

Time Spent on Digital Screen and its Impact on Health and Academic Performance of Youth

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Abstract

Background: The current era is a digital era. Every individual spending a lot of time using digital screens for almost everything from work and school to socializing and fun. COVID-19 pandemic further increased the screen time as people stayed indoors and forced to spend more time on screen media. Several studies conducted and revealed the effects of excessive screen time on health and wellbeing. Since youth are the change makers of the society, the current study aimed to conduct on the youths. **Results:** The findings of the study revealed that, youth in Saudi Arabia spending 7 hrs. daily on an average on screen media. Gender wise females are spending (8 hrs. average) more time on screen media than males (7 hrs. average). Watching movies and other entertaining programs and social media use have highly significant association with increased screen time. More than 50% participants agreed with the fact that their amount of screen media use behaviour affecting their life in diverse way such as, they neglect daily activities, losing sleep, grades suffer and it bothers to their family too. Physical wellbeing markers such as BMI (0.03), suffering from asthma (0.006), suffering from headache often (0.03), suffering from food indigestion often (0.03); psychological wellbeing markers like, feel depressed/low mood/sad often (0.004) and feel lonely often (0.05) have significant association with daily amount of screen time. Social wellbeing markers such as like to spend time with family (< 0.001), like to talk or visit with friends or relatives (< 0.001), like parties (< 0.001) and academic performance marker like grade achieved in recent exam attended (< 0.001) have highly significant association with daily amount of screen time among the Saudi youths. **Conclusions:** The current study is an eye opener for the whole world to sensitize them for limiting their screen time in order to live a healthy, happy and more active lifestyle.

Keywords: Time Spent, Digital Screen, Impact, Health, Academic Performance, Youth.

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BACKGROUND

Today one can do almost anything online. Watching movie, reading book/newspaper, buying new dress/shoes, and even ordering a full cart of groceries to be delivered at door, booking a vacation, registering for some courses, applying for a new job, booking for doctor's appointment everything with just a tap. Technology not only provide material items, but also connects people via phone calls, email, text messaging, video chats and social media apps. It's not just limited to smartphones; but through multiple devices in the form of tablets, laptops, smart TVs, artificial intelligence (AI) devices and desktop computers that are accessible, almost everywhere. COVID-19 has

further increased digital screen time as a result of public health measures enforced by governments to curb the pandemic. Social media is one of the primary reasons people are glued to their screens, especially smartphones.

However too much screen time has been shown to influence all the aspects of life in a negative way too. Since increased screen time typically leads to decreased time spent in engaging in physical activity and body movement, interfering with the relationships and responsibilities, increase the risk for obesity, trouble sleeping, back and neck ache, anxiety,

depression and also hampering the professional and academic performance.

It is quite common that when someone looking at a screen, is either sitting or lying down. This means that spending more time on screens, is also spending more time being sedentary, which can increase the risk for obesity, along with chronic issues like heart disease and diabetes mellitus. Being in front of a screen also leads to more mindlessly snack. Studies have revealed that limited amount of screen time, leads to reduce likelihood of obesity. (Banks, 2010) & (Boone, 2007).

Increased screen-time has been linked with decreased sleep duration, and longer sleep onset, (Christensen, 2016). If using any digital screen before bedtime, the blue light emitted disrupts the body's natural melatonin hormone production, (Hines, 2019). Melatonin is produced by the pineal gland that is situated in the brain and controls the body's internal clock, referred as the body's circadian rhythm and it naturally responsive to light. The level of melatonin increase as the sun sets and remain at that increased state till night and it start to fall as the sun rises. This hormone reduction helps the body's natural rhythm wake up due to the natural sunlight. Studies have found that the blue lights are closely correlated to those from sunlight. Therefore, using any screen prior to bedtime disrupts the body's production of natural bedtime hormones which makes the brain to believe it is still daytime and making it harder to fall asleep.

Inadequate sleep, can affect the behaviour and performance for the day (Hines, 2019). High amounts of screen time also can significantly affect someone's mental health (Bergland, 2021). Increased screen time has been linked to mental health effects such as anxiety and depression (Bates, 2019).

