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A Correlational Study Between Quality of Sleep and the Smartphone Usage Among the Students of Dy Patil College of Nursing and Dy Patil College of Physiotherapy Kolhapur

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ABSTRACT:

Introduction:

As multipurpose gadgets that offer information, entertainment, and communication, cellphones have become an essential part of daily life in the current digital era. But their widespread presence, particularly at night, raises serious questions about how they affect the quality of sleep. A burgeoning public health concern is the rising incidence of sleep disorders. Sleep is essential for good health since it affects mental clarity, emotional control, and physical well-being. Because blue light from screens suppresses the production of melatonin, the hormone that controls sleep-wake cycles, it can throw off the circadian rhythm. Moreover, engaging with stimulating content might postpone the start of sleep, such as social media or work-related activities. Sleep is aggravated by psychological reliance on smartphones, which is typified by obsessive notification monitoring and fear of missing out (FOMO).

Methodology: Using a non-experimental, descriptive methodology, the study used a correlational survey approach. 500 students from D.Y. Patil College of Physiotherapy and D.Y. Patil College of Nursing, who were chosen by non-probability convenience sampling, were among the participants. The Smartphone Addiction Short Version Scale (SAS-SV) and the Pittsburgh Sleep Quality Index (PSQI) were employed. The Karl Pearson correlation coefficient test was administered through an online Google Forms questionnaire. The investigation was carried out on April 16, 2024. Findings: The participants' average age was 21.43 ± 2.91 years. Due to their use of smartphones at night, the majority of participants (55.00%, or 345 students) reported having severe sleep difficulties. With a median score of 11 and a mode of 10, the PSQI score was 11.18 on average. 3.22 was the standard deviation, and the range was16. The majority of pupils showed a solid understanding of sleep disorders. At the $P < 0.05$ level, the estimated t-value (tcal = 1.9564) was found to be more than the crucial value (ttab = 1.9432), suggesting a moderately positive association that is statistically significant between smartphone usage and sleep quality. In summary, the results indicate that most participants had a moderate understanding of sleep disorders, and there was a moderately positive link between smartphone usage and sleep quality.

Keywords: Sleep disorders, smartphone usage, sleep quality, sleep cycle

OVERVIEW

Smartphones are becoming an essential component of everyday life in the current digital era, acting as multipurpose gadgets that provide us with instant access to information, entertainment, and communication. But their widespread use, particularly at night, has sparked serious worries about how they may affect the quality of sleep. An increasing body of research indicates that smartphone use at night may be a contributing cause to the rising incidence of sleep problems, which is a significant public health concern. Sleep has a significant impact on cognitive performance, emotional regulation, and physical health, making it an essential element of overall health and wellbeing. Restoring body functions, learning processes, and a strong immune system all depend on getting enough good sleep. On the other hand, inadequate or subpar sleep has been connected to numerous health problems, such as heart illnesses, In contrast, a variety of health problems, such as cardiovascular illnesses, have been connected to inadequate or poor-quality sleep. Smartphones are becoming an essential component of everyday life in the current digital era, acting as multipurpose gadgets that provide us with instant access to information, entertainment, and communication. But their widespread presence—particularly at night—has brought attention to serious issues like diabetes, obesity, and mental health conditions like sadness and anxiety. The health of your sleep is at stake by using smartphones at night12. Because blue light from screens suppresses the generation of melatonin, a hormone that controls sleep-wake cycles, it can throw off the circadian rhythm. Furthermore, interacting with stimulating content might lengthen the time it takes for sleep to start and decrease the efficiency of sleep, such as social media, gaming, or work-related activities. psychological reliance on cellphones, marked by obsessive notification checking and FOMO (fear of missing out),

