https://doi.org/10.15218/ejnm.2021.10 Erbil j. nurs. midwifery, Vol. 4, No. (2), Nov 2021
Original Article

Effect of Video Game on School Achievement in School Age Children in Erbil/City

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ABSTRACT

Background and objectives: Playing video games is associated with poor academic achievement, Student who got their game systems directly spent less time on homework and, four months later, they got lower reading and writing scores, their teachers were more likely to report academic difficulties. The aim of study is to identify the effect of play video game on school achievement.

Methods: A cross sectional descriptive study was carried out at five primary school in Erbil city 50 students was taken as a case group compared with 200 students as control group started from 15 September to 15 November 2020. A Questionnaire format was used as a tool for data collection and consists ,demographic information of the students, parents and some Items about students game, Official permission has been obtained from College of Nursing / Hawler Medical University, Ministry of Education and primary schools. Data was analyzed thorough using frequency, percentage and chi square by using SPSS, 22.

Results: The study reveal that 58% of participants were age group between 12-14 years old, 74% of them were boys among playing group, 18% of father were graduated from college, 60% of played children were from middle socio-economic status, 16% of game players have missed school, 66% of played students were missed homework, about 10% of the students have a good school achievement among who played video games and more than half (58%) among non-play students.. There is highly significant association between parent educational levels with their children school achievement.

Conclusions: Playing video game was negatively associated with poor school achievement. The study recommended the parent to limit the time of playing less than one hour daily, also limit the number and type of game especially fighting game and replaced with educational game.

Key words: Effect; Videogame; School achievement; Children.

Received: 29/08/2021 *Accepted: 16/11/2021* *Published: 30/11/2021*

INTRODUCTION

With advancement of high-tech devices (e.g. Smartphone, tablets and computers), internet and electronic games have become increasingly widespread among people of all ages especially among children and adolescents [1, 2, 3]. Current estimations have revealed that one in three children under the age of 18 uses

the internet worldwide, and 75% of adolescents play electronic games daily in developed countries [4,5,6]. According to United Nations International Children's Emergency Fund (UNICEF) estimations that one third of Internet users universally are children, with the proportion of internet users likely to be higher in lower income countries where the internet is quickly penetrating all scopes of public life. The International Telecommunication Union (ITU) reports that in developing countries, young people between age 15 and 24 outnumber the overall population by 2 or 3 times [7].In the past few decades, electronic media has grown from virtual non-existence to one of the primary means of entertainment for college students. In more recent years, the Internet has entirely changed the landscape of electronic media from something personal and static into something with the potential to be interactive and social [8]. Playing video games is often related in our society with poor academic achievement [9]. Some study concludes there is little indication to suggest that communicating media improves the learning experience [10]. One study tracked boys' academic performance, and findings indicate that those kids who got their game systems directly spent less time on homework and data at four months show lower reading and writing scores, and teachers were more likly to report academic difficulties [11]. In one representative sample of American adolescents, aged 10 to 19, those who played video games spent 30% less time reading and 34% less time doing homework [12]. Among video game players, time spent playing time was associated with low school performance [13]. According to Anand (2007), the penetration of video games into the United States alone is huge, with at least 90% of homes having children that have played (rented or owned) video games [14]. This is a record level that continues to increase. Of players over the age of 18, 55% are console players and 66% of online players. However, there is also plenty of research to suggest that interactive video games can actually lead to increased academic performance [15]. The practice of games is often linked to an increase in visual-spatial skills, which often come in handy in the fields of science, mathematics, technology, and engineering [16]. There are many studies a negative relation between addiction of video games and homework preparation and decreased academic performance [17, 18] At the same time educational games are, considered an effective alternative to supporting traditional teaching methods in terms of educators' responsibility, such as inspiring students to learn, teaching them to love learning, and making learning fun [19]. There is a great deal of research showing the effect of educational games on learning are positive in encouraging the learning. Educational games, incorporated at the opening or end of a lesson, of concepts, and that they allow students to discuss target concepts [20]. For this reason, they can foster students' interest and motivation towards lessons, or review, strengthen and assess the learned topics. Therefore, educational games promote students' active contribution in lessons and thus assist with their learning [21]. The aim of this study is to examine the effect of video game on school achievement in school age children.

