Women. Health. Bull. 2022; 9(4)

Published online 2022 October.

Original Article

Investigation the Association of Internet Addiction with Mental Health and Physical Activity in Teenage Girls: The Mediating Role of Parental Attitude

Tayebeh Baniasadi[1], PhD; Sheida Ranjbari[2], PhD; Ali Abedini[3], PhD; Amir Dana[4]*, PhD; Saeed Ghorbani[5], PhD

[1]Visiting Scholar, Indiana University, School of Public Health, Department of Kinesiology, USA
[2]Department of Physical Education, Urmia Branch, Islamic Azad University, Urmia, Iran
[3]Department of Psychology, Arsanjan Branch, Islamic Azad University, Fars, Iran
[4]Department of Physical Education and Sport Sciences, Tabriz Branch, Islamic Azad University, Tabriz, Iran
[5]Department of Physical Education, Islamshahr Branch, Islamic Azad University, Islamshahr, Iran

Corresponding author:* Amir Dana, PhD; Department of Physical Education and Sport Sciences, Tabriz Branch, Islamic Azad University, Tabriz, Iran. **Tel: +98 9116356581; **Email:** amirdana@iaut.ac.ir

Received: June 05, 2022; **Revised:** August 03, 2022; **Accepted:** September 04, 2022

Abstract

Background: Internet addiction is nowadays believed to be the most prevalent harm that currently affects families, especially teenagers and young adults. In the current research, we aimed to further delve into it by examining the association of Internet addiction with mental health and physical activity in teenage girls, considering the mediating role of parental attitude toward Internet use.

Methods: Herein, 459 girls attending state schools of Tehran, Iran in 2022 were recruited utilizing convenience sampling method. The mean age of these girls was 12.21±1.28 years old. Standard instruments were used for assessing physical activity, mental health, and parental attitude toward Internet use. Pearson correlation test and structural equation modelling were also utilized for data analysis.

Results: The present study revealed that on average, teenage girls had low levels of physical activity (1.97±1.54). In addition, they were found to use a relatively high amount of the Internet (2.18±1.76). Moreover, Internet addition was significantly and directly associated with mental health (depression, T=5.769; anxiety, T=3.332; stress, T=4.529). This issue was also significantly and indirectly associated with physical activity (T=-6.482). Finally, parental attitude had a significant mediating role in the association of Internet addition with mental health and physical activity (both P<0.001).

Conclusions: Our results indicated that parents should receive some necessary training on the use of the Internet at home both for themselves and their children so that they can better control over the development process of their children.

Keywords: Internet addiction, Mental health, Physical activity, Parental attitude, Teenage girls

How to Cite: Baniasadi T, Ranjbari S, Abedini A, Dana A, Ghorbani S. Investigation the Association of Internet Addiction with Mental Health and Physical Activity in Teenage Girls: The Mediating Role of Parental Attitude. Women. Health. Bull. 2022;9(4):243-250. doi: 10.30476/WHB.2022.96915.1197.

1. Introduction

In the 21st century, in addition to diseases caused by microbes, viruses, and bacteria, humans will face diseases caused by technology (1). To date, no one have thought about the Internet, mobile phone as the causes of different diseases; nonetheless, in the modern world, we are very likely to witness the emergence of so-called technological diseases. Internet access is a vital part of the modern world and an important tool in kids' schooling. The Internet has been utilized in a variety of fields, like faculties, houses, or even shops (2, 3). Its use will be of particular importance and turn into a kind of business skill in the coming years. In addition, the Internet is an entertaining and informative medium (4, 5).

Despite all the properties attributed to the Internet, there are new concerns about its use and the effects that this technology has on the human body and mind (6). Due to the increasing use of the Internet and our interwoven life with virtual space for a long time, users also find a kind of false dependence on it (Internet addiction), which is difficult to get rid of. It can be said that Internet addiction is the most common harm that currently affects families, especially teenagers and young adults. Similar to drugs, alcohol, cigarette, or caffeine addiction, Internet addiction is also characterized by a number of symptoms, such as increased moral fluctuations, not talking to others, and cutting off social relationships (7-9). Children and teenagers who are closely attached to the Internet and in fact addicted to it, stay online for

hours without a break to satisfy themselves, and when they do not have access to the Internet, they experience anxiety, hand tremors, and anger. They forget rest and relaxation and think or fantasize about the Internet and its temptations (10-13).

Interpersonal interactions and learning through experience are among the best methods for the cognitive development of a child. However, when a teenager spends a lot of time on the Internet, his motivation to interact with others decreases, thereby having less ability to maintain real friendships. Through Internet addiction, children spend less time communicating with the family, as a consequence of which the feeling of loneliness and isolation grows day by day, and depression appears in them, putting at risk their mental health (10, 11). Thus, over the recent years, the association between excessive Internet use and psychiatric disorders have been extensively examined; for example, past research has demonstrated Internet addiction to be associated with a number of mental health issues, such as low self-esteem, impulsivity, poor sleep quality, mood disorder, and suicide among adults (6-15). However, the relationship between Internet addiction and mental health among the youth has attracted less attention. Hence, in the present work, we primarily aimed to examine the relationship between Internet addiction and mental health in teenage girls.

