



RESEARCH ARTICLE

Effectiveness of multicomponent intervention on smartphone addiction and leisure wellbeing among adolescents of selected PU college in Bangalore

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Abstract

This study aims to examine the impact of adolescent smartphone usage on leisure wellbeing, focusing on how excessive screen time may affect the quality of free time. By developing a multicomponent intervention, the research will promote safe smartphone practices while enhancing leisure wellbeing. The goal is to bridge the gap between smartphone use and meaningful leisure activities, helping adolescents strike a balance that fosters relaxation and social engagement. An evaluative methodology was employed using a quasi-experimental one-group pretest and posttest design. Purposive sampling was utilized to choose a sample of 140 teenagers enrolled at pre-university colleges. The data was obtained using the smartphone addiction scale - short version (SAS-SV), Leisure boredom scale (LBS), and leisure satisfaction scale (LSS). The difference in the pretest and posttest scores was statistically significant ($p = 0.001$) for smartphone usage and the multicomponent intervention. Hence, it is effective in reducing smartphone usage among adolescents. There was a significant difference ($p = 0.001$) between the pretest and posttest leisure boredom scores, and there was a significant difference ($p = 0.012$) between the pretest and posttest leisure satisfaction scores. The study concludes that leisure boredom is common among adolescents. Boredom during free time leads to smartphone addiction, as smartphone has attractive features for entertainment. Overuse of smartphones affects the leisure wellbeing of adolescents. The multicomponent intervention was proven effective in reducing smartphone addiction and improving leisure wellbeing among adolescents.

Keywords: Smartphone addiction, Leisure wellbeing, Leisure boredom, Adolescents, Multicomponent intervention.

Introduction

Ever-increasing technological advancements have been witnessed in the 21st century in all aspects of life. One of those advancements is the smartphone (Aljomaa *et al.*, 2016). Among all age groups, smartphones are increasingly becoming a necessary component of daily life. With regards to technology, the smartphone has many characteristics

that make teens and adolescents use it (Chóliz *et al.*, 2016). Worldwide, there are approximately five billion mobile phone users, of whom 1.08 billion are smartphone users. Approximately 92% of smartphone users send texts using their devices during the day, while 84% use their smartphones for internet browsing, 64% use them for playing games, and 59% use them on social networks (<https://www.gogulf.com/smartphone/>, n.d.).

Many nations, including Germany, Italy, Hungary, China, Iran, Spain, Japan, South Korea, Sweden, the United Arab Emirates, and Tunisia, have seen an increase in psychiatric problems related to mobile phone use in recent years. Young people use smartphones in comparable ways throughout different nations, despite cultural and societal differences. India is not an exception to this global trend of increasing smartphone use (Chóliz *et al.*, 2016). In 2017, research firm Gartner and Singapore-based investment firm Canalys anticipated that 15.6% of the global population would be smartphone users, with India expected to have the highest annual growth rate of smartphone users at 129%, even higher than China's 109% (Davey & Davey, 2014).

A behaviour that can provide pleasure and offer an escape from internal distress is addiction. Frequently failing

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How to cite this article: Rajarajeswari, M., Ravi, R. (2025). Effectiveness of multicomponent intervention on smartphone addiction and leisure wellbeing among adolescents of selected PU college in Bangalore. *The Scientific Temper*, 16(6):4300-4309.

Doi: 10.58414/SCIENTIFICTEMPER.2025.16.6.01

Source of support: Nil

Conflict of interest: None.

to regulate the behaviour or continuing the behaviour in spite of serious consequences are characteristics of smartphone addiction (Gowda *et al.*, 2019). In their most addicted states, people often experience loneliness, confusion, and depression when they are not using their phones (Sahu *et al.*, 2019). Youth in the twenty-first century will likely experience sleep disturbance and related issues as a result of excessive nighttime gadget use (Thomas *et al.*, 2022). "Nomophobia" is another phenomenon that this addictive behaviour can explain. It is known as a psychiatric syndrome when a person fears losing communication with their cell phone (WHO, 2022). "One symptom of smartphone addiction is 'ringxiety', which 34.5% (116) of students reported having. They were also more likely to use their phones in settings where they were not allowed, such as schools (99%) and libraries (60.3%). A far higher percentage of people who suffer from anxiety also said that their studies were hindered (Subba *et al.*, 2013).

