

Video game use: the relationship between video gaming and psychological factors

Author: Masoud Olayee Bonab

masoud.olayeebonab12@gmail.com

Master of Science in Psychology

Abstract:

Video games are one of the flourishing phenomenon within youth and elicit worries about amount of time spent. This study examined video game use and psychological factors (as indicated by depression, OCD symptomatology, adolescent-parent conflict behavior) and school performance in a sample of 322 16- to 18-year-old Iranian male adolescent subjects. Primary goals of the study were to explore whether video game use is related to adolescent psychological problems, and whether video game use associate with school performance. Adolescents were surveyed in the spring of 2017. The result showed that video game use was not related to depression, OCD symptomatology, adolescent-parent conflict behavior and academic achievement, time spent on video games was not related to any studied negative outcomes. The findings were in line with a growing number of studies that have failed to find relationships within time spent on video games and negative outcomes. However, future research should aim at establishing the temporal order of the supposed causal effects. Spending time playing video games does not involve negative consequences, but adolescents who experience problems related to video games are likely to also experience problems in other facets of life.

Keywords: Video games, Adolescence, mental health.

Introduction

Video games are immensely popular, particularly among teens and young adults. Yet there is much to learn about the content and context of teens' gaming experiences, the mechanics of their play, and the relationships between playing games and a range of academic, social, and civic outcomes (Lenhart et al, 2008). Although playing video games is one of the most popular leisure activities in the world, research into its effects on players, both positive and negative, is often trivialized. Some of this research deserves to be taken seriously, not least because video game playing has implications for health (Griffiths, 2005). Video games provide opportunities for positive psychological experiences such as flow-like phenomena during play and general happiness that could be associated with gaming achievements. However, research has shown that specific features of game play may be associated with problematic behavior associated with addiction-like experiences (Hull, Williams & Griffiths, 2013). As computer games grow in popularity, the negative effects of usage should be studied (poon, 2012). To date, much of the attention has been negative, focusing on potential harm related to addiction, aggression, and lowered school performance (Ferguson, 2010). The discussion about digital games and their potential negative influence on young adults seems never-ending among media and researchers. This attention from scholars and popular media is justified because many people, especially young adults, spend a lot of their leisure time with media (Kneer, Rieger, Ivory & Ferguson, 2014).

Adolescence is a time of increasing vulnerability for poor mental health, including depression (Lemola et al, 2015). Peukert, Sieslack, Barth & Batra (2010) in their study found that video game addiction is associated with higher rates of depression, anxiety, as well as lower achievements e. g. at school. Pathological gamers were more likely to become depressed, have increased social phobias, and increased anxiety. And they received poorer grades in school, therefore, it looks like pathological gaming is not simply a symptom of depression, social phobia or anxiety. In fact, those problems seem to increase as children become more addicted. In addition, when children stopped being addicted, depression, anxiety and social phobias decreased as well. (Gentile, 2011). Among the outcomes of pathological gaming are depression, anxiety, social phobias and poorer performance in school (Vitelli, 2013). While most parents engage in some form of monitoring, parents are more likely to monitor game play for boys and for younger children (Lenhart et al, 2008).

A new national survey by Iran Computer and Video Games Foundation indicates that there are 23 million gamers in Iran (Jafari, 2016). 37% of females and 63% of Iranian male play video games (Mehdiasi, N.D.) the number of

research in this field are few. Nearly all research which conducted about video games in Iran have shown negative aspects of these games. The Results of a study in Iran (Shokouhi-Moghaddam et al., 2013) indicated that there was about 95% direct significant correlation between the amount of playing games among adolescents and anxiety/depression, withdrawn/depression, rule-breaking behaviors, aggression, and social problems.

To our knowledge, the present study is one of the first to utilize survey data that investigate OCD symptomology and behavior conflict except depression and academic performance on Iranian high school teens aged 16–18. The objectives are (1) to determine the amount of time spent on video games by high school youth in Tehran province, and to examine which kind of games adolescent prefer to play; (2) to investigate whether amount of time use video games is associated with mental health problems (depression, obsession-compulsion, parent-adolescent conflict); and (3) to determine whether amount of video game use is associated with decrease academic performance.