Internet addiction may also lead to less physical activity, subsequently increasing obesity among children. Obesity is a critical issue augmenting the risk of cardiovascular diseases. A great deal of research has validated that the body mass index (BMI) is multiplied amongst adolescents who spend many hours every day using the Internet. Consequently, they do not consider physical activity or sports in their routine (16-20). On the contrary, participating in normal physical pastime activities has many health-related advantages, including preventing persistent ailments and premature deaths, enhancing physical and cognitive status, and increasing the quality of life (21-30). Nonetheless, past research has shown that not a lot of young adults engage in enough physical activity (31-34). Moreover, it can be assumed that children who are addicted to the Internet are physically inactive and hardly ever engage in sport activities in comparison to those who use less Internet. Hence, the relationship between children's pattern of physical activity and Internet addiction are not well documented, which is of great significance. Accordingly, our second objective was to investigate the association between Internet addiction and physical activity among teenage girls. Of note, parents' attitude toward Internet use may be of particular importance in this matter. In fact, previous studies have shown that attitude toward the Internet and computer use affect children's pattern of Internet use (35-40). Thus, our third objective was to investigate the mediating role of parental attitude toward Internet use concerning the relationship of Internet addiction with mental health and physical activity among teenage girls. The current study generally aimed to investigate the association of Internet addiction with mental health and physical activity among teenage girls, considering the mediating role of parental attitude toward Internet use.

2. Methods

2.1. Participants

This research used a descriptive-correlational method using structural equation modelling. We recruited 459 girls attending state schools of Tehran, Iran in 2022 according to convenience sampling method. The mean age of our sample was 12.21±1.28 years old. Both children and their parents gave written informed consents prior to participation in this study.

2.2. Measures

2.2.1. Internet use: In this study, we measured Internet use (time spent on the Internet) by asking the participants question concerning this time within the day (daytime) and in during two hours prior to sleeping (nighttime).

2.2.2. Mental health: We assessed depression, anxiety, and stress as mental health-related variables using the Lovibond and Lovibond's Scale (DASS) (41). Each dimension included seven items ranging in a four-point Likert scale from 0 to 3. The overall score ranged from 0 to 21. The internal reliability of the scale was 0.95 (41). In the present research, 10 experts confirmed the validity of the Persian version of the scale (CVI=0.90, CVR=0.96). In addition, Cronbach's alpha coefficient was 0.88.

2.2.3. Physical activity: Physical activity was measured via Physical Activity Behavior in Leisure-Time Scale (42), consisting of three items

scored with an eight-point Likert scale from zero days (0) to seven days (7). In the present research, 10 experts confirmed the validity of the Persian version of the scale (CVI=0.89, CVR=0.82) and the Cronbach's alpha coefficient was 0.85.

2.2.4. Parental attitude: Parental attitude toward Internet use was assessed using a questionnaire developed by van den Eijnden and co-workers (39), including 10 items scored based on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). There are five statements regarding positive attitude and five concerning negative attitude toward Internet use. In the present research, 10 experts confirmed the validity of the Persian version of the scale (CVI=0.90, CVR=0.90) and the Cronbach's alpha coefficient was 0.93.

2.3. Data Analysis

We analyzed the data using SPSS version 26. Mean and standard deviation were applied to describe the variables. Normal distribution was calculated through Kolmogorov-Smirnov test. Pearson correlation test was utilized for assessing the bidirectional relationships among the variables. Lastly, we used the structural equation modelling with Lisrel to examine the structural relationships among the variables. The level of significance was set at 0.05.

3. Results

3.1. Demographic Data

The participants were 459 girls attending state schools of Tehran, Iran in 2022. Inclusion criteria was being student in state schools, healthy, without any physical or mental disorder. Demographic properties of the participants are summarized in Table 1. We recruited 459 girls whose means age, height, weight, and body mass index (BMI) are presented in Table 1. The demographic findings showed that BMI of our sample was in the normal range.

3.2. Descriptive Findings and Bidirectional Associations

Table 2 shows the descriptive results and relationships among the variables. We found that Internet addiction was significantly and directly related to depression (r=0.539, P<0.001), anxiety (r=0.331, P<0.001), and stress (r=0.428, P<0.001), 2). On the other hand, it was significantly and inversely related to physical activity (r=-0.681, P<0.001), 3). Furthermore, Internet addiction was found to be significantly and directly related to parental attitude (r=0.460, P<0.001), 4). Parental attitude was significantly and directly associated with depression (r=0.628, P<0.001), anxiety (r=0.339, P<0.001), and stress (r=0.447, P<0.001). However, it was significantly and inversely related to physical activity (r=-0.397, P<0.001).