Introversion (FOMO) and obsessive notification checking make sleep difficulties worse.to investigate the connection between using a smartphone at night and sleep difficulties, looking at the underlying causes and possible treatments. The purpose of the study is to clarify the degree to which smartphone use impacts sleep patterns and the incidence of associated diseases by examining recent research and evaluating empirical data. The study will also cover ways to lessen the detrimental effects of smartphone use on sleep, including suggestions for both private users and public health campaigns. In order to address the rising epidemic of sleep problems, it is essential to comprehend the complex relationship that exists between smartphone use and sleep health. Safeguarding sleep health will depend heavily on raising awareness and encouraging healthier usage practices as cellphones continue to advance and become more integrated into daily life. I as well as general health. Smartphones are becoming an essential component of daily life in the current digital era. They are multipurpose gadgets that provide information, entertainment, and communication at our fingertips. But their widespread use, particularly at night, has sparked serious worries about how they may affect the quality of sleep. An increasing body of research indicates that smartphone use at night may be a contributing cause to the rising incidence of sleep problems, which is a significant public health concern. Sleep has a significant impact on cognitive performance, emotional regulation, and physical health, making it an essential element of overall health and wellbeing. Restoring body functions, learning processes, and a strong immune system all depend on getting enough good sleep. On the other hand, inadequate or poor quality sleep has been connected to numerous health along with general health. Smartphones, which are multipurpose gadgets that provide us with instant access to information, entertainment, and communication, have become an essential aspect of daily life in the current digital era. Nonetheless, serious questions have been raised about their widespread prevalence and potential effects on sleep quality, particularly at night. There is emerging evidence that the use of

cellphones at night may be a contributing cause to the rising prevalence of sleep problems, which is a public health concern. Since sleep has an impact on mental clarity, emotional control, and physical health, it is essential to general health and wellbeing. A strong immune system, learning processes, and the repair of physiological functioning all depend on getting enough good sleep. On the other hand, inadequate or substandard sleep has been associated with numerous health issues. ogether with general health. As multipurpose gadgets that provide us with instant access to information, entertainment, and communication, cellphones have become an essential element of modern life in the digital age. That being said, there are serious worries about their impact on sleep health due to their ubiquitous presence, particularly at night. significant research points to smartphone use at night as a potential contributing cause to the rising incidence of sleep problems, which is a significant public health concern. An individual's ability to think clearly, control their emotions, and maintain good physical and mental health all depend on getting enough sleep. It is imperative to get enough good sleep in order to support learning, immune system health, and the repair of body functioning. In contrast, there are numerous health issues associated with inadequate or subpar sleep. as well as general health. Smartphones, which are multipurpose gadgets that provide us with instant access to information, entertainment, and communication, have become an essential aspect of daily life in the current digital age. But their widespread use, particularly at night, has sparked serious worries about how they may affect the quality of our sleep. A growing body of research indicates that smartphone use at night may be a contributing cause to the rising incidence of sleep problems, which is a significant public health concern. A person's ability to think clearly, control their emotions, and maintain good physical and mental health all depend on getting enough sleep. Restorative sleep, learning, and immune system maintenance all depend on getting enough good sleep. On the other hand, inadequate or subpar sleep has been connected to numerous health problems.

I as well as general health. Smartphones are becoming an essential component of daily life in the current digital era. They are multipurpose gadgets that provide information, entertainment, and communication at our fingertips. But their widespread use, particularly at night, has sparked serious worries about how they may affect the quality of sleep. An increasing body of research indicates that smartphone use at night may be a contributing cause to the rising incidence of sleep problems, which is a significant public health concern. Sleep has a significant impact on cognitive performance, emotional regulation, and physical health, making it an essential element of overall health and wellbeing. Restoring body functions, learning processes, and a strong immune system all depend on getting enough good sleep. On the other hand, inadequate or poor quality sleep has been connected to numerous healthproblems, such as diabetes, obesity, heart disease, and mental health conditions including sadness and anxiety. There are several threats to the health of your sleep when using cellphones at night. Because blue light from screens suppresses the generation of melatonin, a hormone that controls sleep-wake cycles, it can throw off the circadian rhythm. Furthermore, interacting with stimulating content might lengthen the time it takes for sleep to start and decrease the efficiency of sleep, such as social media, gaming, or work-related activities. Sleep difficulties are made worse by psychological dependence on smartphones, which is typified by obsessive checking of alerts and fear of missing out (FOMO). This study looks at the underlying mechanisms and potential treatments to investigate the connection between smartphone use at night and sleep disturbances. Examining recent research and examining actual evidence, the purpose of the study is to clarify the degree to which smartphone use impacts sleep patterns and the incidence of associated diseases by examining recent research and evaluating empirical data. The study will also cover ways to lessen the detrimental effects of smartphone use on sleep, including suggestions for both private users and

