Original Article
ISSN (Online): 2582-7472

ShodhKosh: Journal of Visual and Performing Arts
February 2024 5(2), 272–280

A STUDY OF TECHNOLOGY ADDICTION AND HEALTH IMPACTS AMONG COLLEGE STUDENTS

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DOI
10.29121/shodhkosh.v5.i2.2024.1074

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

Currently, smartphones are an essential component of every person's life. A survey aimed at determining the variables contributing to health effects from smartphone use among college students in the 17–20 age range who are enrolled in undergraduate courses, respectively, is used to support this research. For the study, about 272 college students from two colleges in the Trichy district were recruited. Indicators of smartphone addiction and use, as well as their relationships to demographic and health behavior-related characteristics in college students, were examined in this study. Therefore, this research article offers methods for reducing the negative effects of smartphones as well as identifies the numerous health issues that College students use of smartphones has led to. The focus of this work will be on how a person's addiction to technology can negatively impact their social life and lead to both psychological and physical issues. For the research, the researcher has focused specifically on college students and their use of smartphones, as they are in the process of transitioning from adolescence to adulthood in terms of both psychological and physical development. Any adolescent going through this critical transitional stage needs to know that using a smartphone at this age increases the likelihood that it may negatively affect the adolescent's physical and mental health, which in turn affects their social well-being.

Keywords: Technology, Media, Smartphone, Addiction, College Students

1. INTRODUCTION

A smartphone is a potent handheld gadget that combines computer and mobile phone functionality. You may use it to run different applications, take pictures and videos, listen to music, play games, send and receive messages, and shoot pictures and videos. Numerous sensors, cameras, and touchscreens are common components of smartphones, enabling a broad range of functions and functionalities. Since they provide mobility, communication, and entertainment on demand, they have evolved into a necessary component of contemporary life. Please

feel free to ask any particular questions you may have about smartphones or if you need assistance with anything related to them!

Due to their many benefits, smartphones have become a necessary tool in our daily lives. The main advantages of smartphone use are Using calls, messages, emails, and social media, smartphones let you stay in touch with friends, family, and coworkers. One can browse websites, check emails, stream videos, and stay up to speed on social media and news with a smartphone. Accessing the internet at any time and from any location is easy. Smartphones can run numerous applications at once on a smartphone and multitask well. For example, one can use navigation apps while messaging or listen to music while browsing the web. Streaming services, games, music, movies, e-books, podcasts, and other forms of entertainment are all available on smartphones, offering a plethora of entertainment alternatives.

Even while smartphones have a lot of advantages, there are certain drawbacks to take into account. Overuse of smartphones, for instance, may result in less in-person interactions, potential diversions, and detrimental effects on mental health, such as elevated levels of stress and anxiety. In order to maximise the advantages of your smartphone and minimise its disadvantages, it's critical to strike a good balance when using it.

There are also health risks of using Smartphones the most dangerous part of using a smartphone is electromagnetic radiation or EMFs (electromagnetic fields) emitted by a smartphone which can cause damage to the cells of your body. The electromagnetic fields can interfere with the natural electrical system of your body cause sleep disorder and can disrupt the functioning of the immune system, chronic fatigue syndrome, and Alzheimer’s disease. Many organizations and doctors have raised their concerns over Wi-fi technologies in schools where teachers and students experience heavy EMF exposure the entire day. Stephen Sinatra, an integrative metabolic cardiologist says that the heart is sensitive and can be affected adversely by the same frequency used for Wi-fi at levels that have been recorded in schools with Wi-Fi technology.

2. LITERATURE REVIEW

Studies reveal that smartphone addiction is pervasive in various age brackets and populations. Studies have revealed that prevalence rates vary based on the measurement parameters and population. For example, Panova and Carbonell's (2018) meta-analysis found that the prevalence rate was, on average, approximately 23% worldwide, with greater rates among teenagers and young adults than among older age groups. It's important to remember, too, that due to variations in smartphone use habits and sociocultural variables, prevalence rates may change between cultures and geographical areas.

In a group of King Saud University students, we looked at the prevalence and indices of smartphone addiction and tested the hypothesis that there would be variations in this problem according to factors including gender, social position, educational attainment, monthly income, and the number of hours a day used. The following was the hierarchy of the indices of smartphone addiction: excessive smartphone use, technology dimension, psychological-social dimension, obsession with smartphones, and health dimension. The degree of addiction on the entire questionnaire and all of its components showed significant gender disparities, except for the technology factor, which favoured men (Aljomaa, et.al. 2016).

