

A Study to Assess the Various Factors and Hazards Related to Mobile phone Addiction Among the Adolescents of different schools in Delhi

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ABSTRACT

Introduction: Cell phone addiction has many negative effects on people's health in various ways, not only physically or biologically, but also socially or economically. Teenagers are more inclined to use cell phones to do activities not only to communicate but to many others like study, play, have fun, Google searches etc.

Methodology: The study was conducted in five government and five private schools in New Delhi. The sample size was 500 adolescents (250 from government schools and 250 from private schools). The tool consisted of a structured questionnaire.

Results: 't' value was found significant at 0.05 level of significance in the area of the scores of physical hazards and psychological hazards related to mobile phone addiction between private school and government school; the scores of psychological hazards related to mobile phone addiction between male and female; the scores of physical hazards related to mobile phone addiction between secondary class and higher secondary class.

't' value was found non-significant at 0.05 level of significance in the area of the scores of physical hazards related to mobile phone addiction between male and female; the scores of psychological hazards related to mobile phone addiction between secondary class and higher secondary class; the scores of physical hazards and psychological hazards related to mobile phone addiction between simple mobile phone users and smart phone users.

Conclusion: The study concluded that there was a difference of physical hazards related to mobile phone addiction among adolescents between government and private school; secondary and higher secondary class. While no difference was found between male and female: simple mobile phone users and smart phone users. Difference was found of psychological hazards related to mobile phone addiction among adolescents between government and private school; and male and female. While no difference was found between secondary and higher secondary class: simple mobile phone users and smart phone users.

Keywords: Factors of mobile phone addiction, physical hazards of mobile phone addiction, psychological hazards of mobile phone addiction, Mobile phone addiction, Adolescents.

INTRODUCTION

The transition period from childhood to adulthood, known as adolescence, is a period of profound biological, psychological, psychological, and economic changes. Adolescence is a time for stressful learning about who they are and for them to shape the role of adults.

Today's youth are often viewed as the digital age. Now a days, the cell phone becomes an integral part of their lives. That's why they grow up using cell phones. The maximum smart phone usage rate (62%) was found between the ages of 25–34. Teens under the age of 34 use 53% of smart phones and 43% of Apple iPhones. 50% males are smart phone users and 47%

females are smart phone users. Indian youth is currently the main customer in the smart phone market in India. Smart phone use among 16 to 18-year-old increased 25% in 2014–18 from 5% in 2012. In 2013, there were 51 million users of Indian smart phones in urban areas, an increase of 90% from 2012. In the 21st century, smart phone abuse is on the rise as more and more young people are enjoying smart phones in their spare time. Smart phone use is a sign of smart phone addiction. **(Kim and Falagan)**.^[1, 2]

The growing use of smart phones among Indian youth raises concerns about the social and psychological consequences of the smart phone abuse. The smart phone easily detects the mobile phone connection and abuses the smart phone. Teens can download and use most apps on smart phones even without an internet connection. Therefore, smart phone addiction is worse. In India this addiction ranges from 39% to 44% ($P < 0.001$) **(Davey, S. and Davey, A. - 2014)**.^[3]

In India a study conducted by one of the Cartoon Station resulted that 95% of children live in homes equipped with mobiles and 73% of Indian children are using mobile phones frequently. Interestingly, 70% of them are under 10 years of age and 6% are under 11 years of age. This smart phone has a lot of features and these features are appealing not only to teenagers but also to adults. Evidences are available concerning the physical and psychological effects of overuse.^[4]

As per **International Classification of Disease, 10th edition (ICD-10)** based on the studies conducted in India, 33.5% to 39.6% adults had behavioral addiction. There is a lack of information in the Indian context about cell phone addiction among teenagers. Now a days, individuals cannot live without the smart phone. 56% of users reportedly say, "I can't do anything without a smart phone."^[5]

According to a **report published online by Panial Bates on April 14, 2015**, about one in four adolescents are 'almost always'

online. Twenty-four percent of 13-17 years old admitted that they constantly checked their equipment even at school. It was also reported in the report that parents had difficulty monitoring their children's online behavior because more than 70% of teens now use more than one social networking site. A report by the **Research Center Pew** found that about 92% of teens come online every day. Half of these admit that they use their phones several times a day.^[6]

Today's generation is well aware about the ill effects of excessive use of smart phones but still, the excessive use is being a common problem in our youngsters. Smart phone usage is affecting their health and social life including their academic performance as well.

OBJECTIVES OF THE STUDY

1. To identify various factors leading to addiction and overuse of mobile/smart phone among the adolescent.
2. To identify various physical hazards leading to addiction and overuse of mobile/smart phone among the adolescent.
3. To identify various psychological hazards leading to addiction and overuse of mobile/smart phone among the adolescent.
4. To compare the physical hazards that occurred among the adolescent in private and government schools.
5. To compare the psychological hazards occurred among the adolescent in private and government schools.
6. To compare the physical hazards that occurred among the adolescent in boys and girls.
7. To compare the psychological hazards occurred among the adolescent in boys and girls.
8. To compare the physical hazards that occurred among the adolescent in secondary and higher secondary class.
9. To compare the psychological hazards occurred among the adolescent in secondary and higher secondary class.

