

## Impact of Video Games on Physical and Psychological Wellbeing Among Medical Students

Abdulmalik B Albaker<sup>1\*</sup>, Sawsan M Abdalla<sup>2</sup>, Alhanouf S Almuhaydib<sup>3</sup>, Ohud A Alobaid<sup>3</sup>,  
Fai M Alanazi<sup>3</sup>, Taghreed O alfadhel<sup>3</sup>, Bushra S Alsakran<sup>1</sup>

<sup>1</sup>Department of Orthopaedics, College of Medicine, Majmaah University, Al-Majmaah 11952, Saudi Arabia

<sup>2</sup>Department Community Medicine and Public Health, College of Medicine, Majmaah University, Al-Majmaah 11952, Saudi Arabia

<sup>3</sup>College of Medicine, Majmaah University, Al-Majmaah 11952, Saudi Arabia

### ABSTRACT

*Introduction:* Nowadays video games became like an addiction for every group age especially students because of their intensive stressful life online gaming and challenging became trendy. The consequence and affects for playing video games are always there upon the types of games short and long-time effect from strategy to violence games the effect on academic performance, sleep to the psychological part.

*Aim:* The aim of this research is to assess the prevalence of addiction to video games and its impact mental and physical health in a sample of university students from al-majmmah region of Saudi Arabia.

*Materials and Methods:* This cross-sectional community-based study was conducted among students in Majmmah University, college of medicine 2019. The study population includes all students in the Al Majmaah University, Saudi Arabia in the educational year of 2018-2019. The sample size includes total 234 students selected by multiple steps stratified sampling method. Data were collected by using pre-tested and pre-coded questionnaire among 234 students. *Results:* Psychological effects of video game among medical students were shown in table 3. 9.2% of students playing video games they sleep less than 3 hours, 22.7% of the students playing video games sleep 3-5hours, 57.1% of student playing video games they sleep 5-8hours, 11% of students played video games they sleep more than 8 hours (table 9) 19% (n=31) students have GPA 4.5 and above, 19.6% (n=32) students have 4.4-4.1, 29.4% (n=48) have 3.5-4, 27% (n=44) have 3-3.5 and 4.9% (n=8) have GPA 2 and less than that.

*Conclusion:* This study showed that prolong between playing video game effecting sleep habit, but not effect sleep hours.

**Key words:** Video games, Consequence, Physical health, Psychological effects.

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**Corresponding author:** Abdulmalik B Albaker

**e-mail:** a.albaker@mu.edu.sa

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### INTRODUCTION

Games are one of the important technologies that affect children and adolescents as well as adult, games are one of a few technological applications that have improved at a constant and rapid speed. Due to the engaging nature of video games, users

often find them to be a common part of their normal leisure activities and spend considerable amounts of time playing them. U.S. gamers are now playing video games an average of 8 hours a week and this number is steadily rising. Since 1996, there has been a marked growth in the development of video games. Recently, the percentage of Internet expansion in Saudi Arabia has increased at a high rate; there are 19.6 million users, representing about 63.7% of Saudi Arabia's population compared to 5% in 2001 [1]. In Saudi Arabia a study conducted in Al-Qassim

province in Saudi Arabia, showed that the video game addiction among students were 15.8% and slightly older, more likely to be boys, more likely to be overweight but less likely to be obese, had higher screen time, and fewer sleep hours than those who were not addicted to video games [2-4]. Video game addiction may have both short and long-term effects on adolescents, which span psychological, emotional, and neurological ramifications [3]. Some children and youth with high videogame addiction tendencies may be at risk of sleep deprivation and disorders associated with obesity and poor cardio-metabolic health, Hamilton researchers have found [4].

The higher screen time that comes along with this video game addiction disrupts normal sleep pattern, resulting in a pattern with less sleep overall, longer time to fall asleep, and more interruptions during sleep [3]. Obesity is also strongly associated with the presence and clustering of cardiovascular risk factors including hypertension, hyperlipidemia, and hyperinsulinemia. It is known that exposure to light during the night delays the acrophase of human circadian rhythm and suppresses melatonin and the effects of bright light before going to bed on sleep have been reported. More recent studies have shown that exposure to light of relatively low intensity can affect human circadian rhythm [5,6] and that performing an exciting video display terminal (VDT) task using a bright display suppressed nocturnal salivary melatonin secretion. Furthermore, it has been reported that there is a dose-response relationship between light intensity and human alertness during the early biological night, exposure to a light of approximately 100 lx increases human alertness. These results of previous studies suggest that a bright display also may influence pre-sleep physiological variables and sleep, although the light intensity of a computer display is not so strong [7]. A cross-sectional study was conducted from March to June, 2015 including 541 participants in Jeddah, KSA To evaluate the relationship between body mass index (BMI) and the duration spent on electronic devices, and to assess the factors that can cause obesity among children showed Children who spent  $\geq 2$  hours daily on electronic devices showed an increased BMI [8].

