

Smartphone Addiction and the Associated Factors of Adolescents and Purposes and Pattern of Smartphone Use

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ABSTRACT

Background: Smartphone addiction is the failure to control excessive smartphone use, in spite of its negative impacts on social, psychological, physical, and economic aspects of life. The smartphones, as multifunctional device have become essential in daily life, particularly among adolescents, but excessive reliance on them can lead to behavioural addiction.

Objectives The study aimed to examine the association between smartphone addiction and the characteristics of adolescents and purposes and patterns of smartphone use.

Methodology: The study adopted a descriptive correlation design among 209 adolescents (105 boys and 104 girls) selected from high schools using multi-stage random sampling. Data was collected regarding the general characteristics of the adolescents as well as the pattern of usage and purposes for which they use smartphones. The level of smartphone addiction was assessed by using Smartphone Addiction Scale—Short Version (SAS-SV). The association between smartphone addiction and study variables was tested using the chi-square test.

Results: Majority of adolescents (66.99%) were found at high risk for smart phone addiction, while 27.75% were addicted to smart phones. The study found a significant correlation between smartphone addiction and adolescents' gender, class/standard, purpose for use of smartphone viz educational activities, mobile games, social networking, internet browsing and pattern of smartphone usage including types of

ownership of smartphone, duration of smartphone use, report of recent change in eye sight/vision, internet packages and self-perceived overuse of smartphone at the 0.05 level of significance.

Conclusion: The study reveals a significant relation between socio-demographic characteristics and smartphone addiction among adolescents aged 13–16 years of both gender, class, purposes and patterns of smartphone use. Smartphone use was be influenced by the socio-cultural environments in which adolescents live as well as the reasons for which they use their smartphones. Smartphone addicts spend considerable time using their smartphones, which is significantly influenced by the daily duration and purposes and patterns of smartphone usage.

Keywords: Smartphone addiction; associated factors of adolescents; purposes of smartphone use; patterns of smartphone use.

1. INTRODUCTION

According to research firm Statist (2022), India currently has 931 million smartphone users, which is expected to reach 1.1 billion by 2025. The smartphone penetration rate in India has reached to 71% by 2023.¹ In the 21st century, technology influences everyone's daily life, especially among adolescents and young adults. Smartphones have become extremely important for everyday use due to rapid advancements in communication, and their connectivity has

virtually affected individual accessibility, safety, security, and social activities. Being overly reliant on modern smartphones may result in behavioural addiction.² A tiny quantity of dopamine is released by the brain during a mobile usage. Every notification triggers the release of dopamine, which causes a brief spike in dopamine levels followed by a letdown.³

Smartphone addiction is prevalent among 23% of adolescents, with boys having higher rates than girls and early adolescents. Daily usage hours significantly correlate with addiction.³ Having a sophisticated smartphone is an ingenious technology that combines versatile functions similar to a minicomputer. However, people who tend to become excessively hooked to and distracted by their cell-phones run the risk of developing a smartphone addiction.⁴ Smartphone addiction is "an inability to regulate or control its own use of a smartphone, which subsequently results to negative effects on daily life."⁵

The most widely used theory for evaluating motivation to use technology is the 'Uses and Gratification Theory (UGT)'. It is concerned with why customers use technology to meet their social and psychological requirements. UGT focuses on three key goals: explaining how people use technology to meet their requirements, discovering the motivations underlying individual's use of technology, and identifying the good and adverse impacts of individual technology use.⁶

A fundamental feature of problematic mobile phone use is that it must cause dysfunction in a person's life.⁷ Addiction to smartphones among adolescents and young adults negatively impacts academic performance, physical and psychological health, and may result to interpersonal issues, depression, anger, stress, aggression, and physical health issues.⁸

Adolescence, spanning 10-19 years, is a crucial stage for adolescents, involving physical, psychological, and cognitive growth. It influences feelings, thinking, decision-making, and interaction, and

influences adolescents' behaviour to protect or put their health at risk. Therefore, individual characteristics play an important role in determining the usage of mobile phones, which results in smartphone addiction. Hence, the researcher was interested in examining the relationship between smartphone addiction and the characteristics of adolescents and the purposes and patterns of smartphone used in their daily lives.

2. MATERIALS AND METHODS

2.1. Study Design

The study was adopted a descriptive cross-sectional study where adolescents were requested to answer self-administrated questionnaires about smartphone addiction and their smartphone usage.

