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Digital Shift: How increased Digital Exposure is Reshaping Adolescents Lifestyle?

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HIGHLIGHTS

- Adolescents spend significant time on digital gadgets, with screen time increasing on holidays.
- Boys and girls engage in different activities after school, with girls preferring indoor activities.
- Prolonged screen time interferes with personal relationships and face-to-face interactions among adolescents.
- Excessive use of digital devices was associated with stress, antisocial behavior, and poor dietary habits.
- The amount of time spent on digital gadgets affects adolescents' lifestyles and behaviors.

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ABSTRACT

The study was conducted in 2025 to investigate the amount of time adolescents spent on digital devices and its impact on their lifestyle on 300 participants, ranging from 14 to 16 years of age, possessing digital devices in their homes or owned one by them. The findings revealed significant differences between boys and girls regarding activities performed after school. The adolescents were not utilizing digital devices for academic purposes after school hours. The duration of these activities increased during holidays. Adolescents made daily adjustments in their lives to allocate more time to digital devices and conversations with friends. The frequency of use on working days and changes in the duration of these activities during weekends showed significant differences among adolescents. Findings revealed that the participants encountered various lifestyle changes such as anti- social behavior, stress, laziness, tiredness, limited physical interaction, and digital relationships due to prolonged engagement with digital devices. The results of the study demonstrated a positive relationship between lifestyle changes and excessive time spent on digital devices. The findings can assist teachers, educational institutions, policymakers, and counsellors in promoting healthy screen time.

INTRODUCTION

The increasing prevalence of digital devices in daily life has raised concerns about their impact on the lifestyle and well-being of adolescents. This widespread use has led to debates about their potential negative effects on physical health, mental well-being, and social interactions. Research in this area aims to understand the complex relationship between digital technology use and various aspects of adolescent development.

The use of digital media offers both benefits and risks, including early learning opportunities and increased social contact, but also negative impacts on sleep, focus, learning, and an increased rate of obesity and depression (Chassiakos et al., 2016). Notably, the COVID-19 pandemic has intensified these impacts. Although there were initial reductions in irritability and negative digital experiences during remote education, these effects eventually returned to or surpassed their original levels when schools reopened, accompanied by increases in digital media use and stress (Nutley et al., 2023). However, not every form of digital media usage had negative effects on the mental well-being of adolescents. Direct communication and positive interactions online helped alleviate feelings of loneliness and stress during the pandemic (Marciano et

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al., 2022). The impact of digital devices on adolescents extends beyond individual health concerns to broader societal implications, including changes in educational practices and family dynamics. As teenagers spend more time engaged with digital technology. Pandey et al., (2020) explores social media usage among college students and highlight rampant usage of social media in which WhatsApp and Facebook are the most used social platforms. There is a growing need to investigate the long-term consequences on their cognitive development, social skills, and academic performance. The outcomes of past studies have shown a relationship between prolonged digital exposure and various negative health outcomes, such as obesity, sleep disturbances, and decreased physical activity among adolescents. Studies indicate that teenagers engage with the Internet more often than adults and utilize it for a wider range of purposes compared to other age groups (Cain & Gradisar, 2010; Livingstone et al., 2011; O'Keeffe et al., 2011; Tzavela et al., 2015, Casaló & Escario, 2018). These internet driven gadgets transformed students' education and learning, the pattern of making friends and maintaining these social relationship, time spent on leisure activities, and their community involvement. Singh et al., (2024) concluded that college students had a positive perception towards e-learning. Meinam et al., (2023) found that students were influenced by TV, radio, social media, and other media for their career choices along with their parents. Although there are opportunities, adolescents may encounter harmful or unsettling material, face internet victimization or online hate, and be at risk of identity theft, unwanted sexual advances, and sexual predation (Kuss et al., 2013; Weaver et al., 2011; Yakovlev & Kinney, 2008). Early exposure to screen media can have long-lasting effects, with excessive toddlerhood televiewing associated with less optimal health and behavioral dispositions in adolescence (Simonato et al., 2018). This widespread internet usage among youth underscores the importance of understanding and addressing online risks for adolescents.