Leisure is the free time that has been identified as one of the influential and potent experiences in the lives of teenagers (Freire & Teixeira, 2018). It provides an enormous number of chances for crucial tasks related to adolescent development, including identity, autonomy, exploration, competence, and initiative (Kwon *et al.*, 2013). A study on the impact of social media and smartphones on adolescents' interpersonal relationships found that higher levels of social media addiction were associated with higher levels of intimacy with friends in real life. Intimacy with parents was not linked to social media use, though (Yang *et al.*, 2022). The freedom of choice, decreased parental control, and the increased importance of peers during the adolescent period also afforded opportunities to engage in risky behaviours such as involvement in violent activity, sexual risk, substance misuse, and non-substance abuse (Kwon *et al.*, 2013). This can be a useful tool for learning how to successfully socialise if the adolescent uses this freedom of choice to internalise social standards (Shin & You, 2013).

Unfortunately, most youngsters are attracted to the smartphone's powerhouse of entertainment rather than to physical or recreational leisure activities. Owing to the seriousness of digital addiction that is not related to drugs, various governmental and non-governmental organizations have opened rehabilitation facilities to help those who are addicted to digital devices (Hawi & Samaha, 2016).

Exploring how improving leisure activities affects the reduction of smartphone addiction, and vice versa, may offer useful insights. Specifically, does engaging in more enjoyable offline leisure activities contribute to a sustained reduction in smartphone use? Most research looks at smartphone addiction or leisure wellbeing separately, without considering how changes in one domain affect the other. A study on the connection between social media use and life satisfaction has suggested that social media

addiction is reversed by leisure satisfaction (Avunduk, 2021). This gives an idea of understanding the need to determine can combinations of interventions can help in reducing leisure boredom and improving leisure satisfaction among adolescents and reducing smartphone addiction. It would be beneficial to investigate the synergies between various approaches and determine how each component functions together.

By decreasing maladaptive cognition, adolescents' delightful leisure experiences have a beneficial effect on smartphone addiction. Therefore, it is important to enhance their leisure time and help them gain from an accurate perception of leisure, and consider offline leisure and real life from a more optimistic perspective (Xia *et al.*, 2024). However, the present study aims to explore smartphone usage and leisure wellbeing among adolescents, which may represent the first step towards bridging the discontinuity that has existed between quality leisure time for adolescents, with the intention of employing a multicomponent intervention to reduce the duration of smartphone use.

Methods

Design and subjects' selection

A quasi-experimental, one-group pretest-posttest methodology was used for the study. Purposive sampling was utilized in order to pick a sample of 140 adolescents who met the inclusion and exclusion criteria. Girls and boys in the 16 to 18 years age range who were enrolled in the selected pre-university colleges in Bangalore, using smartphones, being able to communicate in English, and being available at the time of the study were all considered for inclusion. The adolescents who were undergoing behavioural therapy or recreational therapy and whose parents were unwilling to give consent were not included in the study.

The sample size had been decided based on the outcome of a 2008 study on Bangalore college students' dependence on mobile phones. The study found that 3.2% of people were addicted to mobile phones; 436 people were included in the study, with 80 and 0.5% significance level (Masthi & Yashasvini, 2012).

Instruments for data collection

Data collection was done using standardized instruments, consisting of a demographic proforma containing baseline details of the adolescent.

The short version of the smartphone addiction scale (SAS-SV)

This scale is intended to measure smartphone addiction. Based on self-reporting, ten items on a six-point Likert scale-six representing "strongly disagree" and one representing "strongly agree"- are included. An increased figure indicates a higher risk of smartphone addiction. Ten is the minimum score and sixty is the maximum (Kwon *et al.*, 2013)

Leisure Boredom Scale (LBS)

This instrument was employed to evaluate the practice of leisure wellbeing. It has sixteen items that are rated from 1 to 5 on a point system, where higher scores indicate more boredom (Iso-Ahola & Weissinger, 1990).

Leisure Satisfaction Scale (LSS)

It's a Likert scale ranging from 1 to 5, where 1 means "almost never true for you" and 5 means "almost always true for you." It was used to assess leisure satisfaction among the selected adolescents (Trottier *et al.*, 2002).