Looking at digital screen for long hours can put a lot of strain on neck muscles and at the spine leading to slumped posture. Studies have found that spending more time using screens were more likely to report having headaches and backaches than less frequent screen users.

Digital eye strain may occur due to too much time staring at digital screen, and may result headaches, neck tension, dry eyes and blurry vision.

Screen time also lowers the amount of time spend connecting with others. The term social media is

actually misleading, since all that time people spending on social media not connecting with a real person. Even if while watching a movie with family, not allowing enough communication. Thus, ultimately the longer screen time affecting the social relationships.

METHODS

Aim: The current study aimed to determine the amount of daily screen time among the Saudi youth and its' impact on their lives.

Design, setting of the study and characteristics of participants: The current study was a quantitative cross-sectional survey with amount of screen time as independent variable and physical, psychosocial wellbeing markers and academic performance as dependent variables. The participants were the students (both males and females) studying in college of applied medical science, Taif, Saudi Arabia, aged between 18 to 30 selected by convenience sampling method.

Description of all processes, interventions and type of statistical analysis used: The tool for data collection was developed by critical review of previous studies and consulting with many experts and got validated by the experts. The tool was a self-administered questionnaire developed after extensive review of literatures and consulting the experts. The tool consisting of three questions for demographic profile such as gender, daily amount of screen time and BMI, five questions to assess the factors leading to increased screen time, five questions to assess the self-perception about own screen media use behaviour, five questions to assess the physical wellbeing, three questions to assess the psychological wellbeing and four questions to assess the social wellbeing and one question about the last grade achieved to determine the academic performance. The questionnaire was formed in google form and the link shared with the students by the concerned teachers, mentioned as the co-author in the study. Data collected over a period of one month from 10th February 2022 to 10th march 2022. Then all the data organised in master data sheet in windows Microsoft excel spreadsheet and analysed using SPSS – 16 with level of significance (P) at 0.05. Frequency, percentage and mean used to determine the average screen time and chi-square test was used to determine the association between dependent and independent variables.

RESULTS

Table 1: Average daily screen time of the Saudi youth, n=318

Hrs. spent daily on-screen media						
	1-5 hrs.	6-10 hrs.	11-15 hrs.	16-20 hrs.	Total hrs.	Average duration
Female	44 (14%)	90 (28%)	26 (8%)	14 (5%)	174 (55%)	8 hrs.
Male	58 (18%)	66 (21%)	16 (5%)	4 (1%)	144 (45%)	7 hrs.
Total	102 (32%)	156 (49%)	42 (13%)	18 (6%)	318 (100%)	7 hrs.

Table showing youth in Saudi Arabia spending 7 hrs. daily on an average on screen media. Gender wise

females are spending (8 hrs. average) more time on screen media than males (7 hrs. average).

Table 2: Factors leading to increased screen time among the Saudi youth, n=318

Motivational factors	Average daily screen time hrs.					Chi square p Value
	Total	1-5	6-10	11-15	16-20	
	n (%)	n (%)	n (%)	n (%)	n (%)	
	318 (100)	102 (32)	156 (49)	42 (13)	18 (6)	
Chatting with friends	Yes 124 (39)	32 (10)	70 (22)	18 (6)	4 (1)	0.1
	No 136 (43)	50 (16)	60 (19)	18 (6)	8 (2)	
	Maybe 58 (18)	20 (6)	26 (8)	6 (2)	6 (2)	
Calling family and friends	Yes 102 (32)	26 (8)	58 (18)	14 (5)	4 (1)	0.3
	No 142 (45)	52 (10)	66 (21)	16 (5)	8 (3)	
	Maybe 74 (23)	24 (7)	32 (10)	12 (4)	6 (2)	
Watching movies and other entertaining programs	Yes 212 (67)	42 (13)	126 (40)	28 (9)	16 (5)	< 0.001
	No 60 (19)	38 (12)	18 (6)	4 (1)	0 (0)	
	Maybe 46 (14)	22 (7)	12 (3)	10 (3)	2 (1)	
Academic purpose	Yes 146 (46)	40 (13)	78 (25)	20 (6)	8 (2)	0.08
	No 78 (24)	36 (11)	32 (10)	6 (2)	4 (1)	
	Maybe 94 (30)	26 (8)	46 (15)	16 (5)	6 (2)	
Social media	Yes 200 (63)	36 (11)	122 (39)	28 (9)	14 (4)	< 0.001
	No 66 (21)	44 (14)	18 (6)	4 (1)	0 (0)	
	Maybe 52 (16)	22 (7)	16 (5)	10 (3)	4 (1)	

