

Effect of Playing Video Game on School Achievement, Aggressive Thought and Social Behaviour of Children in a Selected School, West Bengal

Sudipa Roy¹, Madhusri Manna²

¹Assistant Professor, Shova Rani Nursing College, KPC Medical College & Hospital, 1F Raja S.C.Mullick Road, Jadavpur, Kolkata-32.

²Professor, College of Nursing, Asia Heart Foundation, Mukundapur, Kolkata-99.

Corresponding Author: Madhusri Manna

ABSTRACT

Playing video game affect children and youth not only by displacing time they spend doing homework or sleeping but also by influencing beliefs and behaviours .A descriptive study was conducted to identify the effect of playing video game on school achievement, aggressive thought and social behaviour of children in selected school, West Bengal. A descriptive correlative research design was adopted for the study. 120 mothers and their children were selected by using non-probability convenience sampling technique. Interview schedule for mothers was developed to collect demographic data & social behaviour and school achievement of children and normative belief aggression scale was used to identify aggressive thought of children. Study finding revealed that there were 51.67% (62) children who play video game and among them 54.84% children play violent video game. 36.20% (21) children who do not play video game improved school performance where as 19.35% (12) children who play video game improved school performance. 62.08% (36) children who do not play video game always having helping attitude towards friends/neighbours where as 51.61% (32) of the children who play video game always having helping attitude towards friends/neighbors. 8.62% (5) children who do not play video game sometimes use bad language where as 19.35% (12) children who play video game sometimes use bad language. In 69.35% (43) children who play video game aggressive thought were present. Children who play video game are having 0.99 times more risk of getting poor school achievement, 1.31 times more risk of

getting aggressive thought and 0.69 times more risk of getting poor social behaviour than those children who do not play video game. Therefore the study concluded that playing video game has effect on school achievement, aggressive thought and social behaviour of children.

Key words: Playing video game, school achievement, social behaviour, aggressive thought, children.

INTRODUCTION

Video game is an electronic game in which players control images on a television or computer screen. ^[1]

According to Fabricatore (2000) ‘Videogames always include an interactive virtual playing environment’ and ‘In videogames the player always has to struggle against some kind of opposition’. ^[2]

According to Kaptelinin and Cole (2001) and Becta (2002) Game types include action games, adventure games, fighting games, platformers (where game characters run and jump along and onto platforms), knowledge games, simulation/modelling/role-playing games such as management and strategy games, drill-and-practice games, logical games and maths games . Game can be competitive, cooperative or individualistic. ^[3]

According to social learning theory, children and adolescents learn by observing and imitating what they see on the screen, particularly when these behaviours are realistic. ^[4]

Video games revealed that more than half of all games contain violence. Children are more likely to imitate of a character with whom they identify. Repeated exposure to mediated violence can lead to anxiety and fear, acceptance of violence as an appropriate means of solving conflict and desensitization. [5]

Children who play more violent video games are more likely to have increased aggressive thoughts, feelings and behaviours and decrease prosocial helping. The effect of video game violence in kids is worsened by the game's interactive nature. In many games, children are rewarded for being more violent. The act of violence is done repeatedly. The child is in control of the violence and experiences the violence in his own eyes (killing, kicking, stabbing and shooting). This active participation, repetition and reward are effective tools for learning behaviour. [6]

Video games were first created in the 1970s and since then have grown into a multibillion-dollar industry: The annual U.S. retail sales of video games reached more than \$9.9 billion in 2004 alone. Recent large-scale surveys show that 70% of homes with children ages 2 to 17 years have computers and 68% have video game equipment. 87% of children play video games regularly. Children ages 2 to 7 years spend an average of 3 to 5 hours a week playing video games while 8th- and 9th-grade students average 9 hours per week. [7]

Video gaming has become a popular activity for people of all ages. Many children spend large amount of times in playing them. Video game has become very sophisticated and realistic. [8]