Reliability and validity of the tool

Using the split-half approach, the reliability of the Smartphone Addiction Scale was calculated, and Karl Pearson's coefficient of correlation of 0.85 indicates that the tool is highly reliable. With a Karl Pearson's coefficient of correlation of 0.95, the Leisure Boredom Scale's reliability was calculated using the split-half method, indicating an excellent level of reliability. Using Karl Pearson's coefficient of correlation, the split-half approach was used to calculate the Leisure Satisfaction Scale's reliability. The result was a score of 0.92, suggesting great reliability for the instrument.

Development of the multicomponent intervention

A multicomponent intervention was developed to emphasize the safe use of smartphones and promote leisure wellbeing among adolescents. The intervention includes several activities: video materials offering self-help tips for reducing smartphone usage; a teaching program highlighting the benefits of leisure on physical and mental health to enhance the quality of leisure time; screening of adolescents' leisure interests; and guidance on engaging in both indoor and outdoor activities that promote active and passive leisure on a daily basis. The intervention was prepared based on a comprehensive review of the literature and data analysis. Content validity was obtained through expert evaluation, resulting in necessary revisions and the finalization of the intervention draft.

Ethical Consideration

After obtaining institutional ethical clearance, official approval in writing was secured from the officials of the selected pre-university colleges. The investigator introduced himself and outlined the study's objectives to the subjects. The parents of the chosen adolescents provided written consent, and confidentiality was assured. Additionally, assent was obtained from the adolescents themselves.

Data collection

A total of 140 adolescent participants who fulfilled the inclusion and exclusion criteria were selected. The subjects provided baseline information, and a pretest questionnaire was administered to assess smartphone usage and leisure wellbeing using the SAS-SV scale, LBS scale, and LSS scale,

respectively. The multicomponent intervention was then administered. Following the intervention, the subjects identified their preferred leisure activities with the help of a checklist. Based on their interests, they were taught indoor and outdoor activities encompassing both active and passive leisure. The subjects were instructed to engage in their chosen activities and maintain a daily logbook or diary to record the time spent on leisure activities, excluding smartphone use. Follow-up was conducted weekly for three weeks to gather feedback on their leisure activities, level of motivation, and involvement. Reinforcement was provided by the investigator regarding the intervention. Using the same tool, a posttest was held on the final day of the fourth week. The collected data were compiled for analysis.

Statistical analysis

Using SPSS software, inferential as well as descriptive statistics were employed to examine the data gathered from the adolescents. Every categorical variable was shown as a frequency table, with a percentage representing the outcomes. Using descriptive metrics like mean, percentage, standard deviation, and range, the quantitative variables were simplified. Following the confirmation of the normality assumptions, the group means were compared using a paired t-test. The relationship between smartphone usage, leisure wellbeing, and leisure activities was calculated using the Pearson correlation coefficient. In order to discover the association between smartphone use, leisure wellbeing, and certain demographic factors, chi-square analysis was employed.

Results and Discussion

The demographic description of the study illustrates that a great number of the adolescents (70%) were around the age of 17–18 years and were female (55.7%) participants. Most of the adolescents (85.7%) were in their second year of the pre-university course (II-PUC), and the majority (75.7%) were studying commerce. Additionally, 72.8% of the participants were from joint families, and 62.9% had one sibling. The data also indicate that the majority (72.9%) of the adolescents lived in urban areas, and most (96.4%) were staying in their homes. As shown in Table 1 shows that 47.9% of the adolescents had 5–9 hours of leisure activity per week, and the majority (32.1%) used smartphones to overcome boredom during leisure. All the adolescents (100%) were using smartphones, with the majority (47.9%) using them for multiple purposes such as messaging, social networking sites, entertainment, sports, phone calls, reading news, education, online classes, and playing games. Additionally, 12.1% used smartphones only for entertainment. The majority (28.6%) used their mobile phones for longer than four hours a day. Interestingly, 46.4% of the adolescents used smartphones 6 to 10 times per day, and the majority (42.1%) had a monthly phone bill ranging from Rs. 50 to Rs. 299.

