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Research Paper

The Impact of Smartphone Addiction on Sleep Quality and Psychological Wellbeing among Young Adults

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ABSTRACT

The aim of the study was to learn more about the relationship between smartphone addiction on sleep quality and psychological wellbeing among young adults. The study aims to find the impact of smartphone addiction on sleep quality and psychological wellbeing among young adults. A sample of 180 participants between the age group of 18-40 was taken for the study based on the exclusion and inclusion criteria of the study. Convenience sampling was used for sample. Smartphone addiction scale- short version (SAS-SV), Pittsburgh sleep quality index (PSQI) and Ryff's scale of psychological well-being (PWB) were used to assess smartphone addiction, sleep quality and psychological wellbeing, respectively. Pearson correlation, Independent t test and regression analysis were used to test the alternative hypotheses. The analyses indicate that there is a significant relationship between smartphone addiction and sleep quality, smartphone addiction and psychological wellbeing. There was a significance impact of between smartphone addiction and sleep quality, smartphone addiction and psychological wellbeing. The results of the study have implications for future studies and understanding of the impact of smartphone addiction on sleep quality and psychological wellbeing among young adults.

Keywords: *Smartphone addiction, Sleep quality, Psychological wellbeing*

Adults all across the world experience a high rate of smartphone addiction. Their excessive phone use while doing other things like studying, driving, attending social events, and even sleeping are examples of how it shows up. Many individuals may not understand, however, smartphone addiction is a significant problem that can have an adverse impact on a person's thoughts, behaviour, habits, feelings, and sense of well-being. According to a theory, people with mood problems are more prone to develop smartphone addictions than healthy individuals. Addiction to smartphone use can also negatively impact a person's mental and behavioural health.

Smartphone addiction is associated with a range of medical and psychological problems. For practically everyone, mobile phones have evolved into a necessary tool for entertainment, communication, and Internet access. Despite the fact that there have been several research

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on this subject, none have so far been able to demonstrate this relationship. With increased cell phone use among students, psychiatry index scores have increased. Mobile phones have emerged as the primary cause of Internet addiction in children.

People nearly live in a world where they must constantly use their cell phones. Işk & Kaptangil (2018) assert that this situation can be explained by connecting the issue of smartphone addiction with people's individual personal characteristics.

The use of smartphones has a negative impact on the sleep quality of adolescents. In a study involving 309 college students, Demirci and Akgönül hypothesised that excessive smartphone use might impair the quality of one's sleep. Similar findings were made in a study of 2,367 university students by Alosaimi and Alyahya, who discovered that excessive smartphone use is linked to poor lifestyle choices and may interfere with getting enough sleep (such as lack of exercise). In terms of habitual smartphone use, female college students are more likely than male college students to engage in it, which has the knock-on effect that they are also more likely to experience sleep issues. The short-wavelength light emitted by smartphone screens at night can disrupt the user's circadian rhythms, impairing sleep. The aforementioned studies confirmed that improper smartphone use may have an impact on sleep quality, but they did not further investigate what health-related behaviours can encourage better sleep quality.

Previous research has shown a relationship between smartphone usage and poor sleep. The following factors may affect the quality of sleep: Use of smartphones as a substitute for regular sleep; Harmful cognitive, emotional, or physiological effects of using these technologies; Light emission from the screens of the aforementioned devices may affect sleep quality; Use of mobile and generally internet-based technologies in the bedroom may interfere with sleep quality by way of microwaves and may also cause users to wake up when receiving messages. It has been suggested that using smartphones may have an impact on physiological aspects of brain activity, including sleep quality and the melatonin rhythm. A behaviour that affects the quality of sleep because it engages reward centres is checking one's smartphone frequently, which is also an indication of addiction.

Psychological well-being is the capacity of a person to express their complacency without letting outside influences interfere with their internal feelings of happiness (Diener et al., 2003). In the modern era, it is well known that a variety of factors influence people's psychological health, with technological advancements ranking among the biggest of these factors.