public health campaigns. In order to address the rising epidemic of sleep problems, it is essential to comprehend the complex relationship that exists between smartphone use and sleep health. It will be essential to raise awareness and encourage healthy usage practices as cellphones continue to advance and become more integrated into daily life in order to protect sleep quality and general wellbeing. Smartphones have transformed communication and information access, but they have also made it harder to maintain restful sleep patterns. Current figures how an increase in smartphone ownership and use in all age categories, with a sizable fraction of the populace using screens right before bed. Adolescents and young adults, who use technology at the highest rates and also have high rates of sleep disruptions, are the group where this tendency is most noticeable. Studies have indicated that the exposure to screen light, specifically the blue wavelength generated by cellphones, may disrupt the body's normal circadian rhythm. Exposure to blue light suppresses the generation of melatonin, which results in a reduction in both the duration and quality of sleep. Furthermore, engaging in interactive smartphone activities like social media surfing, gaming, or email reading can raise emotional and cognitive arousal, which makes it more difficult for people to relax and go to sleep. An important contributing component to the association between smartphone use and sleep problems is psychosocial factors. Because smartphones are increasingly common, there may be a social and professional pressure to always be connected. Due to this continuous connectivity, people frequently adopt bad sleep hygiene habits, which include using phones as alarm clocks, keeping phones close to hand when sleeping, and waking up to check alerts. These behaviors all contribute to fragmented and inadequate sleep. In conclusion, as mobile technology develops and permeates every element of our lives, its unforeseen effects on health, especially sleep, need to be carefully considered and addressed. Our goal in doing this research was to provide insightful information that will support the development of better digital behaviors and encourage a striking a balance between the advantages of technology and the essential requirements for healing sleep.

In the modern digital age, smartphones have become integral to daily life, serving as multifunctional devices that provide communication, entertainment, and information. However, their pervasive presence, especially at night, raises significant concerns regarding their impact on sleep health. The increasing prevalence of sleep disorders represents a growing public health issues. Sleep plays a critical role in overall health and well-being, influencing cognition, emotional regulation, and physical health. The emission of blue light from screens can disrupt the circadian rhythm by inhibiting melatonin production, the hormone responsible for regulating the sleep-wake cycle. Furthermore, engaging with stimulating content such as social media or work-related activities can delay sleep onset. Psychological dependence on smartphones, characterized by fear of missing out (FOMO) and compulsive notification checking, exacerbates sleep disturbances.

Methodology: The study employed a correlational survey approach with a non-experimental, descriptive design. Participants included 500 students from D.Y. Patil College of Nursing and D.Y. Patil College of Physiotherapy, selected through non-probability convenience sampling. The Pittsburgh Sleep Quality Index (PSQI) and Smartphone Addiction Short Version Scale (SAS-SV) were utilized. The Karl Pearson correlation coefficient test was conducted via an online questionnaire on Google Forms. The study was conducted on April 16, 2024.

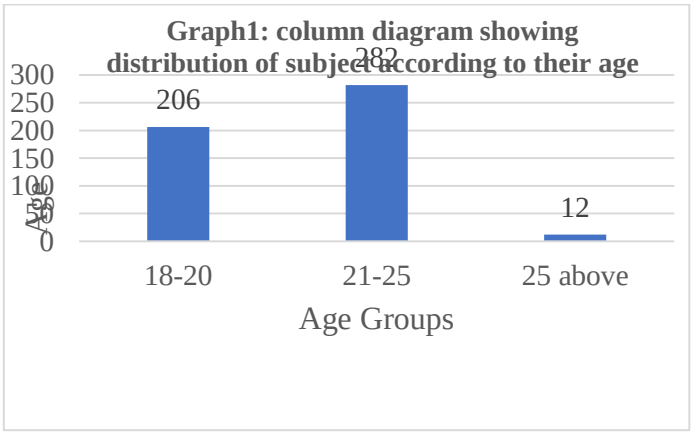
Results: The mean age of participants was 21.43 ± 2.91 years. A majority of participants (55.00%, 345 students) reported experiencing high levels of sleep disorders due to nighttime smartphone use. The mean PSQI score was 11.18, with a median of 11 and mode of 10. The standard deviation was 3.22, and the range was 16. Most students demonstrated good knowledge regarding sleep disorders. The calculated t-

value (t_{cal} = 1.9564) exceeded the critical value (t_{tab} = 1.9432), indicating a statistically significant moderate positive correlation between sleep quality and smartphone usage at the P < 0.05 level. **Conclusion:** Overall, the findings suggest that a majority of participants possessed average knowledge regarding sleep disorders, and there was a significant moderate positive correlation between sleep quality and smartphone usage.