2.2. Selection of Study Setting and Participants

The study participants were adolescents studying in high school, either in the 8th or 9th grade, and their age group was between 13 -16 years old. In this study, a total of 209 adolescents were enrolled from selected high schools in Bangalore, Karnataka (India). In Stage I, the high schools were selected by using stratified random sampling techniques. Administratively decentralized, the high schools in Bangalore district (urban) have a total of two zones, North and South, and each zone is divided into four blocks each under the administrative control of BEOs (Block Education Officers), like North (N): 1, 2, 3, and 4, and similarly South (S): 1, 2, 3, and 4. Randomly, by the lottery method, blocks N-1 and N-2 from the north zones and blocks S-1 and S-3 from the south zones were selected for study. From the selected blocks, one high school was selected using a computer-generated random table. In stage II, the participants were selected by using a computer-generated table from each 8th and 9th grade from each school.

2.3. Ethical Considerations

The Institutional Ethical Board has approved to conduct of the study in accordance with the declaration of the research ethics committee (MECT/IEC/06/2019, dated 11/10/2019). Formal permission was obtained from the high school authority. The purpose of the study was explained in English to participants and assured that the obtained information would be kept confidential and used only for the purposes of research study, and obtained the informed written consent from the parent and assent from the participants.

2.4 Instruments

The self-administrated questionnaires were used in this study, which has two sections, viz., socio-demographic variables of the adolescents and their purposes of smartphone use and levels of smartphone addiction was measured using a standardized Smartphone Addiction Scale-Short Version (SAS-SV).

2.4.1. Socio-demographic characteristics of the Adolescents

The socio-demographic characteristics were developed by the researcher, viz., age, gender, ownership of school, class in which the adolescent is studying, religion, type of family, total family income, parent's education and occupation, number of siblings, and purposes of the smartphone used by the adolescents like educational activities, entertainment, mobile games, phone calls/text messages, religious use, social networking, and internet browsing/web surfing were asked to mark how frequently used by them as 'never', 'rarely'. 'occasional' and 'always' are used. Other relevant information related to the patterns of use of smartphones, includes types of ownership of smartphone, types of internet service and their access to such facilities, how often the internet is used, duration of smartphone used during weekdays and weekends, use of smartphones during bedtime, is there any recent changes in eye sight or vision, and

information related to the current use of spectacles and the individual's self-perceived of smartphone overuse.

2.4.2. Smartphone Addiction Scale – Short Version (SAS-SV)

The validated subjective SAS-SV (Smartphone Addiction Scale-Short Version) is a tool was developed by Min Kwon, to assess the levels of smartphone addiction. This tool includes 10 statements on smartphone usage describing daily-life disturbance, withdrawal, positive anticipation, cyberspace-oriented relationships, overuse, and tolerance on a 6-point Likert scale, with a score range from maximum 6 (strongly agree) to minimum 1 (strongly disagree). It categorizes the different ranges of scores for males and females and score ranges from 0 to 60. Males were said to be "addicted" if the score was higher than 31, and if the score was between 22 - 31, it was referred to as "high risk for smartphone addiction." Females were said to be "addicted" if the score was higher than 33, and if the score was between 22 - 33, it was referred to as "high risk for smartphone addiction."^{9,10} Score less than 22 are referred to as "no addiction" in both genders. For SAS-SV scale Cronbach's alpha correlation coefficient of 0.91.⁹

2.5 Data Collection Procedure

Prior permissions were obtained from selected high schools before the data collection. The adolescents were identified using a multistage random sampling technique from selected high schools in Bangalore (urban district) who fulfilled the inclusion criteria and were approached for data collection. Assent obtained from the participants and consent from parent or legal-guardian. The purpose of the study was explained to the participants, and it was ensured that confidentiality of the data would be maintained. The participants were distributed the self-administered questionnaires (English version) on socio-demographic data, including the purposes and patterns of smartphone use, and the

SAS-SV was used to assess the level of smartphone addiction. Total duration to answer these questionnaires, which lasted approximately 25–30 minutes. The data collection was carried out in August 2022.

2.6 Data Analysis

The data entry and coding were made using Microsoft Excel and transferred to SPSS software version 24. For categorical variables, descriptive univariate statistical techniques such as frequencies, percentage, mean, and standard deviation were used.

The chi-square test was used to find the association between smartphone addiction and characteristics of adolescents, including purposes and patterns of smartphone use.

