

Accelerated media and mental health: A descriptive study among Saudi general population

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ABSTRACT

Media acceleration behavior has been increasing recently. According to cognitive behavioral theory, acceleration behavior could affect a person's feelings, which may affect his/her mental health. This study aimed to explore the prevalence of accelerated media behavior and its correlation with depression and anxiety among the general Saudi population. A cross-sectional study was conducted among 1091 media users in Saudi Arabia. An online survey included socio-demographic characteristics, accelerated media characteristics, Patient Health Questionnaire-9 (PHQ-9) and General Anxiety Disorder-7 (GAD-7). The mean participant age was 27.76 ± 7.95 years, 68.5% were females, 92.9% were of Saudi nationality and 22.4% were from the Southern region of Saudi Arabia. Most participants accelerated both video and audio formats (68%) within the last two years (72.1%) and 42.2% accelerated their use at 1.5 speed. Significant predictors of media acceleration included female, Saudi nationality, desire to accelerate life, previous history of depression and/or anxiety ($p \leq 0.05$). Current symptoms of severe depression and severe anxiety were associated with media acceleration. Media acceleration is a prominent behavior among technology users. Routine checkups of mental status should be recommended for excessive media users. Further studies in this area using different study samples and methodologies would be valuable.

Keywords: Media acceleration, depression, anxiety, mental health.

1. INTRODUCTION

Watching and listening to different media types, such as videos and audios, has been ongoing for years but the use has been recently increased due to the coronavirus 2019 (COVID-19) pandemic, particularly during quarantine and the dependency on online communication and education has increased to assist in overcoming obstacles and maintaining normal life activities (Hoq, 2020; Malta et al., 2020; Xiang et al., 2020). Furthermore, due to such an

accelerated pace of life, many people, particularly students, watch video and audio media at an accelerated rate to obtain more information and knowledge in less time and feel more productive (Cardall et al., 2008; Lippke et al., 2021; Murphy et al., 2021).

According to cognitive behavioral theory, a person's behavior influences the way they feel and think and media acceleration behavior could affect a person's feelings of pleasure or stress. Faster playback speed leads to an increase in spoken words per minute, which can be too cognitively stressful and lead to anxiety, but it can be beneficial in terms of finishing media viewing more rapidly and reducing screening time, which may decrease the risk of developing mental illnesses such as depression (Cao et al., 2011; Khouja et al., 2019; Murphy et al., 2021). Depression and anxiety are widespread mental illnesses with a global prevalence of 4.4% (322 million) for depression and 3.6% (264 million) for anxiety in 2015 (World Health Organization, 2017). The anticipated number of people with depression and anxiety grew between 2005 and 2015 because of population expansion and aging and such growth will likely continue to increase year by year as the population grows (World Health Organization, 2017).

According to the Saudi National Mental Health Survey, the lifetime prevalence of major depressive disorder was 6% and that of anxiety disorders was 23.2%. (Altwaijri et al., 2020). Both depression and anxiety can have a negative impact on an individual's life and daily activities (Muskin, 2021; Torres, 2020; World Health Organization, 2017). A small number of studies have been conducted among students, focusing solely on an investigation of the effects of acceleration on comprehension and whether traditional classes were preferable, despite the fact that the relationship between depression and anxiety and media acceleration has not previously been studied. However, the findings indicated that comprehension declined after 2X speed, with no differences between online and traditional classes (Cardall et al., 2008; Murphy et al., 2021).

The authors investigated the prevalence of accelerating media and its correlation with depression and anxiety among the general population in the Kingdom of Saudi Arabia due to the seriously high number of cases of depression and anxiety in Saudi Arabia and the lack of a prior study evaluating the psychological impact of the trend in media acceleration, as previously described (KSA).

2. METHODS

Participants

This study was a cross-sectional study that was conducted in Saudi Arabia from May to August 2022. Participants were invited to participate in the study after being provided with a clear description of the study objectives. Participants participated voluntarily in the study and they had full rights to withdraw from the study at any time without any further obligations.