10. To compare the physical hazards that occurred among the adolescent in simple mobile phone users and smart phone users.
11. To compare the psychological hazards occurred among the adolescent in simple mobile phone users and smart phone users.

MATERIALS & METHODS

Quantitative research approach and descriptive survey research was adopted for

the study. The conceptual model was based on the Input Process Output model.

In this study, the population was made up of 500 adolescents, both boys and girls from 9th to 12th grade of selected private and government schools at New Delhi, India.

Dependent variables - various factors and hazards related to the addiction of the smart phone/mobile phone.

Independent variations - various population characteristics and the pattern of mobile /smart phone.

Research Hypothesis

H1:	There will be difference in physical hazards cause by mobile phone/smart phone addiction between the private school and government school adolescents.
H2:	There will be difference in psychological hazards caused by mobile phone/smart phone addiction between the private school and government school adolescents.
H3:	There will be difference in physical hazards caused by mobile phone/smart phone addiction between the boys and girls.
H4:	There will be difference in Psychological hazards caused by mobile phone/smart phone addiction between the boys and girls.
H5:	There will be difference in physical hazards caused by mobile phone/smart phone addiction between the secondary and Higher Secondary adolescents.
H6:	There will be difference in psychological hazards caused by mobile phone/smart phone addiction between the secondary and Higher Secondary adolescents.
H7:	There will be difference in physical hazards caused by mobile phone/smart phone addiction between mobile phone and smart phone users' adolescents.
H8:	There will be difference in psychological hazards caused by mobile phone/smart phone addiction between mobile phone and smart phone users' adolescents.

Formula used for calculating sample size (given by statistician Taro Yamane -1967) was $n = N/[1+N(e)^2]$ which resulted in sample size of 370. So, researcher finalized a sample size of 500 (250 from private schools and 250 from government schools) Simple random sampling technique was used for this study

Data collection tool and technique consisted of self-administered structured questionnaire to assess the factors and various hazards related to smart phone addiction among adolescents which was classified into 3 parts: Part A: Demographic Data (14 items); Part B: Pattern of smart phone use by adolescents (15 items); and Part C: Assessment of smart phone addiction among adolescents (18 items). Paper and pencil technique were used to collect the data. Reliability coefficient was established by using split half method and found to be 0.84 for private school adolescents and 0.87 for government school adolescents.

25 adolescents from private school and 25 adolescents from government school were selected for pilot study and conducted between 16/12/2019 to 17/12/2019. Findings of the pilot study revealed that it was feasible to conduct the study. No problem was faced during pilot study.

Final data collection was done from 13/01/2020 to 20/01/2020. The data collected was tabulated in master data sheets. Descriptive and inferential statistics was used for analysis and interpretation.

RESULT

DEMOGRAPHIC DATA

- 50% (250) adolescents were studying in private school and 50% (250) in government school.
- 22.6% (113) adolescents were in 9th class, 27.6% (138) in 10th class, 25.0% (125) in 11th and 24.8% were studying in 12th class.
- There was more no of male adolescents i.e. 55.2% (276) as compared to female

- adolescents 44.8% (224) who participated in the study.
- 19.8% (99) adolescents were below the age of 14 years, 37.0% (185) between the age group of 15-16 years, 41.6% (208) were of between 17-18 years while only 1.6% (8) adolescents were there who were equal to more than 19 years.
 - Most of the sample 76.8% (384) were Hindu by religion, 10.6% (53) were Christian, 8.0% (40) were Muslim by religion whereas 4.6% (23) belongs to any other religion.
 - 6.4% (32) adolescents were residing in single parent family, 35.8% (179) were residing in nuclear family, 44.8% (224) were in joint family, while 13.0% (65) were residing in extended family.
 - 6.6% (33) adolescents were single child in their family, 31.0% (155) were 2 children in family, 38.4% (192) are 3 children in the family, while 24.0% (120) adolescents were 4 or more than 4 children in their family.
 - Educational status of father indicated that 5.0% (25) fathers were illiterate; 13.0% (65) fathers were primary educated; 25.6% (128) were secondary educated; 28.2% (141) were higher secondary educated; 23.2% (116) were educated till graduate or above and 5.0% (25) were having any professional education.
 - Educational status of mother indicated that 12.6% (63) mothers were illiterate; 21.0% (105) mothers were primary educated; 27.2% (136) were secondary educated; 16.6% (83) were higher secondary educated; 15.4% (77) were educated till graduate or above; 7.2% (36) were having any professional education.
 - 6.8% (34) fathers were unemployed; 15.2% (76) were government employee; 41.8% (209) were private employee; 28.6% (143) were having their own business; 6.8% (34) were doing part time job; 0.8% (4) were retired personnel
 - 60.8% (304) mothers were unemployed; 14.4% (72) were government employee; 14.8% (74) were private employee; 5.0% (25) were having their own business; 5.0% (25) were doing part time job; no mother belongs to retired group.
 - Most of the sample belongs to the family income per month of \leq Rs 20,000 i.e. 41.0% (205); 14.0% (70) belongs to family income of Rs 20,001 to Rs 30,000 per month; 11.2% (56) belongs to family income of Rs 30,001 to Rs 40,000 per month, 16.0% (80) belongs to family income of Rs 40,001 to Rs 50,000 per month, 11.0% (55) belongs to family income of Rs 50,001 to Rs 75,000 per month, while only 6.8% (34) adolescents were belonging to family income per month of \geq Rs 75,001
 - As per source of information, 28.8% (144) getting from family members, 31.2% (156) are getting information from social circle and friends, 27.4% (137) reported of getting information from electronic media (TV, Cinema, Videos), while 12.6% (63) accepted Newspapers, journals & books as the source of information regarding smart phone.
 - 91.2% (456) adolescents were using smart phone while only 8.8% (44) reported using simple mobile phone

