RESEARCH PAPER

A Study to Assess the Mobile Phone Usage and Its Association with Sleep Deprivation among Nursing Students in Vinayaka Missions College of Nursing Puducherry

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ABSTRACT

Background: Mobile phone usage has become an essential part of daily life, especially among Nursing students. However, excessive use, particularly during night time, may negatively affect sleep quality and lead to sleep deprivation. Adequate sleep is crucial for cognitive performance, academic success, and overall health.

Objectives:
- To assess the level of mobile phone usage among nursing students.
- To assess the level of sleep deprivation among nursing students.
- To determine the association between mobile phone usage and sleep deprivation with selected demographic variables.

Methods: A quantitative descriptive research design was adopted. A total of 236 nursing students were selected using convenience sampling. Data were collected using a structured questionnaire, including demographic variables, the Smartphone Addiction Scale (Short Version), and the Pittsburgh Sleep Quality Index (PSQI). Data were analyzed using descriptive and inferential statistics.

Results: Out of 236 participants, 67.8% of students had high mobile phone usage, while 32.2% had moderate usage. None reported low usage. Regarding sleep deprivation, 72.0% experienced moderate deprivation, 16.5% mild, and 11.5% severe deprivation. A statistically significant association was found between mobile phone usage and sleep deprivation with selected demographic variables ($p < 0.05$).

Interpretation and conclusion: Excessive mobile phone usage is strongly associated with sleep deprivation among nursing students. Awareness programme and sleep-hygiene education are essential to improve students' health and academic performance.

Keywords: Mobile phone usage, Sleep deprivation, Nursing students, Smartphone addiction, Sleep quality.

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INTRODUCTION

Sleep is an essential physiological need for maintaining physical, psychological, and emotional well-being. Sleep deprivation refers to a condition in which an individual does not obtain adequate quantity or quality of sleep required for normal functioning. In recent years, sleep deprivation has become a major health concern among students due to lifestyle changes and excessive use of electronic devices.

Nursing students are particularly vulnerable to sleep deprivation because of academic workload, clinical postings, night duties, and stress. Along with these factors, the rapid increase in mobile phone usage has significantly

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affected sleep patterns. Students frequently use smartphones for social networking, entertainment, and academic purposes, especially during night time, which delays sleep onset and reduces sleep duration.

Studies indicate that prolonged exposure to mobile phone screens affects circadian rhythm and results in poor sleep quality. Sleep deprivation among nursing students not only affects their physical and mental health but also reduces concentration, academic performance, and clinical efficiency. Therefore, assessing the association between mobile phone usage and sleep deprivation among nursing students is essential.

MATERIALS AND METHODS

This cross-sectional study was conducted at Vinayaka Missions College of Nursing (VMCON) Puducherry. A total of 236 samples were selected to see the association between mobile phone usage and sleep deprivation among nursing students. All the students studying at Vinayaka Missions College of Nursing were eligible for participation in the study. Those who are under medications or any comorbidity conditions were excluded. The study was approved by the Institutional Research Board and Institutional Research Committee of Vinayaka Missions College of Nursing, Puducherry.

MEASURES

Demographic Data: Age, Gender, Education, Year of study, Residency, Residence, Family type, Mobile ownership duration, Daily mobile phone usage, Purpose of mobile phone were recorded.

Pittsburgh Sleep Quality Index: The subjective sleep quality was assessed with the help of Pittsburgh Sleep Quality Index (PSQI) questionnaire (based on Buysse et al., 1989). PSQI is a standardized questionnaire that assesses sleep quality. It consists of 7 components each scoring from 0-3. The total score 0-21.

Smart phone addiction scale – short version: The Mobile Phone Addiction Scale (based on Kwon et al., 2013) is a standardized tool, consisting of 10 items; each rated on a Likert scale ranging from strongly disagree to strongly agree. The total score ranges from 10 to 60, with higher scores indicating greater levels of mobile phone addiction.