Questionnaire

An online self-administered questionnaire in Arabic and English was distributed and sent directly to general population in Saudi Arabia through emails and social media (WhatsApp, Twitter, Telegram, Snapchat and Instagram). A convenience sampling technique was used as it is best method to reach our target population. The inclusion criteria were adults (18 years or above) who lived in Saudi Arabia and viewed video/audio media. A Raosoft sample size calculator was used to determine sample size.

According to Saudi general authority for statistics, the population of Saudi Arabia 35,013,414 (General Authority for Statics, 2021). Considering confidence level as 95% with 5% margin error and 80% power, our study aimed at a minimum sample size of 385, but we tried to reach a bigger sample as it was helpful for generalizing our study result.

The survey had four components: (1) socio-demographic characteristics including age, gender, nationality, living region, education level, marital status, employment status, rate of physical activity, diagnosed with any mental illnesses and the thought of desire to accelerate life; (2) Accelerated media characteristics (video or audio acceleration, duration of acceleration by years, frequency of acceleration, reasons for acceleration, type of accelerated media, content of accelerated media and the preferred acceleration speed (x1, x1.25, x1.5, x1.75 or x2); (3) Patient Health Questionnaire-9 (PHQ-9) criteria to assess the level of depression in the last two weeks based on survey results (contains nine questions about interest, mood, sleep, energy, appetite, self-felling, concentration, moving and speaking rate and thought of dying) with measuring the difficulties of doing tasks (AlHadi et al., 2017) PHQ-9 scoring is based on the scores of the answers (not at all =0, several day=1, more than half of the day =2 or nearly every day =3), which indicate the level of depression based on total scores (0–4 = none, 5–9 = mild, 10–14 = moderate, 15–19 = moderately severe, or ≥ 20 = severe) (AlHadi et al., 2017).

General Anxiety Disorder-7 (GAD-7): Based on GAD-7 criteria to assess level of anxiety over the last two weeks from conducting the survey (contains seven questions about feeling worried or on the edge, ability to control worrying, worrying too much, ability to relax, feeling restless, easily annoyed and afraid that something awful might happen) with measuring the difficulties of doing tasks (AlHadi et al., 2017). Scoring of GAD-7 is based on the scores of the answers (not at all =0, several day=1,

more than half of the day =2 or nearly every day =3), which indicate the level of anxiety based on the total scores (0–4 = none, 5–9 = mild, 10–14 = moderate, or ≥ 15 = severe) (AlHadi et al., 2017).

Statistics

Data were statistically analyzed using the (SPSS) application version 2.6. To assess the relationship between the variables, the chi-squared test (χ^2) was applied to qualitative data that was expressed as numbers and percentages. The association between the quantitative non-parametric variables that were expressed as mean and standard deviation (mean \pm SD) was examined using the Mann–Whitney test. The odds ratio was calculated at a confidence interval (CI) of 95% to assess the risk factors (independent predictors) of acceleration of video/Audio speed. A p-value of < 0.05 was regarded as statistically significant.

3. RESULTS

Participants

The studied participants' mean age was 27.76 ± 7.95 years, 68.5% were females, 92.9% had a Saudi nationality and 22.4% were from the Southern region of the KSA. Most of them (69.2%) had a bachelor's degree of education and 65.4% were single. More than half (51%) were enrolled in higher education, mainly medical colleges (29.3%). Of those employed, 71.35% had a full-time job. Most of the participants (58.2%) rated their physical activity as active in general. Of them, 15.9% were diagnosed with psychiatric disorders with depression (53.1%) and anxiety (42.1%) the most common disorders. Figure 1 illustrates that 690 (63.2%) of the participants accelerate video/audio speed.