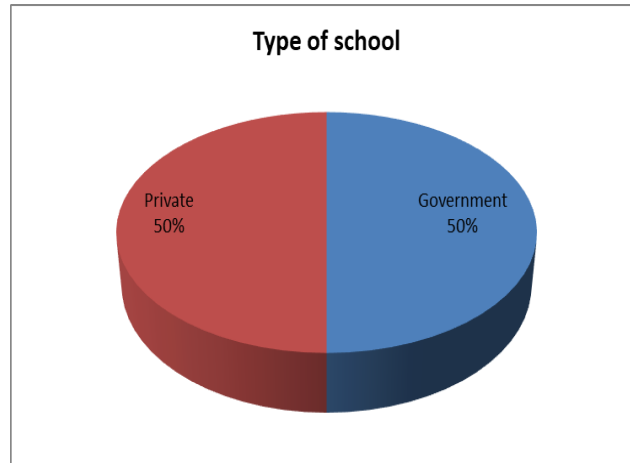


Fig 1: Pie graph depicting the percentage distribution of adolescents according to type of school

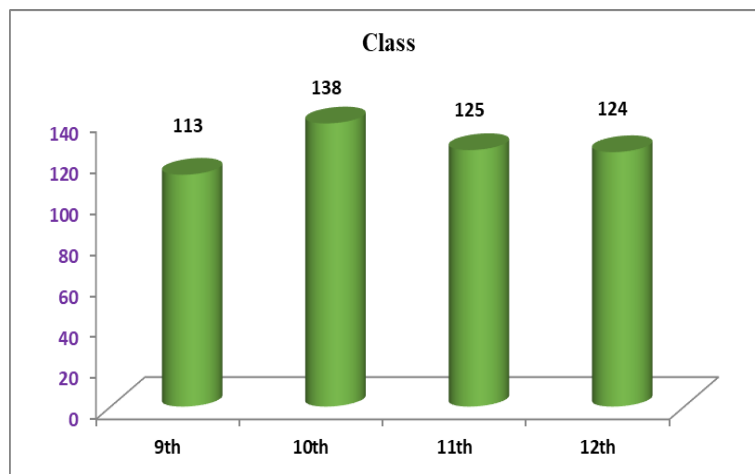


Fig 2: Cylindrical bar diagram depicting the frequency distribution of adolescents according to class

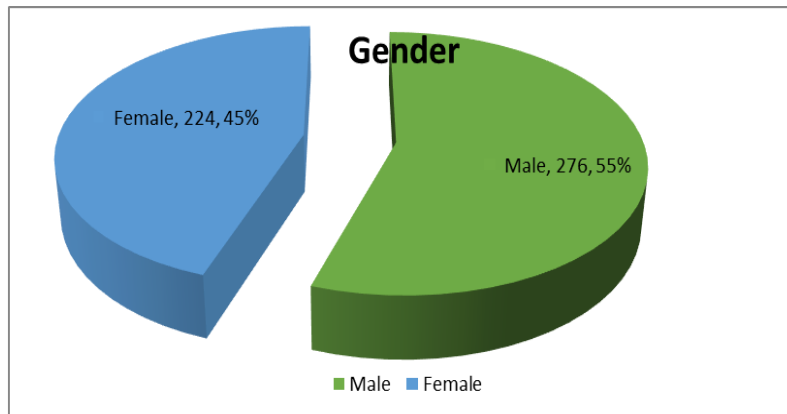


Fig 3: Pie diagram depicting the frequency and percentage distribution of adolescents according to gender