METHODS

A case control study design was conducted at five primary school in Erbil city according to geographical designations (East, West North ,South and center). The study was carried out from 15 September to 15 November 2020. A convenience sample of (50) students were taken- as a case group with (200) students as a control group.

Both genders and students from fourth, fifth and sixth stage were included Handicaps students and those who refused to participate were excluded from the study. A questionnaire tool was used to collect data by face to face interview which composed of four parts, students' sociodemographic characteristics (age , gender and education level) , and sociodemographic characteristics of students' parents (age, level of education ,occupation and socio-economic status). Questions related to game playing, and questions regarding academic performance. A written official scientific approval was obtained from College of Nursing / Hawler Medical University No. 7.26/7/2020 . Verbal permission was obtained from participations and participants were informed privacy and confidentiality. Statistical analyses: Data were analyzed using the statistical package for social sciences (SPSS) version 21. Frequency and percentages were used for categorical data, and the chi-square test was used to find out the association between variables, with P-value ≤ 0.05 being considered as statistically significant.

Table 1: Association between child's demographical characteristics and game players of the Student

Variable	Category	Play F.	Play (%)	Not Playing F.	Not Playing (%)
Age/ years	9-11	21	(42)	108	(54)
	12-14	29	(58)	92	(46)
	X^2	0.743 NS		0.115 S	
Gender	Male	37	(74)	85	(42.5)
	Female	13	(26)	115	(57.5)
	X^2	0.194 NS		0.004 HS	
Stage	Four	13	(26)	57	(28.5)
	Five	14	(28)	62	(31)
	Six	23	(46)	81	(40.5)
	X^2	0.018 S		0.948 NS	
Number of years Failure	No failure	34	(68)	161	(80.5)
	1 years	7	(14)	24	(12)
	2 years	7	(14)	12	(6)
	3 years	2	(4)	3	(1.5)
	X^2	0.153 NS		< 0.001 HS	

RESULTS

In present study 58.0% of video games players were 12-14 year's old, , 74% were boys and 46% video game players were stage six. There was no significant association between age and academic achievement in both groups. Among game players, around 4% of children failed school for 3 years. There is a highly significant association between years of failure and academic achievement among the not-played group (Table 1). Among the playing group, 42 % of fathers belonged to the 41-45 years old age group and among the non-playing group, 31.5% of mothers belonged to the 41-45 years old age group. There is no significant association between parents in case group with their children school achievement. Among the playing group, about 18% of fathers graduated from college, and 33% reported low socio-economic status. There was a highly significant association between parent educational level and their children's' school achievement. Regarding parent occupation There was a significant association between mothers' of playing children with school achievement, but no significant association with parent of non-playing children and school achievement. No significant association between parent socio-economic status and children school achievement was observed (Table 2).

Table 2: Parent socio demographic characteristics

Variable	Category	Play		Not Playing	
		F.	(%)	F.	(%)
Fathers age/years	26-30	1	(2)	4	(2)
	31-35	3	(6)	30	(15)
	36-40	15	(30)	56	(28)
	41-45	21	(42)	71	(35.5)
	46-50	6	(12)	13	(6.5)
	50>	4	(8)	26	(13)
		0.662 NS		0.265 NS	
Mothers age/years	26-30	3	(6)	22	(11)
	31-35	8	(16)	38	(19)
	36-40	23	(46)	63	(31.5)
	41-45	10	(20)	47	(23.5)
	46-50	6	(12)	30	(15)
	X^2	0.620 NS		0.297 NS	
Fathers level of education	Illiterate	7	(14)	59	(29.5)
	Can read and write	10	(20)	27	(13.5)
	Primary school graduate	16	(32)	52	(26)
	Secondary school graduate	8	(16)	33	(16.5)
	Institute and college graduate	9	(18)	29	(14.5)
	X^2	0.004 HS		0.002 HS	
Mothers level of education	Illiterate	22	(44)	104	(52)
	Can read and write	11	(22)	23	(11.5)
	Primary school graduate	11	(22)	36	(18)
	Secondary school graduate	4	(8)	19	(9.5)
	Institute and college graduate	24	(48)	18	(9)
	X^2	0.000 HS		0.018 S	
Fathers occupation	Employed	17	(34)	61	(30.5)
	Nonemployee	1	(2)	4	(2)
	Retired	32	(64)	3	(1.5)
	Free work	17	(34)	132	(66)
	X^2	0.324 NS		0.264 NS	
Mothers occupation	Employed	3	(6)	24	(12)
	House wife	47	(94)	176	(88)
	X^2	0.040 S		0.141 NS	
Socio-economic status	High	4	(8)	37	(18.5)
	Middle	30	(60)	97	(48.5)
	Low	16	(32)	66	(33)
	X^2	0.356 NS		0.207 NS	

Among players, 46% of their parent agreed to playing, 14 % of them played daily and 48% of used a mobile device to play. Used mobile for play game.46% of children enjoyed fighting games and 86 % reported their father bought the gaming device (Table 3).