A study done by Carol. A. Phillips, Susan Rolls, Andrew Rouse, Mark .S on Home video game playing in school children. This study attempted to quantify the extent of home video game playing. The samples are 429 males and 387 females age 11-16 years. Among them 77.2% played video games. Most of the sample played daily with most of the players playing for between one half and one hour per day. [7]

However, there are concerns about the effects of violent video games on children who play video games excessively. [8]

Olson, K. et al conducted a research study on factors correlated with violent video game use by adolescent boys and girls among 1,254 samples out of which 48.8% played at least one violent related game regularly and one third of boys and 10.7% of girls play games nearly every day. [8]

A study conducted by Argosy University's Minnesota School on Professional Psychology found that video game addicts argue a lot with their teachers, fight a lot with their friends, and score lower grades than others who play video games less often. Studies also show that many game players routinely skip their homework to play games, and many students admitted that their video game habits are often responsible for poor school grades. [9]

It was seen that these types of studies were not done in West Bengal, so the researcher interested to do this study.

METHODOLOGY

Survey approach was selected to identify the effect of playing video game on school achievement, social behaviour and aggressive thought of children. Descriptive correlative research design was adopted for the study .Data was collected from 120 mothers through interview schedule on demographic data & social behaviour and school achievement of children and from their children through normative belief aggression scale. The tools were validated by the 7 experts & reliability was established by test retest technique. r was calculated by Karl Pearson Product moment formula & it was found $r= 0.97$ for Interview schedule for mothers on social behaviour of children & $r=0.98$ for Interview schedule for mothers on school achievement of children, thus the tools were considered as reliable. Tools were translated to Bengali & retranslated back to English by the language expert. Pilot study was conducted before conducting final study &

it was found to be feasible. Ethical permission was taken from clinical research ethics committee. Permission was taken from the Principal of the selected school. Informed consent was taken before data collection. Anonymity & confidentiality was maintained. Descriptive statistic was used to analyze the demographic data, habit of playing video game, school achievement, social behaviour and aggressive thought of children. Chi square test was used to find out association between school achievement of children and playing video game, between social behaviour of children and playing video game & between aggressive thought of children and playing video game.

N=120

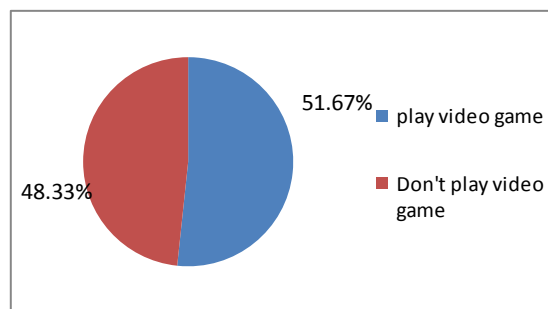


Fig-1: Pie diagram of frequency distribution of children who play video game and who do not play video game.

Fig-1 shows that 62 (51.67%) of the children play video game and 58 (48.33%) of the children do not play video game.

RESULTS

Table-1: Distribution of the children by their demographic characteristics.

Sl. No.	Variables	N(n ₁ +n ₂)=120 (58+62)			
		Not playing video game n ₁ =58		Playing video game n ₂ =62	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Age of the child-				
	• 9 years	25	43.10	3	4.83
	• 10 years	17	29.31	30	48.39
	• 11 years	16	27.59	29	46.78
2.	Sex of the child-				
	• Boy	19	32.76	50	80.65
	• Girl	39	67.24	12	19.35
3.	Father's education-				
	• Primary	2	3.44	-	-
	• Class V-VIII	7	12.07	8	12.90
	• Secondary	20	34.49	17	27.42
	• Higher secondary	16	27.59	24	38.71
	• Graduate	13	22.41	13	20.97
4.	Mother's education-				
	• Primary	2	3.44	1	1.62
	• Class V-VIII	15	25.86	15	24.19
	• Secondary	22	37.93	27	43.55
	• Higher secondary	15	25.86	15	24.19
	• Graduate	4	6.90	4	6.45
5.	Father's occupation-				
	• Service	15	25.86	13	20.97
	• Business	29	50	34	54.84
	• Self employed	14	24.14	15	24.19
6.	Mother's occupation-				
	• Service	4	6.90	4	6.45
	• House wife	44	75.86	49	79.03
	• Self employed	10	17.24	9	14.52