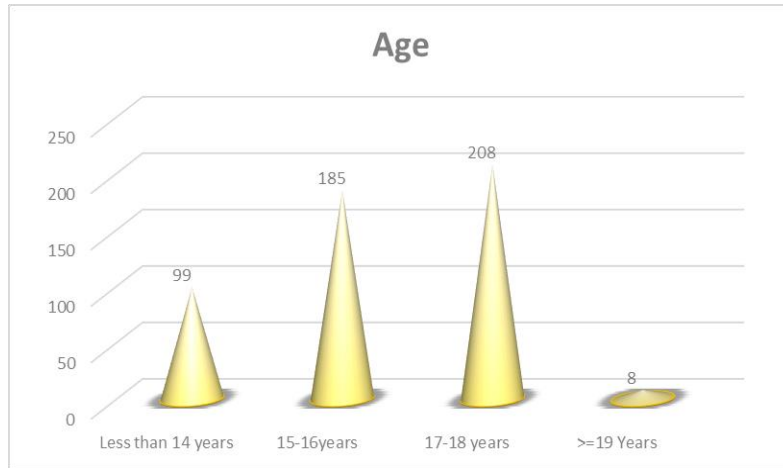


Fig 4: Cone graph depicting the frequency distribution of adolescents according to age (years)

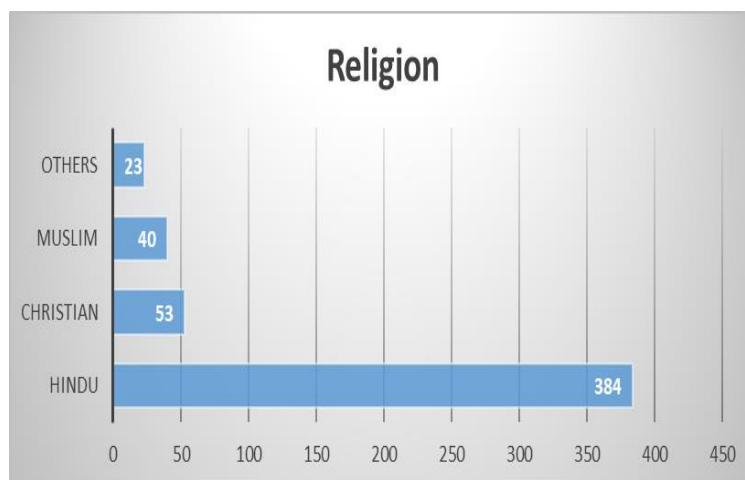


Fig 5: Bar diagram showing the frequency distribution of adolescents according to religion

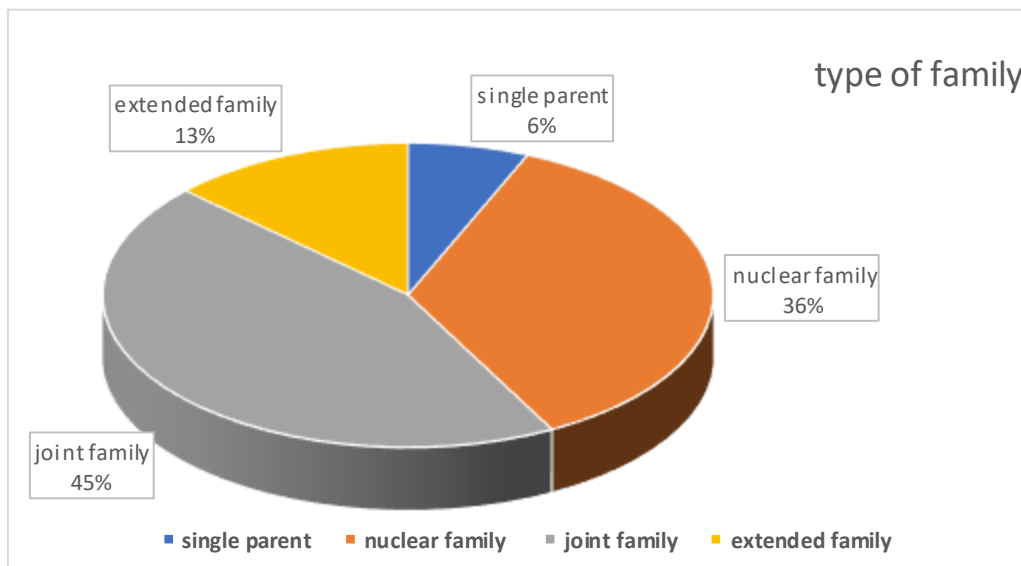


Fig 6: Bar diagram depicting the percentage distribution of adolescents according to type of family

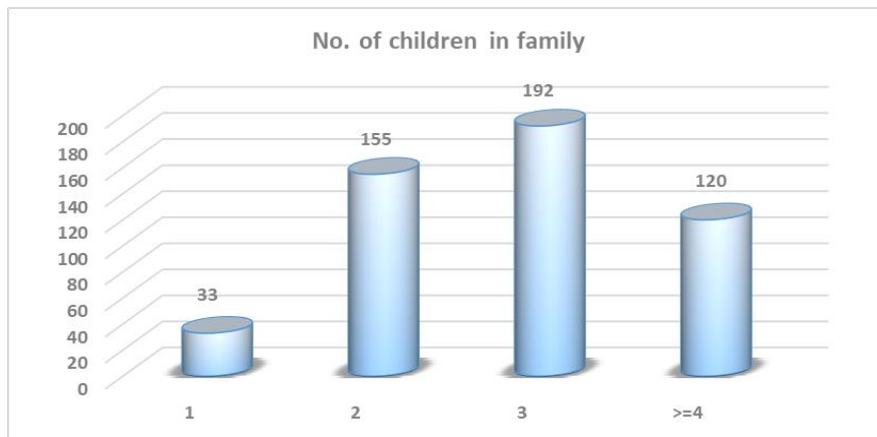


Fig 7: Bar diagram depicting the frequency distribution of adolescents according to number of children in family