Table showing watching movies and other entertaining programs and social media use have highly

significant association with increased screen time among Saudi youths.

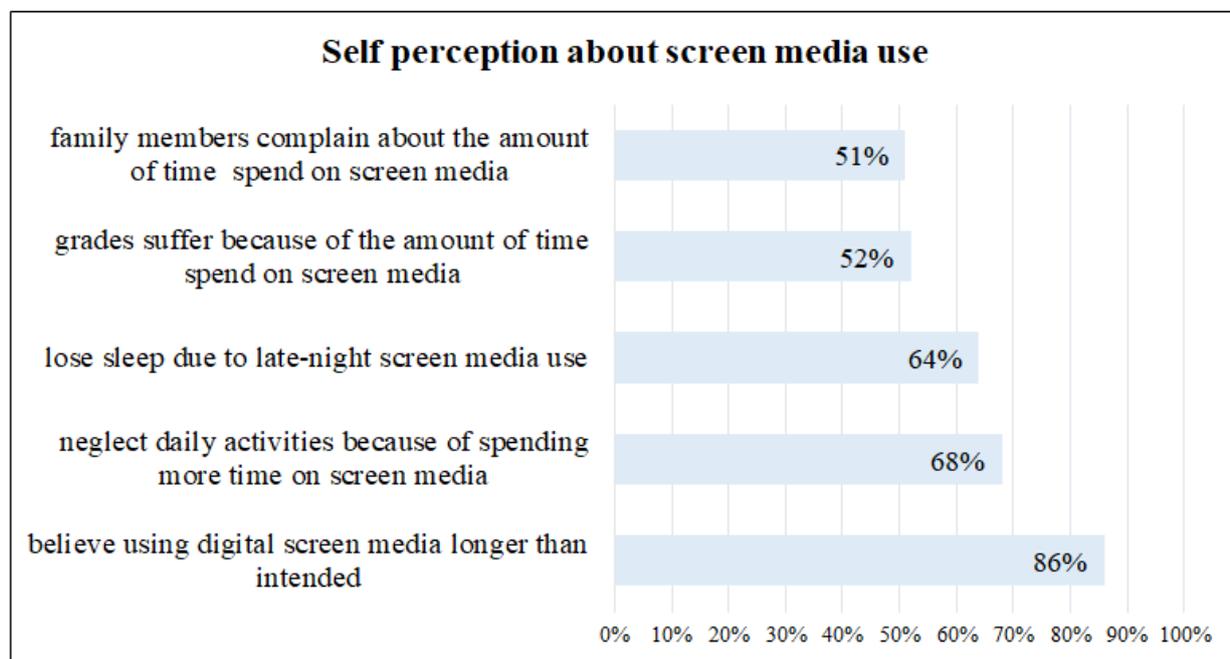


Figure 1: Self-perception of Saudi youths about their screen media use behaviour, n=318

Figure showing more than 50% participants agree with the fact that their amount of screen media use behaviour affecting their life in diverse way such as,

they neglect daily activities, losing sleep, grades suffer and it bothers to their family too.