Research Approach: Quantitative approach

Research Design: Descriptive research design

Setting: Vinayaka Missions College of Nursing, Puducherry

Population: Nursing students

Sample Size: 236

Sampling Technique: Convenience sampling

Inclusion Criteria: Nursing students available during data collection. Students willing to participate

Exclusion Criteria: Students with diagnosed sleep disorders. Students absent during data collection

Data Collection Tools: Demographic variables, Mobile Phone Addiction Scale, Pittsburgh Sleep Quality Index (PSQI).

Data Collection Procedure: Permission was obtained from the institution. Informed consent was taken from participants. Data were collected using structured questionnaires.

Statistical Analysis: Data were analyzed using SPSS version 25. Descriptive statistics: frequency, percentage, mean, SD. Inferential statistics: Chi-square test

RESULT

Table 4.1: Frequency and Percentage Distribution of Demographic Variables among Nursing Students (N = 236)

Demographic Variables	Category	Frequency (n)	Percentage (%)
Age	17–18 years	110	46.6%
	19–20 years	105	44.5%
	21–22 years	21	8.9%
Gender	Female	167	70.8%
	Male	69	29.2%
Education	ANM	20	8.5%
	BSc Nursing	150	63.6%
	GNM	45	19.1%
	MSc Nursing	5	2.1%
	PB BSc Nursing	16	6.8%
Year of Study	1st Year	150	63.6%
	2nd Year	50	21.2%
	3rd Year	31	13.1%
	4th Year	5	2.1%
Residency	Day Scholar	188	79.7%
	Hostel	48	20.3%
Residence	Rural	150	63.6%

	Urban	86	36.4%
Family Type	Joint	46	19.5%
	Nuclear	190	80.5%
Mobile Ownership Duration	>5 years	30	12.7%
	1–2 years	111	47.0%
	2–3 years	95	40.3%
Daily Mobile Usage	>10 hrs/day	197	83.5%
	1–3 hrs/day	5	2.1%
	3–5 hrs/day	4	1.7%
	5–10 hrs/day	30	12.7%
Purpose of Mobile Use	Academic	70	29.7%
	Entertainment	45	19.1%
	Other	12	5.1%
	Social Networking	109	46.2%
Mother's Education	Graduate	13	5.5%
	Illiterate	68	28.8%
	Postgraduate	16	6.8%
	Primary	102	43.2%
	Secondary	37	15.7%
Father's Education	Graduate	27	11.4%
	Illiterate	46	19.5%
	Postgraduate	17	7.2%
	Primary	82	34.7%
	Secondary	64	27.1%

The study included 236 nursing students and assessed their mobile phone usage and level of sleep deprivation. A majority of students (67.8%) had high mobile phone usage. The remaining (32.2%) had moderate usage. No students reported low usage.

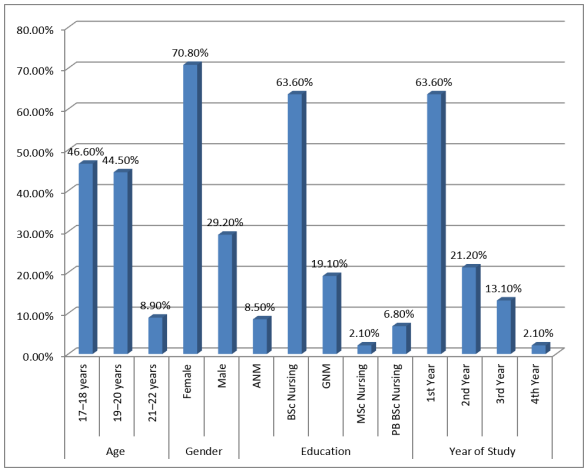


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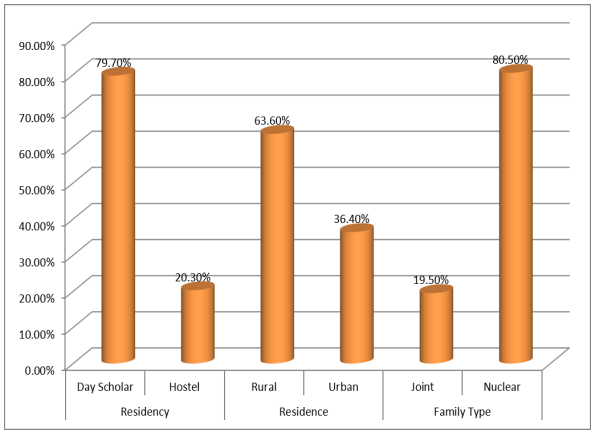


