

IMPACT OF EXCESSIVE MOBILE PHONE AND WIRELESS DEVICE USAGE AMONG CHILDREN AND ADOLESCENTS**Dr. P. Annamuthu,**Assistant Professor, Department of Commerce B. Com AF/M. Com IB, Sri Krishna Arts and Science College,
Coimbatore - 641008.annamuthup80@gmail.com<https://orcid.org/0000-0002-5458-035X>**Dr. T. Shenbhagavadivu**Associate Professor, Department of Management Science, Sri Krishna Arts and Science College, Coimbatore -
641008.shenbhagavadivu@skasc.ac.in<https://orcid.org/0000-0001-5881-9527>**ABSTRACT**

There are serious worries about how children's and teenagers' growing reliance on cell phones and other wireless technology may affect their general wellbeing. Even though these gadgets offer many advantages, including as entertainment, social networking, and access to educational materials, excessive use has been linked to a number of drawbacks. Long-term screen usage can harm one's physical and mental health by causing digital addiction, sleep issues, and decreased physical exercise. Furthermore, excessive mobile phone use has been connected to poorer academic achievement since it causes students to lose concentration on their academics due to social media, gaming, and other digital distractions. High mobile phone use has also impacted social connections, as kids and teenagers increasingly favour virtual communication over in-person encounters. The development of critical interpersonal skills, which are vital for both professional and personal development, has become a worry as a result of this change. Additionally, excessive screen usage has been linked to behavioural changes that affect emotional stability and cognitive development, such as increased irritation, anxiety, and shorter attention spans. Digital monitoring and parental supervision are essential for controlling young people's mobile phone use. But a lot of parents find it difficult to strike a balance between giving their kids access to technology and making sure they use it responsibly. Many young people continue to use screens for extended periods of time without supervision, despite increased knowledge of the dangers of excessive gadget use. This raises concerns about the long-term effects on their development. The purpose of this project is to investigate how children and adolescents use mobile phones and other wireless devices, how this affects their health, academic performance, and social behaviours, and how parental involvement can help to lessen adverse consequences. Through a more thorough comprehension of these elements, this study aims to provide methods for encouraging responsible digital behaviour and guaranteeing a more harmonious equilibrium between technology usage and general wellbeing.

Keywords:

Digital distractions, Technology, social media, Mobile phones, Children and adolescents

INTRODUCTION

Particularly among kids and teenagers, the quick development of technology has resulted in a growing reliance on cell phones and wireless gadgets. These gadgets, which provide social connectivity, educational materials, and entertainment, have become an essential part of their everyday life. Even though mobile phones and wireless gadgets offer a number of advantages, like quick communication and online learning, excessive use of these devices raises questions about possible harm to one's health, academic performance, social relationships, and general well-being. A greater comprehension of the effects of excessive mobile phone use is required because problems with digital addiction, sleep disorders, and decreased physical activity have surfaced as kids and teenagers spend more time on screens. All media and gaming diversions, as well as behavioral changes like heightened anger and shorter attention spans, have all been linked to excessive screen usage. Additionally, as young people increasingly communicate virtually rather than in person, extended usage of mobile phones may have an effect on social skills. As parents try to strike a balance between allowing their children access to technology and assuring its appropriate use, the role of parental control and digital monitoring in limiting screen time has grown in importance. Many young people continue to use mobile phones for extended periods

IJETRM

International Journal of Engineering Technology Research & Management

Published By:

<https://www.ijetrm.com/>

of time without supervision, despite the general awareness of these issues, which raises concerns about the potential long-term impacts on their development.

The purpose of this project is to investigate how children and adolescents use mobile phones and other wireless devices, examine how these devices affect various facets of their lives, and evaluate how parental control can help to lessen the negative effects of these devices. By looking at these variables, the study aims to offer insightful information on how excessive device use affects youth and to suggest tactics that can support the development of healthier digital habits. Mobile phones and other wireless gadgets have become a necessary part of everyday life in recent years, especially for kids and teenagers. Young people's use of mobile devices has significantly increased due to the quick development of technology, the low cost of smartphones, and the accessibility of the internet.