The represented data in Table-1 shows that 43.10% (25) children who do not play video game were 9 years of age where as 48.39% (30) children who play video game were 10 years of age. 67.24% (39) children who do not play video game were girls where as 80.65% (50) children who play video game were boys. 38.71% (24) fathers of the children who play video game completed education up to higher secondary level where as 34.49% (20) fathers of the children who do not play video game completed education up to secondary level. 43.55% (27) mothers of the children who play video game completed education up to secondary level where as 37.93% (22) mothers of the children who do not play video game completed

education up to secondary level. 54.84% (34) fathers of the children who play video game do business where as 50% (29) fathers of children who do not play video game also do business. 79.03% (49) mothers of the children who play video game were house wife where as 75.86% (44) mothers of the children who do not play video game were also house wife

Table-2: Distribution of children by their social behaviour.

N (n₁+ n₂)= 120 (58+62)

Sl. No.	Variables	Not playing video game n ₁ =58		Playing video game n ₂ =62	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Involve in physical fight with friends-				
	• Never	34	58.63	12	19.35
	• Rarely	10	17.24	9	14.51
	• Sometimes	13	22.41	38	65.51
	• Always	1	1.72	3	4.83
2.	Argue with teachers-				
	• Never	52	89.66	51	82.25
	• Rarely	3	5.17	9	14.52
	• Sometimes	3	5.17	2	3.23
3.	Argue with parents-				
	• Never	30	51.73	24	38.71
	• Rarely	13	22.41	9	14.51
	• Sometimes	12	20.69	24	38.71
	• Always	3	5.17	5	8.07
4.	Use bad language when become angry-				
	• Never	48	82.76	44	70.97
	• Rarely	5	8.62	6	9.68
	• Sometimes	5	8.62	12	19.35
5.	Get involve in family work-				
	• Never	14	24.14	23	37.09
	• Rarely	6	10.34	10	16.13
	• Sometimes	20	34.49	16	25.81
	• Always	18	31.03	13	20.97

The data presented in Table-2 shows that only 1.72% (1) children who do not play video game was always involved in physical fight with friends where as 4.83% (3) children who play video game always involved in physical fight with friends. 89.66% (52) children who do not play video game never argue with teachers where as 82.25% (51) children who play video game also never argue with teachers. 51.73% (30) children who do not play video game never argue with parents where as 38.71% (24) children who play video game never argue with parents. 8.62% (5) children who do not play video game sometimes use bad language where as 19.35% (12) children who play video game sometimes use bad language. 31.03% (18) children who do not play video game always involve in family work where as 20.97% (13) children who play video game always involve in family work.

The data presented in Table-3 shows that 44.84% (26) children who do not play

video game sometimes likes to attend social gathering where as 38.71% (24) of the children who play video game sometimes likes to attend social gathering. 53.45% (31) children who do not play video game always pay regard words of the parents where as only 27.42% (17) children who play video game always pay regard words of the parents. 56.90% (34) children who do not play video game always like to play with friends where as 50% (31) of the children who play video game always like to play with friends. 62.08% (36) children who do not play video game always having helping attitude towards friends/neighbours where as 51.61% (32) children who play video game always having helping attitude towards friends/neighbours. 6.90% (4) children who do not play video game always fighting with siblings where as 11.29% (7) children who play video game always fighting with siblings. 22.41% (13) children who do not play video game always play with siblings where as 19.35%

(12) children who play video game always play with siblings.

Table-3: Distribution of children by their social behaviour.