Keywords: Sleep disorders, smartphone usage, sleep quality, sleep cycle

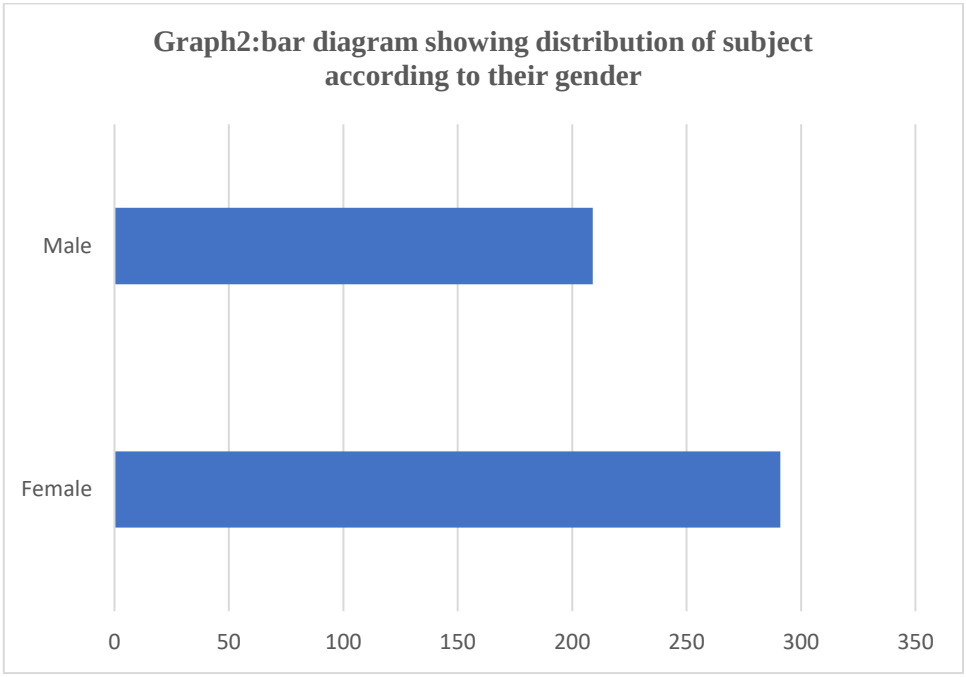
RESULTS

Graph 1: The bar diagram showing distribution of subject according to their age



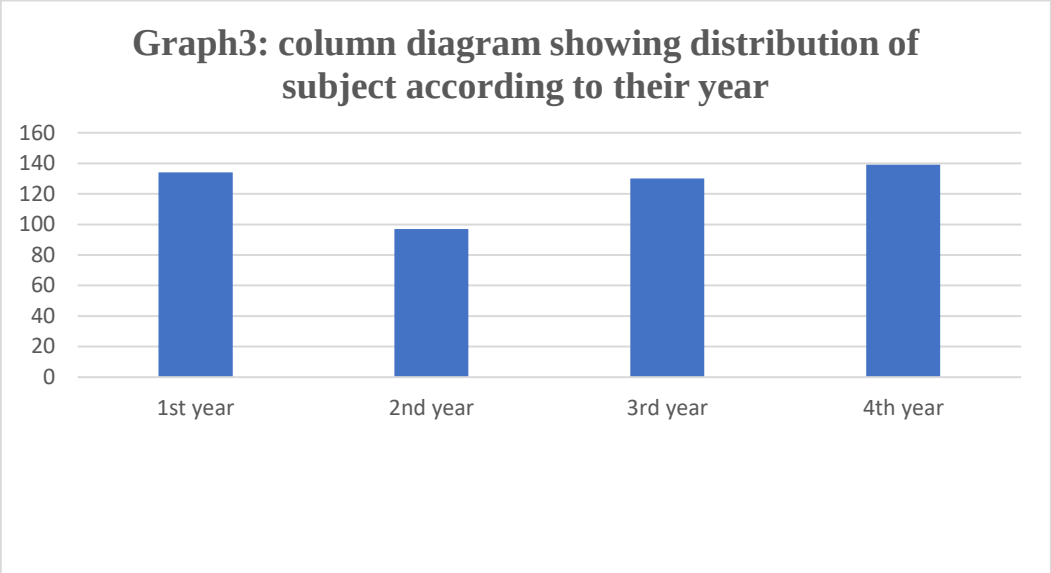
Majority of subjects 282 (58%) belonged to the age group of 21-24 years and minimum 12 (04.00%) belonged to 25 & above years of age group.

Graph no: 2 Bar diagram showing distribution of subject according to their gender.