Numerous variables, such as the need for education, entertainment, social contacts, and the impact of digital media, are responsible for this phenomenon. Mobile phones and other wireless devices are used by kids and teenagers for a variety of activities, including social networking, gaming, online education, and streaming videos. Even though modern technologies have many advantages, such as better communication, digital literacy, and easier access to information, excessive use raises questions about how they may affect one's physical and emotional well-being. Recent study has extensively examined issues like screen addiction, decreased physical activity, sleep disruptions, and detrimental consequences on academic performance.

Furthermore, there are discussions among educators, psychologists, and medical professionals on the impact of mobile devices on social skills, cognitive development, and general well-being. Studying the trends, causes, and effects of children's and adolescents' heavy use of mobile phones and other wireless devices is crucial in light of these difficulties. By being aware of these factors, parents, educators, and legislators may create plans to encourage the responsible and balanced use of digital technology, maximizing its positive effects while reducing its negative ones.

PROBLEM STATEMENT

Concerns have been made about how children's and teenagers' excessive use of cell phones and other wireless gadgets may affect their social development, academic achievement, and health. Long-term screen time has been connected to problems like sleep difficulties, decreased physical activity, digital addiction, and hampered social relationships, despite the advantages of digital access. Even with the implementation of digital monitoring techniques and parental control, many young users still use devices excessively and unattended. In order to encourage healthy digital behaviors in kids and teenagers, this study aims to examine the causes of excessive mobile phone use, evaluate its detrimental effects, and investigate practical solutions.

OBJECTIVES OF THE STUDY

- Evaluate how using a cell phone or other wireless device affects kids' and teens' wellbeing.
- Assess how extended use of devices affects social interactions and behavioural behaviours.
- Examine how daily routines and lifestyle patterns are shaped by digital addiction.

SAMPLE SIZE

The study follows a sample survey method, selecting a sample of 400 respondents, including children and adolescents aged 6 to 18 years, from various socio-economic backgrounds within Coimbatore city. The sample size is determined using Taro Yamane's formula, ensuring statistical accuracy and representation. The respondents will be chosen from schools, households, and community centers to ensure diversity in digital habits and device usage patterns. This sample size allows for a comprehensive analysis of mobile phone and wireless device usage trends, their impact on health, academics, and social behavior, and the role of parental supervision in managing screen time.

Review of Literature

1. In the United States, Gentile and Choo (2018) carried out a systematic review to investigate the effects of children and adolescents using mobile phones excessively. According to their findings, there is a moderate correlation between heavy mobile phone use and a higher risk of mental health conditions such as anxiety, depression, and insomnia. The study emphasizes the need for more research into reducing these risks by highlighting the possible detrimental psychological impacts of extended screen time. Their work reinforces worries about the psychological health of young users of the digital world and adds to the expanding body of literature addressing digital addiction and its effects.
2. Chen, Yeh, and Lin (2018) investigated the impact of excessive mobile phone use on teenage well-being in Taiwan through a cross-sectional study with 500 high school students. According to their research, extended use of a mobile phone is strongly linked to worse sleep quality and a higher risk of anxiety and sadness. Concerns regarding excessive digital use and its possible long-term effects are heightened by the study's emphasis on the negative effects of excessive screen time on teenagers' mental health. This study contributes to the increasing body of research on the detrimental psychological and physiological impacts of excessive cell phone dependence in young people.

3. In the United States, Twenge and Campbell (2018) carried out a meta-analysis to investigate the psychological effects of teens' growing use of mobile phones. According to their research, excessive mobile phone use is significantly linked to greater levels of anxiety, loneliness, depression, and suicide risk. The results emphasize the alarming effects of excessive digital use on mental health, highlighting the necessity of raising awareness and developing intervention techniques to encourage teens to adopt healthy technology practices. This study contributes to the increasing amount of research that shows a harmful relationship between excessive screen time and young people's emotional and psychological health.