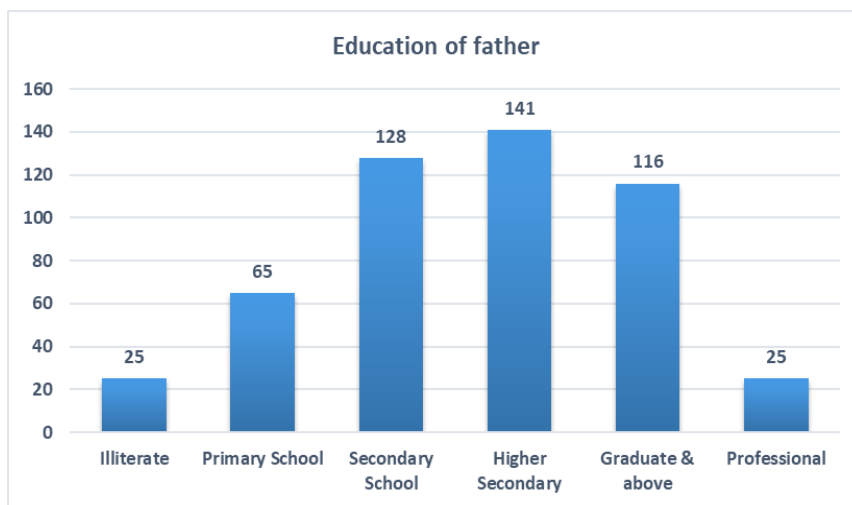


Fig 8: Bar diagram showing the frequency distribution of adolescents according to Educational qualification of father

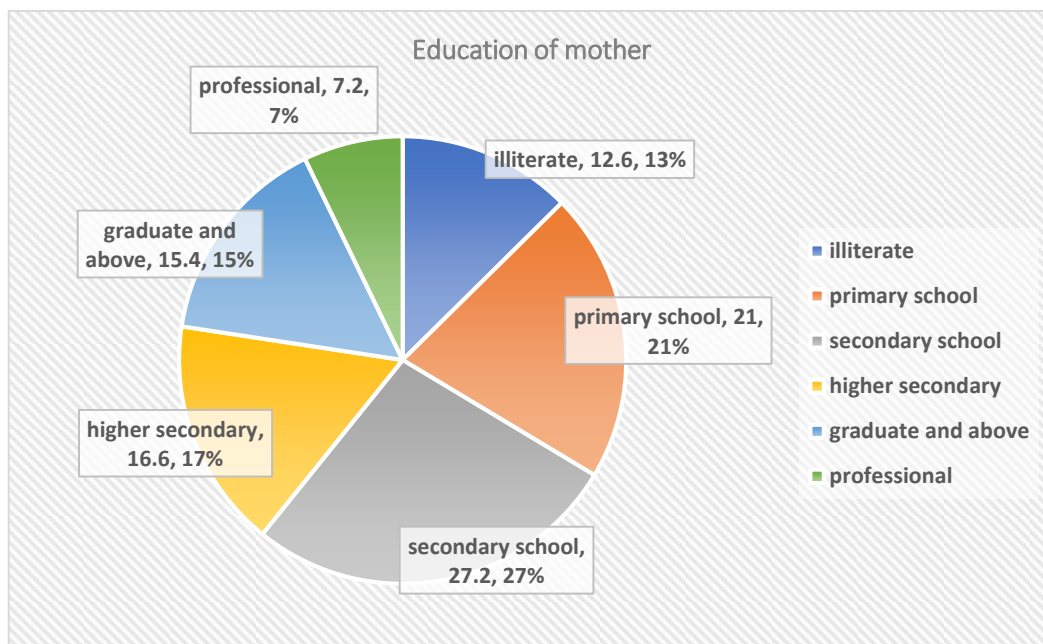


Fig 9: Pie diagram depicting the frequency and percentage distribution of adolescents according to educational qualification of mother