Methods

The adolescent gaming factor study is a survey of Iranian high school aged 16–18 male students conducted in 2017. The data collected in Tehran, 6 schools were approached in urban areas 3,7and14 of Tehran province. Schools were selected randomly. Classes were then randomly selected within each school. The total sample size was 400 but only 322 questionnaire completed by participants. They were asked to answer the researcher's questionnaire about time spent video games and depression and obsessive-compulsive and conflict behavior questionnaires. This was a descriptive- correlative study in which the study population included all the male high school students in Tehran, Iran, in 2017.

Measures

The students completed self-reports documenting demographic variables (including age, the time spent per day for gaming, favorite games, grade point average) and assessing psychological distress include Kutcher Depression scale, children OCD scale OCI-CV, and parent-adolescent conflict inventory.

Academic performance was evaluated by latest Grade Point Average (GPA) of each student.

Depression:

The Kutcher Adolescent Depression Scale (KADS) is a self-report scale specifically designed to diagnosis and assess the severity of adolescent depression, and versions include a 16-item, a 11- item and an abbreviated 6-item scale. There are no validated diagnostic categories associated with particular ranges of scores. All scores should be assessed relative to an individual patient's baseline score (higher scores indicating worsening depression, lower scores suggesting possible improvement). Further ROC curve analyses established that the overall diagnostic ability of a six-item subscale of the KADS was at least as good as that of the BDI and was better than that of the full-length KADS. Used with a cutoff score of 6, the six-item KADS achieved sensitivity and specificity rates of 92% and 71%, respectively—a combination not achieved by other self-report instruments. The six-item KADS may prove to be an efficient and effective means of ruling out MDE in adolescents (Kutcher, 2006). In Iran Habibi et al (2015) in their research expressing the structure of confirmatory factor, validity and reliability of Kutcher scale is acceptable for research and clinical applications.

OCD:

The OCI-R is a short version of the OCD inventory and is a self-report scale for assessing symptoms of Obsessive-Compulsive Disorder (OCD). It consists of 18 questions that a person endorses on a 5-point Likert scale. Scores are generated by adding the item scores. The possible range of scores is 0-72. Mean score for persons with OCD is 28.0 (SD = 13.53). Recommended cutoff score is 21, with scores at or above this level indicating the likely presence of OCD (Foa et al, 2002). This questionnaire normalized in Iran by Halvayee poor et al (2013).

CBQ:

The Short Form of Conflict Behavior Questionnaire (CBQ) is a 20-item true/false self-report that measures parent-adolescent conflict. Examples of test questions include “My mom screams a lot,” “My mom doesn’t understand me.” (Prinz, Foster, Kent, & O’Leary, 1979). The short form yields a single summary score that correlates .96 with scores from the long form. Test-retest reliability ranges from 0.37 to 0.84 for adolescent-report and 0.57 to 0.82 for parent-report. Evidence of validity comes from studies showing distressed families report

significantly higher scores than none distressed families. High scores on the CBQ represent high levels of conflict. (Robin & Foster, 1989). Accuracy and internal consistency of this inventory questions in a past research by Asadi yonrsi et al (2001) revealed 88 cronbach’s alpha coefficient for conflict with mother and 91 cronbach’s alpha coefficient for conflict with father.

We were interested in examining how gaming was related to several potential predictor or outcome variables, including amount of gaming, depression, obsession and compulsion, parent-adolescent relationship quality, and school performance.

Statistical analyses were performed using SPSS V15. Because of all statistical distribution (except OCD) were skewed to the left, spearman Correlation coefficient were performed to assess the association between mental health outcomes and video game use. Statistical significance was evaluated using 0.05-level. Odds ratios are shown with the corresponding 95 % confidence interval.

Results:

Most (94%) of our subjects reported playing video games at least occasionally. The average amount of time playing was 1.83 hours per day (SD: 1.754 hours per day) and the median was 1.50. Overall, 9 % of the children were in the high usage group defined as spending more than 4 h a day playing video games, 50 % spent less than 1 h a day using video games and 40 % between 1 to 4 h a day.