$N (n_1 + n_2) = 120 (58+62)$

Sl. No.	Variables	Not playing video game $n_1=58$		Playing video game $n_2=62$	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Likes to attend social gathering-				
	Never	7	12.06	5	8.07
	Rarely	6	10.34	12	19.35
	Sometimes	26	44.84	24	38.71
	Always	19	2.76	21	33.87
2.	Pay regard the words of parents-				
	Never	3	5.17	3	4.84
	Rarely	5	8.62	2	3.22
	Sometimes	19	32.76	40	64.52
	Always	31	53.45	17	27.42
3.	Like to play with friends-				
	Never	3	5.17	-	-
	Rarely	6	10.34	8	12.91
	Sometimes	16	27.59	23	37.09
	Always	33	56.90	31	50
4.	Helping attitude towards friends/neighbours-				
	Never	1	1.72	7	11.30
	Rarely	7	12.06	2	3.22
	Sometimes	14	24.14	21	33.87
	Always	36	62.08	32	51.61
5.	Fighting with siblings-				
	Never	16	27.59	8	12.90
	Rarely	8	13.79	4	6.45
	Sometimes	7	12.07	21	33.57
	Always	4	6.90	7	11.29
	Doesn't arise	23	39.67	22	35.49
6.	Play with siblings-				
	Never	4	6.90	3	4.84
	Rarely	4	6.90	5	8.07
	Sometimes	14	24.14	20	32.26
	Always	13	22.41	12	19.35
	Doesn't arise	23	39.65	22	35.48

Table-4: Distribution of children by their school achievement..

$N (n_1 + n_2) = 120 (58+62)$

Sl. No.	Variables	Not playing video game $n_1=58$		Playing video game $N_2=62$	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Finish home work in time-				
	Never	3	5.18	2	3.23
	Rarely	2	3.45	2	3.23
	Sometimes	27	46.55	47	75.80
	Always	26	44.82	11	17.74
2.	Involve in co-curricular activity-				
	Never	17	29.31	25	40.33
	Rarely	11	18.97	9	14.52
	Sometimes	22	37.93	23	37.09
	Always	8	13.79	5	8.06
3.	Complain regarding school performance-				
	Never	27	46.55	18	29.03
	Rarely	5	8.62	12	19.36
	Sometimes	20	34.49	31	50
	Always	6	10.34	1	1.61
4.	School absent-				
	Never	3	5.18	1	1.61
	Rarely	21	36.20	22	35.48
	Sometimes	30	51.72	32	51.62
	Almost regular	4	6.90	7	11.29
5.	School performance at present-				
	Improve	21	36.20	12	19.35
	Same as previous	28	48.28	38	61.30
	Worse	9	15.52	12	19.35

The data presented in Table-4 shows that 44.82% (26) children who do not play video game always finish home work in time where as 17.74% (11) children who play video game always finish home work in time. 13.79% (8) children who do not play video game always involve in co-curricular activity where as 8.06% (5) children who play video game always involve in co-curricular activity. 34.49% (20) children who do not play video game sometimes got complain regarding school performance during last 6 months where as 50% (31) children who play video game sometimes got complain regarding school performance during last 6 months. 6.90% (4) children who do not play video game almost regularly absent school where as 11.29% (7) children who play video game almost regularly absent school. 36.20% (21) children who do not play video game improved school performance where as

19.35% (12) children who play video game improved school performance.

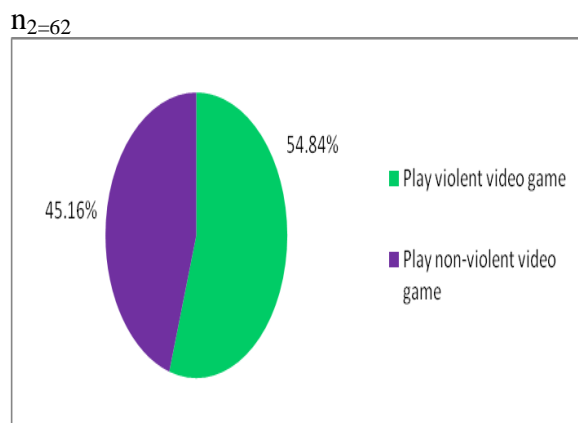


Fig-2: Pie diagram of frequency percentage of type of playing video game.

