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Impact of Video Games on Teenagers' Aggressive Behavior

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Abstract--*In recent time, the exposure video games have augmented due to the latest technological advancement. Teenagers are engulfed with video games and this has lead to behavior changes. Thus, present study has measured the impact of video games on teenagers' aggressive behavior. This study was conducted on a sample of 56 teenagers from Jeddah city in Saudi Arabia. For this work, questionnaire based on Buss Perry Aggression was developed and aggressive behavior among teenagers was analyzed. SPSS software was used to perform the statistical analysis. The result has shown that the teenagers prefer to play action based games compared to the other genre games. In addition, the result have shown that there is a significant correlation between the numbers of hours per week teenagers play video games its impact and development of aggression behavior. There is statistically significant correlation between the hours spent in playing video games and the full scale – at level (0.05).*

CCS Concepts Information systems

Keywords*--Video games; behavior; teenagers; technology; aggressive; Saudi Arabia.*

I. INTRODUCTION

Technological advancement is proving to do more harm than good, despite the positive aspects attributed to it. Children have become significantly engaged in technology especially in the gaming activities [1]. Considering that a majority of children today are getting increased exposure to technology for various activities, the impact of such increased exposure is a worrying trend for a majority of teenagers and adolescents parents, with regard to what awaits their children [2]. Ideally, the graphicness of the violence contained in the video games remains the major aspect problem associated with children playing the video games, as the effects are equally violent [3].

To a greater extent, a majority of the teenagers and adolescents are exposed to video games, and most especially those that contain violence have increasingly shown aggressive behavior [4]; thereby, bringing up a conclusion that indeed the aggressive behavior in teenagers is an attribute of their exposure to video games, and most especially those that contain violence [5].

The problem of aggressive behavior among teenagers is indeed one of significant importance as it clearly identifies that the society today is headed for great destruction if no appropriate measures are taken to streamline the aspects pertaining to children's involvement in video games and effects attributed to them [6].

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Additionally, a study into this problem provides for an opportunity in developing appropriate mitigation strategies through appropriate legislations as a means of exerting control on teenagers and regulating the kind of video games they can play, in order to prevent their increased development of aggressive behavior[7].

The current situation in which children are becoming increasingly involved is proving more problematic as it involves the development of aggressive behavior among teenagers who engage in such gaming activities [8].

Previous researches conducted on similar topics have clearly identified increased exposure to video games and other media aspects to have negative effects on the individuals that engage in them. Engelhardt et al.[9] analyzed the impact of violent video games on persons behaviour and found that the exposure to violence has a significant influence on aggressive behavior. Greitemeyer et al.[10] investigated the influence of playing a fierce computer game on forceful conduct and discovered that playing brutal computer games evoked forceful conduct. Ewoldsen et al.[11] examined the impact of playing vicious computer games in focused way and found that players in the helpful condition occupied with forcefulness. Hasan et al.[12] analyzed the effect of being exposed to violent video games on aggressive behavior and found that the aggressive behavior cumulates over time of exposure to violent games. Greitemeyer et al.[13] analyzed if video games effects the social outcome and behavior and found that violent video games caused social and behavioural issue when compared to less violent games. Gentile et al.[14] studied the long haul impacts of playing brutal computer games on forceful conduct and found that the viciousness of the game changes physiological reasoning of the mind and instigates forceful conduct. Lobel et al.[15] evaluated connection between aggressive gaming and changes in youngsters' social behaviour and found exposure to video games has lead to changes in social behaviour. Kühn et al.[16] investigated if playing violent computer games cause animosity and found the fierce idea of the game and its aggressiveness has caused hostility in the player. Markey et al.[17] analyzed the affiliation brutal computer games and actual viciousness and found that exposure to violent games has caused aggressive behaviour, but it is not related to the real world violence. Velez et al.[18] studied the implication of playing violent video games on aggressive behaviour and found that the aggressive behaviour can be reduced by cooperative play style. Greitemeyer et al.[19] examined the spreading effect of playing fierce computer games on animosity and found that playing savage computer games is related with expanded hostility, which at a point spreads among associated people.

Thus, previous research done on the psychological changes attributed to the exposure of teenagers to video games has clearly identified the elements of violence contained in the video games as the major contributing factors to the aggressive behavior associated with teenagers with increased exposure to playing games. However, such determinations have equally had their fair share of controversial issues as some individuals have made claims that videogames have significantly helped teenagers stay out of certain bad company and not all who play video games play the violent games.

Additionally, the individuals have made assertions that playing of video games by teenagers, be those that contain violence or not, does not directly imply that such teenagers are aggressive in their behaviors. Hence, this work was done to analyze the effect of video games on teenagers' aggressive behavior at Jeddah city in Saudi Arabia.

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II. METHODOLOGY

Participants

The 56 participants for this study were teenagers aged between 14 and 18 years from Jeddah city in Saudi Arabia and of both genders (43 Males-13 Females). Convenience sample of 56 participants selected for the study were teenagers of friends and family voluntarily participated.