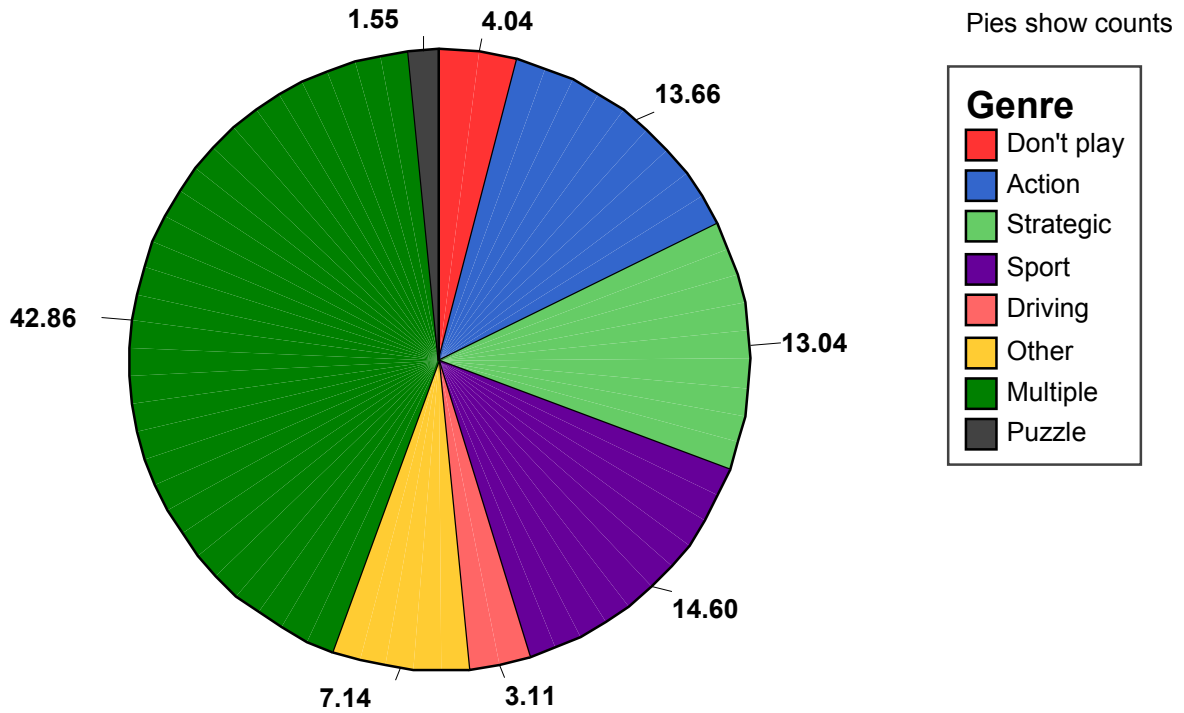
Table 1 Video Game use category

time	frequency	percent	Cumulative percentage
none	76	23.6	23.6
1 h	85	26.4	50.0
2 h	82	25.5	75.5
3 h	38	11.8	87.3
4 h	13	4.0	91.3
5 h	11	3.4	94.7
6 h	1	.3	95.0
More than 6 h	16	5.0	100.0
total	322	100.0	

A chi-square test was performed to determine relationship between time spent and genre. Relationship between genre preference and time spent was significant, $\chi^2(14, N = 322) = 24.67, p < .05$.

Table 2 Frequency of game genre

	Don't play	Action	Strategic	Sport	Puzzle	Driving	Other	Multiple
frequency	13	44	42	47	5	10	23	138
percent	0.4	13.7	13.0	14.6	1.6	3.1	7.1	42.9



Amount of gaming was no associated with academic performance ($r_s = -0.064$ [<0.256]), and depression ($r_s = -0.011$ [<0.844]), and obsession-compulsion ($r_s = -0.030$ [<0.588]), and parent-adolescent conflict ($r_s = -0.029$ [<0.600]).

