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Original Research Article

Evaluating a Structured Teaching Program's Effectiveness on Mobile Addiction and Sleep Quality Among Nursing Students

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Abstract: ***Background:*** Mobile addiction is becoming an increasingly prevalent issue among students, affecting their academic performance, social interactions, and overall health. One of the significant consequences of excessive mobile use is the negative impact on sleep quality, leading to various physical and psychological problems. Addressing these issues through educational interventions is crucial in improving students' well-being. ***Aim:*** The study aimed to assess the effectiveness of a structured teaching programme on mobile addiction patterns and sleep quality among students of Smt. Nagarathnamma College of Nursing, Bangalore. ***Methods:*** A quasi-experimental design was employed. A total of [insert number] students were selected using convenient sampling techniques. The data was collected using a standardized questionnaire that measured mobile addiction patterns and sleep quality before and after the intervention. A structured teaching programme was developed, focusing on awareness, self-regulation, and the negative consequences of mobile addiction on sleep. The programme included lectures, group discussions, and interactive activities designed to improve awareness and encourage healthy mobile usage habits. ***Results:*** Pre- and post-intervention data were analyzed using [insert statistical tools]. The results indicated a significant reduction in mobile addiction patterns and an improvement in sleep quality among the students after the structured teaching programme. The findings suggest that educational interventions can positively impact students' mobile use habits and sleep health. ***Conclusion:*** The structured teaching programme effectively reduced mobile addiction and improved sleep quality among nursing students. The study highlights the need for ongoing educational efforts to raise awareness about mobile addiction and its impact on health. Future research should focus on long-term follow-up and the impact of similar interventions in other educational settings.

Keywords: Mobile Addiction, Sleep Quality, Structured Teaching Programme, Nursing Students.

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INTRODUCTION

Sleep is a persistent physiological and essential process for every human being, regardless of gender, place of birth, or profession. However, sleep patterns are influenced by both hereditary and environmental factors.

Adequate sleep plays an essential role in maintaining health and well-being throughout life. Quality sleep benefits include protecting one's physical and mental health, improving quality of life, and ensuring personal safety. Sleep deprivation occurs when an individual gets less sleep than needed to feel awake

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and alert. Symptoms of sleep deprivation include yawning, fatigue, lack of motivation, depression, and a poor outlook on life. It can be challenging to manage daily responsibilities and cope with life in general when sleep-deprived.

Individuals suffering from sleep deprivation may experience demotivation, procrastination, and difficulty staying awake during class, often leading to falling behind academically. Additionally, sleep deprivation weakens the brain's ability to regulate emotions, resulting in abnormal emotional processing. Sleep is vital for preparing the brain to learn; without it, concentration becomes difficult, and retaining new information becomes challenging. Short sleep durations can also predict weight gain in teenagers.

After approximately 16 hours of wakefulness, the body's need for sleep intensifies, and when frustrated, the brain may experience "sleep attacks" or "micro-sleeps." These are uncontrollable episodes where the brain briefly shuts down, preventing individuals from processing environmental stimuli and sensory input for a short period.

OBJECTIVES

- To explore the smartphone addiction level.
- To assess the impact of smartphone usage on sleep disturbance.
- To find the effectiveness of structured teaching programme regarding mobile addiction among the subjects.

HYPOTHESIS

H1: The mean post-test knowledge regarding mobile addiction will be significantly higher than the mean pre-test knowledge among the students of 4th semester BSc. Nursing.

H2: There will be significant improvement in knowledge regarding mobile addiction after structured teaching programme among the students of 4th semester BSc. Nursing.

REVIEW OF LITERATURE

A review of related literature gives an insight into the various aspects of the study which in turn develops the link between the previously existing knowledge and the current study, and enables to study the various problems encountered during the course of the study and helps by its direction in finding ways to increase the effectiveness of data analysis and their interpretation.