The impact of smartphone addiction leads to stress, anxiety, loneliness, sleep disruptions, depression, sleep disorders, and disruptions in productivity. The level of psychological well-being is the component of level of welfare that is affected. In a previous study by Kumcagiz and Gunduz, psychological well-being and smartphone addiction were found to be significantly correlated.

This study focuses on examining the effects of smartphone use on young people's psychological well-being level in light of the facts mentioned above as well as the rising prevalence of smartphone usage among young people. It is believed that smartphone use, which is widespread and has evolved into an interesting behavioral addiction type among young people, has an impact on mental health. In order to plan and implement preventive

psychological counselling services and maintain students' psychological well-being, it is expected that the results of this study will significantly advance research on the relationship between student psychological wellbeing and smartphone addiction as well as potential factors that may affect this relationship.

The purpose of this study is to reveal the relation between psychological wellbeing and sleep quality in smartphone addiction in a population of Young adults from Kerala. Within this scope, answers were sought to the following questions:

1. What is the relation between young adults' psychological well-being and sleep quality and smartphone addiction?
2. Do young adults' smartphone addiction show a statistically significant difference by gender?

METHODOLOGY

The quantitative research used non-experimental correlational design method to understand the relation between the smartphone addiction, sleep quality and psychological wellbeing of young individuals. A sample of 180 Married individuals (n=180 where men=90, women=90), between the age range of 18-40 were taken for the study. The sampling technique used here is convenience sampling.

Objectives of the study:

- To examine if there is a relationship between gender and smartphone addiction
- To assess the relationship between smartphone addiction and sleep quality.
- To examine if there is a relationship between smartphone addiction and psychological well-being
- To find the impact of smartphone addiction on sleep quality and psychological well among young adult

Hypotheses:

- H1: There is significant difference between gender and smartphone addiction.
- H2: There is significant relationship between smartphone addiction and sleep quality.
- H3: There is significant relationship between smartphone addiction and psychological well being
- H4: There is significant impact smartphone addiction on sleep quality and psychological well among young adult

Description of the Tool:

1. **Smart Phone Addiction scale- short version (SAS-SV):** The SAS-SV is a 10 items to identify the level of the smartphone addiction risk and to distinguish the high-risk group in adolescent with a 6-point Likert scale from 1 = strongly disagree, 6 = strongly agree. Total scores typically range from 10 – 60, with higher score indicating Problematic Smartphone Usage. The test results show that the level of addiction increases with higher scores. The cut-off score was 33 points for women and 31 points for men in Kwon et al' study. In the study by Kwon et al. and the study by Noyan et al., which was translated into Turkish, the Cronbach's alpha coefficient was evaluated as 0.91 and 0.87, respectively.
2. **Pittsburgh Sleep Quality Index (PSQI**): The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument consists of 19 self-rated questions used to measure the quality

and patterns of sleep-in adults and disturbances over a 1-month time interval. It differentiates "poor" from "good" sleep quality by measuring seven areas (components): subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month. The sum of scores for these seven components yields one global score. The validity and reliability studies of this scale were carried out by Ağargün et al. in 1996. Cronbach's alpha reliability coefficient of the scale was found to be 0.80.

3. **Ryff's Scale of Psychological Well-Being (PWB):** Psychological Well-being is assessed with a modified 18 item version of Ryff's Scales of Psychological Well Being. The scale includes 3 items for each of 6 aspects of well-being: self-acceptance, autonomy, environmental mastery, purpose in life, positive relations with others, and personal growth. Participants are asked to rate how each item applies to themselves using a 7-point Likert rating scale. Items that are positively worded are flipped so that higher ratings on all individual items indicate greater well-being. The total score is the mean of the ratings, with a higher score relating to greater well-being.

RESULTS AND DISCUSSION

The correlational research design was used to meet the objectives of the study. The data was analyzed using Parsons Correlation coefficient analysis and Regression analysis.

Table 1: Independent T Test between males and females for smartphone addiction among young adults.