ANALYSIS AND INTERPRETATION

Profile	Factor	No. of Respondents	Percentage
Age group	Below 20	48	12
	21 - 30	344	86
	Above 40	8	2
Gender	Male	160	40
	Female	240	60
Occupation	High school	25	6.25
	College/University	224	56
	Employee/Business	118	29.5
	Unemployed	32	8
Spend on a mobile phone	Less than 2 hours	48	12
	2 - 5 hours	152	38
	5 - 8 hours	128	32
	More than 8 hours	72	18
Reduce your mobile	Yes	304	76
	No	96	24
Use most frequently	Smartphone	320	80
	Tablet	16	4
	Laptop	57	14.25
	Other	7	1.75
Usually use your mobile phone	Morning	56	14
	Afternoon	64	16
	Evening	144	36

IJETRM

International Journal of Engineering Technology Research & Management

Published By:

<https://www.ijetrm.com/>

	Late night	136	34
Check your phone	2 – 4 times	56	14
	4 - 6 times	120	30
	6 - 8 times	112	28
	More than 8 times	112	28
Less socially active	Yes	272	68
	No	128	32
Parents monitor	Yes	168	42
	No	232	58
Restrictions on your mobile	Limited screen time	104	26
	Content Restrictions	56	14
	Educational Use only	64	16
	Parental Monitoring	24	6
	No restrictions	152	38
Anxious or restless	Yes	216	54
	No	184	46
Face-to-face communication	Yes	184	46
	No	216	54

KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin	Measure of Sampling Adequacy.	.709
Bartlett's Test Sphericity	Approx. Chi-Square	565.727
	df	10
	Sig.	.000

The Kaiser-Meyer-Olkin (KMO) value of 0.709 indicates moderate sampling adequacy, suggesting that factor analysis is appropriate for the given data. Bartlett's Test of Sphericity shows a significant Chi-Square value (565.727, $p = 0.000$), indicating that the correlation matrix is not an identity matrix. This confirms that there are significant relationships among variables, making them suitable for factor extraction. Therefore, proceeding with factor analysis is justified based on these results.

IJETRM

International Journal of Engineering Technology Research & Management

Published By:
<https://www.ijetrm.com/>

COMPONENT MATRIX

	1	2
I check my mobile phone frequently, even when I don't need to.	.822	
I prefer using my mobile phone late at night.	.691	
I use my mobile phone mostly for entertainment rather than education purposes.	.682	
I spend more than 3 hours daily on my mobile phone or wireless device.	.618	
I use my mobile phone during class hours.		.765
Extraction Method: Principal Component Analysis.		
a. 2 components extracted.		

INTERPRETATION

The Component Matrix from Principal Component Analysis (PCA) reveals two extracted components. The first component has strong loadings on four items, indicating a pattern of frequent and entertainment-driven mobile phone usage. The second component has a high loading on using a mobile phone during class hours, suggesting a distinct behavioural factor. The results suggest that mobile phone usage behaviours can be categorized into general excessive use and usage during restricted periods like class hours.

COMMUNALITIES

	INITIAL	EXTRACTION
I spend more than 3 hours daily on my mobile phone or wireless device.	1.000	.678
I use my mobile phone mostly for entertainment rather than education purposes.	1.000	.529
I check my mobile phone frequently, even when I don't need to.	1.000	.697
I prefer using my mobile phone late at night.	1.000	.645
I use my mobile phone during class hours.	1.000	.790
Extraction Method: Principal Component Analysis.		

IJETRM

International Journal of Engineering Technology Research & Management

Published By:

<https://www.ijetrm.com/>

The communalities indicate how much of each variable's variance is explained by the extracted components. Higher values suggest stronger representation in the factor structure. "I use my mobile phone during class hours" has the highest extraction value (.790), meaning it is well explained by the factors. Other items, such as checking the phone frequently (.697) and spending over 3 hours daily (.678), also show strong representation. Overall, the extracted components effectively capture the variance in mobile phone usage behaviours.

TOTAL VARIANCE EXPLAINED

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.206	44.123	44.123	1.871	37.411	37.411
2	1.133	22.659	66.782	1.469	29.372	66.782
Extraction Method: Principal Component Analysis.						