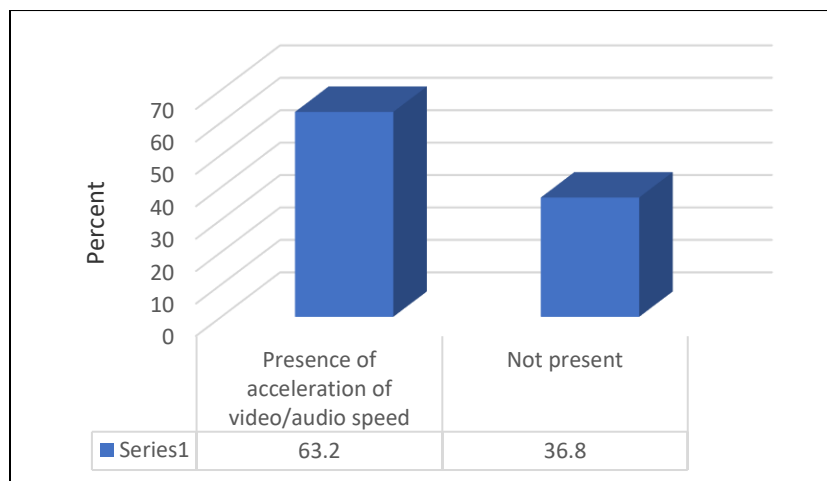


Figure 1 Percentage distribution of studied participants according to the prevalence of acceleration of video/audio speed (No.:1091)

It was found that participants who accelerate video/audio speed had a significantly younger mean age, were female, of Saudi nationality, were students, especially in the medical college, had thoughts and desires to accelerate life and had no psychiatric disorders ($p \leq 0.05$). However, among those who reported previous diagnoses of psychiatric history, depression (9.9%), anxiety disorder (7.8%) and eating disorder (2.6%) were significantly higher among participants who accelerate video/audio speed (Table 1).

Table 1 Difference between prevalence of acceleration of video/audio speed and participant demographics, physical activity, psychiatric disorders, and thought and desires to accelerate life (N=1091).

Variable	Total	Don't accelerate video/Audio speed	Accelerate video/Audio speed	χ^2	p-value
	No. (%)	No. (%)	No. (%)		
Age (years)	27.76 ± 7.95	29.49 ± 10.92	26.76 ± 9.19	4.06*	< 0.001
Gender				5.63	0.018
Female	747 (68.5)	257 (64.1)	490 (71)		
Male	344 (31.5)	144 (35.9)	200 (29)		

Nationality				4.14	0.042
Non-Saudi	77 (7.1)	20 (5)	57 (8.3)		
Saudi	1014 (92.9)	381 (95)	633 (91.7)		
Living region				2.62	0.623
Eastern	156 (14.3)	56 (14)	100 (14.5)		
Central	215 (19.7)	77 (19.2)	138 (20)		
Northern	202 (18.5)	82 (20.4)	120 (17.4)		
Southern	244 (22.4)	82 (30.4)	162 (23.5)		
Western	274 (25.1)	104 (25.9)	170 (24.6)		
Level of Education				1.93	0.587
High school or less	213 (19.5)	71 (17.7)	142 (20.6)		
Diploma	68 (6.2)	28 (7)	40 (5.8)		
Bachelor's degree	755 (69.2)	283 (70.6)	472 (68.4)		
Postgraduate studies	55 (0.5)	19 (4.7)	36 (5.2)		
Marital status				7.54	0.057
Divorced	27 (2.5)	12 (3)	15 (2.2)		
Married	344 (31.5)	145 (36.2)	199 (28.8)		
Single	714 (65.4)	242 (60.3)	472 (68.4)		
Widowed	6 (0.5)	2 (0.5)	4 (0.6)		
Employment status				18.76	< 0.001
Employee	314 (28.8)	129 (32.2)	185 (26.8)		
Retired	34 (3.1)	20 (5)	14 (2)		
Student	556 (51)	174 (43.4)	382 (55.4)		
Unemployed	187 (17.1)	78 (19.5)	109 (15.8)		
If you are student, what is your major field?				18.7	0.009
Humanities colleges	67 (6.1)	25 (6.2)	42 (6.1)		
Medical colleges	320 (29.3)	90 (22.4)	230 (33.3)		
College of technology	2 (0.2)	1 (0.2)	1 (0.1)		
High school	22 (2)	8 (2)	14 (2)		
Military services	1 (1)	0 (0.0)	1 (0.1)		
Post-bachelor diploma	1 (1)	0 (0.0)	1 (0.1)		
Scientific colleges	141 (12.9)	50 (12.5)	91 (13.2)		
If you are employed, what is your job?				3.35	0.187
Full time job	224 (71.3)	92 (22.9)	132 (19.3)		
Part time job	90 (28.7)	37 (9.2)	53 (7.7)		
How do you rate your physical activity (in general)?				1.21	0.748
Not active	304 (27.9)	109 (27.2)	195 (28.3)		
Active	635 (58.2)	231 (57.6)	404 (58.6)		
Very active	79 (7.2)	30 (7.5)	49 (7.1)		
Athlete	73 (6.7)	31 (7.7)	42 (6.1)		
Have you been diagnosed with any psychiatric disorder?				11.33	0.001
No	918 (84.1)	357 (89)	561 (81.3)		
Yes	173 (15.9)	44 (11)	129 (18.7)		
If yes, what it is the diagnosis? (You can choose more than one)					
Depression	92 (53.1)	24 (6)	68 (9.9)	4.91	0.027
Eating disorder	21 (12.1)	3 (0.7)	18 (2.6)	4.65	0.031
Anxiety disorder	73 (42.1)	19 (4.6)	54 (7.8)	3.87	0.049
OCD	19 (10.9)	7 (1.7)	12 (1.7)	0.001	0.994
Panic disorder	17 (9.8)	4 (1)	13 (1.9)	1.29	0.254