Table 1: Participants' demographic details, N=140

<i>Variable</i>	<i>N</i>	<i>%</i>
Age		
15–16	42	30
17–18	98	70
Gender		
Male	62	44.3
Female	78	55.7
Year of Study		
Pre-university-I	20	14.3
Pre-university-II	120	85.7
Stream of pre-university course		
Science	34	24.3
Commerce	106	75.7
Type of family		
Nuclear	102	72.8
Extended	05	3.6
Joint	33	23.6
Number of siblings		
None	24	17.1
One	88	62.9
Two	20	14.3
Three & more	08	5.7
Residential area		
Rural	38	27.1
Urban	102	72.9
Place of living		
Home	135	96.4
Hostel	1	0.7
Paying Guest (PG)	2	1.4
Relative Home	2	1.4
Number of hours spent on leisure activities per week		
More than sixteen hours	15	10.7
Ten to fifteen hours	14	10
Five to nine hours	67	47.9
Less than five hours	44	31.4
Activities engaged to overcome boredom during leisure time		
Physical activities	24	17.1
Using smartphones	45	32.1
Playing video games	24	7.9
Practicing hobbies	10	7.1
Helping with household works	37	26.4
Smartphone usage		
Yes	140	100
No	0	0

<i>Variable</i>	<i>N</i>	<i>%</i>
Purpose of using a smartphone		
Messaging and social network site	12	8.6
Entertainment	17	12
Making Phone calls	4	2.9
Sports	2	1.4
Reading news, education	12	8.6
Online class	12	8.6
Playing games & Sports	14	10
All the above	67	47.9
Mode of attending online class		
Laptop	11	7.9
Mobile phone	129	92.1
The average amount of time spent on mobile phones excluding online class		
Less than 30 minutes	4	2.9
30 to 59 minutes	14	10
1 to 2 hours	30	21.4
2.5 to 3 hours	18	12.9
3.5 to 4 hours	34	24.3
More than 4	40	28.6
Frequency of smartphone use on a typical day		
Less than 5 times per day	41	29.3
6 to 10 times per day	65	46.4
More than 11 times per day	34	24.3
Amount spent on monthly phone bill		
Rs. 2000 and above	6	4.3
Rs. 1000 to Rs. 1999	1	0.7
Rs. 500 to Rs. 999	26	18.6
Rs. 300 to Rs. 499	48	34.3
Rs. 50 to Rs. 299	59	42.1

Comparison of adolescents Pre and Posttest Levels of Smartphone Usage, Leisure Boredom, and Leisure Satisfaction

The study findings reveal that the majority (53%) of adolescents were moderately addicted to smartphones, and 30% were severely addicted in the pretest. A similar outcome was observed in a descriptive cross-sectional study by Gaur (2019) that explored the usage patterns of smartphones and the link between the intensity of smartphone addiction and depression. According to the report, 26.6% of adolescents had moderate smartphone addiction, and 33.3% were severely addicted (Gaur, 2019).

The frequency and percentage distribution of adolescents' smartphone addiction at the following levels

are found in both pre-and posttests: during the posttest, most (63.5%) were mildly addicted, and only 3.5% were severely addicted. This finding is corroborated by a quasi-experimental study that looked into the consequences of mind subtraction meditation on third graders' mental health and propensity for smartphone addiction. The study verified that smartphone addiction had fallen significantly in the experimental group that underwent the meditation program; 71% were severely addicted in the pretest, compared to only 15% in the posttest (Yoo *et al.*, 2019).

Table 2 shows that in the pretest, 2.1% of the adolescents experienced severe boredom, and the majority (91.5%) had moderate boredom. In the posttest, 70% of the individuals reported being somewhat bored, 2% reported being extremely bored, and 28% reported being moderately bored. Although a similar study was not found in the literature search, a cohort study conducted in Cape Town, South Africa, examined the way high school dropout rates are interconnected with leisure boredom. The study found that overall dropout rates climbed with the highest scores for the Leisure Boredom Scale = 61.1%, but remained similar for lower and moderate LBS scores, at 50.6% and 51.4%, respectively (Wegner *et al.*, 2008).

In terms of the frequency and percentage of leisure satisfaction (as shown in Table 2), the majority (63.6%) of adolescents reported being satisfied with their leisure in the pretest, and 46.4% reported moderate satisfaction. In the pretest, 30.7% of the adolescents were highly satisfied, which increased to 50.7% in the posttest. This indicates that after the multicomponent intervention, adolescents experienced a higher level of leisure satisfaction and a lower level of smartphone addiction. The results align with a correlation survey study that evaluated university students' smartphone addiction and level of leisure satisfaction. The study found that students who engage in active sports and cultural and artistic pursuits have considerably lower smartphone addiction scores. Engaging in social activities and physical sports has been shown to mitigate the effects of smartphone addiction (Tükel, 2020).