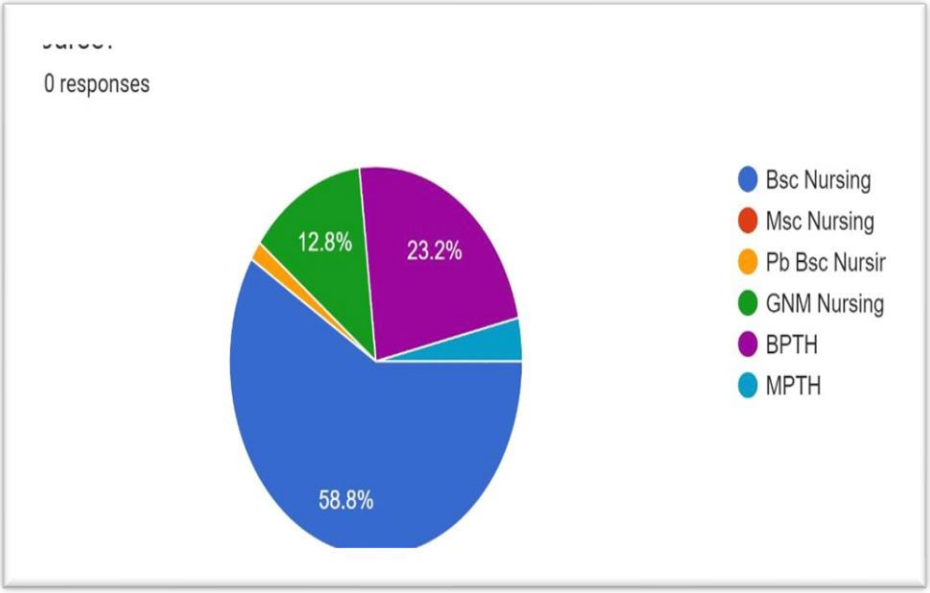
Majority of subjects 291 (58.02%) belonged to female gender where minimum 209 (41.08%) belonged male gender.

Graph no: 3



Majority of subjects 273 (52.06%) were from Frist year and fourth year while minimum 227 (48.04%) were from second year and third year.

Graph4: pie diagram



Graph4: pie diagram showing distribution of subject according their course

Majority of subjects 294 (58.08%) belonged to BSc Nursing while minimum 206 (42.02%) belonged to Other course.

Section II: Findings related to knowledge scores of subject regarding quality of sleep.

In this section the researcher analyzed and categorized knowledge scores of subjects regarding quality of sleep.

Table 1: Findings related to frequency and percentage distribution of knowledge scores of subjects regarding quality of sleep.

n = 500

Responses	Frequency *F*	Percentage %
Agree	218	59.00%
Neutral	101	14.00%
Disagree	181	37.00%

Table 1: Indicated that,

Majority of the subjects218 (59.00%) had feel irritated if they don't have their phones, 101 (14.00%) had neutral and minimum 181 (37.00 %) had not feel irritated.

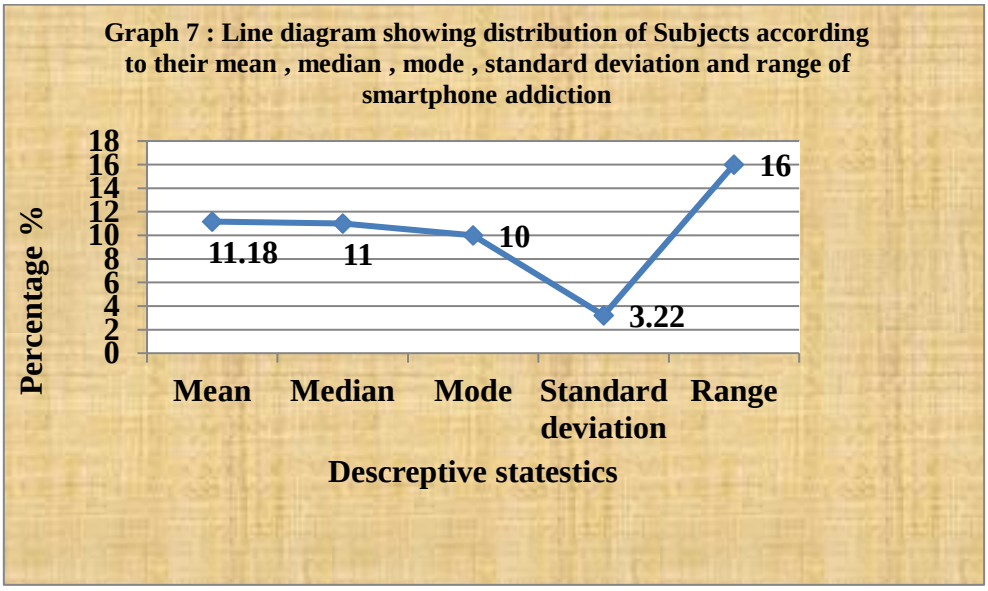
Section III: Findings related to mean, median, mode, standard deviation and range of subjects regarding smartphone addiction.