Table-3: Association between amount of screen time and physical, psychological, social and academic factors among the Saudi youth, n=318

Impacted Factors	Daily screen time hrs.						Chi square p Value
	Total	1-5	6-10	11-15	16-20		
	n (%)	n (%)	n (%)	n (%)	n (%)		
Physical wellbeing markers							
BMI	< 25	192 (60)	58 (18)	96 (30)	24 (8)	14 (4)	0.03
	25 - 30	56 (18)	16 (5)	24 (8)	14 (4)	2 (1)	
	>30	70 (22)	28 (9)	36 (11)	4 (1)	2 (1)	
Suffering from high blood pressure	Yes 30 (10)		8 (3)	16 (5)	4 (1)	2 (1)	0.9
	No 260 (81)		84 (26)	126 (40)	36 (11)	14 (4)	
	Not sure 28 (9)		10 (3)	14 (4)	2 (1)	2 (1)	
Suffering from asthma	Yes 32 (10)		4 (1)	22 (7)	4 (1)	2 (1)	0.006
	No 260 (81)		82 (26)	128 (40)	36 (11)	14 (4)	
	Not sure 26 (9)		16 (5)	6 (2)	2 (1)	2 (1)	
Suffering from headache often	Yes 94 (30)		18 (6)	56 (18)	14 (4)	6 (2)	0.03
	No 146 (46)		60 (19)	62 (19)	18 (6)	6 (2)	
	Not sure 78 (24)		24 (7)	38 (12)	10 (3)	6 (2)	
Suffering from eye strain often	Yes 102 (32)		26 (8)	54 (17)	16 (5)	6 (2)	0.08
	No 146 (46)		48 (15)	78 (25)	14 (4)	6 (2)	
	Not sure 70 (22)		28 (9)	24 (7)	12 (4)	6 (2)	
Suffering from food indigestion often	Yes 58 (18)		22 (7)	26 (8)	10 (3)	0 (0)	0.03
	No 194 (60)		64 (20)	100 (31)	20 (6)	10 (3)	
	Not sure 66 (22)		16 (5)	30 (10)	12 (4)	8 (3)	
Psychological wellbeing markers							
Experience anxiety often	Yes 112 (35)		30 (9)	60 (19)	16 (5)	6 (2)	0.1
	No 116 (36)		44 (14)	56 (18)	8 (2)	8 (2)	
	Not sure 90 (29)		28 (9)	40 (13)	18 (6)	4 (1)	
Feel depressed/low mood/sad often	Yes 120 (38)		36 (11)	62 (20)	18 (6)	4 (1)	0.004
	No 94 (29)		44 (14)	36 (11)	10 (3)	4 (1)	
	Not sure 104 (33)		22 (7)	58 (18)	14 (5)	10 (3)	
Feel lonely often	Yes 110 (35)		32 (10)	60 (19)	10 (3)	8 (3)	0.05
	No 118 (37)		46 (14)	54 (17)	12 (4)	6 (2)	
	Not sure 90 (28)		24 (8)	42 (13)	20 (6)	4 (1)	
Social wellbeing markers							
Like to spend time with family	Yes 178 (56)		36 (11)	106 (33)	28 (9)	8 (3)	< 0.001
	No 76 (24)		48 (15)	22 (7)	4 (1)	2 (1)	
	Not sure 64 (20)		18 (6)	28 (8)	10 (3)	8 (3)	
Like to talk or visit with friends or relatives	Yes 174 (55)		32 (10)	98 (31)	36 (11)	8 (3)	< 0.001
	No 92 (29)		54 (17)	28 (9)	4 (1)	6 (2)	
	Not sure 52 (16)		16 (5)	30 (9)	2 (1)	4 (1)	
Take part in sports	Yes 68 (21)		18 (6)	38 (12)	8 (2)	4 (1)	0.5
	No 162 (51)		54 (17)	80 (25)	18 (6)	10 (3)	
	Not sure 88 (28)		30 (10)	38 (12)	16 (5)	4 (1)	
Like parties	Yes 110 (34)		20 (6)	66 (21)	20 (6)	4 (1)	<0.001
	No 134 (42)		60 (19)	56 (18)	10 (3)	8 (2)	
	Not sure 74 (24)		22 (7)	34 (11)	12 (4)	6 (2)	
Academic performance marker							
Grade achieved in recent exam attended	A 164 (51)		54 (17)	68 (21)	26 (8)	16 (5)	< 0.001
	B 116 (37)		38 (12)	60 (19)	16 (5)	2 (1)	
	C 38 (12)		10 (3)	28 (9)	0 (0)	0 (0)	