Table 3 Correlation matrix between GPA, Depression, OCD, Parent-Adolescent conflict

			GPA	depression	OCD	Conflict
Spearman's	gaming	Correlation	-.064	-.011	.030	-.029
		Sig. (2-tailed)	.256	.844	.588	.600

Discussion

Results indicated that video game use was common. 96% of students spent time per day to play video games. The relationship between time spent and game genre was significant $c = 0/267$ but it was weak, therefore genre determine $0/163$ of time spent variance. Gamers tend to play multiple games from multiple genres. Multiple and action gamers spent more times to play but students who play more than 3 h per day prefer to play more than one genre. The result suggest that students which spent 2-4 h per day to play video game prefer action and multiple games, also the student which play more than 4 h per day prefer action games. One notable point is that most gamers tend to play multiple games from multiple genres. Although it's possible that individuals who play multiple genres tend to overestimate the total number of hours that they play (dale & green, 2017).

The results of the present study suggest that video game use is not associated with an increasing risk of mental health problems include: (depression, OCD, conflict with parent) and has no relationship with school

performance. Heavy gaming, particularly in boys, might raise a few of warning signs. However, not everyone who plays extensively every day risks developing gaming related psychological problems.

These findings are not in line with some previous studies (Anand, 2007; Shokouhi-Moghaddam et al, 2013), but this study findings support of growing notion that strong engagement with video games is not necessarily associated negative outcomes, and that researchers need to differentiate between strong engagement with games and video game addiction (Ohannessian, 2009; Ferguson, 2010; Kovess-Masfety et al ,2016; Brunborg, Menzoni & Froyland, 2014; Egli & Meyers, 1984; Redmond, 2010; Schulz, 2013; Valadez & Ferguson, 2012).

Games could be cathartic for stress. Children with clinically elevated levels of depressive symptoms did not play more games, or more violent games, but were more inclined to endorse catharsis motivations for video game use (Ferguson & Olson, 2013). Media use acted as a protective factor for boys. Boys who spent relatively more time playing video games and watching television had the lowest levels of anxiety (Ohannessian, 2009). Gamers and non gamers did not differ in the amount of time they spent interacting with family and friends (Cummings & Vandewater, 2007). Pathological status significantly predicted poorer school performance, and that it is not simply isomorphic with a high amount of play (gentile, 2009).

Gentile, Choo & Liao (2011) found that Greater amounts of gaming, lower social competence, and greater impulsivity seemed to act as risk factors for becoming pathological gamers, whereas depression, anxiety, social phobias, and lower school performance seemed to act as outcomes of pathological gaming. At the other hand video games may have protective factor for teens involved in video gaming (Kovess-Masfety et al, 2016). Video games share many similarities with traditional games and likely provide benefits similar to those provided by play more generally. The large amount of time invested in playing video games may also mean that they provide qualitatively different experiences than conventional games (Granic, Lobel & Engels, 2014). Furthermore, gamers/non-gamers themselves are no longer the same as they were a decade ago, the gaming field obviously continues to advance (dale & green, 2017). More balanced perspective is needed, one that considers not only the possible negative effects but also the benefits of playing these games. Considering these potential benefits is important, in part, because the nature of these games has changed dramatically in the last decade, becoming increasingly complex, diverse, realistic, and social in nature (Granic, Lobel & Engels, 2014).

Conclusion

This research provide a new stand point for parents and other care givers to understand more about the effect of gaming time. Statistics found by current study indicate worry about video games effects is exaggerated at society. Video games might best be thought of as a new variety of toys and playing tools. In this study average amount of gaming was normal but it is obvious obsessive compulsive engagement in games is abnormal and should be investigate.

Limits

Because our study lacks experimental design, it is not possible to be conclusive about the directionality of causation. Further longitudinal research is needed to find temporal order between variables. As there was few participants in survey, probably because of survey took a relatively long time to complete (approximately 30 minutes), that decrease incentive for doing so. Replication and extension of the findings presented here requires future research. Larger sample may be required to yield sufficient statistical power. It's better to distinguish between pathological gamers and normal gamers in future study. All the information used in the study was self-reported and therefore vulnerable to self-report bias and an important next step for future research will be to assess benefits of gaming aside the defects.