3.3. Structural Equation Modelling

Table 3 and Figure 1 illustrate the results of structural equation modelling. The following findings could be pointed out: 1) Internet addiction was significantly and directly associated with

Table 1: Demographic characteristics of the participants

	Age	Weight	Height	BMI
Total	12.21±1.28	37.59±1.28	142.79±7.05	16.98±1.65

BMI: Body Mass Index

Table 2: Descriptive data and bidirectional associations

	Mean±SD	1	2	3	4	5	6
1. Internet addiction	2.18±1.76	-					
2. Depression	5.79±1.30s	r=0.539 P<0.001	-				
3. Anxiety	4.75±1.10	r=0.331 P<0.001	r=0.501 P<0.001	-			
4. Stress	7.85±2.15	r=0.428 P<0.001	r=0.440 P<0.001	r=0.281 P<0.001	-		
5. Physical activity	1.97±1.54	r=-0.681 P<0.001	r=-0.609 P<0.001	r=-0.349 P<0.001	r=-0.415 P<0.001	-	
6. Parental attitude	2.71±1.54	r=0.460 P<0.001	r=0.628 P<0.001	r=0.339 P<0.001	r=0.447 P<0.001	r=-0.397 P<0.001	-

Table 3: Results of path analysis

	Path	β	T value
1	Internet addiction=>Depression	0.449	5.576
2	Internet addiction=>Anxiety	0.308	3.332
3	Internet addiction=>Stress	0.368	4.529
4	Internet addiction=>Physical activity	0.597	-6.482
		Z	**P value**
5	Internet addiction=>Parental attitude=>Depression	4.963	P<0.001
6	Internet addiction=>Parental attitude=>Anxiety	3.618	P<0.001
7	Internet addiction=>Parental attitude=>Stress	5.636	P<0.001
8	Internet addiction=>Parental attitude=>Physical activity	4.378	P<0.001

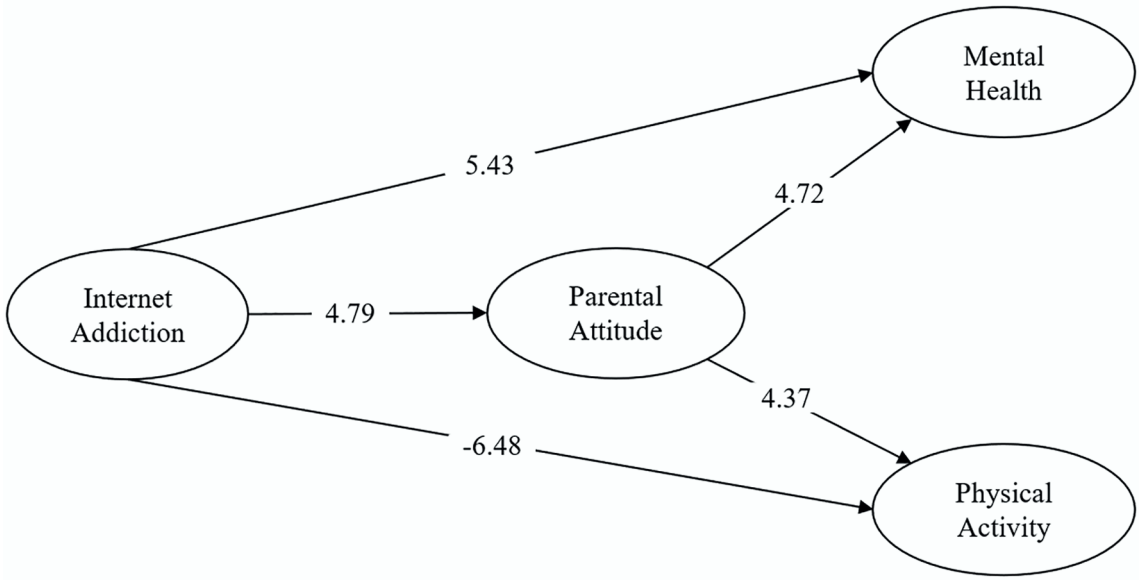

Figure 1: The figure shows the structural equation modelling.

depression (T=5.769), anxiety (T=3.332), and stress (T=4.529); 2) Internet addiction was significantly and inversely associated with physical activity (T=-6.482); 3) parental attitude was significantly and directly associated with depression (T=6.449), anxiety (T=3.515), and stress (T=4.611); 4) parental attitude was significantly and inversely associated with physical activity (T=-3.760); 5) parental attitude significantly and directly mediated the associations between Internet addiction and depression (P<0.001), anxiety (P<0.001), and stress (P<0.001); 6) parental attitude significantly and directly mediated the association between Internet addiction and physical activity (P<0.001). Finally, the results of model fit are presented in Table 4, showing that the conceptual model of the present study has good fit where the root mean square error of approximation (RMSEA) was 0.06.