Post stress traumatic disorder	10 (5.7)	1 (0.1)	9 (1.3)	3.1	0.078
Psychosis	3 (1.7)	1 (0.2)	2 (0.3)	0.01	0.902
Personality disorder	5 (2.8)	1 (0.2)	4 (0.6)	0.6	0.436
Bipolar disorder	5 (2.8)	1 (0.2)	4 (0.6)	0.6	0.436
Addictive disorder	4 (2.3)	0 (0.0)	4 (0.6)	2.33	0.127
ADHD	2 (1.1)	1 (0.2)	1 (0.2)	0.15	0.697
Do you have the thought of desire to accelerate life?					
No	648 (59.4)	342 (35.3)	306 (44.3)	17.24	< 0.001
Yes	443 (40.6)	59 (14.7)	384 (55.7)		

OCD: obsessive compulsive disorder; ADAH: attention deficit/hyperactivity disorder; N.B.: * = Mann-Whitney test

Regarding the duration and frequency of media acceleration (N= 690), 37.8% were undertaking acceleration for < 1 year and 65.2% did this acceleration only sometimes. The most common reported causes of this acceleration were reaching conclusions faster (77.6%), saving time (73.7%) and decrease boredom (37.1%). Most (68%) accelerated both videos and audio formats and 42.2% were accelerated at 1.5 speed (Table 2).

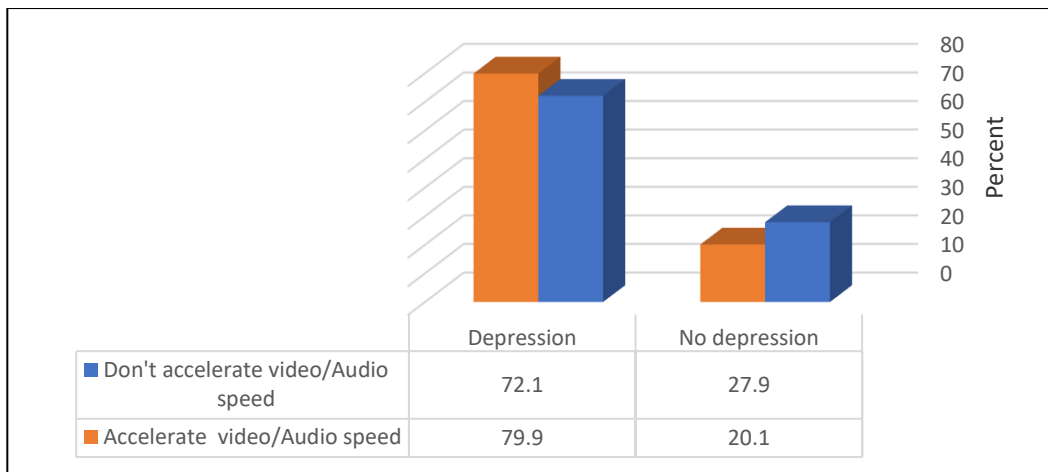
Table 2 Percentage distribution of studied participants who accelerate video/audio speed according to the pattern of acceleration (N=690).