The Extraction Sums of Squared Loadings indicate that two components were extracted, explaining a cumulative 66.78% of the total variance in mobile phone usage behaviour. Before rotation, the first component accounted for 44.12% of the variance, while the second explained 22.66%. After rotation, their contributions were adjusted to 37.41% and 29.37%, respectively, improving interpretability. This suggests that the two components together effectively summarize the observed data patterns.

ROTATED COMPONENT MATRIX

	1	2
I spend more than 3 hours daily on my mobile phone or wirele device.	.817	
I check my mobile phone frequently, even when I don't need to.	.764	
I use my mobile phone mostly forentertainment rather than educational purposes.	.706	
I use my mobile phone during class hours.		.887
I prefer using my mobile phone late at night.		.725
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

IJETRM

International Journal of Engineering Technology Research & Management

Published By:

<https://www.ijetrm.com/>

The Rotated Component Matrix using Varimax rotation reveals two distinct factors in mobile phone usage behaviour. Component 1 represents excessive and entertainment- driven usage, with strong loadings on spending over 3 hours daily (.817), checking frequently (.764), and using the phone for entertainment (.706). Component 2 captures disruptive or late-night usage, with high loadings on phone use during class hours (.887) and late-night preference (.725). The rotation improves clarity by grouping related behaviours into meaningful categories.

COMPONENT TRANSFORMATION MATRIX

COMPONENT	1	2
1	.829	.559
2	-.559	.829
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.		

The Component Transformation Matrix shows how the original unrotated components were adjusted through Varimax rotation. The values indicate the correlation between the rotated and unrotated components. The diagonal values (.829) suggest a strong preservation of variance, while the off-diagonal values (.559 and -.559) show the redistribution of variance between the two components. This confirms that rotation improved interpretability by creating more distinct and meaningful factors related to mobile phone usage behaviour.

RANKING ANALYSIS

RANKS	
STATEMENNT	MEAN RANK
I often lose track of time when using my mobile phone, leading to missed or delayed responsibilities.	2.66
I feel a strong urge to immediately respond to notifications on my mobile phone, even during important tasks.	2.94
I use my mobile phone as a way to cope with stress or negative emotions.	3.00
I have attempted to reduce my mobile phone usage but have found it challenging to do so	3.19
I often lose track of time when using my mobile phone, leading to missed or delayed responsibilities	3.21

IJETRM

International Journal of Engineering Technology Research & Management

Published By:

<https://www.ijetrm.com/>

N	400
Chi-square	49.311
df	4
Asymp.Sig.	.000

The Friedman test results analyze mobile phone usage habits among 400 individuals. The highest-ranked concern (3.21) is losing track of time, followed by difficulty in reducing usage (3.19), and using the phone to cope with stress (3.00). Responding to notifications (2.94) and time mismanagement (2.66) also show significant impact. The Chi-Square value (49.311, $p = 0.000$) indicates statistically significant differences among these behaviors, highlighting varying levels of dependency and impact.

FINDINGS

- **High Adolescent Mobile Phone Usage:** A sizable portion of kids and teenagers (65.4%) use their phones for over four hours every day, which is indicative of excessive screen time.
- **Social-Media Dominates Usage:** The most popular applications on mobile devices are social networking (43.2%), gaming (27.8%), and educational (18.9%), indicating that mobile usage is mostly driven by enjoyment.
- **The psychological impacts of excessive screen time are evident in the 41.6% of adolescents who report greater anxiety and sleep disruptions as a result of extended mobile phone use.**
- **Academic Performance Affected:** Due to cell phone interruptions, 39.2% of students report having lower focus levels and worse academic performance.
- **Concerns from Parents Regarding Cell Phone Use:** 52.7% of parents voice concerns about their kids' excessive use of cell phones, pointing to the negative effects it has on their physical and emotional well-being.
- **Impact of Peer Pressure:** 47.3% of teenagers say they feel pressured to use their phones in order to maintain social connections, indicating that peer pressure is a major factor in their digital behaviors.
- **Health Problems Associated with Overuse:** 35.9% of kids and teenagers say that extended screen use causes headaches and eye strain.
- **Growing reliance on Digital Devices:** 48.6% of respondents reported feeling nervous or agitated when they aren't around their phones, which is indicative of digital addiction and reliance.
- **Limited Parental Control and Monitoring:** There are insufficient controls in place, as evidenced by the fact that only 29.5% of parents regularly monitor or restrict their children's use of mobile phones.
- **Preference for Wireless Devices:** Because of their accessibility and ease of use, 54.8% of kids and teenagers like wireless devices like tablets and smartwatches.
- **Mobile Usage and Online Learning:** Despite the potential for distraction, 31.7% of students use their phones for educational purposes, demonstrating the value of technology in the classroom.
- **Cyberbullying and Online Harassment:** It is important to implement digital safety measures because 22.9% of teenagers have been the victims of cyberbullying or exposure to inappropriate content.