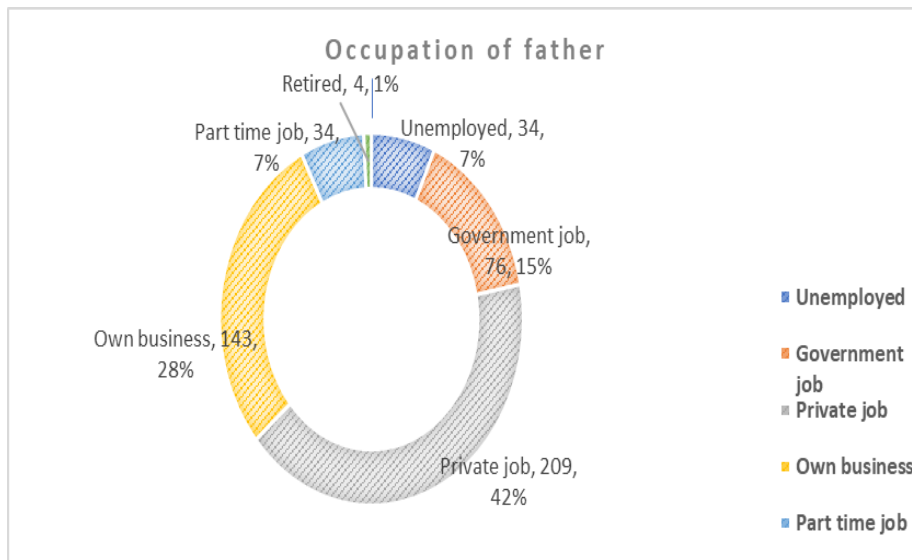


Fig 10: Pie Diagram depicting the frequency and percentage distribution of adolescents according to father's occupation

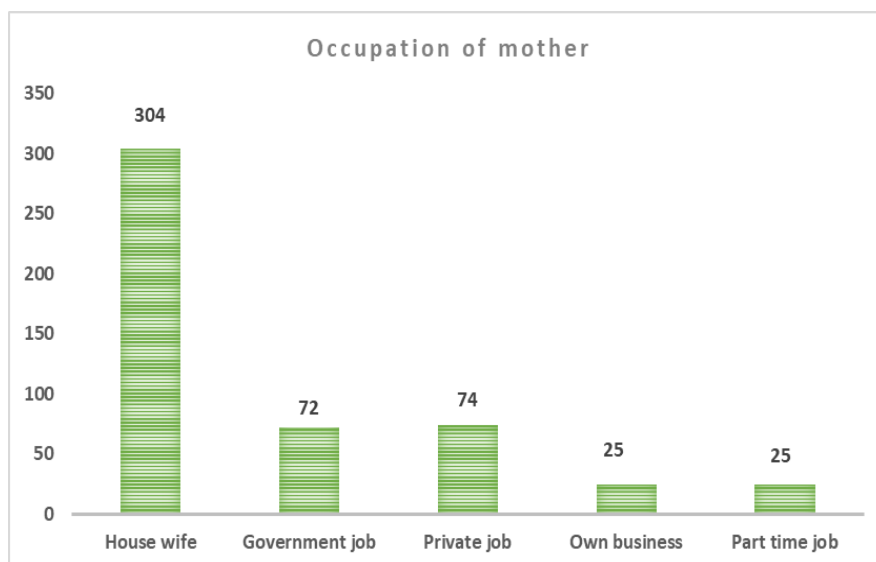


Fig 11: Bar Diagram depicting the frequency distribution of adolescents according to mother's occupation

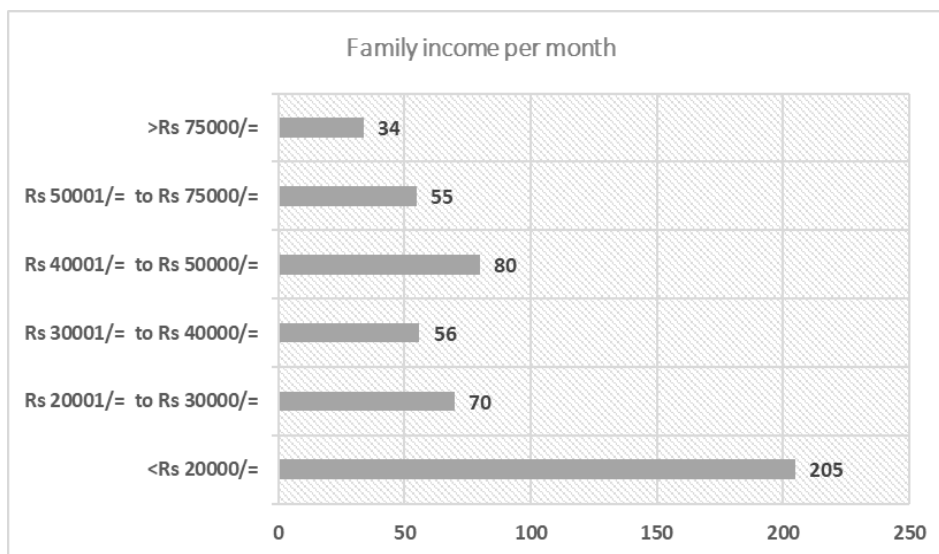


Fig 12: Bar diagram showing the frequency distribution of adolescents according to family income/month