Effectiveness of multicomponent intervention on smartphone usage and leisure wellbeing

The study's findings (Table 3) revealed a significant difference in the pretest and posttest scores for smartphone usage ($p < 0.001$), leisure boredom ($p < 0.001$), and leisure satisfaction ($p = 0.012$). Additional significant differences

Table 2: Compares the levels of smartphone usage, leisure boredom, and leisure satisfaction among adolescents in pre and posttest, N=140

	Scores	Pretest		Posttest	
		N	%	N	%
Level of smartphone addiction					
Mild addiction	10-26	24	17	89	63.5
Moderate addiction	27-43	74	53	46	33.0
Severe addiction	44-60	42	30	05	3.50
Level of leisure boredom					
Mild boredom	≤36	09	6.4	39	28
Moderate boredom	37-58	128	91.5	98	70
Severe boredom	59-80	03	2.1	03	2
Level of leisure satisfaction					
Not satisfied	24-55	08	5.7	04	2.9
Satisfied	56-87	89	63.6	65	46.4
Highly satisfied	88-120	43	30.7	71	50.7

Table 3: Effectiveness of multicomponent intervention on smartphone usage and leisure wellbeing, N=140

	Mean		Standard Deviation		t-value	p-value	Inference
	Pre test	Post test	Pre test	Post test			
Smartphone addiction	36.51	25.14	10.51	9.72	10.200	< 0.001*	S
Leisure Boredom	46.02	41.48	6.47	7.80	5.377	< 0.001*	S
Leisure Satisfaction	79.84	84.94	16.64	15.36	2.560	0.012*	S

df=138 t=1.660; * significant difference; S-Significant difference

were also observed in these domains. As a result, the multicomponent intervention was successful in lowering smartphone addiction and enhancing adolescents' leisure wellbeing. Comparable results were observed in a pilot study testing a group mindfulness-based cognitive-behavioural intervention (GMCI) for an addiction to smartphones in Chinese university students. This pilot study demonstrated that GMCI might significantly decrease university students' smartphone addiction (Smedegaard *et al.*, 2016; Yukun *et al.*, 2018).

Table 4 illustrates the statistically significant correlation between the pretest score of smartphone addiction and certain demographic variables, which include the number of siblings ($p < 0.006$), the mother's occupation ($p < 0.001$), the purpose of using a smartphone ($p < 0.007$), the habit of smartphone uses in a normal day ($p < 0.003$), similarly, the monthly phone bill ($p < 0.037$). All of these p -values are less than the threshold of 0.05. The chi-square analysis was employed to ascertain the association between adolescent smartphone usage as well as the chosen demographic factors. The number of siblings showed a strong association with smartphone usage among adolescents, as indicated by a statistically significant link ($p = 0.006$). This conclusion is supported by a study that examined the academic and demographic factors predicting smartphone addiction and

nomophobia in Turkish adolescents. That study also found a significant correlation between the number of siblings and smartphone addiction in adolescents ($p < 0.004$) (Yildiz Durak, 2019).

Based on the current research, there is a statistically significant association ($p = 0.007$) between adolescents' purposes for using smartphones and their likelihood of developing a smartphone addiction. According to a study conducted on young people in Switzerland, there is a significant association ($p = 0.01$) between the purpose of using smartphones and smartphone addiction. This study investigated the relationship between health behavior-related variables, demographic characteristics, smartphone use, and smartphone addiction (Haug *et al.*, 2015).

In the current investigation, the duration of smartphone use on a typical day in the pretest was not found to be significantly associated with smartphone addiction. This finding contrasts with the results of a study on smartphone addiction and smartphone usage among young people in Switzerland, where a strong association was found between the amount of time spent using a smartphone on typical days (Haug *et al.*, 2015).