Also, in Saudi Arabia, a study was conducted in Jeddah, showed that video-gaming may improve

academic performance of medical students by providing an important form of entertainment which can result in improved concentration during study time. The results also suggested that limited usage of video games can be associated with moderate improvement in GPA among medical students in Saudi Arabia [9]. The aim of this research is to assess the prevalence of addiction to video games and its impact mental and physical health in a sample of university students from al-majmmah region of Saudi Arabia.

## MATERIALS AND METHODS

**Study setting and design:** This was a cross sectional community-based study to study the prevalence, physical and psychological impact of video games among students in Majmaah University, college of medicine 2020.

**Study population:** The study population includes all students in the Majmaah University, Saudi Arabia in the educational year of 2018-2019. The sample size includes total 234 students selected by multiple steps stratified sampling method.

**Data collection:** Data were collected by using pre-tested and pre-coded questionnaire. In total, 234 students were chosen for filling the questionnaires, after obtaining the permission from Majmmah University. The questionnaires distributed among sample. 234 students filled the questionnaires and returned to the researcher.

Student in Majmaah University in college of medicine were included in this study and any students who were not from Majmaah University, and not from college of medicine, were excluded. The confidentiality of all participants in this study was protected. Informed consent was obtained from all participants. Names of the participants were not requested. Data were analysis by using SPSS statistical software program.

## RESULTS

Out of 234 students in college of medicine in mamjmah university, 69.65% (n=163) play video games and 30.34% (n=71) do not play video games. Out of a total number of a 163 (n=163) students who plays video games, 16% (n=26) were between the ages 19-20 years old, 33.7% (n=55) were aged between 21-22 years

old, 42.9% (n=70) were aged between 23-24 years old, and only 7.4% (n=12) were aged 25 years old and above. 76.1% were males (n=124) and 23.9% (n=39) were females. 11.7% (n=19) were first year students, 23.3% (n=38) were second year students, 28.8% (n=47) were third year students, 16% (n=26) were fourth year students and 20.2% (n=33) were fifth year students (Table 1).

58.9% (96) are playing 1-4 hours per week, 24.5% (40) are playing around 5-9 hours, 9.2% (15) are playing 10-14 hours, 1.8% (3) are playing around 15-19 and 5.5% (9) students play more than 19 hours per week (Table 2).

Out of these, 10.4% (n=17) play with family member, 13.5% (n=22) play with their friends who know personally, 8.6% (n=14) play with friends who know them online, 9.8% (16) play with strangers, 44.2% (n=72) play with many people include (family, friends, strangers), 13.5% (n=22) do not play online. 9.8% (n=16) play action/adventure, 16.6% (n=27) play fighting, 4.3% (n=7) strategy, 4.3% (n=7) play puzzle, 14.1% (n=23) play sport games. 25.8% (n=42) use video game to stay in touch with their friends, 48.5% (n=79) they don't use video games to stay in touch with their friends

, 25.8% (n=42) of students they use video games sometimes to stay in touch with their friends. 41.7% of students played video games said that it affected their sleep habit, 38% of the student said it did not affect their sleep habit, 20.2% of student sometimes playing video games said it affected their sleep habit (Table 3).

Psychological effects of video game among medical students were shown in table 3. 9.2% of students playing video games they sleep less than 3 hours, 22.7% of the students playing video games sleep 3-5 hours, 57.1% of student playing video games they sleep 5-8 hours, 11% of students played video games they sleep more than 8 hours (table 9) 19% (n=31) students have GPA 4.5 and above, 19.6% (n=32) students have 4.4-4.1, 29.4% (n=48) have 3.5-4, 27% (n=44) have 3-3.5 and 4.9% (n=8) have GPA 2 and less than that. 25.4% (n=41) have been effect on their academic performance, 59.5% (n=97) have no effect and around 15.3% (n=25) they find that sometimes may their effect your academic performance (Table 4). The effect of video games on eating habit, body fitness according to the time spending on playing video game, among student were shown in Table 5.

Table 1: Variable of playing video games among medical students in Majmmah university.

