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Screen Time and Psychosocial Health Conditions Amongst University Students

Hamza Alshareh[1], Asad Waseem[1], Dr. Jayadevan Sreedharan[1], Ameneh Parmoodeh[1], and Sarah Ali[1]

Abstract

University students, predominantly young adults, spend vast periods of the day utilizing technology and looking at screens to complete assignments, study and relax. These students also commonly complain of several mental health disorders. The aim of this study is to determine how neurological stress, such as anxiety, depression and more, affects average screen time and to assess the weekly fluctuations in neurological stress and their influence on screen use. Additional factors (gender, quality of sleep, alcohol, etc.) were also considered with regards to their relation to screen time. The data collection was conducted in 2022, targeting university students of ages 18-24 in Ajman, UAE, via a self-administered questionnaire. 425 responses were collected and crosstabulation, using the Chi square test ($p < 0.05$), was performed to assess statistical significance. Significant statistical association was found between depression and other psychological states (mood swings, insomnia, addictive tendencies) with screen time during the week and weekend. No other associations were identified. Overall, this study affirms the relation between negative mental health and its effects on the average user screen time amongst university students in Ajman. Additional studies are needed to clarify what specific contents and types of screens are more impactful on mental health.

JEL classification numbers: I12, I19.
Keywords: Screen time, Depression, Stress, University Students.

[1] Gulf Medical University, United Arab Emirates.

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1. Introduction

A growing percentage of young adults' day to day activities is spent surrounded by technology, it can be for university work, social interaction, communication using a variety of devices from smartphones, laptops, tablets etc. Today's adults have been estimated to spend more than 10 hours a day in front of screens, (Rosen, 2020).
A 2018 population- based study by Twenge and Campbell showed that after an hour of screentime per day, "…increasing screen time was generally linked to progressively lower psychological well-being." The researchers also noted that, "High users of screens were also significantly more likely to have been diagnosed with anxiety or depression", (Twenge and Campbell, 2018).

1.1 University Students

This is highly relevant to the ongoing mental health problems faced by young adults around the globe and continues to remain a regular feature of societal debate. A study conducted in 2018 by the WHO, revealed that 35% of college students experienced symptoms consistent with at least one mental health disorder, (World Health Organization, 2018).
Surveys conducted by the American College Health Association (ACHA) in 2018 and 2019, show that over 60% of university students claim they experienced 'overwhelming anxiety' and more than 40% claim that they 'felt so depressed they had difficulty functioning, (Active Minds and Imagine America, 2020).

1.2 Covid-19

It is important to take into consideration the changing situation regarding the recent pandemic of COVID 19, which has led to several uncertainties in major aspects of global society including the educational sector. Many schools and universities have been converted to accommodate safe learning from a distance via an online platform.

1.3 Gender

With regards to gender, females are found to have a stronger association between depression and screen time in comparison to males, specifically at the adolescent age. Longer use of screens showed a positive correlation with depression amongst females while no such relationship was found in males, (Kleidermacher and Olfson, 2023).
However, a study examining gender differences amongst screen use found that a higher percentage of a sample population that reported excessive screen time were male (15.3% vs only 3.5% in females). Therefore, both genders can be at risk of developing mental health disorders with excessive use of screens, (Cui, 2022).

1.4 Smoking

High screen time (ST) and smoking are associated with poorer quality of life (QOL) among adolescents. The study finds that older, rural, and smoking adolescents, along with those with high ST, tend to have worse QOL. Additionally, adolescents trying cigarettes at a young age, particularly 10 and under, exhibit the lowest QOL, (Dong et al., 2020).

1.5 Purpose of Study

While research has made it evident that parallels between screen time and mental health do exist, its use as an effective indicator is yet to be proven. The purpose of this current study is to identify the relationship between mental health issues and screen time (ST) in a university sample of young adults (18-24). The Study will be conducted at various universities in Ajman, UAE. The authors hypothesize that an increase in screen time is related to poorer mental health and the subsequent mental health disorders.

2. Results

The statistical frequency distribution is a plot showing the number of observations within a specified interval. The frequency distribution can be displayed in graph or tabular format for better understanding. The frequency distribution is especially useful for the normal distribution, which shows the observed probability divided by the standard deviation, (Investopedia, 2022).

The cross tabulation between quality of sleep and screen time during the week and the weekend are given in table 1. There was not much difference in the screen time and the quality of sleep. Among those with a very poor or poor quality of sleep, 8.7% with 0-4 hours of screen time and 11.3% with >12 hours of screen time. Among those with normal, good or excellent quality of sleep 8.4% with 0-4 hours of screen time and 10.5% with more than 12 hours of screen time. There is no statistically significant association between screen time and quality of sleep during the week and weekend.

2.1 Labels of figures and tables

Screen time and psychosocial health conditions amongst university students in Ajman UAE (N=425).