Pie diagram showing that 54.84% (34) children play violent video game and 45.16% (28) play non violent video game.

n₂=62

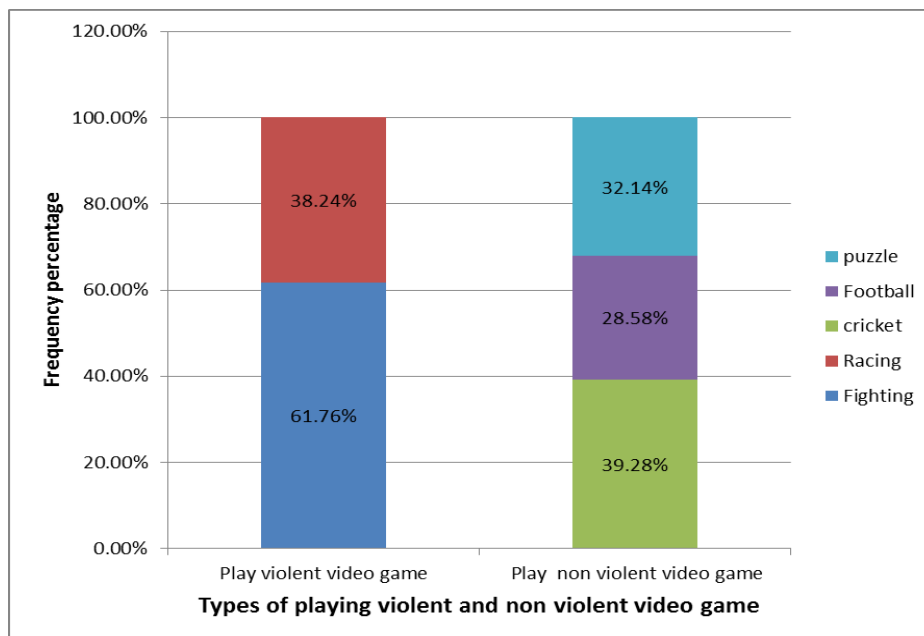


Fig-3: Frequency percentage of types of playing violent and non violent video game.

Bar graphs showing that 54.84% (34) children who play violent video game in which 61.76% (21) play fighting game where as other 45.16% (28) children who play non violent video game in which maximum 39.28% (11) play cricket and minimum 28.58% (8) play football.

Table-5: Distribution of the children by their habit of playing video game .

Sl.No.	Variables	Frequency	Percentage (%)
1.	Total years of playing video game- < 1 year	24	38.70
	1-3 year	38	61.30
2.	Primary place of playing- House	36	58.06
	Cyber café	26	41.94
3.	Total days/week- 1-4 days	47	75.80
	5-7 days	15	24.20
4.	Total times/day- < 1 hour	6	9.68
	1-3 hours	56	90.32
5.	Stop playing during or approaching busy time of study – Yes	47	75.80
	No	15	24.20
6.	Time of playing video game- Afternoon	21	33.87
	Evening	41	66.13
7.	Buy or get new game- Yes	11	17.75
	No	51	82.25
8.	Yes	35	56.45
	No	27	43.55

The data presented in Table-5 shows that 61.30% (38) children play video game 1 to 3 years. 58.06% (36) children play video game in house.75.80% (47) children play video game 1 to 4 days per week. 90.32% (56) children play video game 1 to 3 hours per day. 75.80% (47) children stop playing during or approaching busy time of study. 66.13% (41) children play video game in evening. 82.25% (51) children don't buy or get new game.

Table-6: Distribution of children by their aggressive thought.

N (n₁+ n₂)= 120 (58+62)

Sl. No.	Variables	Do not play video game n ₁ = 58		Play video game N ₂ =62	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Aggressive thought-				
	Aggressive thought present	36	62.07	43	69.35
	Aggressive thought absent	22	37.93	19	30.65

The data presented in Table-6 shows that in 69.35% (43) children who play video game aggressive thought were present where as in 62.07% (36) children who do not play video game aggressive thought were present.