References :

1. Anand, V. (2007). A Study of Time Management: The Correlation between Video Game Usage and Academic Performance Markers. *Cyber Psychology & Behavior*, 10(4), 552-559. DOI: <https://doi.org/10.1089/cpb.2007.9991>
2. Asadi, Y. M., Mazaheri, M., Shahidi, Sh., Tahmasian, K., Fayazbakhsh, M. (2001). Editing and validation of adolescent conflict behavior questionnaire. *Family Quarterly*, (1, 2).
3. Brunborg, G.S., Mentzoni, R.A., Froyland, L.R. (2014).Is video gaming, or video game addiction, associated with depression, academic achievement, heavy episodic drinking, or conduct problems? *Journal of Behavioral Addictions*, 3(1), DOI: 10.1556/JBA.3.2014.002
4. Cummings, H. M., Vandewater, E. A. (2007). Relation of Adolescent Video Game Play to Time Spent in Other Activities. *Arch Pediatric Adolescence Med.* 161(7): 684-689. DOI:10.1001/archpedi.161.7.684

5. Dale, G., Green, C.S. (2017). The Changing Face of Video Games and Video Gamers: Future Directions in the Scientific Study of Video Game Play and Cognitive Performance. *Journal of Cognitive Enhancement*, 1(3), 280–294.
6. Egli, E.A. Meyers, L.S. (1984). The role of video game playing in adolescent life: Is there reason to be concerned? *Bulletin of the Psychonomic Society*, 22(4), 309–312, DOI: <https://doi.org/10.3758/BF03333828>
7. Ferguson, C.J. (2010). Introduction to the Special Issue on Video Games. *American Psychological Association* 14(2), 66 – 67, DOI: 10.1037/a0018940
8. Ferguson, C.J. & Olson, C.K. (2013). Friends, fun, frustration and fantasy: Child motivations for video game play. *Motivation and Emotion*. 37 (1) 154–164, doi: <https://doi.org/10.1007/s11031-012-9284-7>
9. Foa, E.B., Huppert, J.D., Leiberg, S., Hajcak, G., Langner, R., et al. (2002). The Obsessive Compulsive Inventory: Development and validation of a short version. *Psychological Assessment*, 14, 485-496.
10. Gentile, D. (2009). Pathological Video-Game Use among Youth Ages 8 to 18. *Journal of Association for Psychological Science*. 20, 5
11. Gentile, D. A., Choo, H., Liau, A., Sim, T., Li, D., Fung, D., Khoo, A. (2011). Pathological Video Game Use among Youths: A Two-Year Longitudinal Study. *American Academy of Pediatrics*, 127(2)
12. Granic, I., Lobel, A., Engels, C. (2014). The benefits of playing video games. *Am Psychol*, 69(1), 66-78, DOI: 10.1037/a0034857 [Abstract]
13. Griffiths, M. (2005). Video games and health. *BMJ*, 331(7509): 122–123. DOI: 10.1136/bmj.331.7509.122
14. Habibi, M., Hamedinia, E., Asgarinejad, F., kholghi, H. (2015). Kutcher psychometric properties in students. *Applicable research in educational psychology*, 2(5): 25-15.
15. Halvayepoor, Z., Khormayee, F., Khanzadeh, M., Nosratabady, M. (2013). Validation of obsessive beliefs among Iranian youth. *Journal of Shahid Sadoughi University of medical science*, 21(3).
16. Hull, D. C., Williams, G. A.* and Griffiths, M. D. (2013). Video game characteristics, happiness and flow as predictors of addiction among video game players: A pilot study. *Journal of Behavioral Addictions* 2(3), 145–152. DOI: 10.1556/JBA.2.2013.005
17. Jafari, H. (2016). 23 Million Gamers in Iran – 37% Women. Retrieved September 12, 2017 from <http://techrasa.com/2016/08/09/23-million-gamers-iran-37-women/>
18. Peukert, P. Sieslack, S. Barth, G. Batra, A. (2010). Internet- and computer game addiction: phenomenology, comorbidity, etiology, diagnostics and therapeutic implications for the addictive and their relatives. *Psychiatr Prax*, 37(5), 219-24. DOI: 10.1055/s-0030-1248442
19. Poon, A. W. (2012). Computer Game Addiction and Emotional Dependence. [Senior Theses, Trinity College, Hartford, CT 2012]. Retrieved from <http://digitalrepository.trincoll.edu/theses/253>
20. Prinz, R. J., Foster, S., Kent, R. N., O’leary, K. D. (1979). Multivariate assessment of conflict in distressed and none distressed mother-adolescent dyads. *Journal of applied behavior analysis*, 12(4), 691-700
21. Redmond, D. L. (2010). The effect of video games on family communication and interaction. Graduate Theses and Dissertations. Adolescent technology use. Retrieved 12 September 2017 from http://udspace.udel.edu/bitstream/handle/19716/13021/Jessica_Schulz_thesis.pdf;sequence=1
22. From Robin, A.L. & Foster, S. L. (1989) *Negotiation parent–adolescent conflict: A behavioral-family systems approach*. New York: Guilford Press.
23. Shokouhi-Moqhaddam, S., Khezri-Moghadam, N., Javanmard, Z., Sarmadi-Ansar, H., Aminae, M., Shokouhi-Moqhaddam, M., Zivari-Rahman, M. (2013). A Study of the Correlation between Computer Games and Adolescent Behavioral Problems. *Addict Health*, 5(1-2), 43–50.
24. Kneer, J., Rieger, D., Ivory, J. D., Ferguson, C. (2014). Awareness of Risk Factors for Digital Game Addiction: Interviewing Players and Counselors. *Int J Ment Health Addiction*, 12, 585–599. DOI: 10.1007/s11469-014-9489-y
25. Kovess-Masfety, V., Keyes, K., Hamilton, A., Hanson, G., Bitfoi, B., Golitz, D., Koç, C., Kuijpers, R., Lesinskiene, S., Mihova, Z., Otten, R., Fermanian, C., Pez, O. (2016). Is time spent playing video games associated with mental health, cognitive and social skills in young children? *Socio Psychiatry Psychiatr Epidemiol*. 51(3): 349–357. DOI: 10.1007/s00127-016-1179-6
26. Kutcher, s. (2006). 11-ITEM Kutcher Adolescent Depression Scale: KADS-11. Retrieved 21 September 2017 from http://www.shared-care.ca/files/Kutcher_depression_scale_KADS11.pdf