In this section the researcher analyzed and categorized the mean, median, mode, standard deviation, range of knowledge scores of subjects regarding quality of sleep.

Table 3: Findings related to Mean, Median, Mode, Standard deviation and range of knowledge scores of subjects regarding smartphone addiction.

Graph no 5: Indicated that,

Mean was 11.18, Median was 11 and Mode was 10, Standard deviation was 3.22 and Range was 16. n = 500



Section IV: Findings related to attitude scores of subjects regarding smartphone addiction.

In this section the researcher analyzed and categorized the attitude scores of subjects regarding smartphone addiction.

Table 2: Findings related to frequency and percentage distribution o of subjects regarding smartphone addiction.

n = 500

Responses	Frequency *f*	Percentage %
Agree	207	42.00%
Neutral	130	31.00%
Disagree	115	27.00%

Table 2: Indicated that,

Majority of the subjects 207 (42.00%) had agreed they had missed planed work and 130 (31.00 %) are neutral and 115(27.00%) are disagreed that missed planned work due to phone

Section V: Findings related to mean, median, mode, standard deviation and range of attitude scores of subjects regarding quality of sleep.

In this section the researcher analyzed and categorized the mean, median, mode, standard deviation and range of attitude scores of subjects regarding smartphone addiction.

Table 3: Findings related to Mean, Median, Mode, S.D. and Range of attitude scores of subject's qualities of sleep.

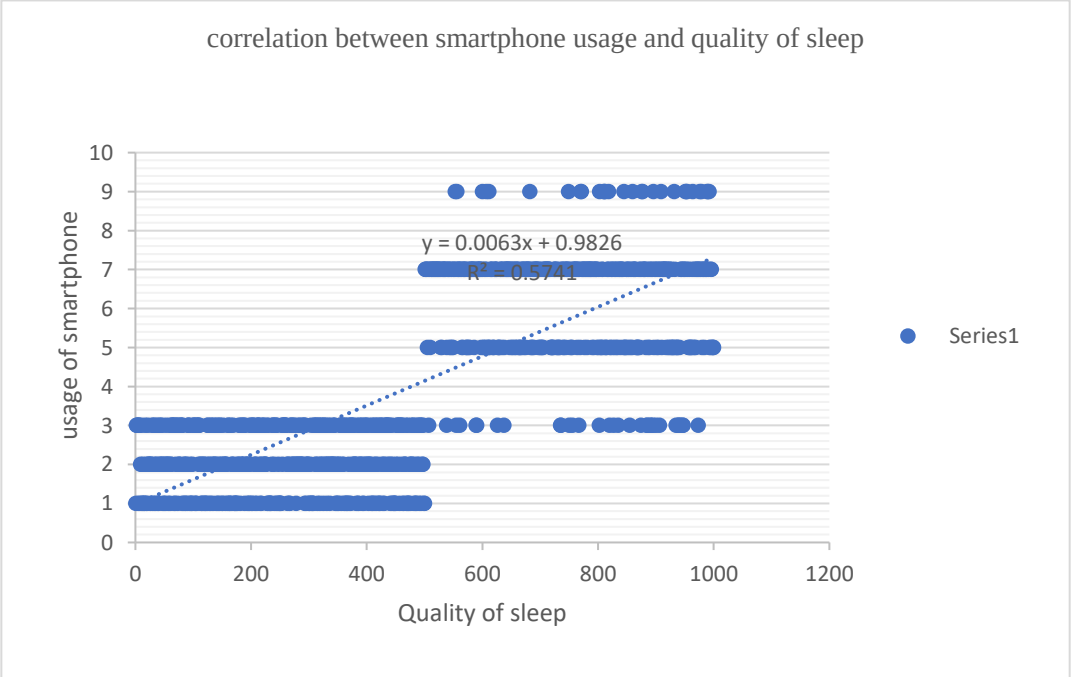
n = 500

Area of analysis	Mean	Median	Mode	Standard Deviation	Range
Quality of sleep	21.01	21	21	3.39	20