Do you play video games?	Frequency	Percent
Yes	163	69.65%
No	71	30.34%
Total	234	100%
Age gender and academic year distribution		
Variable	Frequency	Percentage
Age		
19-20	26	16%
21-22	55	33.70%
23-24	70	42.90%
25 and above	12	7.40%
Gender		
Male	124	76.10%
Female	39	23.90%
Year		
First year	19	11.70%
Second year	38	23.30%
Third year	47	28.80%
Fourth year	26	16%
Fifth year	33	20.20%
Total	163	100%
Hours spent on playing video games per week		
playing games per week	Frequency	Valid Percent
1-4 hours	96	58.9
5-9 hour	40	24.5
10-14 hour	15	9.2
15-19 hour	3	1.8
more than 19 hours	9	5.5

**Table 2: People playing with and reasons of playing video games among medical students in Majmaah University.**

1-people play with	Frequency	Percent
Family member	17	10.4
Friends who you know personally	22	13.5
friends who you know online	14	8.6
Stranger	16	9.8
with many people include (Family- friends- stranger)	72	44.2
do not play online	22	13.5
2-type of video games	Frequency	Percent
Action /adventure	16	9.8
Fighting	27	16.6
Strategy	7	4.3
Puzzle	7	4.3
Sport	23	14.1
3-playing video games to stay in touch with friends	Frequency	Percent
Yes	42	25.8
No	79	48.5
Sometimes	42	25.8
4- type of device used to play video games	Frequency	Percent
Action/ adventure	16	9.8
Fighting	27	16.6
Strategy	7	4.3
Puzzle	7	4.3
Sport	23	14.1
Total	163	100

**Table 3: Psychological effects of video game among medical students.**

Feeling restless or irritable when attempt to cut down or stop playing video games			
Answer	Frequency	Percent	Valid Percent
Yes	46	28.2	28.2
NO	75	46	46
Sometimes	42	25.8	25.8
Effect video game in difficulty to control temper			
Answer	Frequency	Percent	Valid Percent
Yes	40	24.5	24.5
NO	84	51.5	51.5
Sometimes	39	23.9	23.9
Contribution of aggressive video games in behavior			
Answer	Frequency	Percent	Valid Percent
Yes	72	44.2	44.2
NO	53	32.5	32.5
Sometimes	38	23.3	23.3
Enthusiastic with others when playing video games			
Answer	Frequency	Percent	Valid Percent
Yes	129	79.1	79.1
No	16	9.8	9.8
Sometimes	18	11	11

**Table 4: The frequency of the effect of playing video game on eating habit, body fitness and academic performance among student in college of medicine.**

Valid percent	Frequency	Have video games affected your eating habit ?
28.8	47	Yes
58.3	95	No
12.9	21	Sometimes
100	163	Total
Valid percent	Frequency	Have video games affected your body fitness?
40.5	66	Never
46	75	Little
13.5	22	Too much
100	163	Total

effect of video games on sleep habit and hours of sleep per day		
1-playing video game affects your sleep habit?	Frequency	Percent
Yes	68	41.7
NO	62	38
Sometimes	33	20.2
2-Hours sleeping per day?	Frequency	Percent
Less than 3 hours	15	9.2
3-5 hours	37	22.7
5-8 hours	93	57.1
More than 8 hours	18	11
Effect of playing video games on academic performance		
1-GPA	Frequency	Percent
4.5 and above	31	19
4.4-4.1	32	19.6
4-3.5	48	29.4
3.4-3	44	27
2 and less	8	4.9
Total	163	100
2-effect your academic performance	Frequency	Percent
Yes	41	25.2
No	97	59.5
Sometimes	25	15.3
Total	163	100
3-how does it affect academic performance?	Frequency	Percent%
I cannot focus in my study	30	18.4
I get less grade	14	8.6
I get high grade	17	10.4
I cannot do my homework	12	7.4
not applicable	90	55.2
Total	163	100

Table 5: The effect of video games on eating habit, body fitness according to the time spending on playing video game among medical students.

Total	More than 19 hours	15-19 hours	10-14 hours	5-9 hours	1-4 hours	Effect of video games on eating habit
28.8% (47)	66.7% (6)	0% (0)	53.3% (8)	22.5% (9)	25% (24)	Yes
58.3% (95)	11.1% (1)	100% (3)	33.3% (5)	60% (24)	64.6% (62)	No
12.9% (21)	22.2% (2)	0% (0)	13.3% (2)	17.5% (7)	10.4% (10)	sometimes
100% (163)	100% (9)	100% (3)	100% (15)	100% (40)	100% (96)	Total
Total	More than 19 hours	15-19 hours	10-14 hours	5-9 hours	1-4 hours	Effect of video game on body fitness
40.5% (66)	22.2% (2)	0% (0)	33.3% (5)	32.5% (13)	47.9% (46)	Never
46% (75)	44.4% (4)	100% (3)	53.3% (8)	52.5% (21)	40.6% (39)	Little
13.5% (22)	33.3% (3)	0% (0)	13.3% (2)	15% (6)	11.5% (11)	Too much
100% (163)	100% (9)	100% (3)	100% (15)	100% (40)	100% (96)	Total