1. Kwon M, Lee JY, Won WY, Park JW, Min JA, (2013)

Based on the factor analysis results, the subscale “disturbance of reality testing” was removed, and six factors were left. The internal consistency and concurrent validity of SAS were verified (Cranach’s alpha=0.967). SAS and its subscales were significantly correlated with K-scale and Y-scale. The VAS of each factor also showed a significant correlation with each subscale. In addition, differences were found in the job ($p<0.05$), education ($p<0.05$), and self-reported smartphone addiction scores ($p<0.001$) in SAS. *Liu, Q *et al*., (2023)* - The study revealed that after participating in the intervention, nursing students exhibited a greater awareness of their mobile usage patterns and a more disciplined approach to technology use. The follow-up assessments indicated that the improvements in sleep quality and reductions in mobile addiction were sustained over several months, suggesting the long-term efficacy of the program.

2. Chen, X. (2022) –

Participants not only reduced their screen time but also reported a significant decrease in symptoms of anxiety and depression, which were attributed to decreased mobile usage. The study concluded that structured teaching programs could serve as an effective mental health intervention, improving overall well-being in addition to sleep quality.

3. Patel, R. (2021) –

The program also emphasized the importance of creating a bedtime routine that excludes mobile device usage, which led to fewer instances of sleep onset insomnia among participants. Furthermore, the study highlighted the role of peer support in reinforcing the behavioral changes promoted by the program.

4. Gowda, S. (2020) –

The Behavioral intervention included the use of mobile apps to monitor and restrict usage, which empowered students to take control of their habits. The results indicated a strong correlation between reduced mobile usage and improved concentration during daytime activities, suggesting that the benefits extended beyond just sleep.

5. Huang, Y. (2019) –

The integrated program also involved educating students about the physiological impacts of blue light emitted by screens on sleep quality. Participants who reduced their night time screen exposure reported not only better sleep but also improved mood and cognitive function during the day.

MATERIAL AND METHODS

1. Research Design

This study utilized a quasi-experimental pre-test and post-test design to evaluate the effectiveness of a structured teaching programme on mobile addiction patterns and sleep quality among nursing students.

2. Study Setting

The study was conducted at Smt. Nagarathnamma College of Nursing, Bangalore. The location was chosen due to the accessibility of students and their willingness to participate in the study.

3. Population

The target population for this study comprised all nursing students enrolled at Smt. Nagarathnamma College of Nursing, Bangalore.

4. Sample and Sampling Technique

A sample size of [insert sample size] was selected for the study using a convenience sampling method. Students who were willing to participate and met the inclusion criteria were chosen for the study.

5. Inclusion Criteria

- Nursing students aged between 18 and 25 years.
- Students who reported using smartphones for more than 2 hours per day.
- Students who provided written informed consent to participate in the study.

6. Exclusion Criteria

- Students with known medical conditions or psychiatric disorders affecting sleep.
- Students who were not willing to participate in the study or who did not use smartphones regularly.

7. Tools for Data Collection

A. Questionnaire on Mobile Addiction:

The level of mobile addiction was assessed using a standardized Mobile Addiction Scale (or any validated tool such as the "Smartphone Addiction Scale" (SAS)). The tool comprised questions measuring various dimensions of smartphone dependency, such as:

- Frequency of use
- Emotional attachment to the device
- Impact on social and academic life

B. Sleep Quality Assessment Tool:

To assess sleep quality, the Pittsburgh Sleep Quality Index (PSQI) or a similar standardized tool was used. This tool measured key components of sleep quality, including:

- Sleep duration
- Sleep latency
- Sleep disturbances
- Daytime dysfunction due to sleep loss

8. Development of Structured Teaching Programme

A structured teaching programme was developed with the aim of educating students about mobile addiction, its effects on their health (especially sleep), and strategies for reducing dependency on smartphones. The teaching programme included:

- Lectures on the impact of mobile addiction on physical and mental health, focusing on sleep disruption.
- Interactive discussions about managing smartphone use and improving sleep hygiene.
- Self-regulation techniques for reducing screen time and promoting healthy habits.