Findings from these investigations clearly showed a substantial correlation ($p < 0.003$) between smartphone addiction and the frequency of smartphone usage on a

Table 4: Association between smartphone usage pretest score and certain specified demographic variables, N=140

Demographic variables	Smartphone usage pretest total score		χ^2	p -value	Inference
	Below median	Above median			
Number of siblings					
None	9	15	10.325	0.006*	S*
One	53	35			
Two	8	20			
Occupation of the mother					
Housewife	53	37	13.592	0.001*	S*
Professional/ Semi-professional	5	22			
Semi-skilled	12	11			
Purpose of using a smartphone					
Entertainment	9	8	14.099	0.007*	S*
Online class	9	3			
Messaging and Social network	8	4			
Reading news, Education, Business, Sports & Phone calls	21	11			
All the above	23	44			
Habit of smartphone use on a normal day (times/day)					
5–10	34	31	11.790	0.003*	S*
> 10	9	25			
Monthly phone bill in rupees					
50–299	38	21	8.509	0.037*	S*
300–499	19	29			
500–999	10	16			
> 1000	3	4			

typical day. This study's findings align well with research on young people's smartphone addiction and use in Switzerland (Haug *et al.*, 2015). The current study shows a substantial association ($p < 0.037$) between smartphone usage and pretest monthly phone cost. A similar outcome was observed in a cross-sectional study on smartphone usage profiles and addiction among Turkish University students, where a substantial association ($p < 0.047$) was found between monthly phone expenses and smartphone addiction (Çoban, 2019).

Table 5 illustrates a substantial association between leisure boredom and several demographic variables, including age ($p < 0.042$), father's education ($p < 0.001$), stream of pre-university courses ($p < 0.001$), family monthly income ($p < 0.003$), residential area ($p < 0.041$), and mode of attending online classes ($p = 0.05$).

According to the current study findings, there's a statistically significant association between age and ($p = 0.042$). This result is supported by a study on substance abuse and boredom amongst South African high school students, which found a marginally significant association ($p = 0.055$) between age and leisure boredom (Wegner *et al.*, 2006).

The current study also indicates a strong association ($p = 0.024$) between adolescent boredom during leisure time and the father's level of education. Similar results were observed in a cross-sectional survey on leisure time and problematic gaming habits among kids and teens in Hong Kong conducted during COVID-19-related school closure. The survey found a significant association ($p < 0.001$) between a father's educational status and the extent of leisure boredom (Zhu *et al.*, 2021).

Findings from the current exploration reveal a substantial link ($p = 0.003$) between adolescent leisure boredom and monthly family income. This finding is consistent with a research study conducted among smartphone users in Hong Kong, which investigated the correlation between smartphone activities, flow experience, and leisure boredom. The study also discovered a noteworthy association ($p \leq 0.01$) between participants' leisure boredom and their monthly family income (Leung, 2020).

Furthermore, the current study's findings indicate a strong association ($p = 0.04$) between adolescents' leisure boredom and their residential area. This conclusion is supported by research conducted among adults and youths in Bangladesh on how problematic internet use correlates

Table 5: Association between leisure boredom pretest score and certain specified demographic variables, N=140

Demographic variables	Leisure boredom level pretest total score		χ^2	p-value	Inference
	Below median	Above median			
Age in years					
16–17	17	25	4.137	0.042*	S*
17.1–18	58	40			
Stream of Pre-University course					
Science	10	24	10.538	0.001*	S*
Arts/ Commerce	65	41			
Father's education					
Non-Formal Education	3	8	12.928	0.024*	S*
Elementary School	3	7			
Middle School	8	11			
Senior High School	22	11			
Pre university	19	7			
Graduate level and higher	20	21			
Monthly income of the family					
< 25000	37	36	14.303	0.003*	S*
25000–49999	17	18			
50000–74000	5	10			
> 75000	16	1			
Residential area					
Rural	15	23	4.168	0.041*	S*
Urban	60	42			
Mode of attending the online class					
Laptop	9	2	3.830	0.05*	S*
Mobile Phone	66	63			

χ^2 Chi-Square value; p is <0.05

S* is Significant.

with lifestyles and online activities during the COVID-19 pandemic. The study discovered a significant association ($p = 0.018$) between residential areas of adolescents and their level of leisure boredom (Islam *et al.*, 2020).

The study's findings indicated that there isn't a definitive association between leisure activity and boredom. However, this contradicts the results of a study on adolescents aimed at determining the degree of boredom during leisure time between substance abusers and non-abusers. The study found a strong association ($p < 0.001$) between the amount of boredom during leisure time and participation in leisure activities (Iso-Ahola & Crowley, 1991). Additionally, research on risky behaviors and proneness to boredom in free time among Italian teenagers showed a substantial difference between groups with low and high levels of boredom (Biolcati *et al.*, 2018).

