

A Study to Assess the Effectiveness of a Digital Detox Educational Program on Screen Time among Adolescents at Selected Urban Area

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Abstract: Background: The rapid growth of digital technology has significantly increased screen exposure among adolescents. Excessive screen time is associated with poor academic performance, sleep disturbances, reduced physical activity, obesity, anxiety, depression, and impaired social interactions. Digital detox education has emerged as a promising intervention to encourage healthy digital habits among adolescents. Methods: A quantitative pre-experimental one-group pre-test and post-test research design was adopted. Sixty adolescents studying in selected urban schools were selected using simple random sampling. Baseline screen time was assessed using a structured questionnaire. A Digital Detox Educational Program was administered, followed by post-test assessment after four weeks. Data were analyzed using descriptive and inferential statistics. Results: The mean pre-test screen time score was 32.45 ± 5.63 , whereas the mean post-test score reduced to 21.38 ± 4.82 . The paired t-test showed a statistically significant reduction in screen time ($t = 16.72, p < 0.001$), indicating that the Digital Detox Educational Program was effective. Conclusion: The Digital Detox Educational Program significantly reduced screen time among adolescents. Educational interventions can be incorporated into school health programs to promote healthy digital behavior.

Keywords: Digital Detox, Screen Time, Adolescents, Educational Program, Nursing, Urban School

1. Introduction

Digital technology has become an inseparable component of adolescents' daily lives. Smartphones, tablets, computers, gaming devices, and social networking platforms have transformed learning and communication. Although digital technology offers educational benefits, prolonged screen exposure has become a major public health concern.

The World Health Organization recommends limiting recreational screen time among children and adolescents. Excessive screen time is associated with obesity, poor sleep quality, depression, anxiety, behavioral problems, reduced concentration and poor academic achievement.

Digital detox refers to a planned reduction or temporary discontinuation of digital device usage to improve physical, psychological, and social well-being. Educational interventions focusing on digital wellness can help adolescents develop healthier digital habits.

Nurses play an essential role in school health promotion by educating students regarding healthy technology use and lifestyle modifications.

Need for the Study

Recent surveys indicate that adolescents spend approximately **6–8 hours daily** on digital devices outside academic purposes. Increased dependence on smartphones has contributed to digital addiction, reduced physical activity, poor interpersonal relationships, and mental health problems.

Urban adolescents are particularly vulnerable because of easy internet accessibility and widespread smartphone ownership. Despite increasing awareness regarding digital addiction, limited structured educational interventions have been conducted in Indian schools.

Therefore, evaluating the effectiveness of a Digital Detox Educational Program is essential to promote healthy digital behavior among adolescents.

2. Materials and Methods

This study employed a quantitative research approach with a pre-experimental one-group pre-test and post-test research design to evaluate the effectiveness of a Digital Detox Educational Program on screen time among adolescents in an urban area. The study was conducted in selected urban schools, and the target population comprised adolescents aged 13–18 years. A total of 60 adolescents were selected using a simple random sampling technique based on the predetermined inclusion and exclusion criteria. Adolescents who were willing to participate, regularly used digital devices such as smartphones or tablets, and obtained parental consent were included in the study. Those who were absent during data collection or had diagnosed psychiatric or cognitive disorders that could interfere with participation were excluded. Ethical approval was obtained from the Institutional Ethics Committee, and permission was secured from the school authorities. Written informed consent was obtained from parents or guardians, and assent was obtained from the adolescents before data collection. Confidentiality, anonymity, and the right to withdraw from the study at any stage were ensured throughout the research process. The data collection instrument consisted of two sections: Section I included demographic variables such as age, gender, educational level, family type, parents' education, and average daily screen usage, while Section II comprised a structured Screen Time Assessment Questionnaire to measure the duration and pattern of screen use among adolescents. A pre-test was administered to assess the baseline level of screen time, followed by the implementation of a 60-minute Digital Detox Educational Program delivered through lectures, PowerPoint presentations, group discussions,

demonstrations, and an educational booklet. The educational content focused on healthy digital habits, adverse effects of excessive screen time, time management strategies, sleep hygiene, physical activity, and practical digital detox techniques. A post-test was conducted four weeks after the intervention using the same questionnaire to determine changes in screen time. The collected data were coded, entered into Microsoft Excel, and analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the data, while inferential statistics such as the paired *t*-test and Chi-square test were applied to evaluate the effectiveness of the intervention and determine the association between post-test screen time scores and selected demographic variables. Statistical significance was set at $p < 0.05$.

3. Results

Section 1: Frequency and Percentage Distribution of Samples with Regard to Demographic Variables.