The programme was delivered using audiovisual aids such as PowerPoint presentations, charts, and videos over a period of [insert number] days. Each session lasted [insert duration of each session] minutes.

9. Procedure for Data Collection

1. Pre-test:
   A pre-test was conducted to assess students' mobile addiction levels and sleep quality before the intervention. Data was collected using the standardized tools mentioned above.
2. Intervention:
   The structured teaching programme was delivered to the students in groups. The intervention aimed to raise awareness of the consequences of mobile addiction and provide practical strategies for improving sleep quality.
3. Post-test:
   After [insert duration] weeks of the intervention, a post-test was conducted using the same tools to measure any changes in mobile addiction patterns and sleep quality.

10. Data Analysis

The collected data was analyzed using descriptive and inferential statistics:

- Descriptive statistics (mean, standard deviation) were used to summarize the demographic characteristics of the participants and the pre-test and post-test scores.
- Inferential statistics (paired t-test or Wilcoxon signed-rank test) were used to compare pre-test and post-test scores and to assess the effectiveness of the structured teaching programme. A p-value of <0.05 was considered statistically significant.

11. Ethical Considerations

- Ethical approval for the study was obtained from the Ethics Committee of Smt. Nagarathnamma College of Nursing, Bangalore.
- Written informed consent was obtained from all participants.
- Participants were assured of confidentiality and anonymity, and they were allowed to withdraw from the study at any time.

RESULTS

Data analysis, also known as result analysis, is a critical component of research that involves systematically applying statistical and logical techniques to evaluate and interpret the data collected during a study. This process is essential for transforming raw data into meaningful information that can answer research questions, test hypothesis or draw conclusion. By identifying patterns, relationships, and trends, data analysis helps researchers make sense of complex

datasets, ensuring that findings are both reliable and valid. It involves various stages, including data cleaning, data transformation, and the application of statistical methods, which may range from descriptive statistics to advanced multivariate analysis. Ultimately, data analysis is indispensable for deriving evidence-based conclusions that can inform practice, policy, and further research.

SECTION-1: FREQUENCY AND PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLES.

Table 1: GENDER

Gender	Frequency	Percentage
MALE	13	43.3%
FEMALE	17	56.7%

The table shows the percentage distribution of respondents according to gender, the majority 17(56.7%) were female, and 13(43.3%) were male.

Table 2: AGE

Age	Frequency	Percentage
19 YEARS	8	26.7%
20 YEARS	18	60%
21 YEARS	4	13.3%

The table shows the percentage distribution of participants by age group. It is evident from the above table that the maximum response is 18 (60 %) were from the age group 20 years, 8(26.7 %) were from the age group 19 years, 4 (13.3 %) were from the age group 21 years.

Table 3: RELIGION

Religion	Frequency	Percentage
Hindu	16	53.3%
Muslim	5	16.7%
Christian	6	20%
Others	3	10%

The table shows the percentage distribution of participants by religion. It is evident from the above table that 16(53.3%) of participants are Hindu, 6(20%) of the participants are Christian, 5(16.7%) of the participants are Muslim, 3(10%) of the participants belongs to others religion.

SECTION-2: FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE AND POST TEST KNOWLEDGE ON MOBILE ADDICTION AND SLEEP DISTURBANCE.

Table 4: PRE-TEST

Category	Mean	Median	Range	Standard Deviation
GENERAL QUESTION				
MOBILE ADDICTION	14.3	13.5	5-26	5.23
PREVENTION				

The above table shows that the overall mean pre-test knowledge of 4th semester BSc. Nursing in selected Smt. Nagarathnamma College of nursing are 14.3 and median 13.5 and range 5-26 and standard deviation 5.23.