METHODOLOGY

Rewari district from Haryana was selected based on its demographic characteristics and relevance to the research objectives. A single block was chosen using purposive sampling which consisted of 39 villages. The chit system was employed to ensure a random selection of villages from which schools were selected using the chit system. This method involved writing the names of all villages on identical slips, mixing them thoroughly and drawing slips randomly until the required number of villages was selected. A similar process was followed to select the schools. This ensured an unbiased selection process. Three hundred participants from 14-16 years of age were approached from different selected school. Prior permission was taken from the principals of the schools and only participants who expressed interest in the study were included. For this research, ethical approval was obtained from the ethical committee (H.Sc./EC/027/24.02.2023).

This article describes a study that adhered to ethical research standards by involving adolescent participants under 18 years age. Before engaging in the research, the study obtained informed consent from parents or legal guardians of each participant. The parents issued written consent forms detailing the study's objectives, methodologies, and data collection procedures. These consent forms also stressed that participation of their children is voluntary and they can withdraw at any time without facing negative repercussions. To ensure privacy, all collected information was treated confidentially and anonymized for analytical purposes.

A questionnaire was constructed and validated by the researcher to gather information on screen time exposure and the lifestyle changes they faced due to excessive screen time. The validity and reliability of the questionnaire was checked through Cronbach's alpha and obtained the value 0.8 suggesting a reliable range score. The questionnaire used was clear and easy for participants to answer. It was also reviewed by subject experts for appropriateness and to their valuable inputs were incorporated to make it more suitable for the study. Questionnaire was distributed to the participant during school hours. Approximately 25-30 minutes were allotted to complete the questionnaire. The researcher explained to the participants how to fill the questions and these questions had to be answered in the questionnaire itself by the respondents to ensure their responses were not affected by any third person's presence. The data was collected and the outcomes of the study were analyzed using Statistical Packages for Social Sciences (SPSS 16.0).

RESULTS

As shown in the above Table 1, significant differences were observed in various aspects of digital exposure among boys and girls i.e. activities performed by the students after coming from school (3.4), time spent on digital gadgets during holidays (2.4), their everyday adjustments to spend more time in front of screen (2.4) and conversation with friends over phone calls (3.10).

Table 1. Screen Time Exposure among adolescents

Screen time exposure	Boys (n=150)	Girls (n=150)	Z - Value	P- values
	Mean ± SD	Mean ± SD		
Play games	1.9±.83	1.9±.82	0.7	0.94
Activities after school	2.5±.87	2.1±.99	3.4**	0.001**
Frequency of activities	2.3±1.0	2.5±1.1	1.4	0.13
Duration in working days	1.7±.82	1.7±.88	0.1	0.89
Duration on holidays	1.4±.51	1.3±.46	2.4*	0.01*
Change during holidays	1.9±1.0	1.7±.85	1.6	0.10
Adjustments to use gadgets	2.5±1.1	2.2±.1.0	2.4*	0.01*
Use of social media	2.8±1.2	2.8±.1.2	0.1	0.92
Talk to friends on smartphone	1.7±1.06	1.3±0.85	3.10**	0.002**

*p=0.05, **p=0.01

In Table 2, ANOVA (F test) through SPSS 16.0 was computed about various domains of screen time exposure based on the age group of respondents. Statistically significant differences were observed in activities performed by the participants after coming home from school (4.28), frequency of these activities on digital gadgets (3.03); and change in the duration of the activities participants executed on holidays. The findings of the study showed no significant differences in other aspects of screen time exposure in relation to the age of the respondents.

Table 3 depicts lifestyle changes among boys and girls due to excessive use of digital gadgets using an independent sample z-test. The outcomes of the study shows statistically significant differences in various aspects i.e. use of gadgets in toilet (2.42), tiredness during daytime due to late night usage of digital gadgets (1.94), duration of conversation with friends and family on social media (2.14) and smoking behavior (0.72) among students. The other aspects did not show significant differences among adolescent boys and girls.

