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Impact of Digital Screen Time on Dietary Habits and Mental Wellbeing among students of 16-25 years

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ABSTRACT :

The escalating ubiquity of digital devices has raised profound concerns regarding the ramifications of prolonged screen exposure on the holistic well-being of adolescents and young adults, particularly within the demographic cohort aged 16-25 years. This study endeavours to elucidate the intricate interplay between digital screen time and dietary behaviours, mental health indices, and behavioural tendencies among students falling within this age bracket. The principal aims encompass scrutinizing the nexus between screen time and dietary propensities, evaluating its repercussions on mental health metrics and physical welfare, and delineating potential strategies aimed at ameliorating deleterious outcomes.

An observational inquiry was executed, enlisting a cohort of 120 students aged 16-25 years, evenly partitioned between the 16-20 and 20-25 age cohorts. Data aggregation was achieved through a meticulously designed self-structured questionnaire, adept at capturing multifaceted insights pertaining to digital screen time, dietary proclivities, mental health parameters, and physical well-being indicators. Participants falling outside the prescribed screen time thresholds, those reporting null screen time, or exhibiting non-compliant behaviour were systematically excluded. Statistical analyses were meticulously conducted leveraging the robust capabilities of SPSS 16.0 software.

The study cohort comprised 80 female and 40 male participants. Revelations unveiled a conspicuous correlation between excessive digital screen exposure and deleterious dietary predilections typified by escalated consumption of processed and fast foods juxtaposed against dwindling intake of fruits and vegetables. Moreover, protracted screen engagement exhibited a positive correlation with heightened levels of irritation, lack of sleep, tension and compromised overall well-being. Physical ramifications were also observed, with 54 students reporting instances of neck pain attributable to extended screen usage and poor ergonomic posture. Furthermore, a prevailing proclivity towards sluggish eating habits whilst consuming meals in front of screens was documented, with individuals exhibiting augmented screen time demonstrating a propensity towards overweight status.

These findings underscore the need for targeted interventions and educational programs to raise awareness about the potential risks of excessive screen exposure and promote healthier lifestyle choices among students aged 16-25 years. Deployment of multifaceted strategies encompassing periodic breaks from digital devices, promotion of physical activity, cultivation of mindful technology utilization, and emphasis on proper postural ergonomics emerges as imperative measures to mitigate the observed adversities. The ramifications of these findings reverberate across diverse spheres, necessitating concerted efforts from public health agencies, educational institutions, and familial units to effectively address the burgeoning conundrum of excessive digital screen time whilst advancing the holistic well-being of the student populace.

Keywords: Screen Time, Eating Habits, Eating Patterns, Electronic Gadgets, Mental wellbeing

1. Introduction :

Screen Time (ST), referring to the duration spent watching TV and using a computer, constitutes a significant portion of sedentary behavior. Kelishadi R et al. (2017) explored the correlation between Screen Time (ST) (total time spent watching TV and using a computer in leisure time) and snack frequency among 13,486 children, with 50.8% being boys and an average age of 12.47 years. The study revealed that students with over four hours of screen time daily were less likely to consume milk daily compared to those with less than four hours. Excessive screen time, often accompanied by fast food consumption and overeating, can disrupt dietary habits and contribute to obesity. Recent studies have indicated a sedentary behavior prevalence exceeding 70% among youth. Guidelines recommend limiting screen time to no more than two hours per day for all age groups above two years to mitigate the risk of obesity.

Children and adolescents dedicate a substantial portion of their day, approximately seven hours, to media consumption apart from sleeping. Particularly during school days, TV viewing is prevalent, with an average screen time of about five hours on weekends. Variations in screen time are observed

among different age groups and races, with individuals from higher socioeconomic backgrounds spending more time on screens and video games than those from lower-income communities. Screen-based activities are more common in typical nuclear family setups.

The impact of screen time on health-related behaviours, especially eating habits, is noteworthy. Extended screen time has been associated with poor dietary choices in adults, including increased sugar and low-nutrient food consumption, and decreased intake of fiber, fish, vegetables, fruits, and whole grains. Media exposure offers diverse entertainment options, often influencing adolescents negatively, with advertisements on electronic media influencing teenagers' meal choices. TV viewing correlates with increased consumption of junk food, given the targeting of junk food commercials during children's programs.