Table 1: Quality of sleep

Variable	Group	Quality of sleep				Total	P value
		Very poor and poor		Normal, good, excellent			
		No.	%	No.	%		
Screen time during the week in hours	0-4	10	8.7	24	8.4	34	NS
	4-6	25	21.7	72	25.2	97	
	6-8	25	21.7	70	24.5	95	
	8-10	13	11.3	43	15.0	56	
	10-12	29	25.2	47	16.4	76	
	>12	13	11.3	30	10.5	43	
Screen time during the weekend	0-4	10	8.7	35	12.2	45	NS
	4-6	18	15.7	53	18.5	71	
	6-8	41	35.7	71	24.7	112	
	8-10	19	16.5	58	20.2	77	
	10-12	17	14.8	55	19.2	72	
	>12	10	8.7	15	5.2	25	

The cross tabulation between gender and screen time during the week and the weekend are provided in table 2. During the week, the majority of women (23.4%) had a daily screen time of 4-6 hours while the majority of men (27.3%) had a daily screen time of 6-8 hours during the week. During the weekend, 29.1% of women and 26.4% of men had a daily screen time of 6-8 hours. There is no statistically significant association between gender and screen time during the week and weekend.

Table 2: Association with Gender

Variable	Group	Gender				Total	P value
		Female		Male			
		No.	%	No.	%		
Screen time during the week in hours	0-4	23	7.9	16	11.5	39	NS
	4-6	68	23.4	37	26.6	105	
	6-8	63	21.7	38	27.3	101	
	8-10	50	17.2	12	8.6	62	
	10-12	53	18.3	24	17.3	77	
	>12	33	11.4	12	8.6	45	
Screen time during the weekend	0-4	30	10.4	19	13.6	49	NS
	4-6	51	17.6	28	20.0	79	
	6-8	84	29.1	37	26.4	121	
	8-10	54	18.7	27	19.3	81	
	10-12	48	16.6	24	17.1	72	
	>12	22	7.6	5	3.6	27	

The cross tabulation between smoking and screen time during the week and the weekend are provided in table 3. During the week, the majority of smokers (30.0%) had a daily screen time of 6-8 hours while only 22.8% of non-smokers shared the same screen time. During the weekend, the majority of non-smokers (28.2%) had a daily screen time of 6-8 hours and 27.5% of smokers shared the same screen time. There is no significant difference between smoking and screen time. Therefore, there is no statistically significant association between gender and screen time during the week and weekend.

Table 3: Association with Smoking

Variable	Group	Smoking				Total	P value
		Yes		No			
		No.	%	No.	%		
Screen time during the week in hours	0-4	2	5.0	38	9.7	40	NS
	4-6	9	22.5	96	24.6	105	
	6-8	12	30.0	89	22.8	101	
	8-10	2	5.0	60	15.4	62	
	10-12	9	22.5	68	17.4	77	
	>12	6	15.0	39	10.0	45	
Screen time during the weekend in hours	0-4	6	15.0	44	11.3	50	NS
	4-6	5	12.5	74	19.0	79	
	6-8	11	27.5	110	28.2	121	
	8-10	6	15.0	75	19.2	81	
	10-12	8	20.0	64	16.4	72	
	>12	4	10.0	23	5.9	27	

The cross tabulation between drinking alcohol and screen time during the week and the weekend are provided in table 4. During the week, the majority of Alcohol consumers (27.3%) had a daily screen time of 4-6 hours and the majority of non-alcohol consumers (24.4%) had the same daily screen time. Screen time during the weekend for the majority of Alcohol consumers (45.5%) and non-alcohol consumers (27.2%) was the same at 4-6 hours. Therefore, there is no statistically significant association between drinking alcohol and screen time during the week and weekend.

Table 4: Association with Drinking

Variable	Group	Drinking				Total	P value
		Yes		No			
		No.	%	No.	%		
Screen time during the week in hours	0-4	2	9.1	38	9.3	40	NS
	4-6	6	27.3	99	24.3	105	
	6-8	5	22.7	96	23.5	101	
	8-10	4	18.2	58	14.2	62	
	10-12	3	13.6	74	18.1	77	
	>12	2	9.1	43	10.5	45	
Screen time during the weekend in hours	0-4	2	9.1	48	11.8	50	NS
	4-6	3	13.6	76	18.6	79	
	6-8	10	45.5	111	27.2	121	
	8-10	4	18.2	77	18.9	81	
	10-12	2	9.1	70	17.2	72	
	>12	1	4.5	26	6.4	27	

The cross tabulation between panic attacks and screen time during the week and the weekend are provided in table 5. During the week, the majority of participants who experience panic attacks (23.4%) have a daily screen time of 4-6 hours. The majority of those who do not experience panic attacks (26.5%) had a greater daily screen time of 6-8 hours. During the weekend, the majority of those who experience panic attacks (30.2%) and those who don't (26.9%) have the same daily screen time of 6-8 hours. Therefore, there is no significant association between panic attacks and screen time during the week and weekend.