Table 4.1: Frequency and percentage distribution of samples in terms of demographic variables

S. No	Demographic Variables	Frequency (f)	Percentage (%)
1	Age (Years)		
a	13–14	14	23.3
b	15–16	28	46.7
c	17–18	18	30.0
2	Gender		
a	Male	27	45.0
b	Female	33	55.0
3	Educational Level		
a	VIII Standard	11	18.3
b	IX Standard	15	25.0
c	X Standard	17	28.3
4	Type of Family		
a	Nuclear	39	65.0
b	Joint	17	28.3
c	Extended	4	6.7
5	Father's Education		
a	Primary School	9	15.0
b	Secondary School	17	28.3
c	Higher Secondary	18	30.0
d	Graduate	16	26.7
6	Mother's Education		
a	Primary School	11	18.3
b	Secondary School	19	31.7
c	Higher Secondary	16	26.7
7	Daily Screen Time		
a	2–4 Hours	10	16.7
b	5–6 Hours	22	36.7
c	7–8 Hours	20	33.3
d	More than 8 Hours	8	13.3
8	Device Used		
a	Smartphone	39	65.0
b	Tablet	5	8.3
c	Laptop/Computer	12	20.0
d	Television	4	6.7
9	Purpose		
a	Education	12	20.0
b	Social Media	20	33.3
c	Gaming	14	23.3
d	Entertainment (Videos/Movies)	14	23.3

Table 1 shows that nearly half of the adolescents (46.7%) belonged to the 15–16 years age group, followed by 30.0% in the 17–18 years age group and 23.3% in the 13–14 years age group. With regard to gender that the majority of the adolescents were female (55.0%), while 45.0% were male. In regard to educational status reveals that 28.3% of the adolescents were studying in the 10th standard, followed by 25.0% in the 9th standard, while 11.7% were studying in the 12th standard. In regard to type of family the majority of the adolescents (65.0%) belonged to nuclear families, whereas 28.3% belonged to joint families and 6.7% belonged to extended families. In regard to father's education status 30.0% of the fathers had completed higher secondary education, followed by 28.3% who had completed secondary education and with regard to mothers educational status that 31.7% of the mothers had completed secondary education, while 26.7% had completed higher secondary education. In regard to screen time usage 36.7% of the adolescents reported spending 5–6 hours per day on digital devices, followed by 33.3% spending 7–8 hours, while 13.3% reported using digital devices for more than 8 hours daily. Regarding the usage of digital gadgets the majority (65.0%) of the adolescents primarily used smartphones, whereas 20.0% mainly used laptops or computers for digital activities. With regard to purpose of usage 33.3% of the adolescents primarily used digital devices for social media, while 23.3% each used them mainly for gaming and entertainment. Only 20.0% reported education as their primary purpose of screen use.

Section II- Assessment of Pre-Test Level of Screen Time among Adolescents

Table 4.2: Distribution of Adolescents According to the Pre-test Level of Screen Time (N = 60)

S. No.	Level of Screen Time	Score Range	Frequency (n)	Percentage (%)
1	Low	0–13	6	10.0
2	Moderate	14–26	21	35.0
3	High	27–40	33	55.0

Table 4.2 the distribution of adolescents according to their pre-test level of screen time. More than half of the adolescents (55.0%) had **high screen time**, 35.0% had **moderate screen time**, and only 10.0% had **low screen time** before the implementation of the Digital Detox Educational Program. These findings indicate that excessive screen time was prevalent among the majority of adolescents prior to the intervention.

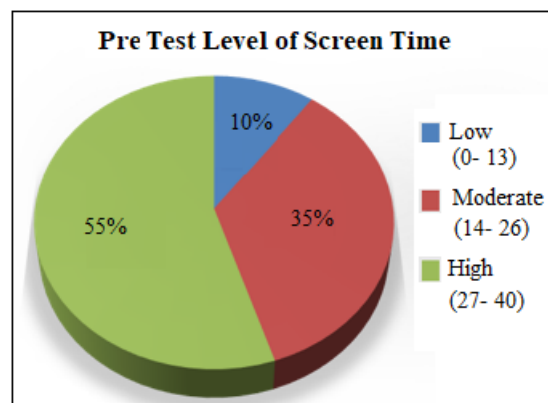
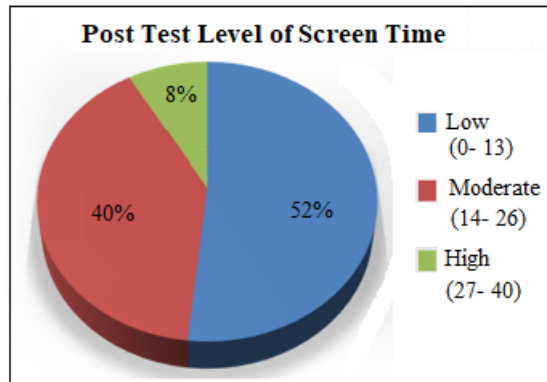


Table 4.3: Distribution of Adolescents According to the Post-test Level of Screen Time (N = 60)

S. No.	Level of Screen Time	Score Range	Frequency (n)	Percentage (%)
1	Low	0–13	31	51.7
2	Moderate	14–26	24	40.0
3	High	27–40	5	8.3

Table 4.3 that after the Digital Detox Educational Program, the majority of adolescents (**51.7%**) had **low screen time**, **40.0%** had **moderate screen time**, and only **8.3%** continued to have **high screen time**. The findings demonstrate a marked improvement in screen time behavior following the intervention.