Numerous studies have established a link between TV viewing time and poor dietary habits among children and adolescents. Eating while watching TV is associated with lower dietary quality, characterized by frequent consumption of sugary beverages and high-fat, high-sugar foods, coupled with reduced fruit and vegetable intake. Recent research has also highlighted the association between computer use, screen time, and unhealthy dietary patterns in youth.

Tsujiguchi H et al. (2018) conducted a cross-sectional study in Japan involving 1414 children and adolescents aged 6 to 15 to explore the relationship between screen time and nutrient intake. The study revealed that longer TV viewing durations were associated with decreased intake of various nutrients in both boys and girls, emphasizing the impact of screen time on dietary habits.

2. Methods

This study aims to assess the eating patterns of adults in relation to their daily screen time. Consumption of meals in front of screens often leads to binge eating and reduced physical activity, contributing to weight gain and mental wellbeing associated health issues. Addressing this issue is crucial to mitigate the risk of chronic diseases like obesity, diabetes, hypertension, and depression associated with higher screen time and unhealthy food consumption.

A cross-sectional study was conducted to assess the eating habits and screen time (ST) patterns of 120 students enrolled in various educational institutions. The empirical investigation was conducted within the confines of the DAVV Campus in Indore, and an online survey instrument was developed and distributed through a Google form to ensure the acquisition of an adequate sample size for the study. Participants were selected using non-probability convenient sampling over a period of four months. A self-structured questionnaire was utilized for data collection. Exclusion criteria encompassed students outside the target age group, those without screen time habits, and uncooperative individuals. Data analysis was performed using SPSS version 16.0.

The questionnaire comprised sections on demographic information, anthropometric measurements, screen time habits, knowledge about its impact on lifestyle, and eating behaviours and food preferences while engaging with screens. Questions about mental wellbeing were included as well as the perceived stress questionnaire to assess the stress status of the participants. Ethical approval was obtained from the administrative committee at the Deen Dayal Upadhyay Kaushal Kendra (DDU-KK), Devi Ahilya Vishwavidiyalaya, and consent was obtained from all participants prior to data collection. Questionnaires were distributed among participants, who were then instructed to complete them.

3. Results

 Table (i) presents data on the demographic characteristics of the 120 participants. Among them, 80 were females and 40 were males, indicating a majority of female participants. Regarding age distribution, 50 participants were aged between 16 and 20 years, 70 were aged between 21 and 25 years. In terms of weight categories, 18 participants weighed between 25 and 45 kg, 64 between 46 and 65 kg, 36 between 66 and 85 kg, and only 2 were above 86 kg. Socioeconomic status analysis revealed that 2 participants belonged to the lower class, 108 to the middle class, and 10 in the upper class, indicating a predominance of middle-class participants. Family structure data indicated that 90 participants belonged to nuclear families, while 30 belonged to joint families, suggesting that most participants lived in nuclear family setups. Body Mass Index (BMI) classification showed that 28 participants were underweight, 20 were within the normal weight range, 68 were overweight, and 4 fell into the obese category.

Table i: Demographics of the participants

Demographics		
Variables	**Category**	**Frequency(%)**
Gender	Male	40 (33.3%)
	Female	80 (66.7%)
Age	16-20 Years	50 (41.7%)
	21-25 Years	70 (58.3%)
Weight	25-45 Kg	18 (15%)
	46-65 Kg	64 (53.3%)
	66- 85 Kg	36 (30%)
	86-96 Kg	2 (1.7%)

Socioeconomic Status	Lower Income Group	2 (1.7%)
	Middle Income Group	108 (90%)
	Upper Income Group	10 (8.3%)
Family Type	Nuclear	90 (75%)
	Joint	30(25%)
BMI	Underweight	28 (23.3%)
	Normal	20 (16.7%)
	Overweight	68 (56.6%)
	Obese	4 (3.3%)

Table (ii) outlines the eating behaviours of the 120 participants. Among them, 64 individuals reported eating slowly while watching TV or using mobile devices, while 14 ate quickly, and 42 had a normal eating pace. Regarding breakfast habits, 36 participants skipped breakfast due to late-night mobile or laptop usage, while 84 did not skip breakfast. Additionally, 54 participants reported delaying their meals while working, while 66 did not delay their meals.

In terms of meal frequency in front of screens, 34 participants ate once a day, 48 ate twice a day, 22 ate three times a day, and 16 did not eat in front of screens. Moreover, 52 participants admitted to see noticeable changes in their eating pattern since increasing their screen time, while 68 disagreed with this statement.