Variable	No. (%)
How many years have you been doing video/audio speed acceleration?	
Less than 1 year	261 (37.8)
1-2 Years	236 (34.3)
3 years and more	193 (27.9)
How often do you accelerate video/audio media?	
Always	186 (27)
Rarely	54 (7.8)
Sometimes	450 (65.2)
Why are you doing video/audio speed acceleration? (you can choose more than one)	
Reaching conclusion faster	536 (77.6)
Saving time	509 (73.7)
Decrease boring	256 (37.1)
Increase concentration	74 (10.7)
Slow voice of the media	128 (18.5)
Increase productivity	85 (12.3)
What type of video/audio do you accelerate?	
Audios only	102 (14.7)
Videos only	120 (17.3)
Both (videos and audios)	468 (68)
What is the preferred and the most used acceleration speed?	
1.25	190 (27.5)
1.5	290 (42.2)
1.75	99 (14.3)
2	99 (14.3)
>2	12 (1.7)

Table 3, Figures 2 and 3 demonstrate that participants who accelerate video/audio speed had a significantly higher percentage of severe depression when compared with those who do not accelerate (8.6% versus 5.7%; $p \leq 0.05$). On the other hand, a non-significant relationship was found between prevalence of acceleration of video/audio speed and anxiety prevalence ($p \geq 0.05$).

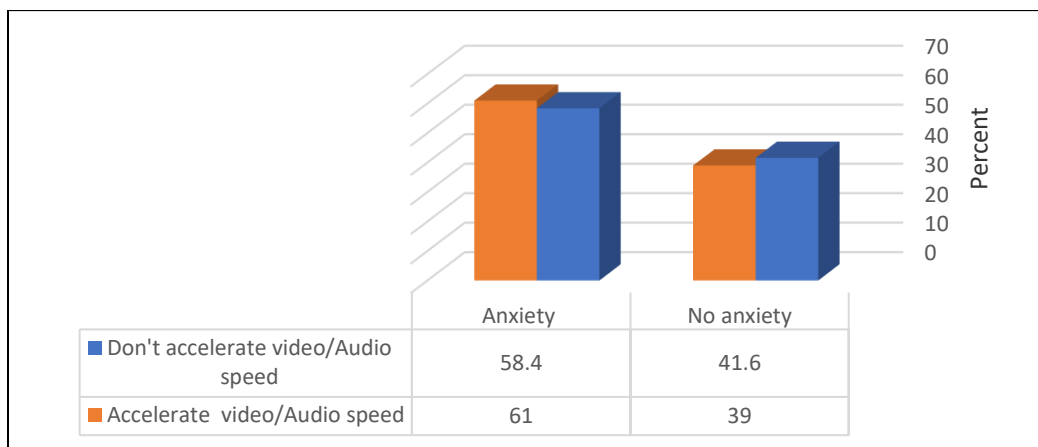
Table 3 Relationship between prevalence of acceleration of video/audio speed and depression and anxiety prevalence based on the Patient Health Questionnaire (PHQ-9) and the PHQ–General Anxiety Disorder (GAD-7) (No=1091).