3. RESULTS

3.1 Sample Characteristics

A total of 209 adolescents were screened for smartphone addiction. The distribution of the adolescents according to socio-demographic characteristics depicted in Table 1.

Table 1. Distribution of the adolescents according to socio-demographic characteristics N=209

Socio-demographic characteristics		Frequency	%
Age (in years)	13-14	130	62.20
	15-16	79	37.80
Gender	Boys	105	50.20
	Girls	104	49.80
Ownership of School	Government	92	44.00
	Private	117	56.00
Class/Standard	8th Std	90	43.10
	9th Std	119	56.90
Type of Family	Joint	72	34.40
	Nuclear	121	57.90
	Single parent	16	7.70
Religion	Hindu	171	81.80
	Muslim	26	12.40
	Christian	7	3.30
	Any other	5	2.40
Monthly Family Income (INR)	Less than Rs. 20,000	120	57.40
	Rs. 20001-40,000	64	30.60
	Rs. 40,001-60,000	13	6.20
	More than Rs. 60,000	12	5.70
Father's Education	Not literate	20	9.60
	Primary school	60	28.70
	High school	79	37.80
	Pre-university College	30	14.40
	Degree	18	8.60
	Above degree	2	1.00
Mother's Education	Not literate	20	9.60
	Primary school	48	23.00
	High school	89	42.60
	Pre-university College	31	14.80
	Degree	18	8.60
	Above degree	3	1.40
Parent Occupation	Only Father is working	86	41.10
	Only Mother is working	39	18.70
	Both father & mother working	78	37.30
	None of them working	6	2.90
Number of sibling(s)	No sibling	30	14.40
	One	118	56.50
	Two	44	21.10
	Three & more	17	8.10

The distribution of the adolescents according to the patterns of smartphone use is described in Table 2.

Table 2. Distribution of the adolescents according to the patterns of smartphone usage N = 209

Pattern of smartphone usage	Frequency	%	
Ownership of mobile	Own mobile	57	27.30
	Using parent's mobile	150	71.80
	other	2	1.00

Duration of mobile use on week days	Less than 1 hr	118	56.50
	1-3 hrs	69	33.00
	More than 3 hrs	22	10.50
Duration of mobile use on week ends	Less than 1 hr	82	39.20
	1-3 hrs	58	27.80
	More than 3 hrs	69	33.00
Type of Internet package	Limited	149	71.30
	Unlimited	60	28.70
Access to internet	Wifi data/data card	20	9.60
	Mobile data	146	69.90
	Both wifi & Mobile data	41	19.60
	Not using any data	2	1.00
Use internet while using mobile phone	Always	67	32.10
	Often	104	49.80
	Less often	31	14.80
	Not at all	7	3.30
Are you using spectacles for eye sight correction	No	166	79.40
	Yes	43	20.60
Recent changes in eye sight/vision	No	174	83.30
	Yes	35	16.70
Are you using mobile phone on bed/during sleeping hours	No	135	64.60
	Yes	74	35.40
Any training program on smartphone addiction	No	209	100.00
	Yes	0	0.00
Individual's Self-perceived smartphone over use	No	101	48.30
	Yes	49	23.40
	Don't know	59	28.20
Grand Total		209	100%

3.2 Assessment of purposes of smartphone used among the adolescents

The study shows that the majority of adolescents used smartphones occasionally for educational activities (40.7%); rarely for entertainment (36.8%), mobile gaming

(32.5%), phone calls and text messages (40.7%), social networking (43.1%), and internet browsing (40.2%); and majority (45.9%) of adolescents never use their phones for religious activities shown in Table 3.

Table 3. Distribution of adolescents according to the purposes of smartphone use N=209

Sl. No	Purposes of smartphone used	Frequency of usage	Frequency	Percentage
1	Educational activities	Never	10	4.8
		Rarely	72	34.4
		Occasionally	85	40.7
		Always	42	20.1
2	Entertainment	Never	21	10
		Rarely	77	36.8
		Occasionally	58	27.8
		Always	53	25.4
3	Mobile Game	Never	44	21.1
		Rarely	68	32.5
		Occasionally	57	27.3
		Always	40	19.1
4	Phone calls/text message	Never	38	18.2
		Rarely	85	40.7
		Occasionally	49	23.4
		Always	37	17.7
5	Religious use	Never	96	45.9
		Rarely	70	33.5
		Occasionally	32	15.3
		Always	11	5.3
6	Social networking	Never	43	20.6
		Rarely	90	43.1
		Occasionally	47	22.5
		Always	29	13.9
7	Internet browsing/Wed surfing	Never	52	24.9
		Rarely	84	40.2
		Occasionally	45	21.5
		Always	28	13.4
Grand Total			209	100%