Table ii: Frequency Distribution of eating habits while using screen

Eating habits while using screen		
Variables	**Category**	**Frequency (%)**
Do you think your eating habits are affected while watching TV or using mobile phone?	Eating slowly	64 (53.3%)
	Eating Quickly	14 (11.7%)
	Eating Normally	42 (35%0
Do you miss your breakfast due to using your phone or laptop whole night?	Yes	3 (30%)
	No	84 (70%)
Do you delay your meals when you're working on a screen?	Yes	54 (45%)
	No	66 (55%)
Frequency of your meal intake in front of screen	Once a Day	34 (28.3%)
	Twice a Day	48 (40%)
	Thrice a Day	22 (18.3%)
	None of these	16 (13.3%)
Noticed any change in eating pattern since increasing screen time.	Yes	52 (43.3%)
	No	68 (56.7%)

According to the findings presented in Table (iii), 2 participants preferred eating fast food in front of a screen, while 30 opted for junk food. Additionally, 2 participants chose beverages, 6 consumed fruits, 2 ate desserts, and 78 had regular meals, indicating a preference for junk food over other options while engaging with screens. Moreover, 70 participants consumed fried food during electronic gadget usage, while 50 did not, suggesting a predominant consumption of fried foods. Furthermore, 52 participants consumed sweets such as chocolates and candies, while 68 did not, during screen usage.

Table iii: Distribution of food choices while using screen

Food Choices While Using Screen		
Variables	**Category**	**n(%)**
Most consumed food in front of the screen	Fast food (Pizza, Burgers, Bakery items, etc)	2 (1.7%)
	Junk Food (Namkeen, Chips, Kurkure Biscuits, Lays, Processed food, etc)	30 (25%)
	Beverages (Water, Ocean, Soda, Tea, Coffee, etc)	2 (1.7%)
	Fresh fruits or vegetables	6 (5%)

	Dessert(any form of sweet)	2 (1.7%)
	Regular Meal	78 (65%)
Consumption of fried food while using electronic gadgets	Yes	70 (58.3%)
	No	50 (41.7%)
Consumption of sweets (chocolate, candies) while using electronics.	Yes	(52) 43.3%
	No	(68) 56.7%

Moreover, in table (iv), It was found that High screen time or digital usage leads to feeling overwhelmed or fatigued with 80 people agreeing to it while 40 declining it. 76 people were experiencing sleep disturbances and insomnia and 44 were not.

In the perceived stress questionnaire 44 people turned out to be Mildly stressed on the evaluation scale of 20 and 76 people were unstressed on the same scale of 20.

Table iv: Frequency distribution status of mental wellbeing

Mental wellbeing status		
Variables	**Category**	**n(%)**
Feeling of being overwhelmed or fatigued	Yes	80 (66.7%)
	No	40 (33.3)
Experiencing sleep disturbances and insomnia	Yes	76 (63.3%)
	No	44 (36.7%)
Stress Status	Mildly Stressed	44 (36.7)
	Unstressed	76 (63.3%)

Table (v) revealed a statistically significant association between Daily Screen Time and its effects on BMI, also with a p-value of <0.05. Similarly, Table (vi) indicated a significant association between Education levels and students having trouble relaxing, with a p-value of <0.05. In addition, Table (vii) shows a statistical significance between Education Levels and how Electronic gadgets affect the daily routine and lead to procrastination with p-value of <0.05. Table (viii) signifies that the more the daily screen time more the people are susceptible of delaying or skipping meals, with a p-value of <0.05

Table v: Association between screen time and the BMI

		Underweight, Overweight, Normal, Obese				**p-value**
	Time (Hours)	Underweight	Overweight	Normal	Obese	
Daily Screen time	<1 h	2	0	0	0	
	1-2 h	6	2	0	0	.009
	2-4 h	6	18	2	2	
	4-6 h	8	24	10	2	
	>6 h	6	24	8	0	

Table vi: Relation between the education level and having trouble in relaxing

		Having Trouble relaxing			**p-value**
	Education level	Never	Sometimes	Mostly	
Education Level	High School	4	12	0	
	Undergraduate	28	40	16	.003
	Post graduate/ Graduate	4	6	10	

Table vii: Relation between the education level and electronics leading to procrastination