Table 3: Distribution of played Children

Item	Category	F.	(%)
Parents agree to play.	Yes	46	(92)
	No	4.0	(8)
Encouraging parents to play	Yes	39	(78)
	No	11	(22)
Who bought the device for children	Father	43	(86)
	Mother	5	(10)
	Brother	2	(4)
Type of device using by children	Mobile	24	(48)
	Computer	3	(6)
	I pad	18	(36)
	Play sta-	5	(10)
type of play children like it	Ball	14	(28)
	Fighting	23	(46)
	Crushing	4	(8)
	Education	3	(6)
	Music	1	(2)
Playing daily	No	43	(86)
	Yes	7	(14)
Duration of using play game / hours per day	1 hours	23	(46)
	2 hours	13	(26)
	3 hours	13	(26)
	4 hours	1	(2)
bring device to school for playing	No	12	(24)
	Yes	38	(76)
Time of playing	After-	8	(16)
	Evening	26	(52)
	Night	16	(32)

Among students who played video games, 16% did not attend school daily and among non-playing students14.5% did not attend school daily. Among playing students, 66% did not bring their homework to school while only 10.5% of non-playing student did not bring their homework to school. About 22% of those tht played video games reported poor duration of study at home and 2.5% of those that did not play video games reported duration of study. Only 10% of students who play video games reported good school achievement while 58% of non-playing students report good achievement (Table 4).

Table 4: Assessment of children school achievement among case and control group.

Item	Category	Case		Control	
		F.	(%)	F.	(%)
Attending daily to school	Yes	42	(84)	171	(85.5)
	No	8	(16)	29	(14.5)
Attending to all class session	Yes	45	(90)	178	(89)
	No	5	(10)	22	(11)
Bringing home work to school	Yes	17	(34)	179	(89.5)
	No	33	(66)	21	(10.5)
Thinking that play video game affect school achievement	Yes	25	(50)	151	(75.5)
	No	25	(50)	49	(24.5)
Duration of study at home	1 hours	24	(48)	47	(23.5)
	2 hours	20	(40)	77	(38.5)
	3 hours	6	(12)	48	(24)
	4 hours	0	(0)	26	(13)
	5 hours	0	(0)	2	(1)
School Achievements	Poor	11	(22)	5	(2.5)
	Fair	34	(68)	79	(39.5)
	Good	5	(10)	116	(58)

DISCUSSION

The main purpose of this research study was to explore the effect of playing video game on primary school students' achievement. Our study came in line with a previous study by Hakan Tuzun et al. which examined primary school students' achievement and motivation in learning geography through an educational computer game [22]. (Table1). We reported that 58% of children who played video games in present study their age group belonged to 12-14 years old agreeing with Islam et.al which found that average children age were 15.38% among player [23]. Concerning gender about 74% among played children were boys agreeing with studies suggesting that there are gender differences in time spent playing video games and preferred content [24, 25]. Boys tend to play video games more frequently than girls [26]. Girls had more addictive tendency towards internet/game-play in comparison to boys [23]. Unfortunately, this may be due to our culture of gifting playing devices to. boys more than girls. (Table 2). Our study found that 18% of fathers graduated from college agreeing with Islam et al., reporting 33.2% primary career's highest level of education [23]. Concerning family income, 66% of played children family were from low socio-economic status agreeing with Hasting et al., which reported that most of the family income in middle-class (annual family income) [27].Concerning parent educational level the present study showed a highly significant association between parent educational levels with their children school achievement. This result completely agrees with Matilov et al., which reported an educational level of children in the family depends more on the level of the parent's education. This factor strongly affects family relationships and the successful development of children [28]. Similarly, Hoover et al., found that parental involvement broadly includes home-based activities (e.g., helping with homework, discussing school events or courses) and school-based activities (e.g., volunteering at school, coming to school events). They argued that parental involvement is a function of a parent's beliefs about parental roles and responsibilities, a parent's sense that they can help their children succeed in school, and the opportunities for involvement provided by the school or teacher [29]. Likewise Garg et al., showed that the impact of family factors on influencing students' educational aspirations through their impact on extracurricular reading, attitudes towards school and homework and students' perceptions of their parents' educational aspirations [30].Regarding parental occupation there are significant associations between parents with played children and school achievement while no significant associated with parents with non-played children and school achievement. Our result agrees with result of the study done by Usaini and Abubakar indicating that students from a parent with formal occupation performed well than those from parents with informal occupation[31].Concerning socio-economic status there are non-significant associations between parent socio-economic status and children school achievement. Our finding is in line with Ripple and Luthar who found that socio-economic status has little to no relevance for academic achievement [32]. Likewise a meta-analysis performed by Sirin of more than 70 studies published from 1990 to 2000 reported that there was no significant correlation between socio-economic status and academic achievement [33].Our study illustrated that about 16% of children who played video games have missed school (Table 3). This finding totally agrees with Terry and Malik who found a significant association regarding missing school among children