In line with the findings of this analysis in Table-6, certain demographic factors, such as age, gender, education level, and involvement in leisure activities, were not significantly associated with the pretest scores for leisure satisfaction. However, in contrast, among young adults living in a mid-

sized Canadian city, a substantial association was discovered between young adult participation in leisure-time physical exercise and age, gender, and education. Additionally, the study looked at life satisfaction and leisure satisfaction from a life-course viewpoint (Brown & Frankel, 2016)

Limitations of the Study

The study only included a few pre-university colleges in Bangalore. Data collection from students at various pre-university colleges could yield similar or distinct results, enhancing the findings' ability to be generalized. The research design's lack of randomization and a control group limits the ability to establish causal relationships and control for confounding variables. The self-administered questionnaire used in the study was limited in its evaluation of the study variables, potentially missing nuanced aspects of adolescent behaviour and experiences.

Implications to practice

Pediatric nurses play a pivotal role in planning multicomponent interventions within pediatric hospitals and educational settings to promote children's leisure

Table 6: Association of leisure satisfaction level with selected demographic variable, N=140

Demographic variables	Leisure Satisfaction pre-test-total score		χ^2	p-value	Inference
	Below median	Above median			
Years of age					
15–16	23	19	0.393	0.531	N. S
17–18	48	50			
Gender					
Male	28	34	1.373	0.241	N. S
Female	43	35			
Year of Study					
Pre-university - I (11th standard)	14	6	3.472	0.062	N. S
Pre-university - II (12th standard)	57	63			
Stream of Pre-University course					
Science	22	12	3.517	0.061	N. S
Arts/ Commerce	49	57			
Number of hours spent on leisure activities per week (hrs)					
< 5	27	17	4.340	0.227	N. S
5–9	29	38			
10–15	6	8			
> 16	9	6			
Activities engaged in to overcome boredom during leisure time					
Helping with household works	17	20	6.900	0.228	N. S
Physical activities	9	15			
Playing mobile games	7	6			
Playing video games	7	4			
Practicing hobbies	3	7			
Using smartphones	28	17			

wellbeing. They can develop smartphone-avoidance counselling programs aimed at students to mitigate the adverse consequences of smartphone overuse. The study's findings can guide nurse educators in conducting educational sessions and visits to schools and colleges, enhancing students' awareness of health promotion practices, prevalence, causes, and risk factors of smartphone addiction, and its impact on mental and physical health. Additionally, student nurses can utilize these findings to develop strategies and educational materials addressing the underlying causes of adolescent smartphone addiction and leisure boredom.

Furthermore, nurse administrators can implement programs such as "leisure surveillance," targeting teenage students to enhance their health literacy and awareness regarding the health risks associated with excessive smartphone use and unhealthy leisure activities. Nurse administrators may also spearhead the development of policies within hospitals, colleges, and schools to raise public awareness about managing health issues related to smartphone addiction. At the community level, nurses can collaborate with local organizations to assess health issues, develop strategies, and identify early symptoms of smartphone addiction. Future research should focus on exploring the relationship between leisure time involvement and psychological wellbeing of adolescents to provide further insights into effective interventions.

Conclusion

The study highlights the prevalence of leisure boredom among adolescents in selected pre-university colleges in Bangalore. The findings suggest that practitioners should create psychological intervention to treat smartphone addiction, encourage digital literacy, and establish structured leisure programs in schools in light of the findings. To guarantee steady support at home, educators and parents should work together. Legislators ought to support the inclusion of leisure education in school curricula, provide funds for mental health services, and prohibit the use of smartphones in the classroom. Adolescents and their communities should be the focus of public awareness efforts. The success of multicomponent interventions, peer influence, comparative studies across regions, longitudinal studies looking at the long-term effects of smartphone addiction, and the creation of tech solutions to fight addiction should be the main areas of future research. Together, these initiatives can promote better leisure practices, lessen smartphone addiction, and improve the leisure wellbeing of adolescents.

Funding

No financial support from governmental, commercial, or non-profit sources was provided for this study.

Acknowledgments

The authors thank the management of the pre-university colleges and each and every participant for their involvement in this research.

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