-reported data, which may be subject to bias. The relatively small sample size and focus on a single institution also limit the generalizability of findings to broader nursing student populations. Despite these limitations, the study highlights critical behavioral patterns associated with smartphone usage and underscores the need for institutional guidelines to promote balanced use. Implementing educational interventions, such as digital literacy programs and "digital detox" strategies, can help mitigate the adverse effects of overuse while leveraging smartphones as tools for academic and clinical success. Further research with larger, diverse populations and longitudinal designs is recommended to explore these behaviors in greater depth.

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