Table showing physical wellbeing markers such as BMI (0.03), suffering from asthma (0.006), suffering from headache often (0.03), suffering from food indigestion often (0.03); psychological wellbeing markers like, feel depressed/low mood/sad often (0.004) and feel lonely often (0.05) have significant association with daily amount of screen time. Social wellbeing markers such as like to spend time with family (< 0.001), like to talk or visit with friends or relatives (< 0.001), like parties (< 0.001) and academic performance

marker like grade achieved in recent exam attended (< 0.001) have highly significant association with daily amount of screen time among the Saudi youths.

DISCUSSION

Youth in Saudi Arabia spending 7 hrs. daily on an average on screen media which is in contrast to the findings (1 to 3 hrs.) of the study conducted by Scott, H., Biello, S. M., & Woods, H. C. (Scott, H., 2019).

Gender wise females are spending (8 hrs. average) more time on screen media than males (7 hrs. average). Watching movies and other entertaining programs and social media use have highly significant association with increased screen time.

More than 50% participants agreed with the fact that their amount of screen media use behaviour affecting their life in diverse way such as, they neglect daily activities, losing sleep, grades suffer and it bothers to their family too. The findings have its' support from the study conducted by Carter B, Rees P, Hale L, Bhattacharjee D, Paradkar MS (Carter B, 2016).

Physical wellbeing markers such as BMI (0.03), suffering from asthma (0.006), suffering from headache often (0.03), suffering from food indigestion often (0.03); psychological wellbeing markers like, feel depressed/low mood/sad often (0.004) and feel lonely often (0.05) have significant association with daily amount of screen time. Social wellbeing markers such as like to spend time with family (< 0.001), like to talk or visit with friends or relatives (< 0.001), like parties (< 0.001) and academic performance marker like grade achieved in recent exam attended (< 0.001) have highly significant association with daily amount of screen time among the Saudi youths. These findings have its support from the study conducted by Twenge, J. M., & Campbell, W. K. (Twenge, 2018], Madhav, K. C., Sherchand, S. P., & Sherchan, S. (Madhav, K. C., 2017) and Yan H, Zhang R, Oniffrey TM, Chen G, Wang Y, Wu Y, *et al.*, (Yan H, 2017).

More than 1000 students approached for the data collection through sharing link and several reminders but only 318 responses found. Since it was an epidemiological cross-sectional survey, the small sample size reduces the generalisability of the study findings.

CONCLUSIONS

The current society is highly technology-driven which leads to increased digital screen adherence among every individual irrespective of any demographic factors. Thus the increased use of electronic media is a matter of concern now for the amount of time one viewing electronic screens. There are many blog posts are available about the negative consequences of digital screen on health and wellbeing and very few studies have conducted in this regard so far. The current study also found negative consequences of increased amount of screen time on health and wellbeing. Thus there is a clear need for more clinical research to examine the impact of screen time on health consequences among people of various age and in varied geographical region in order to educate and foster healthy digital screen use behaviour.

Nurses are easily approachable by all community across the globe and have maximum opportunity to interact with people. People value their

words and trust if nurses raise some issues, especially health related. Thus, nurses can use the findings of the current study to sensitize people and guide them for lifestyle modification.

List of Abbreviations: not applicable

Declaration:

Ethics approval and consent to participate: - The study had obtained the ethical clearance from the Research Ethics Committee, Taif University, Ministry of Higher Education, Saudi Arabia (ethical approval number HAO-02-T-105) before data collection. No potential identifiers such as name, email or phone no. asked from the participants and the consent was asked at the beginning of the questionnaire.

Consent for publication: not applicable

Availability of data and material: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Author contribution: All the co-authors listed have made contribution in data collection. All authors read and approved the final manuscript.

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