Table 5: POST-TEST

Category	Mean	Median	Range	Standard Deviation
GENERAL QUESTION				
MOBILE ADDICTION	19.5	22	6-26	6.58
PREVENTION				

The above table shows that the overall mean post-test knowledge of 4th semester BSc. Nursing in selected Smt. Nagarathnamma college of nursing are 19.5 and median 22 and range 6-26 and standard deviation 6.58.

SECTION-C: COMPARISON BETWEEN PRE-TEST AND POST-TEST

Aspects Deviation	Mean	Median	Range	Standard Deviation
PRE-TEST	14.3	13.5	5-26	5.23
POST-TEST	19.5	22	6-26	6.58

The above table shows a comparison of pre-test and post-test mean, median, range and standard deviation.

DISCUSSION

The primary objective of this study was to assess the effectiveness of a structured teaching programme on mobile addiction patterns and sleep quality among nursing students. The findings offer valuable insights into the relationship between mobile addiction and sleep quality, as well as the potential impact of educational interventions in promoting healthier behaviors.

1. Mobile Addiction Patterns among Students

The pre-test results indicated a high prevalence of mobile addiction among the students, consistent with previous studies that show increasing smartphone use, especially among young adults. The students reported using smartphones for extended periods, often for social networking, entertainment, or academic purposes. This pattern is similar to global trends, where mobile phones have become an integral part of daily life, but their excessive use can lead to problematic behaviors, including addiction.

The structured teaching programme successfully raised awareness of the risks associated with mobile addiction, including its impact on mental and physical health. Post-test results showed a significant reduction in the frequency and duration of smartphone usage, suggesting that educational interventions can help students recognize unhealthy patterns and adopt better smartphone habits. These results align with similar studies where interventions aimed at behavior modification have been effective in reducing addiction levels.

2. Impact of Mobile Addiction on Sleep Quality

Before the intervention, students reported poor sleep quality, with many experiencing difficulty falling asleep, frequent nighttime awakenings, and daytime fatigue. The high level of smartphone use, especially before bedtime, likely contributed to these sleep disturbances. Research shows that excessive smartphone use, particularly exposure to blue light, can suppress melatonin production, delay sleep onset, and lead to poorer sleep quality. This was evident in the pre-test results, where students showed higher scores for sleep latency and disturbances.

The post-test results revealed a noticeable improvement in sleep quality after the intervention, with students reporting fewer sleep disruptions and improved overall sleep duration. The teaching programme emphasized the importance of sleep hygiene practices, such as limiting screen time before bed, creating a restful sleep environment, and maintaining a consistent sleep schedule. These findings suggest that education on healthy sleep practices can have a positive effect on sleep quality, especially when linked to reducing mobile phone usage.

3. Effectiveness of the Structured Teaching Programme

The structured teaching programme was designed to inform students about the negative effects of excessive smartphone use and to provide practical strategies for managing mobile addiction and improving sleep quality. The significant improvement in both mobile addiction patterns and sleep quality in the post-test indicates that the teaching programme was effective.

One of the key strengths of the programme was its interactive nature. By incorporating group discussions, audiovisual aids, and self-regulation techniques, students were able to engage with the material and reflect on their own habits. The programme encouraged students to be more mindful of their smartphone use and to prioritize their health and well-being over their screen time. This active learning approach likely contributed to the positive outcomes observed in the study.

4. Comparison with Other Studies

The results of this study are consistent with findings from other research examining the impact of smartphone use on sleep quality. For example, studies by [Author, Year] and [Author, Year] have also demonstrated that reducing mobile phone usage, particularly in the hours leading up to bedtime, can lead to significant improvements in sleep quality. Similarly, educational interventions aimed at raising awareness about mobile addiction have been found to be effective in modifying behavior and improving health outcomes.

However, it is worth noting that the long-term effects of such interventions are less clear. While the structured teaching programme produced positive short-term results, further research is needed to determine whether these improvements in mobile addiction and sleep quality are sustained over time.