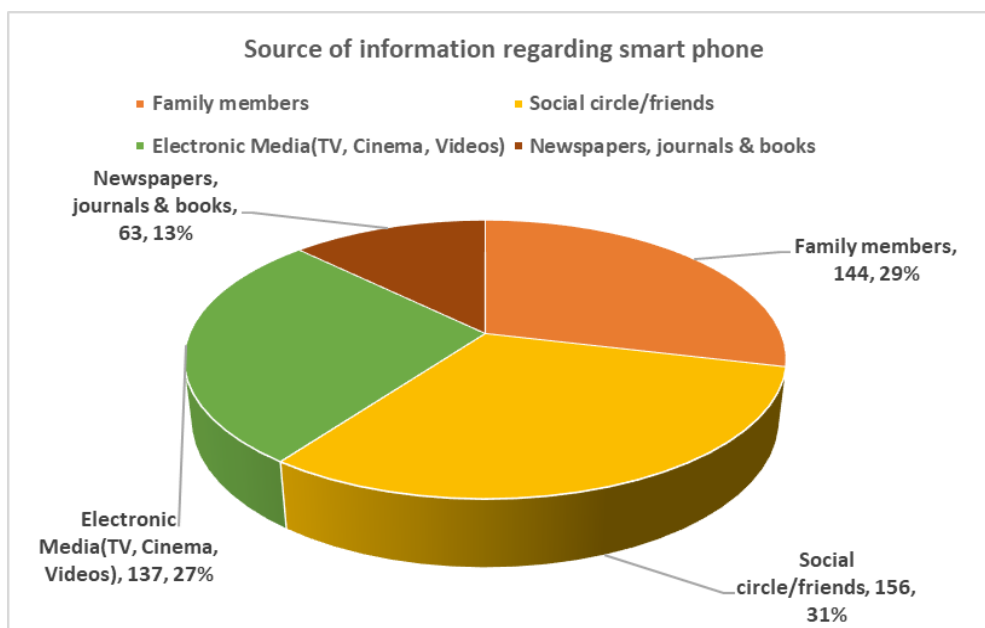


Fig 13: Pie diagram showing the frequency and percentage distribution of adolescents according to source of information of smart phone

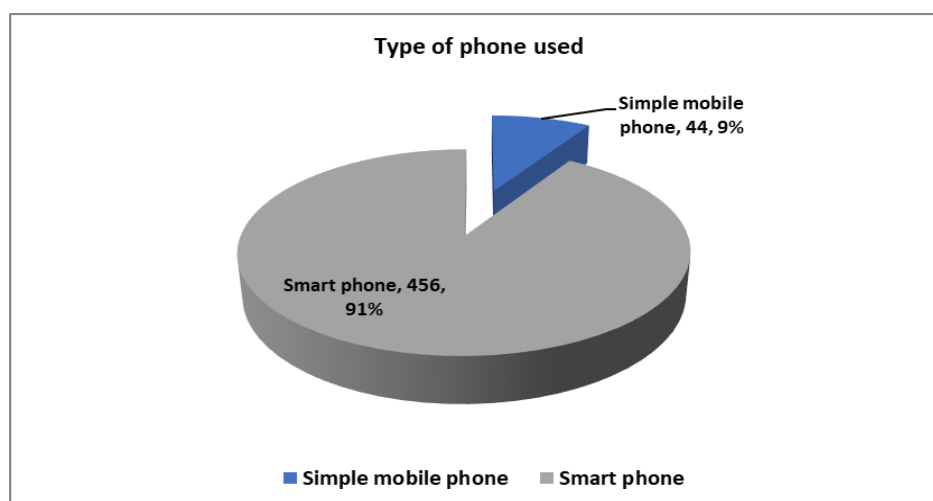


Fig 14: Pie diagram depicting the frequency and percentage distribution of adolescents according to the type of phone used

Table 1 - Scores of Physical Hazards and Psychological Hazards Related to Smart phone Addiction and 't'-value for Comparing the Difference in Type of School and mean difference (N=500)

Hazards	School	N	Mean	S.D.	t-value	Mean %	S.D.	p-value
Physical	Government	250	1.77	1.45	5.123	35.44	28.90	<0.001
	Private	250	2.38	1.20		47.60	23.94	
Psychological	Government	250	3.34	1.75	3.432	41.70	21.92	0.001
	Private	250	3.85	1.61		48.15	20.06	

From table 1, it was evident that p-value of calculated t-value of physical hazards for type of schools was less than 0.01 which was significant at 99% confidence level. It means private school adolescents were having more physical hazards related to smart phone addiction than government school adolescents.

Also, p-value of calculated t-value of psychological hazards for type of schools was less than 0.01 which was significant at 99% confidence level. It means private school adolescents were having more psychological hazards related to smart phone addiction than government school adolescents.

Table 2 - Scores of Physical Hazards and Psychological Hazards Related to Smart phone Addiction and 't'-value for Comparing the Difference in Gender and mean difference (N=500)

Hazards	Gender	N	Mean	S.D.	t-value	Mean %	S.D.	p-value
Physical	Male	276	2.13	1.37	0.993	42.61	27.43	0.321
	Female	224	2.01	1.35		40.18	26.92	
Psychological	Male	276	3.75	1.68	2.235	46.83	21.00	0.026
	Female	224	3.41	1.71		42.58	21.34	

From table 2, it was evident that p-value of calculated t-value of physical hazards for gender was more than 0.05 which was not significant at 95% confidence level. It means there was no significant difference about physical hazards related to smart phone addiction between male and female at 0.05 level of significance. Hence it can be inferred that there was no relationship regarding physical hazards associated with

smart phone addiction among male and female.