3.3 Assessment of Smartphone addiction among the adolescents

More than half of adolescents (66.99%) were found to have "high risk for smart phone addiction," followed by 27.75% (58) and 5.26% (11) who were determined to be "addicted to smart phone" and "not addicted

to smart phone" respectively. Among adolescents at high risk for smartphone addiction, 39.2% (82) were female, while 27.8% (58) were male. Similarly, 41 (19.6%) of adolescents with smartphone addiction were boys, whereas 17 (8.1%) were girls described in Table 4.

Table 4: Levels of Smartphone addiction among the adolescents N=209

Level of Smartphone Addiction	Boys			Girls			Total	
	Reference value	Number	%	Reference value	Number	%	Number	%
No Smartphone Addiction	0-21	6	2.9	0-21	5	2.4	11	5.26
High risk for Smartphone Addiction	22-31	58	27.8	22-33	82	39.2	140	66.99
Smartphone Addiction	32-60	41	19.6	34-60	17	8.1	58	27.75
G. Total		105			104		209	100%

3.4 Association between smartphone addiction and socio-demographic characteristics of adolescents

The findings established a significant association between smartphone addiction

and demographic variables such as gender and class/standard at the 0.05 significance shown in Table 5.

Table 5. Association between smartphone addiction and socio-demographic characteristics of adolescents N=58

Sl. No	Socio-demographic characteristics of adolescents	df	Chi-square value	Critical value @5%	'P' value
1	Age (in years)	2	4.88 ^{NS}	5.99	0.087
2	Gender	2	14.13*	5.99	0.001
3	Type of school	2	0.66 ^{NS}	5.99	0.718
4	Class/Standard	2	10.44*	5.99	0.005
5	Type of family	4	3.52 ^{NS}	9.49	0.475
6	Religion	6	10.04 ^{NS}	12.59	0.123
7	Monthly family income (INR)	6	3.19 ^{NS}	12.59	0.784
8	Father's Education	10	11.19 ^{NS}	18.31	0.343
9	Mother's Education	10	16.32 ^{NS}	18.31	0.091
10	Parent occupation	6	3.10 ^{NS}	12.59	0.796
11	Number of siblings	6	11.05 ^{NS}	12.59	0.087

NS- Non-significant; * - Significant @ 0.05

3.5 Association between smartphone addiction and patterns of smartphone use by the adolescents

Findings revealed the association between smartphone addiction and patterns of smartphone use by adolescents, including type of ownership of smartphone, duration

of smartphone use (weekdays and weekends), internet packages, report of recent changes in eye sight/vision, and self-perceived overuse of smartphones at the 0.05 level of significance as depicted in Table 6.

Table 6. Association between smartphone addiction and patterns of smartphone used by the adolescents N=58

Sl. No	Characteristics of smartphone usage by the adolescents	df	Chi-square value	Critical value @5%	'P' value
1	Type of ownership of smartphone	4	10.83*	9.49	0.029
2	Duration of mobile use on week days	4	39.64*	9.49	0.000
3	Duration of mobile use on week ends	4	55.37*	9.49	0.000
4	Types of Internet package	2	24.60*	5.99	0.000
5	Access to internet	6	11.74 ^{NS}	12.59	0.068
6	Use internet while using mobile phone	6	9.70 ^{NS}	12.59	0.137
7	Are you using spectacles for eye sight correction	2	1.01 ^{NS}	5.99	0.604
8	Report of recent change in eye sight/vision	2	18.95*	5.99	0.000
9	Are you using mobile phone on bed/during sleeping hours	2	4.50 ^{NS}	5.99	0.105
10	Self-perceived smartphone over use	4	19.04*	9.49	0.001

NS- Non-significant; * - Significant @ 0.05

3.6 Association between the purposes of smartphone used with the levels of smartphone addiction among adolescents

The results revealed that, there was a significant relationship between the levels

of smartphone addiction and the purpose of smartphone used for educational activities, playing mobile games, social networking, and internet browsing described in Table 7

Table 7. Association between the purposes of smartphone use and the level of smartphone addiction among adolescents N=209