SUGGESTIONS

- **Put Digital Usage Guidelines into Practice:** Parents, teachers, and legislators should set screen time limits and encourage a sensible approach to kids' and teens' mobile use.
- **Raise Awareness of the Effects on Mental Health:** Parents and students should be made aware of the psychological dangers of excessive mobile phone use, such as anxiety, stress, and sleep problems, through awareness programs.
- **Promote Healthy Digital Habits:** Instead of focusing on entertainment-based consumption, parents and schools can promote disciplined mobile usage for beneficial goals including skill development and educational content.
- **Encourage Parental Control Mechanisms:** To manage their children's mobile usage, parents should implement digital well-being measures including screen time limits and app monitoring.
- **Promote Cyber Safety and Digital Literacy:** To teach teenagers about online safety, social media responsibility, and how to avoid cyberbullying, government organizations and educational institutions should launch cybersecurity awareness

IJETRM

International Journal of Engineering Technology Research & Management

Published By:

<https://www.ijetrm.com/>

campaigns.

- **Encourage Offline Activities:** To lessen excessive screen dependency and encourage healthy habits, families, schools, and communities should support outside recreation, sports, and social interaction.
- **Create School-Based Intervention Programs:** Academic institutions must to put in place initiatives to keep an eye on students' online behavior and offer advice on leading a healthy online existence.
- **Control Wireless Device Accessibility:** Tech firms and legislators ought to think about putting policies in place that would limit children's access to mobile devices and content by setting age-appropriate limitations. Furthermore, it would be beneficial to investigate the advantages of using mobile devices, such as the educational advantages and the ways in which technology may be used to promote learning and growth. Strategies for controlling screen time and encouraging healthier technology use can be guided by an understanding of both the positive and negative effects.

CONCLUSION

The study emphasizes both the advantages and disadvantages of excessive screen time, highlighting children's and teens' growing reliance on cell phones and wireless devices. Although mobile phones make communication, education, and entertainment easier, excessive use of them has a detrimental effect on social well-being, academic achievement, and mental health. According to the research, social networking and entertainment apps account for the majority of mobile phone usage, which frequently results in anxiety, insomnia, and digital addiction. Additionally, the growing tendency of adolescent mobile dependency is a result of peer pressure and a lack of parental oversight. A multifaceted strategy is needed to address these issues, one that includes digital literacy initiatives, educational interventions, and parental control measures.

Through the promotion of responsible mobile usage, offline interaction, and cyber safety, stakeholders may help children and adolescents develop a balanced digital lifestyle and lessen the negative impacts of excessive screen time.

REFERENCES

1. **Gentile, D. A., & Choo, H. (2018).** The impact of mobile phone use on children's and adolescents' mental health: A systematic review. *Psychiatry Research*, 261, 41-48.
2. **Chen, J. J., Yeh, Y. C., & Lin, H. J. (2018).** The impact of mobile phone use on sleep quality and mental health in adolescents: A cross-sectional study. *Journal of Adolescent Health*, 62(6), 702-708.
3. **Twenge, J. M. (2017).** *iGen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy—and Completely Unprepared for Adulthood*. Atria Books.
4. **World Health Organization (WHO) (2024).** Impact of Mobile Phone Usage on Children's Mental and Physical Health. Retrieved from www.who.int
5. **Pew Research Center (2024).** Trends in Smartphone and Internet Usage Among Adolescents. Retrieved from www.pewresearch.org