Also, p-value of calculated t-value of psychological hazards for gender was between 0.01 to 0.05 which was significant at 95% confidence level. It means males were having more psychological hazards related to smart phone addiction than females.

Table 3 - Scores of Physical Hazards and Psychological Hazards Related to Smart phone Addiction and 't'-value for Comparing the Difference in class and mean difference (N=500)

Hazards	Class	N	Mean	S.D.	t-value	Mean %	S.D.	p-value
Physical	Secondary	251	2.20	1.36	0.993	43.90	2.11	0.049
	Higher secondary	249	1.96	1.36		39.12	27.14	
Psychological	Secondary	251	3.60	1.79	0.100	45.02	22.42	0.920
	Higher secondary	249	3.59	1.60		44.83	20.02	

From table 3, it was evident that p-value of calculated t-value of physical hazards for class was between 0.01 to 0.05 which was significant at 95% confidence level. It means secondary class adolescents were having more physical hazards related to smart phone addiction than higher secondary class adolescents.

means there was no significant difference about psychological hazards related to smart phone addiction between secondary class adolescents and higher secondary class adolescents at 0.05 level of significance. Hence it can be inferred that there was no relationship regarding psychological hazards associated with smart phone addiction among secondary class adolescents and higher secondary class adolescents.

Also, it was evident that p-value of calculated t-value of psychological hazards for class was more than 0.05 which is not significant at 99% confidence level. It

Table 4 - Scores of Physical Hazards and Psychological Hazards Related to Smart phone Addiction and 't'-value for Comparing the Difference in type of phone used and mean difference (N=500)

Hazards	Type of phone used	N	Mean	S.D.	t-value	Mean %	S.D.	p-value
Physical	Simple mobile	44	2.00	1.31	0.388	40.00	26.24	0.698
	Smart phone	456	2.08	1.37		41.67	27.32	
Psychological	Simple mobile	44	3.48	1.64	0.477	43.43	20.44	0.634
	Smart phone	456	3.61	1.71		45.07	21.33	

From table 4, it was evident that p-value of calculated t-value of physical hazards for type of phone used was more than 0.05 which was not significant at 95% confidence level. It means there was no significant difference about physical hazards related to smart phone addiction between simple mobile phone user and smart phone

user at 0.05 level of significance. Hence it can be inferred that there is no relationship regarding physical hazards associated with smart phone addiction among simple mobile phone user and smart phone user.

Also, it was evident that p-value of calculated t-value of psychological hazards for type of phone used was more than 0.05

which was not significant at 95% confidence level. It means there was no significant difference about psychological hazards related to smart phone addiction between simple mobile phone user and smart phone user at 0.05 level of significance. Hence it can be inferred that there was no relationship regarding psychological hazards associated with smart phone addiction among simple mobile phone user and smart phone user.

DISCUSSION

Cha, S-S. et. al. (2018) studied to test smart phone addiction, to test smart phone usage patterns, addictive smart phone features and addictive smart phone prediction features for middle school students in South Korea. Smart phone usage, smart phone addiction awareness, and risk and predictors were the main aim. Researchers have researched the preventive education from smart phone addiction on mental health issues among 1824 school students between the ages of 13 years to 15 years. Researchers have found that smart phone addiction is not related to sex, family income or parental education. [7]

Vadlamani, S., Madhavi, B.D. (2017) conducted a descriptive study at Andhra Pradesh Medical College, Visakhapatnam to examine dependency and visual effects on mobile phones among of 200 MBBS students. The researchers found a positive relationship between age dependence, gender, residence, year of study and mobile phone use and dependence. [8]

Nikita, C.S., Jadhav, P.R. and Ajinkya (2015) did cross-sectional study to assess the increase in mobile phone dependence (MPD) in high school children in the secondary section of English medium schools in Navi Mumbai (India) for a period of two months. The researcher found that male students were almost twice as likely as women to have MPD. Women use cell phones more for outdoor purposes, while men use them for technical and operational purposes. [9]

Vaidya, A., Pathak V and Vaidya, A. (2016) conducted a pilot study to examine

the use of mobile phones among 410 college students in Pune. Researchers have found that many college students use a smart phone, and there is no significant difference in cell phone use between male and female students. [10]

A study by **Waldo, A. D. (2014)** found an association of internet addiction among teens to provide an explanation for teen online addiction and to explore significant differences in gender, school type and online behavior. A strong relationship to online youth addiction has been found in the public interest. Significant differences were found in this study in terms of gender, type of school and online behavior. [11]

CONCLUSION

There was difference of physical hazards related to smart phone addiction between

- Private and governmental schools
- Secondary and higher secondary school adolescents

There was difference of psychological hazards related to smart phone addiction between

- Private and governmental schools
- Male and female

There was no difference of physical hazards related to smart phone addiction between

- Male and female
- Simple mobile phone and smart phone user

There was no difference of psychological hazards related to smart phone addiction between

- Simple mobile phone and smart phone user
- Secondary and higher secondary school adolescents

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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