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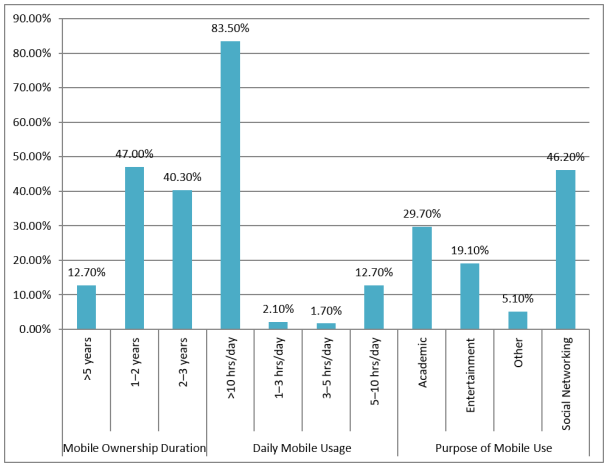


Figure no. 4.1

Table 4.2: Frequency and Percentage Distribution of Level of Mobile Phone Usage among Nursing Students (N = 236)

Mobile Phone Usage Level	Frequency (n)	Percentage (%)
Low Mobile Phone Usage	0	0%
Moderate Mobile Phone Usage	76	32.2%
High Mobile Phone Usage	160	67.8%
Total	**236**	**100%**

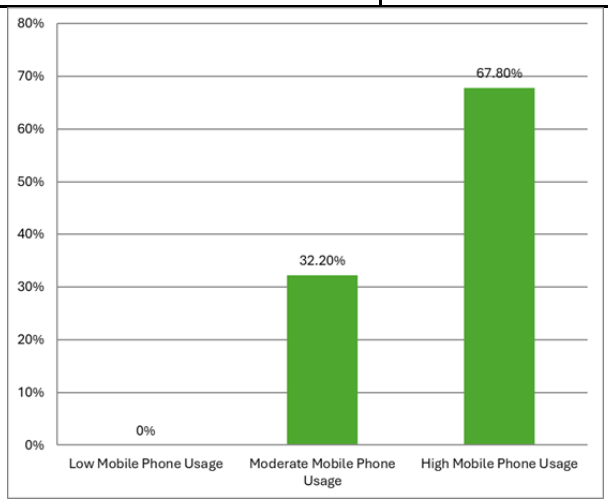


Figure no 4.2

Sleep Deprivation: Most students (72.0%) experienced moderate sleep deprivation. 16.5% had mild sleep deprivation. 11.5% had severe sleep deprivation.

Table 4.3: Frequency and Percentage Distribution of Level of Sleep Deprivation among Nursing Students (N = 236)

Sleep Deprivation Level	Frequency (n)	Percentage (%)
Mild Sleep Deprivation	39	16.5%
Moderate Sleep Deprivation	170	72.0%
Severe Sleep Deprivation	27	11.5%
Total	**236**	**100%**

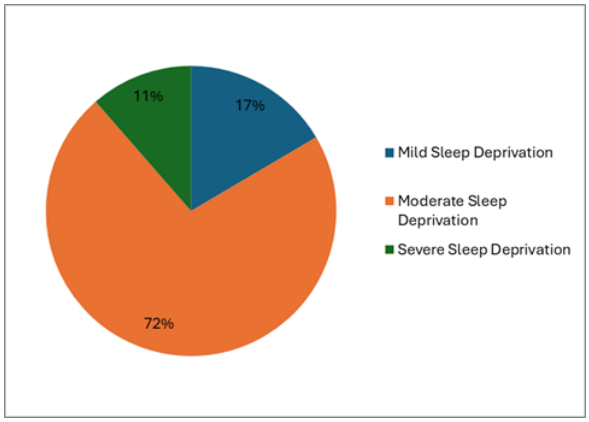


Figure no 4.3

Table 4.3 shows the frequency and percentage distribution of sleep deprivation levels among nursing students (N = 236). The majority of students experienced moderate sleep deprivation **170 (72.0%)**, followed by mild sleep deprivation **39 (16.5%)**, and severe sleep deprivation **27 (11.5%)**.