Table 5: Association with Panic attacks

Variable	Group	Panic attacks				Total	P value
		Yes		No			
		No.	%	No.	%		
Screen time during the week in hours	0-4	12	7.6	27	10.1	39	NS
	4-6	37	23.4	66	24.6	103	
	6-8	29	18.4	71	26.5	100	
	8-10	23	14.6	39	14.6	62	
	10-12	35	22.2	42	15.7	77	
	>12	22	13.9	23	8.6	45	
Screen time during the weekend in hours	0-4	21	13.2	28	10.4	49	NS
	4-6	28	17.6	50	18.7	78	
	6-8	48	30.2	72	26.9	120	
	8-10	28	17.6	53	19.8	81	
	10-12	24	15.1	48	17.9	72	
	>12	10	6.3	17	6.3	27	

The cross tabulation between depression and screen time during the week and the weekend are provided in table 6. During the week, 50.7% of those who experience depressive episodes have a daily screen time of 8 hours and greater. Only 35.7% of those who do not experience depressive episodes have a daily screen time of 8 hours and greater. During the weekend, 47.8% of those who experience depressive episodes have a daily screen time of 8 hours and greater. Only 36.6% of those who don't experience depressive episodes have a daily screen time of 8 hours and greater. Therefore, there is a significant statistical association between depression and screen time during the week and weekend.

Table 6: Association with Depression

Variable	Group	Depression				Total	P value
		Yes		No			
		No.	%	No.	%		
Screen time during the week in hours	0-4	7	3.4	32	14.5	39	<0.001
	4-6	50	24.2	55	24.9	105	
	6-8	45	21.7	55	24.9	100	
	8-10	34	16.4	28	12.7	62	
	10-12	44	21.3	33	14.9	77	
	>12	27	13.0	18	8.1	45	
Screen time during the weekend in hours	0-4	13	6.3	36	16.2	49	<0.05
	4-6	38	18.4	41	18.5	79	
	6-8	57	27.5	64	28.8	121	
	8-10	42	20.3	39	17.6	81	
	10-12	39	18.8	33	14.9	72	
	>12	18	8.7	9	4.1	27	

The cross tabulation between other psychological states and screen time during the week and the weekend are provided in table 7. During the week, 53.7% of those who experience other psychological states have a daily screen time of 8 hours and greater. Only 37.0% of those who do not experience any other psychological episodes have a daily screen time of 8 hours and greater. During the weekend, 48.7% of those who experience other psychological states have a daily screen time of 8 hours and greater. Only 37.7% of those who do not experience any other psychological states have a daily screen time of 8 hours and greater. Therefore, there is a significant statistical association between other psychological states and screen time during the week and weekend.

Table 7: Association with other psychological states

Variable	Group	Psychological states (mood swings, insomnia, addictive tendencies)				Total	P value
		Yes		No			
		No.	%	No.	%		
Screen time during the week	0-4	6	4.0	33	11.9	39	<0.05
	4-6	34	22.8	70	25.2	104	
	6-8	29	19.5	72	25.9	101	
	8-10	28	18.8	34	12.2	62	
	10-12	32	21.5	44	15.8	76	
	>12	20	13.4	25	9.0	45	
Screen time during the weekend	0-4	9	6.0	41	14.7	50	<0.05
	4-6	23	15.3	56	20.1	79	
	6-8	45	30.0	76	27.3	121	
	8-10	33	22.0	47	16.9	80	
	10-12	28	18.7	44	15.8	72	
	>12	12	8.0	14	5.0	26	

3. Discussion

A significant statistical association was observed between those experiencing depressive episodes and daily screen time during the week with a P value of <0.01. This is supported by a study published in the American Journal of Diseases of Children. (Boers et.al., 2019).

Those experiencing other psychological states (ie. mood swings, insomnia, addictive tendencies, etc.) were also found to have a significant association with screen time during the weekend, with a P- value of 0.05. External studies do indirectly support this association as it has been shown that moderate screen time does lead to lower psychological well-being in adolescents. No statistically significant association was found between anxiety and screen time which is not supported by outside research. (Twenge and Campbell, 2018). This can be attributed to the format of research as a self-reported questionnaire.

4. Conclusion

According to the results we obtained it provides partial support to the hypothesis that greater internalizing mental health problems are associated with greater screen time. Significant statistical association between depression and screen time during the week and weekend. Significant statistical association between other psychological states (mood swings, insomnia, addictive tendencies) and screen time during the week and weekend. It is also important to take into consideration the changing situation regarding the recent pandemic of COVID-19.

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