Table 4 expresses a relationship between digital exposure and lifestyle changes of adolescents. The results revealed that the duration of digital gadgets usage among adolescents on weekdays (r= 0.20) has a positive correlation with the changes in lifestyle. If they were spending more time on the gadgets, it led to behavioral problems like, anger, stress, anxiety etc. There was a positive relation between change in these activities in front of gadgets on holidays and their lifestyle (r=0.1). On holidays, they had more time to do leisure activities due to which lifestyle patterns of adolescents also affected. Increased duration of screen usage during weekends and changes in adolescents' lifestyle expressed positive relationship (r=0.22). More the time adolescents watch gadgets

Table 4. Correlation between Screen Time Exposure and Lifestyle Changes among Adolescents

	Life style changes	
	Correlation coefficient (r)	P-value
Use digital gadgets to play games	-0.21	>0.05
Activities perform after school hours	0.09	>0.05
Frequency of these activities	-0.03	>0.05
Duration of these activities in a working day	0.20**	<0.01**
Change on holiday	0.1*	<0.05*
Increase in hours on holiday	0.22**	<0.01**
Adjustments to use gadgets	0.44**	<0.01**
Type of content on screen	0.36	>0.05

p=0.05, **p=0.01

Table 2. Comparison of Screen Time Exposure as Per Age

Age group →	14 years	15 years	16 years	F- values	P-values
Screen time exposure ↓	Mean ± SD	Mean ± SD	Mean ± SD		
Play games	1.9±.77	1.9±.85	2.0±.85	0.89	0.41
Activities after school	2.3±.92	2.1±.95	2.5±.95	4.28*	0.01*
Frequency of activities	2.3±1.0	2.6±1.0	2.3±1.1	3.03*	0.05*
Duration in working days	1.7±.85	1.7±.86	1.7±.89	0.14	0.86
Duration on holidays	1.3±.51	1.4±.49	1.3±.46	1.54	0.21
Change during holidays	1.7±.88	2.0±1.03	1.7±.85	3.79*	0.02*
Adjustments to use gadgets	2.5±1.1	2.3±1.0	2.4±1.1	0.80	0.44
Use of social media	2.8±1.2	2.7±1.3	2.9±1.1	1.27	0.28

*significant at 5% level of significance

Table 3. Lifestyle Changes among Adolescents

Lifestyle changes	Boys (n=150)	Girls (n=150)	t- Values	P- values
	Mean ± S.D.	Mean ± S.D.		
Limit physical activities	1.8±0.80	1.8±0.83	0.21	0.83
Using gadgets while eating	1.9±1.02	1.9±0.99	0.62	0.53
Postpone eating	1.9±1.09	1.7±0.97	1.61	0.10
Neglect using toilet	1.9±1.07	1.7±0.91	1.79	0.07
Using gadgets in toilet	1.5±0.74	1.3±0.68	2.42*	0.01*
Loose sleep	2.6±1.25	2.4±1.29	1.85	0.06
Feel tired	2.9±1.23	2.6±1.25	1.94*	0.05*
Excessive use cause stress	3.3±1.30	3.2±1.25	1.17	0.24
Laziness	3.0±1.31	3.2±1.25	1.25	0.21
Physical exercises	2.4±0.75	2.3±0.72	0.85	0.39
Shout & angry	2.3±1.06	2.3±1.13	0.21	0.83
Friends on social media	2.1±1.15	1.8±1.16	2.14*	0.03*
Stress when gadgets don't work	2.5±1.10	2.4±1.12	0.72	0.47
Spent more money	2.4±1.07	2.3±1.16	0.56	0.57
Anti-social behavior	2.6±1.12	2.5±1.27	0.43	0.66
Smoke	2.5±0.76	2.8±0.56	0.72*	0.000***

*significant at 5% level of significance

there are more chances that they get trapped into addictive disorders and their day to day life adjustments to spend more time on these gadgets (r=0.44) were correlated with the changes in the lifestyle of adolescents. The findings showed that use of gadgets to play games, activities performed by the adolescents after school hours, frequency of these activities and type of content were negatively correlated with the lifestyle of adolescents.