**Table 4.5:** Association Between Post-test Screen Time and Selected Demographic Variables (N = 60)

S. No	Demographic Variable	χ^2 Value	df	p-value	Interpretation
1	Age	8.12	4	0.087	Not Significant
2	Gender	5.96	2	0.051	Not Significant
3	Educational Level	10.84	8	0.211	Not Significant
4	Type of Family	3.62	4	0.459	Not Significant
5	Father's Education	9.84	6	0.132	Not Significant
6	Mother's Education	11.26	6	0.081	Not Significant
7	Daily Screen Time Before Intervention	18.92	6	0.004	Significant
8	Purpose of Screen Use	13.76	6	0.032	Significant

Table 4.5 indicates that the association between the post-test level of screen time and selected demographic variables. There was a statistically significant association between the **post-test screen time level and average daily screen time before the intervention** ($\chi^2 = 18.92$, $p = 0.004$) as well as the **primary purpose of screen use** ($\chi^2 = 13.76$, $p = 0.032$). However, no statistically significant association was found between post-test screen time and age, gender, educational level, type of family, father's education, or mother's education ($p > 0.05$). Therefore, the research hypothesis (H_2) was partially accepted.

4. Discussion

The present study was conducted to evaluate the effectiveness of a Digital Detox Educational Program on screen time among adolescents in an urban area. The pre-test findings revealed that **55.0%** of the adolescents had a high level of screen time, **35.0%** had a moderate level, and only **10.0%** had a low level of screen time, indicating that excessive digital device use was common among the study participants. Following the implementation of the educational program, a considerable improvement was observed, with **51.7%** of adolescents demonstrating a low level of screen time, **40.0%**

Section III- Comparison of Pre-Test and Post-Test Mean Screen Time Scores

Table 4.4: Comparison of Pre-test and Post-test mean screen time scores (N = 60)

S. No	Assessment	Mean	SD	Paired t-value
1	Pre-test	32.45	5.63	16.72
2	Post-test	21.38	4.82	

$p < 0.001$ (Highly Significant)

Table 4.4 compares the pre-test and post-test mean screen time scores among adolescents. The mean pre-test score was **32.45 $\pm$ 5.63**, whereas the mean post-test score decreased to **21.38 $\pm$ 4.82**, with a **mean difference of 11.07**. The calculated paired t -value was **16.72**, which was statistically significant at $p < 0.001$. This finding indicates that the Digital Detox Educational Program was highly effective in reducing screen time among adolescents. Hence, the research hypothesis (H_1) was accepted.

Section 4: Association between the Post-Test Level of Screen Time and Selected Demographic Variables.

exhibiting a moderate level, and only **8.3%** remaining in the high screen time category. Furthermore, the mean screen time score decreased significantly from **32.45 $\pm$ 5.63** during the pre-test to **21.38 $\pm$ 4.82** in the post-test. The calculated paired t -value ($t = 16.72$, $p < 0.001$) confirmed that the reduction in screen time was statistically highly significant, thereby supporting the effectiveness of the Digital Detox Educational Program. These findings suggest that structured educational interventions can successfully improve adolescents' awareness and encourage healthier digital habits by promoting responsible technology use, improved time management, and engagement in offline recreational activities.

The findings of the present study are consistent with previous research demonstrating that school-based digital wellness interventions significantly reduce excessive screen use and promote healthy lifestyle behaviors among adolescents. Similar studies have reported that educational programs focusing on digital literacy, self-monitoring, parental involvement, and behavioral modification effectively decrease recreational screen time while improving sleep quality, concentration, and psychosocial well-being. In the present study, a significant association was observed between post-test screen time and **average daily screen time before**

the intervention ($\chi^2 = 18.92$, $p = 0.004$) as well as the primary purpose of screen use ($\chi^2 = 13.76$, $p = 0.032$), whereas variables such as age, gender, educational level, type of family, and parents' educational status were not significantly associated with post-test screen time ($p > 0.05$). These findings indicate that baseline digital behavior and patterns of device usage have a greater influence on the effectiveness of digital detox interventions than demographic characteristics. Therefore, incorporating Digital Detox Educational Programs into routine school health services may serve as an effective nursing strategy to reduce excessive screen time and foster long-term digital well-being among adolescents.

5. Conclusion

The Digital Detox Educational Program was effective in significantly reducing screen time among adolescents in an urban area. School-based educational interventions can promote healthy digital habits and contribute to improved physical, psychological, and social well-being among adolescents. Integrating digital wellness education into school health services is recommended to address the growing concern of excessive screen use.

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