27. Lemola, S., Perkinson-Gloor, N., Brand, S. et al. (2015). Adolescents' Electronic Media Use at Night, Sleep Disturbance, and Depressive Symptoms in the Smartphone Age. *Journal of Youth and Adolescence*. 44(2), 405-418, doi: <https://doi.org/10.1007/s10964-014-0176-x> [abstract]
28. Lenhart, A., Kahne, J., Middaugh, E., Macgill, A., Evans, C., Vitak, J. (2008). *Teens, Video Games and Civics*. Pew Internet & American Life Project An initiative of the Pew Research Center. Retrieved from <https://videogames.procon.org/sourcefiles/teens-video-games-and-civics-pew-research.pdf>
29. Mehdiasl, H. (N.D.). Iran's gaming market, an overview. Retrieved 28 September 2017 from <http://sourenagames.com/irans-gaming-market-an-overview/>
30. Ohannessian, C.M. (2009). Media Use and Adolescent Psychological Adjustment: An Examination of Gender Differences. *Journal of Child and Family Studies*. 18 (5), 582-593, <https://doi.org/10.1007/s10826-009-9261-2> [abstract]
31. Valadez, J.J., Ferguson, C.J. (2012). Just a game after all: Violent video game exposure and time spent playing effects on hostile feelings, depression, and visuospatial cognition. *Science direct*. 28 (2), 608-616, DOI: <https://doi.org/10.1016/j.chb.2011.11.006> [abstract]