Table 4.4: Mean and Standard Deviation of Level of Mobile Phone Usage and Sleep Deprivation among Nursing Students (N = 236)

Variable	Mean	Standard Deviation
Mobile Phone Usage Scores	45.75	9.177
Sleep Deprivation Scores	14.75	2.637

Table 4.5 Association between the level of mobile phone usage among nursing students with selected demographic variables

Variable	Category	Moderate	High	χ^2	df	p-value
		n (%)	n (%)			
Age (years)	17–18	76 (100%)	34 (21.3%)	128.40	2	0.000*
	19–20	0 (0%)	105 (65.6%)			
	21–22	0 (0%)	21 (13.1%)			
Gender	Female	7 (9.2%)	160 (100%)	205.28	1	0.000*
	Male	69 (90.8%)	0 (0%)			
Education	ANM	0 (0%)	20 (12.5%)	64.271	4	0.000*
	BSc Nursing	76 (100%)	74 (46.3%)			
	GNM	0 (0%)	45 (28.1%)			
	MSc Nursing	0 (0%)	5 (3.1%)			
	PB BSc Nursing	0 (0%)	16 (10.0%)			
Year of Study	1st Year	76 (100%)	74 (46.3%)	64.271	3	0.000*
	2nd Year	0 (0%)	50 (31.3%)			
	3rd Year	0 (0%)	31 (19.4%)			
	4th Year	0 (0%)	5 (3.1%)			
Residency	Day Scholar	28 (36.8%)	160 (100%)	126.85	1	0.000*

	Hostel	48 (63.2%)	0 (0%)			
Residence	Rural	0 (0%)	150 (93.8%)	195.523	1	0.000*
	Urban	76 (100%)	10 (6.3%)			
Family Type	Joint	0 (0%)	46 (28.7%)	27.140	1	0.000*
	Nuclear	76 (100%)	114 (71.3%)			
Mobile Ownership	>5 years	0 (0%)	30 (18.8%)	126.23	2	0.000*
	1–2 years	76 (100%)	35 (21.9%)			
	2–3 years	0 (0%)	95 (59.4%)			
Daily Usage	>10 hrs/day	37 (48.7%)	160 (100%)	98.360	3	0.000*
	1–3 hrs/day	5 (6.6%)	0 (0%)			
	3–5 hrs/day	4 (5.3%)	0 (0%)			
	5–10 hrs/day	30 (39.5%)	0 (0%)			
Purpose	Academic	70 (92.1%)	0 (0%)	210.03	3	0.000*
	Entertainment	0 (0%)	45 (28.1%)			
	Other	0 (0%)	12 (7.5%)			
	Social Networking	6 (7.9%)	103 (64.4%)			
Mother Education	Graduate	0 (0%)	13 (8.1%)	202.23	4	0.000*
	Illiterate	68 (89.5%)	0 (0%)			
	Postgraduate	0 (0%)	16 (10.0%)			
	Primary	8 (10.5%)	94 (58.8%)			
	Secondary	0 (0%)	37 (23.1%)			
Father Education	Graduate	0 (0%)	27 (16.9%)	148.86	4	0.000*
	Illiterate	46 (60.5%)	0 (0%)			
	Postgraduate	0 (0%)	17 (10.6%)			
	Primary	30 (39.5%)	52 (32.5%)			
	Secondary	0 (0%)	64 (40.0%)			

Association

There was a statistically significant association between mobile phone usage and sleep deprivation. Higher mobile phone usage was linked to increased levels of sleep deprivation

DISCUSSION

The present study revealed that the majority of Nursing students had high mobile phone usage (67.8%). This indicates a strong dependence on smartphones, which aligns with previous research findings.