Gender	***N***	***Mean***	**S.D.**	**t**	***P***
Males	90	37.07	8.96	2.64*	.009
Females	90	33.41	9.56		

*p<0.05

Table 1 shows that Smartphone addiction has scored 2.64 for Independent T test, and p values as 0.009 which is lesser than 0.05 and hence there is significant difference in Smartphone addiction among males and females. Thus, alternative hypothesis, there is a significant difference between males and females is accepted. The mean of Smartphone addiction among males and females was found to be 37.07 and 33.41 respectively. While considering the mean value it is evident that the mean of males is higher than that of females. So, we interpret as males tend to have higher level of Smart phone addiction than females.

According to the research Kwon et al., women were more likely to develop smartphone addiction than men. In the study by Devís-Devís et al., it was found that boys spent more time using smart phone when compared to girls.

Table 2: Result of Pearson correlation among Smart phone addiction and sleep quality among young adults.

Variable	**n**	**M**	**S.D.**	**1**	**2**	**3**
Smartphone addiction	180	35.24	9.42	_		
Sleep quality		6.97	3.82	.373**	_	
Psychological wellbeing		80.71	13.25	-.352**	-.391**	_

***p=0.00,<0.01*

Table 2 shows the results of correlation between smart phone addiction, sleep quality and psychological wellbeing. The correlation coefficient (r value) of .373 indicates a positive significant correlation between smartphone addiction and sleep quality which implies that higher the smart addiction, higher the sleep deprivation. The significance level (p value) is .000 indicating there is a significant relationship between Smart phone addiction and Sleep quality, accepting the alternative hypothesis. Since the sleep quality scoring interprets high score as poor sleep quality and vice versa, the results indicate that the individuals experience poor sleep quality when there is high score in smart phone addiction.

In the cross-sectional study conducted by Sohn et al. (2021) to examine the relationship between smartphone addiction and sleep. The results showed a significant relationship (p = 0.018) between smartphone addiction and poor sleep. These literature supports the result of the study. In the Kocamaz et al. study (2020), which examined the relationships among smartphone addiction, sleep, quality and depression in university students, the average PSQI overall score was 6.97, and the average smartphone addiction was 31.68, and it showed positive and weak correlation between the SAS-SV and PSQI (r=0.178, p=0.036).

While there is a significant correlation between smart phone addiction and psychological wellbeing, the alternative hypothesis is accepted because there is a significant negative correlation between smart phone addiction and psychological wellbeing (r = -.35, p = 0.05). As a result, as smart phone addiction increases, psychological wellbeing decreases.

Previous studies conducted by Kumcagiz and Gunduz revealed a significant negative correlation between smartphone addiction and psychological well-being. The research done by Kumcagiz, H., & Gündüz, Y. (2016) also showed a negative correlation between smartphone addiction and psychological wellbeing.

Table 3: Result of regression analysis predicting smartphone addiction by sleep quality among young adults.

Variable	**R^2**	**$\triangle R^2$**	**B**	**S.E.**	***β***	**F**	**p**	**95 % CI**	
								LL	**UL**
Smart-phone addiction	.13	.13	.15	.02	.37	28.8	.000	.09	3.65

a. Dependent Variable: Sleep Quality

Table 3 shows the influence of smartphone addiction on sleep quality. From the above table there is a significant influence of smartphone addiction on sleep quality. The R^2 for regression model is found to be 0.13. This indicates that, 13% of the variation in the sleep quality is explained by the smartphone addiction. It also shows that adjusted R^2 = 0.13 for the sleep quality, which means that any time another independent variable is added to this model, the R^2 will increase (even if only slightly). Also, the table shows, one unit change in smartphone addiction make .15 change in the sleep quality. And, one standard deviation change in smartphone addiction make .37 change in sleep quality.

Smartphone use has been associated to poorer sleep quality, according to numerous studies (Liu, Qing-Qi, et al., 2017; Parasuraman, Balakrishnan, et al. 2019; Rathakrishnan, Balan, and Sanju George, 2021). Long-term use of smart devices like smartphones and portable smart TVs has been linked to disturbed sleep and waking patterns, deteriorating health, and

disruptions of daily life. Studies show that using mobile devices and the Internet too much has a negative impact on sleep (Bruni et al., 2015; Huang et al., 2020; Kang et al., 2020; de Lima & Silva, 2018; Lin et al., 2019; Wang et al., 2021; Xie, Dong & Wang, 2018). These literature supports the result of the study.