		Electronic gadgets affecting the daily routine and leading to procrastination		**p-value**
	Education level	Yes	No	
Education Level	High School	16	0	

Undergraduate	66	18		.002
Post graduate/ Graduate	10	10		

Table viii: Association between screen time and skipping meals

	Time (Hours)	Delaying or skipping meals while working on a screen		p-value
		Yes	No	
Daily Screen time	<1 h	2	0	
	1-2 h	6	2	.003
	2-4 h	8	20	
	4-6 h	30	14	
	>6 h	26	12	

4. Discussion

The current study's findings reveal that out of 120 participants, 2 primarily opted for fast food consumption in front of screens, while 30 favored junk food. Additionally, 2 preferred beverages, 6 chose fruits, 2 craved desserts, and 78 opted for regular meals, indicating a prevalent preference for regular meals after that the most consumed was junk food while engaging with screens.

A study conducted by Delfino et al., (2017) investigated the relationship between screen time and eating habits among adolescents, concluding that excessive screen usage correlated with increased intake of snacks, fried foods, chocolates, and physical inactivity. Similarly, another study by Delfino LD et al. (2017) focused on students aged 10-17 years, highlighting the impact of screen time on eating behaviors and physical inactivity.

In the present study, socioeconomic status was evaluated to assess its influence on screen time and eating patterns. Results showed that most participants (90%) belonged to the middle class, aligning with a study by Ghobad Moradi et al. indicating that individuals from higher socioeconomic groups tend to spend more time on screens and video games.

Moreover, the study revealed that participants living in nuclear families (75%) reported higher screen time compared to those in joint families. This finding supports a study by Langoy et al. (2019), which observed higher screen time among children from lone families compared to those in blended families.

Regarding age distribution, the majority of participants (58.3%) fell within the 21-25 age group, similar to studies conducted by Pinho, MG and Benaich S et al., which focused on specific age groups within the adolescent and young adult population.

Gender distribution showed that 66.7% of participants were females, consistent with studies by Nastaskin et al. and Alghaider et al., which included predominantly female participants from various educational institutions.

In terms of BMI classification, 16.7% of participants were of healthy weight, while 56.6% were overweight and 3.3% were obese. This aligns with findings from a study by Hicks K et al., emphasizing the relationship between screen time, beverage, and snack consumption.

Eating behaviours while engaging with screens varied, with 57.3% eating slowly, 35% eating quickly, and 11.7% maintaining a normal eating pace. This finding corresponds to a study by Mathur & Stevenson RJ, which found that engaging content may influence eating speed.

Regarding breakfast habits, 36% reported skipping breakfast due to late-night screen usage, consistent with Tambalis et al.'s findings linking insufficient sleep duration with unhealthy dietary habits such as skipping breakfast.

Furthermore, meal frequency in front of screens varied, with 28.3% eating once a day, 40% eating twice a day, and 18.3% eating thrice a day. This aligns with a study by Melissa L Jensen et al., which found that a high percentage of participants consumed meals or snacks while watching television.

Moreover, It was found that High screen time or digital usage leads to feeling overwhelmed or fatigues with 66.7% people agreeing to it while 33.3% declining it. 63.3% people were experiencing sleep disturbances and insomnia and 36.7% were not.

In the perceived stress questionnaire 36.7% people turned out to be Mildly stressed on the evaluation scale of 20 and 63.3% people were unstressed on the same scale of 20.

Overall, these findings underscore the complex interplay between screen time, eating behaviours, and demographic factors among young individuals, highlighting the need for further research and targeted interventions to promote healthier lifestyle choices.

5. Conclusion

The study revealed a concerning trend of increased screen time negatively impacting students' eating habits and food choices. A significant majority reported spending more than 7 hours per day engaged with screens, exceeding recommended limits. This prolonged screen usage was associated with behaviours such as skipping breakfast, delaying meals, and consuming more food than planned.

Furthermore, the study found that high screen usage was linked to a preference for unhealthy snack options, including high-fat foods, junk food, fast food, and sweets. These choices have adverse effects on overall health and contribute to the growing prevalence of unhealthy lifestyles among students.

Overall, the findings highlight the urgent need for interventions to promote healthier screen habits and dietary choices among students, aiming to mitigate the negative impact of excessive screen time on their well-being.

Appendix A.

Perceived Stress Questionnaire

Almost	Sometimes	Never
2	**1**	**0**

Source: Perelman School of Medicine at the University of Pennsylvania

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