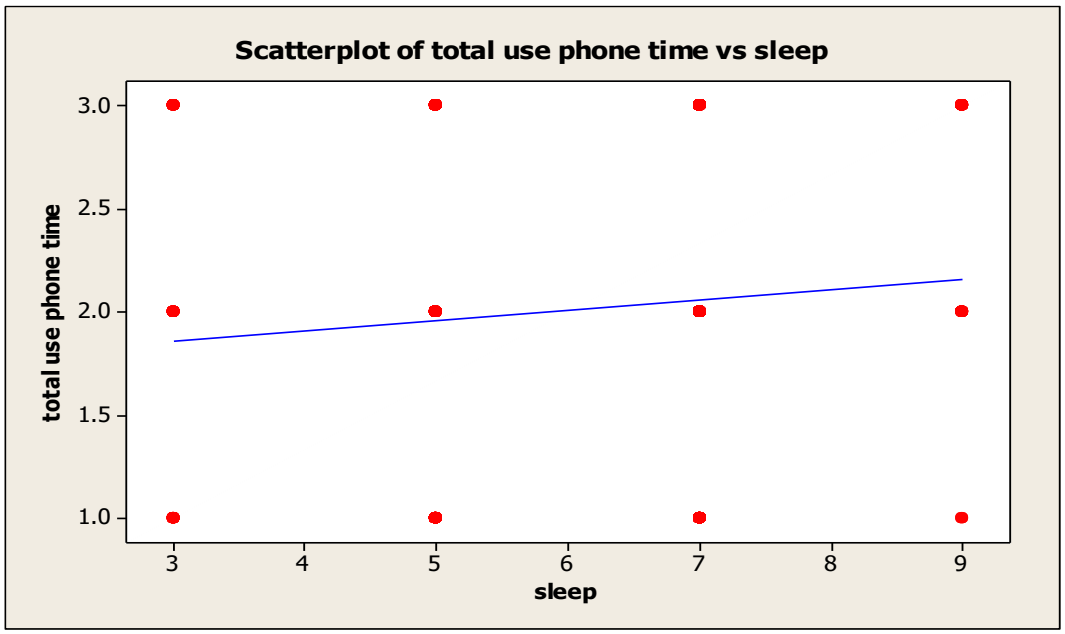
Table 3: Indicated that,

Mean was 21.015, Median was 21, Mode was 21, Standard deviation was 3.3970 and Range was 20.

Scatter Plot (A)



Scatter Plot (B)



Section VI: Testing of hypotheses at 0.05 level of significance.

A. Testing of hypothesis for correlation between quality of sleep and smartphone usage.

H_1: There was correlation between quality of sleep and smartphone usage

H_0: There was no correlation between quality of sleep and smartphone usage.

In this section the researcher analyzed and categorized knowledge and attitude scores of subjects regarding planned parenthood.

Table 4: Finding related to correlation between quality of sleep and smartphone addiction.

n = 500

Karl Pearson Correlation value		**Df**
Calculated value	**Tabulate value**	
1.9564*	1.9432	498

***Indicated significance**

Table 4: indicated that, the calculated correlation value was (t_{cal} =1.9564) greater than tabulated value (t_{tab} =1.9432). **Hence H_1 was accepted.** This indicated that there was a moderate positive correlation between quality of sleep and smartphone usage which was statistically significant at p <0.05 level**.**

Therefore, the findings revealed that there was moderate positive correlation between quality of sleep and smartphone usage. This showed that knowledge and attitude was correlated with each other. S

CONCLUSION

The main conclusions of the study are covered in this chapter, along with a discussion of how they compare to other researchers' comparable investigations. It made recommendations and shed light on the study's findings in relation to the social setting of the time. The goal of the current study is to evaluate the link between smartphone use and sleep quality among D. Y. Patil College of Nursing and Physiotherapy,