Table 4: Result of regression analysis predicting smartphone addiction by psychological wellbeing among young adults.

Variable	R^2	$\triangle R^2$	B	S.E.	β	F	p	95 % CI	
								LL	UL
Smart-phone addiction	.12	.11	-.49	.09	-.35	25.14	.000	-.68	-.30

a. Dependent Variable: Psychological Wellbeing

Table 4 shows the influence of smartphone addiction on psychological wellbeing. From the above table there is a significant influence of smartphone addiction on psychological wellbeing. The R^2 for regression model is found to be 0.12. This indicates that, 12% of the variation in the psychological wellbeing is explained by the smartphone addiction. It also shows that adjusted $R^2 = 0.11$ for the psychological wellbeing, which means that any time another independent variable is added to this model, the R^2 will increase (even if only slightly). Also, the table shows, one unit change in smartphone addiction make .15 change in the psychological wellbeing. And, one standard deviation change in smartphone addiction make .37 change in psychological wellbeing.

Previous research has shown that excessive smartphone use tends to reduce in-person interactions with friends, which may have an impact on the users' poor mental health (Thomée S, 2018; Tangmunkongvorakul, Arunrat, et al., 2019; Norhizan, Nurul Fateha Ashikin, et al., 2019). Tangmunkongvorakul et al (2019).'s research revealed that students with higher levels of smartphone addiction scored lower on measures of psychological well-being. These findings agree those of Shoukat (2019), who demonstrated that smartphone addiction negatively affects people's mental health.

SUMMARY

The aim of the research is to study was find the relationship between smartphone addiction and sleep quality and psychological wellbeing and also to understand the difference between genders for the score. The research question was, whether sleep quality and psychological wellbeing have any relation with smartphone addiction? The study measures Smartphone addiction, sleep quality and psychological wellbeing among young adults. A total 180 samples were collected 90 males and 90 females from different districts of Kerala. The hypotheses were H_1 – There is a significant difference between gender and smartphone addiction. H_2 – There is a significant relationship between smartphone addiction and sleep quality among young adults. H_3-There is a significant relationship between smartphone addiction and psychological well-being among young adults, H_4-There is significant impact smartphone addiction on sleep quality and psychological well among young adult. The consent from each participant was taken. The data collected was scored according to manual and was analyzed using Statistical Package for the Social Science (SPSS). Firstly, the normality was checked and identified the data was normally distributed and used the parametric test i.e., Pearson correlation, Independent T test and linear regression test.

CONCLUSION

Since the major purpose of this study was to examine relationship between smartphone addiction and sleep quality and psychological wellbeing among young adults and also the difference according to the gender. Depending on the findings of the study, the following concluding notes were made:

1. There is a significant difference between gender and smartphone addiction
2. There is a significant relationship between smartphone addiction and sleep quality among young adults.
3. There is a significant relationship between smartphone addiction and psychological well-being among young adults.
4. There is a slight significance impact of spirituality and mindfulness on marital satisfaction.

Implication of the study

The findings suggest that the sleep quality and psychological wellbeing has been influenced by the smartphone addiction among young adults even though it was of little or no correlation when examined. The findings from the study has thrown a new light to the existing understanding as this study will assist the young adults in recognising their own problems and taking alternative action to improve their quality of life. It is also interpreted that the smartphone addiction has a significant relationship between sleep quality and psychological wellbeing.

Future research can discover more about smartphone addiction, particularly in Kerala, where there hasn't been much done in that regard. Future studies may explore the relationship between smartphone addiction, sleep quality, and psychological health as they relate to other smartphone addictions like game addiction, internet addiction, and social media addiction.

Limitations of the study

- The data was collected only from different districts of Kerala; hence it cannot be generalized to the whole population.
- Participants had to fill the questionnaire online. This also could have affected the concentration of the participants resulting in inaccurate responses.

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Conflict of Interest

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