Sl. No	Purposes of use of smartphone	Frequency of usage	Levels of Smartphone Addiction			X ²	'P' value
			No SPA	High risk for SPA	SPA		
1	Educational activities	Never	1	6	3	13.03*	0.043
		Rarely	7	40	25		
		Occasionally	0	66	19		
		Always	3	28	11		
2	Entertainment	Never	3	16	2	6.98 ^{NS}	0.323
		Rarely	3	50	24		
		Occasionally	3	38	17		
		Always	2	36	15		
3	Mobile Game	Never	7	31	6	26.46*	0.000
		Rarely	3	52	13		
		Occasionally	1	31	25		
		Always	0	26	14		
4	Phone calls/text message	Never	3	29	6	11.10 ^{NS}	0.085
		Rarely	6	48	31		
		Occasionally	0	38	11		
		Always	2	25	10		
5	Religious use	Never	8	54	34	11.15 ^{NS}	0.084
		Rarely	3	53	14		
		Occasionally	0	25	07		
		Always	0	8	3		
6	Social Network	Never	4	34	5	20.90 *	0.002
		Rarely	5	56	29		
		Occasionally	4	24	21		
		Always	0	26	03		
7	Internet browsing/ Web surfing	Never	3	49	0	58.07*	0.000
		Rarely	8	59	17		
		Occasionally	0	17	28		
		Always	0	15	13		

X² (6df, 0.05) = 12.92; NS- Non-significant; * - Significant @ 0.05

DISCUSSION

The main objectives were to examine the association between smartphone addiction and the characteristics of adolescents and the purposes and patterns of smartphone use.

The cross-sectional study comprised 209 adolescents drawn at random from selected high schools in Bangalore's urban district. The present survey indicated that the majority (66.99%) of adolescents were "high-risk for smart phone addiction." 27.75% of adolescents were "addicted to smartphones." A similar study conducted on middle school children reveals contradictory findings from the present study: 30.9% were recognized as a "risk group for smartphone addiction" and 69.1% were recognized as "normal users".¹¹ The current study shows that 27.75% of adolescents were addicted to

smartphones, which was more prevalent among boys (19.6%) than girls (8.1%). In similar study conducted in Delhi, smartphone addiction among participants was 33.0% (95%, CI: 27.2 to 38.6), with boys (33.6%) being more addicted than girls (32.3%) (p = 0.835).¹² The prevalence of smartphone addiction was 23%, and statistically smartphone addiction was higher among boys (29.6%) than girls (16.7%)³. A study conducted among the late adolescents in Ahmedabad, Gujarat, revealed that 48.1% of boys and 51.9% of girls were addicted to smartphones. This study result was found to contradict the present study, as girls' students were found to have a greater smartphone addiction than boys.¹³

The current study indicated a significant association between smartphone

addiction and socio-demographic features of adolescents, regardless of gender and class/standard in which they were studying and there is no significant association was not found in age, type of schools, type of family, religion, parents' education and occupation and number of siblings. The systematic review findings concerning the relationship between gender and smartphone addiction were inconsistent. Out of eleven studies, eight studies found no significant relationship, and finding a significantly higher incidence in females than males.¹⁴ Contradicted to the present study, the cross-sectional study conducted in Gujarat revealed the respondents' scores for smartphone addiction did not differ statistically significantly based on their gender, location of residence (rural or urban), parenting style, or amount of time spent using smartphones.¹³

The present study state that the duration of smartphone used by adolescents was 56.5% (< 1 hr), 33 (1 to 3 hrs), and 10.50% (> 3 hrs) on weekdays, and similarly 39.20% (< 1 hr), 27.80% (1 to 3 hrs), and 33% (> 3 hrs) on weekends. It was noticed that the duration of the smartphones used by participants increased during weekends. According to a survey done on university students, they were used their smartphones from 1 to 16 hours a day (M = 4.74, SD = 3.33).¹⁵ Similar to the present study, found there was statistical correlation between the smartphone addiction and the duration of smartphone used on both weekdays and weekends among the adolescents at the 0.05 significance level. The study implies that increased screen time, i.e., a longer duration of smartphone usage, has increased the tendency for smartphone addiction among users, especially adolescents. In the previous study, used their smartphones on average for four hours each day and found to be significant with smartphone addiction. Less than two hours a day were spent using smartphones by one-third (25.1%) of the students.¹³