that played video games (Spearman rho coefficient 0.003)[34]. The present study showed that 46.0% of students played video games dailt for 1 hour which agrees with Islam et al., reported 46.6% of student playing 1-2 hours daily. This could be attributed to the increased availability of computers/smart-phones and the internet use among under-12 years old [23]. Similarly, 48.0 % of children used mobile devices to play games which may be due to availability and easy access. Hastings et al., reported that over half (56%) owned and played some type of hand-held game system [27].In our study we found that 46% of children played fighting games which may due to the continuous war environment for more than decade, TV programs, movies and film with fighting. This result disagrees with Hastings et al., which reported children's gaming consists mostly 61% of educational games [27]. Hastings et.al., stated that over a fifth (21.4%) of parents responded that they did not know the rating level of their children's video and computer games, suggesting a lack of parental monitoring [27]. Our finding also showed that 14% of children played daily in contrast with Aaron Boyce et al., which reported that 48.2% of children play per week [35]. About 66% of played student in our study missed homework which is consistent with Gentile et al., and Sharif and Sargent's findings that video gaming creates time conflicts that reduce the amount of time that gamers devote to homework. The results of this study clearly evaluated that the non-academic use of internet during weekdays, particularly, spending more than four hours on internet is harmful for academic performance, whereas, internet use on the weekends is likely to incur a positive effect on academic performance [36,37]. This result is consistent with a USA study by Jackson et.al, which reported that internet use is positively associated with improved reading skills and higher scores on standardized tests [38].About 22% of students in our study who played video game have poor school achievement while only 2.5% had poor achievement among non-play students. Our finding strongly agrees with Islam et al., which found that adolescents who played no electronic games at all have better scores in writing compared to those who played electronic games. Addiction tendency to internet and electronic -gaming is found to be adversely associated with academic achievement [23]. Similarly, evidence argues that the use of the internet and electronic games have negative effects such as reduced sleeping time, behavioral problems (e.g. low self-esteem, anxiety, depression), attention problems and poor academic performance in adolescents [1,5,39]. Academic performance is negatively associated with internet use and electronic games, particularly when the internet is used for non-academic purpose [34]. Studies also found that playing electronic games develops cognitive skills (e.g. mental rotation abilities, dexterity), which can be attributable to better academic achievement [40,41]. These varied consequences require an urgent need of understanding the effect of the internet use and electronic gaming on the development of children and adolescents, mainly on their school achievement.

CONCLUSIONS

Most of boys were among played children, most of player missed homework, Majority of parent was agree to play, most of children were use the mobile for playing, playing daily and bringing the device to school. There are significant association between mother of case group with school achievement while no significant with parent with control group in school achievement,

Highest percent of students in case group had poor school achievement while in control group were opposite result was founded so we founded that playing videogame had negatively affected school achievements

Acknowledgements

We would like to express deepest appreciation to school managers and great thanks to Dr. Yousif Muhammad Gardi and Dr. Ibrahim (Dean and Assistant Dean of the College of Nursing, respectively), Special thanks to all children who participated in study.

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