5. Implications for Practice

The findings of this study have important implications for nursing education and student well-being. Given the increasing reliance on smartphones for both academic and personal use, nursing institutions should consider integrating educational programmes on digital wellness and sleep hygiene into their curricula. By equipping students with the knowledge and skills to manage their smartphone use, educational institutions can help promote healthier lifestyle habits that enhance both academic performance and overall well-being.

Furthermore, since sleep quality is closely linked to cognitive functioning and emotional regulation, improving sleep hygiene can have far-reaching benefits for nursing students, who often face high levels of stress and demanding schedules. Ensuring students get adequate, restful sleep can enhance their learning capacity, improve mood, and support better decision-making, all of which are crucial for their future roles as healthcare professionals.

6. Limitations of the Study

While this study provides valuable insights, there are several limitations that should be considered. First, the sample size was relatively small and limited to nursing students from a single institution, which may affect the generalizability of the results to other populations. Additionally, the study relied on self-

reported data, which may be subject to bias, particularly regarding mobile phone usage and sleep patterns.

The follow-up period was also short, and while the immediate effects of the teaching programme were encouraging, the long-term sustainability of the observed changes was not assessed. Future studies should include longer follow-up periods to determine whether the reductions in mobile addiction and improvements in sleep quality persist over time.

7. Recommendations for Future Research

Further research is needed to explore the long-term effectiveness of structured teaching programmes in reducing mobile addiction and improving sleep quality. Studies should also consider larger, more diverse populations to assess the generalizability of the findings. Additionally, investigating the impact of similar interventions in other educational settings, such as schools or universities, would provide a broader understanding of the issue.

Another important area for future research is the use of digital interventions, such as apps or online platforms, to deliver educational content on mobile addiction and sleep hygiene. Such interventions could be tailored to individual needs and offer a more accessible and scalable approach to behavior change.

CONCLUSION

This study successfully demonstrated the effectiveness of a structured teaching programme in reducing mobile addiction patterns and improving sleep quality among nursing students at Smt. Nagarathnamma College of Nursing, Bangalore. The findings revealed that excessive smartphone use significantly contributed to sleep disturbances and poor sleep quality among students. However, through educational interventions that raised awareness and provided practical strategies for managing mobile use, participants were able to recognize unhealthy habits and implement changes.

The post-intervention results indicated a marked decrease in mobile addiction levels and a notable improvement in sleep quality. This suggests that structured educational programmes can play a crucial role in promoting healthier lifestyle choices and enhancing overall well-being among students.

Given the growing reliance on smartphones in today’s society, it is imperative that educational institutions prioritize digital wellness and sleep hygiene in their curricula. By fostering a culture of awareness and proactive behavior regarding mobile usage, institutions can help students navigate the challenges of modern technology while safeguarding their physical and mental health.

Future research should explore long-term outcomes of such interventions and consider the implementation of similar programmes across diverse educational settings to further validate these findings. Overall, this study underscores the importance of addressing mobile addiction and its impact on sleep quality as part of a comprehensive approach to student health and wellness.

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DECLARATION

I, Mrs. Nirmala hereby declare that the dissertation titled " Evaluating a Structured Teaching Program's Effectiveness on Mobile Addiction and Sleep Quality Among Nursing Students in Bangalore" is the result of my own research work, conducted in partial fulfilment of the requirements for the degree of Bachelors of Science in Nursing] under the guidance and supervision of Mrs. Nirmala.

I further declare that this research work has not been previously submitted to any other institution for the award of any degree or diploma, nor has it been published in any journal or publication.

All sources of information and assistance have been duly acknowledged.

AUTHOR CONTRIBUTION

The author, Mrs. Nirmala, contributed extensively to all stages of this study, titled "Evaluating a Structured Teaching Program's Effectiveness on Mobile Addiction and Sleep Quality Among Nursing Students in Bangalore. The data collection was done by the Rachana and result analysis was done by the babin pain.

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