Özcan, & Ömer, (2017) referred that Using the Smartphone Addiction Scale Short Version (SAS-SV) among English language preparatory year students at a state university, the prevalence of smartphone addiction was investigated in this study. It also sought to ascertain which mobile apps are more well-liked by the users. Seven of the 164 pupils who received surveys were disqualified because they did not possess a smartphone. A statistical analysis was conducted on 157 pupils, with an average age of 18.94. Of these, 73 were girls and 84 were boys. According to the results analysis, 32.1 percent of males and 28.8 percent of girls were over the cut-off scores. There was no discernible variation according to gender, residence location, or academic specialty. With over half of the participants using them, the most popular programmes were WhatsApp, Instagram, YouTube, Facebook, and Snapchat. Future research directions and the ramifications of the study were highlighted.

The study of Al-Barashdi, Bouazza, & Jabur, (2015) examines the connection between undergraduates' academic success and smartphone addiction. Lastly, a comparison of undergraduates' addiction rates by gender, field of study, parents' educational attainment, and family income will be made. Studies have demonstrated that there are gender variations in the addictive use of smartphones, but they have also demonstrated no discernible relationship between gender and smartphone use. The degree to which smartphone usage behaviour, addiction, and socioeconomic factors are related among college students is still mostly unknown. Contradictory findings were found in the data pertaining to smartphone usage and family income. Regarding the outcomes of smartphone use and parental education, there is also disagreement.

The purpose of this study was to categorise different subgroups of internet and smartphone users according to the intensity of their addiction. It also looked at how the groups that were classified varied in terms of psychological features and sex. 448 Korean university students 178 men and 270 women participated in total. A series of questionnaires measuring the participants' mood, anxiety, personality, and the extent of their internet and smartphone addictions were distributed. The statistical techniques employed were ANOVA (analysis of variance) and latent class analysis. The results show that in the majority of the variables, there were significant differences between males and females P,0.05 Mok et, al., (2014).

Bae, S. M (2017) made a study on Smartphone Addiction of Adolescents, not a Smart Choice in junior high school in a Korean metropolitan area. Seung Min Bae reported risks of smartphone addiction and treating smartphone addiction in adolescents is highly urgent and recommends prevention and correction methods.

Babadi-Akashe, et.al., (2014) have made a study on the relationship between mental health and addiction to mobile phones among university students of Shahrekord, Iran. The results revealed that the students were placed in habitual behaviors, addiction, and intentional categories and the students were affected with obsessive-compulsive disorder, interpersonal sensitivity, and depressive disorder. Babadi-Akashe concluded that mental health improved when mobile phone usage among students was reduced.

3. METHODS

3.1. OBJECTIVES OF THE STUDY

- To assess technology addiction among college students using their daily smartphone activity

- To find out the various health impacts of college students when using Smartphone
- To identify the factors that cause the different health impacts among college students
- To provide appropriate measures to reduce smartphone addiction among college students

3.2. SOURCES OF DATA

The primary data was collected with the help of a structured questionnaire and secondary data was collected from previous research on Smartphone addiction from journals and websites.

3.3. SAMPLING DESIGN

Simple random sampling is the sampling design adopted for my research. It is a type of probability sampling since the population of the students in Trichy district is known and every student has the equal opportunity of getting selected.

3.4. HYPOTHESIS

- There is no relationship between Gender and health problems
- There is no relationship between Age and health problems
- There is no relationship between hours spent with smartphones and health problems
- There is no relationship between ownership of a smartphone and health problems
- There is no relationship between the reason for using smartphones and health problems

3.5. DESCRIPTIVES WHY USE SMARTPHONE BY AAGE

Table 1

Table 1 Reason for using smartphone and Age

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
17 yrs	27	2.37	.926	.178	2.00	2.74	1	4
18 yrs	79	2.01	.954	.107	1.80	2.23	1	4
19 yrs	84	2.44	1.079	.118	2.21	2.67	1	4
20 yrs	82	2.78	.943	.104	2.57	2.99	1	4
Total	272	2.41	1.027	.062	2.29	2.53	1	4

Table 2

Table 2 ANOVA Reason for using smartphone and Age

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	23.848	3	7.949	8.130	0.01
Within Groups	262.035	268	.978		

Total		285.882	271

The above tables were used to find out the differences among the age groups and the reason for using smartphones, one way ANOVA was conducted. The ANOVA table reveals that there is a statistically significant difference noted between the group means with p-value of 0.01, df of 3, and mean squares of 7.949 indicating that there is a difference among age groups with regards to the reason for using smartphones.