Kolhapur, undergraduate students pursuing degrees. The following headings have been used to present the topic. The study's conclusions are described in the sections that follow: 1) Results pertaining to the frequency and percentage distribution of individuals based on the sociodemographic characteristics they have chosen. The majority of subjects (372/71.4%) were between the ages of 19 and 22. At least 128 (28.6%) belong to the age group of 23 and older. The majority of students—358, or 71.6%—are enrolled in BSc and GNM Nursing, while 134, or 28.4%, are enrolled in BPTH and MPTH. 43 2) Determining the frequency and risk factors of sleep problems brought on by smartphone use at night. Due to their use of cellphones at night, 345 participants, or 55.00% of the total, were at high risk of developing sleep disorders. According to the study's findings, using a smartphone at night increases the likelihood of sleep disorders for UG degree holders. A cross-sectional study led by Drs. Chaudhry P. and Shrivastava D. supported these conclusions. Examining the frequency of smartphone use before bed and its impact on sleep quality among Saudi non-medical employees at King Saud University Medical City in Riyadh, Saudi Arabia, are the primary goals of this study. The time frame for conducting this cross-sectional study was January through July of 2016. 435 Saudi adults, aged 21 and up, who work at King Saud University Medical City in Riyadh, Saudi Arabia, were sampled and asked to self-report in Arabic on their smartphone usage before bed and the quality of their sleep. The Pittsburgh Sleep Quality Index (PSQI) was used to assess the quality of sleep. Odds ratio analysis was done on the data. Greater than Nine in ten respondents said they use their smartphones right before bed, and 98% of them reported owning one. Among the participants, social media was the most used service. Those who use their smartphones more at night, especially for longer than 60 minutes, run a higher risk of experiencing poor quality sleep. According to our research, employees who use their phones more before bed are more likely to have trouble falling asleep. The negative effects of smartphone overuse on adult productivity, health, and sleep quality deserve further attention. 3) Results pertaining to the association between smartphone use and sleep quality. 44 The tabulated value (ttab = 1.9432) was less than the calculated correlation value (tcal = 1.9564). H1 was so approved. This showed that there was a statistically significant, moderately positive correlation—$p < 0.05$—between the quality of sleep and smartphone use.

FINALVERDICT

At Kolhapur City's DY Patil College of Nursing and Physiotherapy, a descriptive correlational study was carried out to gauge participants' understanding of sleep difficulties brought on by smartphone use at night. 500 UG students' data was gathered on April 18, 2024, using the Pittsburgh Sleep Quality Index (PSQI), the Smartphone Addiction Short Version Scale, and other chosen sociodemographic characteristics (SAS-V). Following the data collection process, the individuals were chosen using a non-probabilistic purposive sample technique, and the data was tabulated and analyzed. Thus, it was determined that cutting back on screen time before bed would increase the quality of sleep

REFERENCES

1. Budmar P. Why Japanese smartphones never went global: PC World. 2012. [cited 2016]. Available from: http://www.pcworld.idg.com.au/article/430254/why_japanese_smartphones_never_went_global/
2. Mather J. iMania. 2007. [cited 2016]. Available from: https://web.archive.org/web/20070303032701/http://www.rrj.ca/online/658/

3. Patrick Rusby MS, Stephen Sale. The Connected Consumer Survey 2015: Analysys Mason Limited. 2015. [cited 2016 Jan 12]. Available from: https://www.consumerbarometer.com/en/trending/?countryCode=SAand category=TRN-NOFILTER-ALL .
4. Alsanosi AA, Al-Momani MO, Hagr AA, Almomani FM, Shami IM, Al-Habeeb SF. The acute auditory effects of exposure for 60 minutes to mobile's electromagnetic field. Saudi Med J. 2013;34:142–6. [PubMed] [Google Scholar]
5. Al-Khlaiwi T, Meo SA. Association of mobile phone radiation with fatigue, headache, dizziness, tension and sleep disturbance in Saudi population. Saudi Med J. 2004;25:732–36. [PubMed] [Google Scholar]
6. Yogesh S, Abha S, Priyanka S. Mobile usage and sleep patterns among medical students. Indian J Physiol Pharmacol. 2014;58:100–3. [PubMed] [Google Scholar]
7. Thomee S, Harenstam A, Hagberg M. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults--A prospective cohort study. BMC Public Health. 2011;11:66. [PMC free article] [PubMed] [Google Scholar]
8. Kohansieh M, Makaryus AN. Sleep deficiency and deprivation leading to cardiovascular disease. Int J Hypertens. 2015;2015:615681. [PMC free article] [PubMed] [Google Scholar]
9. Kim TW, Jeong JH, Hong SC. The impact of sleep and circadian disturbance on hormones and metabolism. Int J Endocrinol. 2015;2015:591729. [PMC free article] [PubMed] [Google Scholar]