DISCUSSION

Out of 234 students in college of medicine in Majmaah University, 69.65% (n=163) play video games and 30.34% (n=71) do not play video games. Out of a total number of a 163 (n=163) students who plays video games, 16% (n=26) were between the ages 19-20 years old, 33.7% (n=55) were aged between 21-22 years old , 42.9% (n=70) were aged between 23-24 years old , and only 7.4% (n=12) were aged 25 years old and above .Majority of the students playing games (42.9%) were between the ages of 23-24 years old, which goes in line with a study conducted by ahmed aljohny in king abdulaaziz

university in Jeddah [10] which showed that the ages of students playing video games range from 20-24 years old. Also this result goes in line with a two-Institutions, Cross-Sectional Study conducted by Ali Alkhaibary 9 that showed that the mean age of students playing video games was 21 years old.76.1% were males (n=124) and 23.9% (n=39) were females. Which shows that majority of video game players are male students? On the other hand, a study conducted by ahmed aljohny in king Abdul-Aziz university in Jeddah which showed that (58%) of video game players were female students [10].

44.2% (n=72) of students playing violent games reported that it contributed to their aggressive

behavior, 32.5% (n=53) of students playing aggressive games said did not contribute their aggressive behavior, 23.3 % (n=38) of students that playing aggressive games said it sometimes contribute their aggressive behavior. Most students report that playing aggressive games reported that it contributed to their aggressive behavior. On the other hand, study done by Manal Alamri et al. [11] suggested that there is no relationships in general between the amount of violence in video games and the amount of time playing video games and aggressive behaviors, thoughts, and feelings. (n=36) 22.1 % of student noticed change in their weight since they start playing video games, 69.9% (n=114) had not noticed any change in their weight since they start playing video game, 8% (n=13) of student sometimes noticed change in their weight.

The majority of the students (69.9%) did not notice change in their body weight or habit since they start playing video game. On the other hand, a study conducted by Abdulmoein et al. [8] showed that video games cause change in body weight. Possible explanation of this finding is the rich knowledge of students and awareness on health, effect of the fast food and physical activity.

Majority of students whom playing video games said it affected their sleep habit. Also, majority of the students reported that they sleep 5-8 hour. possible explanation to this is that a large portion of their time spent on playing video games. Similarly, a study conducted by Daniel, et al. [12] showed that prolonged video gaming may cause clinically significant disruption to adolescent sleep, even when sleep after video gaming is initiated at normal bedtime.

19% (n=31) students have GPA 4.5 and above, 19.6% (n=32) students have 4.4-4.1, 29.4% (n=48) have 3.5-4, 27 % (n=44) have 3-3.5 and 4.9 % (n=8) have GPA 2 and less than that. Majority of video game player have GPA 4-3.5 which is due to negative effect of playing videogame on their GPA which goes in line with a study done by Alamri [11] which shows, the Mean of the participants' GPA is 3.4. 25.4% (n=41) have been effect on their academic performance, 59.5% (n=97) have no effect and around 15.3% (n=25) they find that sometimes video games may affect their academic performance which is go in line the study done by Mohamud, et al. [13] that

suggests that there is no significant difference in the mean GPA of those who play video games on a regular basis and those who do not play video games.

And Out of 73 students who answer yes and sometimes for effect , 18.4% (n=30) they cannot focus in their studies, 8.6% (n=14) they get less grade, 10.4% (n=17) they get high grade ,7.4% (n=12)they cannot do their homework , Majority of students they cannot focus in their studies on the other hand , a study conducted by Mohamud, et al. [13] which shows that there is no significant difference in the mean GPA of those who play video games on a regular basis and those who do not play video games.

### CONCLUSION

Playing video games is an extremely popular activity among adolescent, most players were males 76.1% (n=124) out of total 163 aged between 23-24 years old 42.9% (n=70). It can affect adolescents' health and emotion. Sedentary lifestyle patterns and video games have been associated with obesity. The negative impact from video game addiction on the life of the adolescent is pervasive and severe. We recommend that public health authorities and researchers place video game use and addiction as one of the health priorities in the community. This study showed that prolong between playing video game effecting sleep habit, but not effect sleep hours.

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