3.6. DESCRIPTIVES WHY USE SMARTPHONE BY GENDER

Table 3

Table 3 Reasons for using smartphones and gender

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Male	174	2.18	.944	.072	2.04	2.33	1	4
Female	98	2.82	1.049	.106	2.61	3.03	1	4
Total	272	2.41	1.027	.062	2.29	2.53	1	4

Table 4

Table 4 ANOVA Reason for using smartphone and Gender

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	25.074	1	25.074	25.957	0.01
Within Groups	260.809	270	.966		
Total	285.882	271			

To find out the differences among the gender groups and the reason for using smartphones tables 3 and 4. Were used and one way ANOVA was conducted. Table. 4. ANOVA table reveals that there is a statistically significant difference noted between the group means with p-value of 0.01, DF of 1, and mean squares of 25.074 indicating that there is a difference among the gender groups male and female with regards to the reason for using smartphone.

Table 5

Table 5 Correlation Analysis Test

		Gender	Age	Hours	Own Sph	Why use Sph	Health Problms
Gender	Pearson Correlation	1					
Age	Pearson Correlation	.199**	1				
Hours	Pearson Correlation	-.057	-.031	1			
Own Phone	Pearson Correlation	-.013	-.116	.039	1		
Why use SPhone	Pearson Correlation	.296**	.235**	.099	.208**	1	

Health Problms	Pearson Correlation	.395**	.294**	-.095	.072	.543**	1

**Correlation is significant at the 0.o1 level (2-tailed).

Table 5. was used to test the hypothesis declared, the relationship between health problems and Gender, Age, hours spent with the smartphone, ownership of smartphone, and reason for using smartphone variables, a Pearson correlation analysis was conducted.

The correlation between Gender and health problems reveals a positive coefficient of 0.395 which is significant at 1 percent level; hence we reject the null hypothesis and conclude that there is a strong correlation between Gender and health problems.

The correlation between age and health problems reveals a positive coefficient of 0.295 which is significant at a 1 percent level hence we reject the null hypothesis and conclude that there is a strong relationship between age and health problems.

The correlation between the reason for using smartphones and health problems reveals a positive coefficient of 0.0543 which is significant at 1 percent level hence we reject the null hypothesis and conclude that there is a strong relationship between the reason for using smartphones 'and health problems.

The correlation between the number of hours using a smartphone and health problems reveals a negative coefficient of -0.095 which is not significant at 1 percent level hence we accept the null hypothesis and conclude that there is no strong relationship between the number of hours using a smartphone and health problems. The correlation between smartphone ownership and health problems reveals a negative coefficient of 0.072 which is not significant at 1 percent level hence we accept the null hypothesis and conclude that there is no strong relationship between smartphone ownership and health problems.

3.7. HEALTH PROBLEMS AND THE SMARTPHONE USE

Table 6

Table 6 A regression coefficient Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	St. Error	Beta		
1	(Constant)	2.329	.769		3.028	.003
	Why use SPhon	.368	.103	.222	3.557	000
	Feel Lonely	.258	.116	.114	2.222	.027
	Messg Sent	-.397	.137	-.286	-2.896	.004
	Slept Late	.193	.088	.180	2.200	.029
	Spent Money for SPhone	.243	.084	.199	2.907	.004
	Use Sphone Not Need	-.294	.131	-.146	-2.252	.025
	Distrac Mess Tone	-.162	.068	-.125	2.381	.018
	Chk for M call wake up	-.162	.079	-.122	-2.038	.043
	Fell Stressed	.241	.096	.153	2.521	.012
	Stop using SPhon	.506	.203	.143	2.487	.014
	Days without Sphone	-.257	.099	-.145	-2.593	.010
	Pfr Stay Alone	.268	.133	.196	2.019	.045

a. Dependent Variable: health problems

Table 7

Table 7 Regression Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.744[a]	.559	.529	1.166

Table 8

Table 8 ANOVA Test						
	Model	**Sum of Squares**	**Df**	**Mean Square**	**f**	**Sig.**
1	Regression	436.755	17	25.691	18.907	.000[b]
	Residual	345.153	254	1.359		
	Total	781.908	271			

a. Dependent Variable: health problems

b. Predictors: (Constant), Why use Sphon, Feel Lonely, Message Sent, Slept Late, Spent Money for SPhone, Use Sphone Not Need, Distrac Mess Tone, Chk for M call wake up, Feel Stressed Stop using Sphon, Days without Sphone, Pfr Stay Alone.