Variable	Total	Do not accelerate video/audio speed	Accelerate video/audio speed	χ^2	p-value
		No. (%)	No. (%)		
Depression prevalence					
No depression	251 (23)	112 (27.9)	139 (20.1)	12.26	0.016
Mild	374 (34.3)	136 (33.6)	238 (34.5)		
Moderate	271 (24.8)	97 (24.2)	174 (25.2)		
Moderate to severe	113 (10.4)	33 (8.2)	80 (11.6)		
Severe	82 (7.5)	23 (5.7)	59 (8.6)		
Anxiety prevalence					
No anxiety	436 (40)	167 (41.6)	269 (39)	7.33	0.062
Mild	390 (35.7)	149 (37.2)	241 (34.9)		
Moderate	173 (15.9)	63 (15.7)	110 (15.9)		
Severe	92 (8.4)	22 (5.5)	70 (10.1)		



N.B.: ($\chi^2=8.67$, p-value = 0.003)

Figure 2 Relationship between prevalence of acceleration of video/audio speed and depression prevalence based on the Patient Health Questionnaire (PHQ-9) classification (No.:1091)



N.B.: ($\chi^2=0.74$, p-value = 0.387)

Figure 3 Relationship between prevalence of acceleration of video/audio speed and anxiety prevalence based on the PH–General Anxiety Disorder (GAD7) classification (No=1091).

In Table 4, multivariate logistic regression analysis was done to assess the risk factors (independent predictors) of acceleration of video/audio speed among studied participants. It was found that being a female, of Saudi nationality, having the desire to accelerate/get ahead in life and/or having previous history of depression or anxiety were risk factors (independent predictors) of acceleration of video/audio speed among the study participants ($p \leq 0.05$).

Table 4 Multivariate logistic regression analysis of risk factors (independent predictors) of acceleration of video/audio speed

Variable	B	Wald	p-value	Odds Ratio (CI: 95%)
Age	0.01	3.36	0.057	0.98 (0.96-1)
Gender (reference: female)	0.32	4.19	0.041	0.72 (0.53-0.98)
Nationality (reference: non-Saudi)	0.7	5.79	0.016	0.49 (0.27-0.87)
Region (reference: Eastern region)	0.04	1.01	0.314	0.95 (0.87-1.04)
Highest level of Education (reference: High school or less)	0.02	0.06	0.806	1.02 (0.86-1.21)
Marital status (reference: divorced)	0.01	0.007	0.931	1.01 (0.73-1.4)
Employment status (reference: unemployed)	0.16	1.62	0.203	0.84 (0.65-1.09)
If you are student, what is your major field? (Reference: Humanities colleges)	0.02	0.37	0.54	0.97 (0.9-1.05)
If you are employed, what is your job? (Reference: Full time job)	0.28	1.62	0.202	0.74 (0.48-1.16)
How do you rate your physical activity (in general)? (Reference: Not active)	0.02	0.06	0.795	0.97 (0.81-1.16)
Have you been diagnosed with any psychiatric disorder? (Reference: no)	0.41	0.66	0.413	0.65 (0.24-1.79)
Do you have the thought of desire to accelerate life? (Reference: no)	1.97	39.57	<0.001	1.2 (1.1-1.19)
Having depression (reference: no)	0.34	3.59	0.04	1.41 (0.98-2.02)
Having anxiety (reference: no)	0.35	4.52	0.033	0.7 (0.51-0.97)

4. DISCUSSION

Based on cognitive behavioral theory, a person’s behavior influences the way they feel and think and media acceleration behavior could affect a person’s feelings of pleasure or stress.

This study found that 63.2% of the sample was using media acceleration. Most of them always used this feature (65.2%) or sometimes (27%) within the last two years (72.1%). To our knowledge, this study is the first descriptive study to investigate the effect of media acceleration behavior on mental health and no prior study can be found for comparison. One explanation is that half of the participants were students (51%), mainly medical students (29.3%), who spend many hours studying, a process that could contribute to the urge for faster conclusions (Cardall et al., 2008; Qamar et al., 2015). Another explanation is that 28.8% of the participants were employed, mainly in full-time jobs (71.3%), who might have high work demands and busy schedules that might prompt them to accelerate media.