The existing study result indicated that the association between smartphone addiction

and patterns of smartphone used by adolescents, revealed that there was a significant association found among variables such as ownership of smartphone, duration of smartphone used during weekdays and weekends, internet packages and recent changes in eye sight and self-perceived smartphone overuse at the 0.05 significance level. The reflection of the study results indicates that when adolescents have their own smartphone with unlimited internet facilities, it makes them use it longer, especially during leisure hours without any interruption, resulting in smartphone addiction. Increased screen time without breaks and rest for their eyes results in a recent change in their vision. Adolescents reported to themselves that they were overusing their smartphones beyond their intended hours. When individuals' aware of that, they overuse a smartphone with or without intention to satisfy their gratification needs. Hence, adolescents need to be psychologically strengthened to overcome smartphone addiction. Similar previous study results showed that a statistically significant association ($P < 0.05$) was found for the smartphone addiction with regards to the streams of study, ownership of the smartphone, duration of phone usage per day, the common purpose of using a smartphone.¹³

According to the present study, the majority of adolescents use smartphones occasionally for educational purposes (40.7%), rarely for entertainment (36.8%), mobile games (32.5%), phone calls and text messages (40.7%), social networking (43.1%), and internet browsing (40.2%), and the majority (45.9%) of adolescents never use their phones for religious activities.

The result implies that, usually, adolescents run behind the activities of gratification for their needs like entertainment, mobile games, and social media networking using internet use, and on the other hand, they usually very rarely use smartphones for religious activity, as found in the study. According to previous surveyed of 195

medical students in Maharashtra (India), 33.85% of students identified WhatsApp as their most preferred app, followed by 12.31% and 5.13% for Instagram and Facebook, respectively. The majority (57.14%) claimed text messaging was the most common reason they used their smartphones, while 10.86% indicated they used them for Internet browsing.¹⁵ Overuse of games and regular use of smartphones for social networking services were predictive variables for smartphone addiction.¹¹ The qualitative study revealed that participants differed in their pattern of smartphone use during specific time periods. However, study found that social networking is the most prevalent use of smartphones. The second most common application by searching internet surfing for information.⁶ According to this study, at the 0.05 level of significance, there is a significant correlation between the purposes of smartphone use and the levels of smartphone addiction among adolescents who use their phones for social networking, educational activities, mobile gaming, and internet browsing. The adolescents used smartphones frequently for educational purposes to complete their assignments and projects, solve their academic problems, and for e-book reference. Several studies support that people use their smartphones for entertainment, mobile games, and social media during time of boring and leisure to pass their time. The previous cross-sectional study 110 (46%) reported using their smartphones primarily for social networking, followed by web browsing (20%), education (36%), and entertainment (29.3%) and these were found significant correlation with smartphone addiction.¹³ A survey conducted to study the purpose and pattern of smartphone used among university students found that over half of respondents use smartphones for various tasks, such as checking time and alarms, recording videos and emails, and listening to music and news. 47.7% study class notes, set reminders, play games and bank

transactions, 17.8% of them for shopping, and schedule meetings.¹⁶

Limitations

The current study explores the relationship between the smartphone addiction and characteristics features of adolescents and purposes of smartphone used but has limitations due to subjective responses, heterogeneity of high school samples, and the inclusion of only a few common purposes of smartphone use among the adolescents. Further research should include more purposes and patterns of smartphone use. This study adopted the quantitative nature of a survey, which has limited its ability to find reasons and more detailed information.

Recommendations

To combat smartphone overuse, intervention studies should aim to improve adolescents' healthier smartphone use through educational programs and training them to articulate and regulate self-control measures using psychological interventions such as mindfulness programs, meditation, pranayama, and yoga therapies, as well as selected physical interventions such as exercises and engaging in one or more activities during leisure hours along with family members, whether indoor or outdoor activities.

CONCLUSION

The current study found a significant relationship between socio-demographic characteristics of adolescents and smartphone addiction, particularly among the 13–16-year-old age range, regardless of gender or status, who were enrolled in Bangalore's urban high school. The association is also found between smartphone addiction, the purpose of smartphone use, and the pattern of smartphone use. Smartphone addiction is a behavioural issue influenced by socio-cultural contexts and individual knowledge. Future research should explore physical and psychological measures to improve healthy

use of smartphone and self-regulation and control of overuse smartphone.

Declaration by Authors

Ethical Approval: Approved

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