To study the impact of prevailing daily smartphone usage activity on health problems observed, multiple regression analysis is conducted to check that the model is significant for the dependent variable health problems observed. The model is tested at p-value of 0.05 to determine the importance of independent variables. R2 measures the variance between the independent and dependent variables. The R2 for health problems observed was found to be significant at a 5% level with p p-value of 0.000, DF of 17, and mean square of 25.691. The observed R2 was about 0.56 which indicates that the independent variables explain the dependent variable for about 56%.

The regression coefficient for health problems shows that there is a positive relationship between the reason for using a smartphone and health problems with a coefficient of 0.368 and p-value of 0.000 indicating that an increase in the purpose of using a smartphone would increase health problems. For the factor feeling lonely, the regression coefficient of 0.258 with p p-value of 0.027 is observed which indicates that an increase in the percentage of feeling 'loneliness' would increase the chances of using a smartphone and the risk of getting health problems. Factor Slept late using a smartphone, the regression coefficient of 0.193 with p-value of 0.029 shows a positive relationship with health problems indicating that an increase in usage of smartphone overnight would lead to risk of getting health problems. Also, the factor spent more money on smartphones indicates a positive relationship between health problems and money spent on smartphones with a coefficient of 0.243 and p-value of 0.004 indicating that an increase in spending money poses a threat to health problems as spending money influences more smartphone usage. Factor Feel stressed indicates a positive relationship between health problems and feeling stressed with a coefficient of 0.241 and p value of 0.012 which indicates that when the stress levels increase health problems also increase. Factor Stop using smartphone indicates a positive relationship between stopping using smartphone and health problems with a coefficient of 0.506 and p-value of 0.14 indicating that sudden withdrawal of using a smartphone increases the risk of health problems. Factor prefer to stay alone indicates a positive relationship between prefer to stay alone and health problems with a coefficient of 0.268 and p-value of 0.045 indicating that the tendency to stay alone increases, health problems also increase due to the

higher probability of using a smartphone when alone. It is concluded that factors reason for using smartphones, feeling lonely, slept late using smartphones, spent more money on smartphones, 'eel stressed, Stop using smartphones and prefer to stay alone influence health problems.

4. SCOPE FOR FURTHER RESEARCH

This study reveals how college students are addicted to smartphones depending on their everyday smartphone usage and its impact on their health. More focus can be given to any particular physical health impact say eye defects, hand pain, insomnia, or psychological behavior like aggressiveness which can be the scope for further research.

5. RELIABILITY ANALYSIS

In the internal consistency analysis conducted, Cronbach's alpha internal consistency coefficient was calculated to be $\alpha=0.821$. indicating a statistically significant positive correlation ($p<0.01$).

6. FINDINGS

Through Correlation analysis, the following findings have been identified

There is a strong correlation between Gender and health problems, age and health problems, reason for using smartphones, and health problems.

Through ANOVA, the following findings have been identified

There is a statistically significant difference among the ownership groups 'I own', 'From Father', 'From mother', and 'Others' with regards to the reason for using a smartphone.

There is a difference among the gender groups male and female with regard to the reason for using smartphones. There is a difference among age groups with regard to the reasons for using smartphones.

Through Regression, the following findings are identified

The factors reasons for using smartphones, feeling lonely, slept late using smartphone, spent more money of smartphones, 'Feel stressed', 'Stop using phones' and prefer to stay alone influence health problems among adolescents.

7. SUGGESTIONS

- According to the study conducted, the best method of preventing the health risks due to smartphones among college students is by focusing more on outdoor games and activities. The parents can also motivate their children to even spend time with pets rather than using the smartphone.
- Prevention of health risks among college students is by switching their smartphones off frequently. There is no radiation when the phone is switched off.
- Using an EMF (electromagnetic field) shielding device can reduce the radio waves and block the radiation
- Consume foods that will support the nervous system as it is the first system of the body that will be affected by EMFs. Pomegranate seeds, broccoli,

prunes, walnuts, spirulina, and omega-3 fatty acids are certain few beneficial suggestions that can be incorporated into the daily routine.

8. CONCLUSION

Overall, the study shows that with parental and educational support, smartphone addiction in college students can be considerably decreased. Given that loneliness is a big factor in the usage of smartphones by youngsters, parents should spend more time with their children. colleges cannot allow students to use smartphones on campus; instead, they must implement more stringent policies. Additionally, colleges must offer yoga or physical training programmes that might benefit students with memory improvement.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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