This study showed that participants accelerating video/audio speed had a significantly higher percentage of severe depression (8.6%) and non-significantly higher percentage of severe anxiety (10.1%) compared to who were not accelerating (5.7% and 5.5%, respectively). Moreover, regression analysis showed that having a previous history of depression or anxiety were risk factors of media acceleration. This finding can be explained by the reported reasons of using acceleration in our study, including reaching conclusion faster (77.6%), saving time (73.7%), decrease boredom (37.1%), slow voice of the media (18.5%) and an increase in productivity and concentration (12.3% and 10.7%, respectively). It was not unexpected that improving focus was one of the causes because it is thought that poor concentration is a sign of depression and anxiety (Muskin, 2021; Torres, 2020; World Health Organization, 2017). Boredom was also associated with depression and anxiety (Lee & Zelman, 2019; Raffaelli et al., 2018) in addition to people with depression who may have also have decreased levels of motivation and interest, which could explain accelerating media to reach conclusions more rapidly (Torres, 2020; World Health Organization, 2017). In addition, social isolation and a decline in active social interactions may make persons with mental health disorders, such as depression and anxiety, more vulnerable to social media exposure (Karim et al., 2020; Keles et al., 2020). Also, many studies have linked depression and anxiety

with social media exposure in general (Gao et al., 2020; Karim et al., 2020; Keles et al., 2020). Additionally, accelerating media has shown an increase during COVID-19 outbreaks and post-COVID-19 recovery by 236 and 261 participants, respectively, which can be explained by the increase use of the internet during the pandemic (Gao et al., 2020; Shehata & Abdeldaim, 2021). This is a study that may be accelerated by the want factor: Desire, links to be able and accelerate that in your life (Garhammer, 2002; Melnikov et al., 2020).

Being younger and female were significant risk factors that led to accelerating media in this study. This correlation can be supported by findings in other previous studies that indicate being female or younger in age will increase the risk of developing depression (Keles et al., 2020). Additionally, two additional studies revealed that women are 10 times more addicted to social media than men are (Gao et al., 2020; Shehata & Abdeldaim, 2021).

Limitations

Although this study is the first descriptive study to investigate media acceleration behavior effect on mental health among Saudi general population, it has multiple limitations. First, the majorities of the responder were accelerating media during or after coronavirus disease 2019 (COVID-19) pandemic (72.1%), which was evident to affect mental health. Second, this study does not tell us who started first and cause the other, accelerating media is what causes depression and anxiety, or that anxiety and depression lead to media acceleration. Third, most of the participants were students (51%), which limits the generalizability of our findings to the general Saudi population. Fourth, the study did not assess study or workloads, which may be a confounding factor. Finally, the exposure time of media acceleration varies from person to person, which may have caused a reduction in the accuracy of the results.

5. CONCLUSION

In conclusion, media acceleration is a prominent behavior among technology users. Being female, of Saudi nationality, having the desire to accelerate life, were diagnosed previously with depression or anxiety and presenting current symptoms of severe depression were significant risk factors of media acceleration among Saudi general population. Due to the negative impact of depression on life and daily activities, routine checked-ups for mental status should be recommended among excessive media users. Further studies in this area using different study samples and methodologies would be valuable.

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Author Contributions

Elaf Saleh Heji, Anas Atiyah Alzahrani, Ibrahim Ali Alasmari, Shatha Hassan Aljefri, Hiyam Mohammad Saddiq Qanadily, Hanoof Alkhalaf, Deemah A Alateeq: All shared in designing the study, developing the questionnaire and the informed consent, writing the protocol and planning the study. Carried out data collection, entry, statistical design and analysis.

Informed consent

An online consent was obtained from all individual participants included in the study.

Ethical approval

Ethical approval was obtained from the Institutional Review Board at Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia (IRB-PNU:22-0337) on May 17, 2022

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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