Instrument

The survey involved two parts. In part one, questions about age, gender, frequency and the amount of time spent in playing video games, and the particular type of the video games played by the teenagers were asked. And part two consisted of Buss Perry aggression questionnaire (BPAQ), it was made by Arnold Buss and Mark Perry in 1992 [20] for measures the aggression in adult, and its include 29 items questionnaire were the participant rank certain questions of five point starting from "extremely uncharacteristic of me" to "extremely characteristic of me." The scores are from 0 to 1, the 1 is considering the highest level of aggression. The scores of the questionnaires was divided in 4 category of aggression included physical aggression, variable aggression, anger and hostility.

Procedure

This work has used quantitative research design. Quantitative design ensured that the qualification of data and its generalization from the sample used got the target population. Additionally, quantitative design helped to measure the incidence of various views and opinions of 56 teenagers. The use of quantitative design worked to gain understanding of teenagers' underlying reasons and motivations pertaining. Quantitative research seeks to make descriptions of the current status of the identified variables and additionally, extend to make a correlation between the hours that teenagers spent in playing video games and aggressive behaviors.

Questionnaire was then administered to 56 teenagers from whom information pertaining to the impact of video games on the children were determined. Data collection in this particular study involved administering the questionnaires to the study participants through an online platform, which were sent to them via emails. They would therefore respond to the questions appropriately via the link. This process involved sending the questionnaires to the participants at the start of the study to provide sufficient time for the participants to study the questions in the questionnaires and understand them fully, to allow them provide sufficient answers that would help the study. After the participants answered to the questions, data were collected and was analyzed. The computer software Statistical Package for social Sciences (SPSS) version (16) has been used for the purpose of conducting the statistical analysis. The following statistical tools have been used: the descriptive analysis (frequencies and percentage) for the demographic characteristics of the participants, the reliability test (Cronbach's alpha), descriptive statistics (weighted mean and standard deviation), Pearson correlation to find the correlation between each statement and the full-scale, and the correlation between the question concerning the time spent in playing video games and the full scale, and to get t-test for equality of means we divided the teenagers in two main groups according to the hours they spent in playing video games (more than 5 hours and less than 5 hours).

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III. RESULT AND DISCUSSION

Demographic Characteristics

Table 1 shows that the majority of the respondents (76.8%) are males, while (23.2%) of the respondents are females. This has explained that the violent games are usually preferred by the male gender.

Table 1: Frequency distribution of the respondents according to Gender

Gender	Frequency	Percent
Male	43	76.8%
Female	13	23.2%
Total	56	100.0%

Table 2 shows that the sample is divided equally into two groups, it was found that (50.0%) of the respondents spend 5 hours or less per week in playing video games, and the other (50.0%) spend more than 5 hours per week in playing video games. The following pi-chart shows these percent's.

Table 2. Frequency distribution of the respondents according to time spent in playing video games.

Time spent	Frequency	Percent
5 hrs or less a week	28	50.0%
More than 5 hours a week	28	50.0%
Total	56	100.0%

Table 3 shows that (50.0%) of the respondents prefer playing action games, (25.0%) prefer fighting games, (19.6%) prefer sport games, while (5.4%) prefer other games other than the mentioned.

Table 3: Frequency distribution of the respondents according to preferable games

Preferable games	Frequency	Percent
Action	28	50.0%
Fighting Games	14	25.0%
Sports	11	19.6%
Other	3	5.4%
Total	56	100.0%

Correlation Analysis

Table 4 shows the result of reliability test of the Buss-Perry Aggression Questionnaire. It was found that the Cronbach's alpha (reliability) is 0.957, which indicate a high reliability of the scale when applied on the sample of this study.

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Table 4: Alpha reliability coefficient of buss-perry aggression questionnaire

Scale	Number of Items	Reliability
Buss-Perry Aggression Questionnaire	29	0.957

Table 5 shows the correlations between each statement and the full scale of Buss-Perry Aggression Questionnaire. It was found that all Pearson correlation coefficients denote significant positive correlations between each statement and the full scale at levels (0.01 & 0.05), and the correlations ranged from medium to high, except the correlation between statement No. 4 (I tell my friends openly when I disagree with them) and the full scale, which is not significant (sig. = 0.09).

Table 5: Correlation between each statement and the full scale

Aggression Questionnaire Statements	Pearson correlation coefficient	Sig.	Decision
1. Some of my friends think I am a hothead	0.848**	0.000	Significant
2. If I have to resort to violence to protect my rights, I will.	0.663**	0.000	Significant
3. When people are especially nice to me, I wonder what they want.	0.722**	0.000	Significant
4. I tell my friends openly when I disagree with them.	0.229	0.090	Not Significant
5. I have become so mad that I have broken things.	0.612**	0.000	Significant
6. I can't help getting into arguments when people disagree with me.	0.585**	0.000	Significant
7. I wonder why sometimes I feel so bitter about things.	0.617**	0.000	Significant
8. Once in a while, I can't control the urge to strike another person.	0.854**	0.000	Significant
9. I am an even-tempered person.	0.727**	0.000	Significant
10. I am suspicious of overly friendly strangers.	0.811**	0.000	Significant
11. I have threatened people I know.	0.785**	0.000	Significant
12. I flare up quickly but get over it quickly.	0.550**	0.000	Significant
13. Given enough provocation, I may	0.837**	0.000	Significant