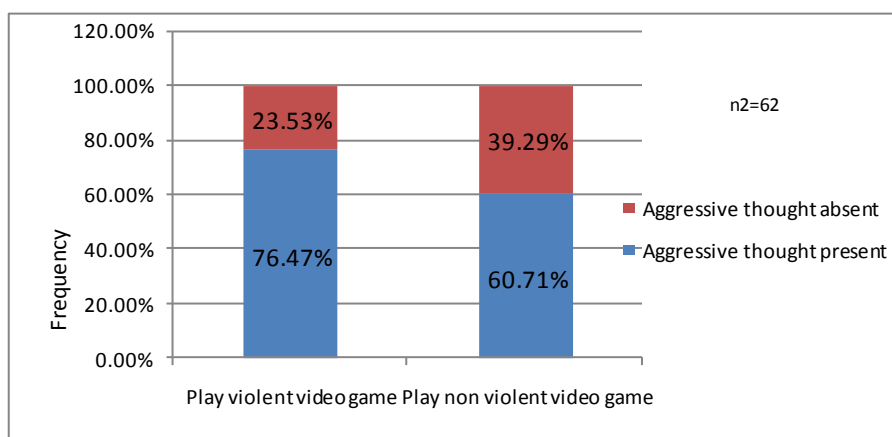


Fig-4: Bar graph showing frequency percentage of aggressive thought of children who play violent video game and non violent video game.

Bar graphs showing that 54.84% (34) children who play violent video game in which 76.47% (26) children had aggressive thought where as other 45.16% (28) children who play non violent video game in which 60.71% (17) children had aggressive thought.

Table-7: Chi-square showing association between school achievement of children and playing video game. N=120

Sl. No.	Video game	School achievement		Chi-square	df	α level	P value
		Below Median	Above Median				
1.	Playing video game Not playing video game	34 26	28 32	1.20	1	0.05	3.84

The data presented in Table-7 that the computed chi-square value between school achievement of children and playing video game were not significant at 0.05 level of significance.

So, there was no association between school achievement of children and playing video game at 0.05 level of significance.

Table-8: Chi-square showing association between aggressive thought of children and playing video game. N=120

Sl. No.	Video game	Aggressive thought		Chi-square	Df	α level	P value
		Aggressive thought present	Aggressive thought absent				
1.	Playing video game Not playing video game	43 36	19 22	0.70	1	0.05	3.84

The data presented in Table-8 shows that the computed chi-square value between aggressive thought of children who play video game and who do not play video game were not significant at 0.05 level of significance. So, there was no association between aggressive thought of children who play video game and who do not play video game at 0.05 level of significance.

Table-9: Chi-square showing association between social behaviour of children and playing video game. N=120

Sl. No.	Video game	Social behaviour		Chi-square	Df	α level	P value
		Below Median	Above Median				
1.	Playing video game Not playing video game	33 29	29 29	0.12	1	0.05	3.84

The data presented in Table-9 shows that the computed chi-square value between social behaviour of children and playing video game were not significant at 0.05 level of significance. So, there was no association between social behaviour of children and playing video game at 0.05 level of significance.

Children who play video game are having 0.99 times risk of getting poor school achievement than those children who do not play video game. Children who play video game are having 1.31 times more risk of getting aggressive thought than those children who do not play video game.

Table-10: Odds ratio of school achievement, social behaviour and aggressive thought of children who play video game and who do not play video game.