DISCUSSION

It was observed that type of activities they perform when they return to home after their school hours include outdoor games, indoor games, online gaming or playing with siblings. Both boys and girls perform different activities after returning from school. Girls are mainly involved in indoor activities while boys were more opportunities to play outside. A British study showed patterns of screen usage among adolescents in a week that is going to rise from 8.1 hours to 15.2 hours in boys and 6.1 hours to 15 hours in girls (Atkin et al., 2013). Adolescents prefer to talk over phone calls and messaging apps rather than face-to-face interaction with each other. Results are potentially congruous with the preceding study which expressed that social networking platforms and virtual conversation with family and peer group may also have distinctive impacts on boys and girls. Adolescent girls may be more inclined to engage in social comparison and more likely to seek feedback on social media (Nesi & Prinstein, 2015). Girls also spend more time on social media than boys (Yau & Reich, 2018). As per Ahn & Shin (2013) and Dienlin et al., (2017) a key question arises: Does smart phone communication actually result in a decline in physical meetings? As per the social displacement assumption, physical gatherings are replaced by the digital interconnections. This would imply that adolescents, spending more time on theses digital devices for their socialization, do not involve themselves in face-to-face social relations.

The second aim of this paper is to assess the lifestyle changes due to excessive screen time among adolescents. Individuals face some major changes in their lives when they start using digital devices for long hours in a day. Prolonged exposure to these devices causes stress, antisocial behavior, faulty dietary habits, fewer interactions with others and tiredness. Use of digital gadgets like smartphones in toilets is more prevalent in boys than girls. Several publications support the study by emphasizing the probable negative outcomes associated with excessive use of digital devices. In the field of medicine, a new finding came in light which was neglected previously. Prolonged exposure to digital gadgets was associated with hemorrhoids (Berney, 2020). An assessment conducted on university students indicated that students younger than twenty three years, i.e. Generation Z use their smartphones while using toilets. The Students go inside washrooms along with smart phones were titled as "young adults who are glued to their digital devices" (Berney, 2020; Leng, 2016). Usage of handheld devices in bathrooms is an emerging etiology of hemorrhoid disease that has long term consequences on the quality of life. This is a type of disorder which is known as "Smart phones' lavatory syndrome". People with this disorder spend more time in toilets which exerts supererogatory pressure on certain parts of the body like pelvic floors, lower rectum and anal region. It also causes problem while defecating. The chances of hemorridal diseases increase when an individual sits for more than 20-30 minutes per defecation (Berney, 2020). The results revealed that over use of screens during night time causes tiredness in day time among adolescents especially in schools. This is also responsible for lack of concentration on academics which results into poor performance in studies. A study carried out by Chang et al., (2014) supports these finding explaining that late night exposure to screen leads to sleepiness during daytime which ultimately affect academic performance of adolescents. Excessive use of digital devices is responsible for insomnia that is linked with daytime tiredness and sleepiness (Gruber et al., 2014; Owens, 2014). Similar findings were shared by Merdad et al., (2014) that the widespread presence of sleep disturbance at night causes excessive daytime sleepiness among adolescents.

The results expressed that the duration of time adolescents spend in front of screens affects their life. The findings are consistent with the study of Stiglic and Viner (2019) who found in their research that early addiction to screens persist throughout the life and tend to mess with other deleterious lifestyle behaviors such as poor dietary habits, sleeping disorder, depression, ADHD and so on. Parent et al., (2016) supports the study that the total daily screen time on various devices had heightened from 5 hours/day in 1996 to 8 hours/day now.

CONCLUSION

Digital exposure significantly influences the lifestyle of adolescents shaping their social life, mental well-being, and their everyday habits. The girls spent more time on digital gadgets than boys because boys tend to participate in outdoor activities while girls live most of the time at their home. Duration of digital exposure and change in screen time on holidays and conversation on digital gadgets contribute to their life style changes among adolescents. Habits of students such as using of gadgets especially smart phone in toilet, and late night digital exposure induced tiredness during the school time. Lifestyle of adolescents was positively correlated with activities and duration of these activities. Time spent on gadgets and increase in their duration led to lifestyle changes in adolescents. Adjustments made by adolescents to perform digital activities also affect their lives. Digital literacy and moderate use of gadgets will be beneficial for their all round development.

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