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hit another person.			
14. When people annoy me, I may tell them what I think of them.	0.505**	0.000	Significant
15. I am sometimes eaten up with jealousy.	0.742**	0.000	Significant
16. I can think of no good reason for ever hitting a person.	0.264*	0.049	Significant
17. At times I feel I have gotten a raw deal out of life.	0.838**	0.000	Significant
18. I have trouble controlling my temper.	0.791**	0.000	Significant
19. When frustrated, I let my irritation show.	0.903**	0.000	Significant
20. I sometimes feel that people are laughing at me behind my back.	0.565**	0.000	Significant
21. I often find myself disagreeing with people.	0.664**	0.000	Significant
22. If somebody hits me, I hit back.	0.645**	0.000	Significant
23. I sometimes feel like a powder keg ready to explode.	0.668**	0.000	Significant
24. Other people always seem to get the breaks.	0.730**	0.000	Significant
25. There are people who pushed me so far that we came to blows.	0.813**	0.000	Significant
26. I know that "friends" talk about me behind my back.	0.738**	0.000	Significant
27. My friends say that I'm somewhat argumentative.	0.648**	0.000	Significant
28. Sometimes I fly off the handle for no good reason.	0.735**	0.000	Significant
29. I get into fights a little more than the average person.	0.570**	0.000	Significant

Table 6shows the Pearson correlation test. The results show that Pearson correlation is (0.881) which mean a positive strong correlation, and sig. is (0.01) which mean there is significant correlation. Thus these two results, it

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can be derived from that there is statistically significant correlation between the hours spent in playing video games and the full scale – at level (0.05).

Table 6: Correlation between times spent in playing video games and the full scale.

Question	**Correlation**	**Full Scale**
How many hours you play video games in a week?	Pearson Correlation	0.881
	Sig.(2-tailed)	0.166
	N	56

Table 7 shows the results of independent samples t-test for equality of means of the two groups (5 hours or less & more than 5 hours) in BPAQ, in addition to means and standard deviations. We find that the first group (5 hours or less) has mean in BPAQ (76.14) with standard deviation (21.89), and the second group (more than 5 hours) has mean in BPAQ (84.5) with standard deviation (22.64), and we may notice the ostensible difference between the two mean. The results of t-test show that the t-value is (-1.404) and the sig. of the test is (0.166) which is greater than ($\alpha = 0.05$). This indicates the non-significant difference between the two groups in means. In other words, there are no statistically significant differences between the means of the two groups in BPAQ full scale.

Table 7: Independent samples t-test (five hours or less & more than 5 hours) groups, means and standard deviations

Scale	**Five hours or less**		**More than 5 hours**		**t**	**P**
	(n=28)		(n=28)			
	M	SD	M	SD		
BPAQ	76.14	21.89	84.50	22.64	-1.404	0.166

Overall Discussion

The correlation analysis was carried out on video gaming habit of teenagers and their aggressive behavior. According to the result it was found that most of the participants were males as it and they spending higher amount of time playing with video games more than girls. The outcome of this work is inline the study of Rehbein et al.[21] where is was stated that males prefer to play video games more than females and the amount of time spent on playing video games is high.

Moreover the number of participants who spending their time playing video games less than 5 hours is equals the participants who playing video game more than 5 hours and the t-test shows that there is no significant differences between the two group in aggression behavior which mean the playing with video games will lead to aggression behavior on teenagers. Additionally the results shows that the preferable type of video games is action, it shows a high percentage on action rather than the other types, So that answer support previous studies talked about the teenagers usually prefers the action video games rather than other types. This outcome is inline the reported

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work of Scharrer et al.[22] where it was stated teenagers prefer action and violent based video games and playing these games has lead to aggressive behavior.

In addition, the correlation between “Gaming hours” and “the full scale of aggression questionnaire” behavior of a teenager is an indication of positive correlation. So, it can be concluded that, there is a statistically significant correlation exists between “Gaming hours” and “the full scale of aggression questionnaire” on behavior of a teenager. This is inline with the work of Breuer et al.[23] and Lamb et al.[24] where it was confirmed that playing violent video games leads to aggressive behavior in the individual. This was due to the physiological effect and mental changes caused by the nature of the game.

IV. CONCLUSION

This work has evaluated the impact of video games on teenagers' aggressive behavior. This analysis was carried out on 56 teenagers at Jeddah, Saudi Arabia. This work was done based on quantitative research design and data were collected through questionnaire. The outcome of this work has shown that there is a statistically significant correlation exists between playing video games and aggressive behavior. This work was done to provide the attention to our community about the series impact of the violent video games on the teenagers' aggressive behavior, most of our Saudi community doesn't recognized the impact of the violent video games, so this work gives furnishes information about the impact of violent video game on teenagers for more awareness and understanding.

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