	Odds ratio (OR)
Social behaviour	0.69
School achievement	0.99
Aggressive thought	1.31

Children who play video game are having 0.69 times more risk of getting poor social behaviour than those children who do not

DISCUSSION IN RELATION TO OTHER STUDIES

In the present study, there is no significant association between school achievement of children who play video game and who do not play video game. A study done by Douglas A. Gentile, Paul J. Lynch, Jennifer Ruh Linder, David A. Walsh (2004) on The effects of playing violent video game habits on school

performance. The study revealed that amount of video game play is negatively related to academic performance. [10]

In this present study, no significant association between aggressive thought of children who play video game and who do not play video game. A study was conducted by Nicholas. L. Carnagey and Craig. A. Anderson (2005) on the effect of reward and punishment in violent video games on aggressive affect, cognition and behaviour. The study result revealed that reward violent video game can increase aggressive behaviour by increasing aggressive thinking. [11]

A panel study done by Nobuko Ihori, Akira Sakamoto, Akiko Shibuya and Shintaro Yukawa (2007) on Effect of Video Games on Children's Aggressive Behaviour and Pro-social Behaviour. Two surveys were done to collect the study sample. 900 students participated in the first survey, and 903 students participated in the second survey. The study revealed that no significant sex difference was found in terms of aggressive behaviour. [12]

In the present study, no significant association between social behaviour of children who play video game and who do not play video game. A panel study done by Nobuko Ihori, Akira Sakamoto, Akiko Shibuya and Shintaro Yukawa (2007) on Effect of Video Games on Children's Aggressive Behaviour and Pro-social Behaviour. Two surveys were done to collect the study sample. 900 students participated in the first survey, and 903 students participated in the second survey. The study revealed that the mean score was significantly higher for girls than for boys in terms of pro-social behaviour. [12]

CONCLUSION

From the study it can be concluded that there was 51.67% (62) children play video game. Children who play video game are having 0.99 times more risk of getting poor school achievement, 1.31 times more risk of getting aggressive thought and 0.69 times more risk of getting poor social

behaviour than those children who do not play video game. Though there is no association between playing video game and school achievement, aggressive thought, social behavior of children.

Source of funding: Self

Conflict of interest: None

ACKNOWLEDGEMENT

The researchers express cordial thanks to the Principal of selected School, for giving the permission to conduct the study in the school. She expresses her thankfulness to the school teachers for their co-operation and help in making it possible to conduct and complete the study. The researcher expresses her gratefulness to all the participants for their co-operation and support without which the study would never have been a success.

REFERENCE

1. Piaget, J. Play, dreams and imitation (Vol. 24). New York: Norton. 1962.
2. Children and video games: playing with violence, March, 2011 Available at: www.aacap.org.
3. Computer Games in Education project, 14 April, 2004, Available at: [At www.becta.org.uk/research/Research](http://www.becta.org.uk/research/Research).
4. Video game lead to violent behaviour in children, 1st April, 2002 Available at: afpserv@aafp.org.
5. Chidambaram. M.A, Effect of playing violent video games on children, Nightingale Nursing Times, volume-7. April, 2011
6. Violent Video games 'make teenagers more aggressive towards other people' Brock University, Canada, October 7, 2012.
7. The positive and negative effects of video games, March, 2011 Available at: <http://www.aacap.org>.
8. Karen E. Dill and Jody C. Dill. Video game violence: A review of empirical literature, Aggression and Violent Behaviour, Vol. 3, No. 4, pp. 407-428, 1998.
9. Marny R. Hauge & Douglas A. Video Game Addiction Among Adolescents: Associations with Academic Performance and Aggression, April 2003.

10. Weis R and Cerankosky BC. 2010. Effects of video-game ownership on young boys' academic and behavioral functioning: a randomized, controlled study. *Psychological Science*. 21(4):463-70.
11. Craig A. Anderson and Brad J. Bushman, "Effects of Violent Video Games on Aggressive Behavior, Aggressive Cognition, Aggressive Affect, Physiological Arousal, and Prosocial Behavior: A Meta-analytic Review of the Scientific Literature," *Psychological Science*, 5, September, 2001.
12. Nobuko Ihori, Akira Sakamoto, Akiko Shibuya & Shintaro Yukawa, Effect of Video Games on Children's Aggressive Behaviour and Pro-social Behaviour .2007

How to cite this article: Roy S, Manna M. Effect of playing video game on school achievement, aggressive thought and social behaviour of children in a selected school, West Bengal. *International Journal of Science & Healthcare Research*. 2020; 5(1): 222-231.