Regarding sleep deprivation, most students experienced moderate sleep deprivation (72%), indicating poor sleep quality among the majority. This may be attributed to late-night mobile phone usage, academic stress, and irregular schedules.

The study also found a significant association between mobile phone usage and sleep deprivation. Excessive screen time, particularly before bedtime, disrupts sleep patterns by delaying sleep onset and reducing sleep duration.

These findings are consistent with previous studies, which reported that increased mobile phone usage is associated with poor sleep quality, insomnia, and daytime dysfunction.

CONCLUSION

The present study concludes that mobile phone usage is highly prevalent among nursing students, with the majority demonstrating high levels of usage. At the same time, a considerable proportion of students experience moderate to severe sleep deprivation, indicating poor sleep quality.

The findings clearly reveal a significant association between mobile phone usage and sleep deprivation, suggesting that excessive use of mobile phones, especially during night hours, contributes to disturbed sleep patterns. This may adversely affect students' physical health, mental well-being, and academic performance.

Therefore, it is essential to promote awareness regarding responsible mobile phone usage and healthy sleep practices among nursing students. Implementing educational interventions, encouraging proper sleep hygiene, and limiting screen time before bed time can help improve sleep quality and overall well-being.

REFERENCE

1. Yu W, Zhou X, Li B, Huang J. The effect of mobile phone addiction on sleep procrastination in adolescents: The longitudinal mediating role of physical activity behaviour. PLoS One. 2025; 20(9):e0331340. https://doi.org/10.1371/journal.pone.0331340

2. Deepali A, Patel CM, Arifuddin M. Research on addiction to social media and mobile phones among 1st-year medical students. *Natl J Physiol Pharm Pharmacol.* 2024; 14(05):1002–1005. doi:10.5455/njppp.2024.14.07336202305042024.

3. Qiu J, Morales-Muñoz I. Associations between Sleep and Mental Health in Adolescents: Results from the UK Millennium Cohort Study. International Journal of Environmental Research and Public Health. 2022 Feb 7; 19(3):1868.

4. Ali S, Khan A, Ashfaq AD. Comparison of Two Different Sizes of Endotracheal Tracheal Tube for Postoperative Sore Throat in Breast Cancer Patients Undergoing Surgeries. Cureus. 2021 Jan 19;

5. Bhanderi D, Pandya Y, Sharma D. Smartphone use and its addiction among adolescents in the age group of 16–19 years. Indian Journal of Community Medicine. 2021; 46(1):88.

6. Abhishek MG, Sudha PS, Amrutha GN. A cross sectional study to determine the effect of smartphone usage on the academics, health and sleep patterns of undergraduate medical students. *J Evid Based Med Healthc.* 2020;7(40):2286–2289. doi:10.18410/jebmh/2020/474

7. Gladius JH, Sowmiya K, Vidya DC, Archana Lakshmi PA, William RF. A study of mobile phone usage on sleep disturbance, stress and academic performance among medical students in Tamil Nadu. *Int J Community Med Public Health.* 2018;5(1):365–368. doi:10.18203/2394-6040.ijcmph20175814.

8. Elhai JD, Dvorak RD, Levine JC, Hall BJ. Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. Journal of Affective Disorders [Internet]. 2017 Jan;2017(207):251–9.

9. Gupta N, Garg S, Arora K. Pattern of mobile phone usage and its effects on psychological health, sleep, and academic performance in students of a medical university. *Natl J Physiol Pharm Pharmacol.*2016;6(2):132–139. doi:10.5455/njppp.2016.6.0311201599.

10. Gahlot A, Chaudhary P, Gahlot SK. Pattern of mobile phone use and its effect among medical students. *J Evol Med Dent Sci.* 2016;5(41):2524–2527. doi:10.14260/jemds/2016/589