4. Discussion

Internet addiction is known as the most prevalent harm currently affecting families, especially teenagers and young adults (1-3). Thus, over the recent years, the relationship among excessive Internet use and psychiatric disorders

Table 4: Results of model fit

Index	Optimal Range	Obtained Value	Conclusion
RMSEA	<0.08	0.06	Good fit
X^2 / df	<3	2.55	Good fit
RMSR	Closer to 0	0.02	Good fit
NFI	>0.9	0.96	Good fit
CFI	>0.9	0.97	Good fit

RMSEA=Root mean square error of approximation; df=Degrees of freedom; RMSR=Root mean square residual; NFI=Normed fit index; CFI=Comparative fit index

have been extensively examined. In this research, we aimed to further investigate it by assessing the relationship of Internet addiction with mental health and physical activity in teenage girls, considering the mediating role of parental attitude toward Internet use. We found that generally, the participants had very low levels of physical activity. These findings along with previously reported ones (27-30) indicated that children do not engage in adequate levels of physical activity. Owing to numerous health-related benefits of physical activity (21-30), there is a need for special attention and proper strategies for enhancing children's engagement in physical activity.

Of note, we found that the teenage girls who spend more time on the Internet had lower levels of physical activity. These findings were consistent with those reported by previous research (14, 15) and indicated the negative impact of Internet addiction on children's engagement in physical and sports activities. Given the spread of the COVID-19 pandemic and the utilization of virtual education in the recent years, it seems logical that children use computers and the Internet more than ever; this habit has nonetheless persisted even after the pandemic. However, excessive use of computers and the Internet should not be allowed since it reduces children's activity (physical and sports activities). In fact, children's participation in recreational activities has significant benefits, including promoting their social, physical, and psycho-motor development (21-30). Therefore, it seems necessary that parents efficiently control children's utilization of computers and the Internet. The results of this research revealed that parental attitude can mediate the relationship between Internet addiction and physical activity. This finding showed that parents should receive the necessary training on how to use the Internet at home for both themselves and their children so that they can have better control over the development process of their children.

Regarding mental health (depression, anxiety, and stress), the results herein suggested that teenage girls are at an average level of mental health. In addition, further use of the Internet has led to a decrease in children's mental health. These results were consistent with the findings of past research (8-12), indicating the harmful effects of excessive utilization of the Internet on children's health. Childhood is one of the most critical stages of a person's life, and any disturbance in the growth process of children can have irreparable damages on their life in adulthood (18-20). Therefore, it is necessary to take into account systematic control strategies concerning children's use of computers and the Internet. In the meantime, as revealed, the role of parents is very important and their attitude towards using the Internet as well as their personal use of computers and the Internet can be significant factors in the relationship between Internet addiction and mental health of children.

4.1. Strengths and Limitations

As a strength of this study, it can be stated that we focused on parental attitude to examine its mediating role in the relationship between Internet addiction and mental health and physical activity of children. As a limitation, it can be stated that we measured physical activity using self-reported instruments, which could be accompanied by self-reporting bias. We strongly suggest that further research be conducted using accelerometers for physical activity assessment in children to prevent self-reporting bias.

5. Conclusions

In summary, our findings showed that the teenage girls who attended in this study have low levels of physical activity, necessitating adaptation of proper strategies to enhance the engagement of children in physical sport activities. In addition, our sample had a relatively high amount of Internet use, which requires more control and support from parents. Moreover, further utilization of the Internet was significantly related to lower levels of mental health and physical activity among children. Finally, the role of parents was found to be very important; thus, their attitude towards using the Internet can be an important factor in the relationship of Internet addiction with mental health and physical activity of teenage girls.

Ethical Approval

Ethics Committee of Islamic Azad University of Aliabad Katoul confirmed our protocol with the code of IR.IAU.AK.REC.1398.001. The participants voluntarily engaged in the present study. The subjects and their parents gave written informed consent.

Acknowledgments

We are grateful to all participants who attended in this study.

Conflicts of Interest: None declared.

References

1. Internet World Statistics; 2017. [accessed June 2017]. Available from: www.internetworldstats.com.
2. Aboujaoude E. Problematic Internet use: an overview. World Psychiatry. 2010;9(2):85-90. doi: 10.1002/j.2051-5545.2010.tb00278.x. PubMed PMID: 20671890; PubMed Central PMCID: PMC2911081.
3. Kratzer S, Hegerl U. Is "Internet Addiction" a disorder of its own? A study on subjects with excessive internet use. Psychiatr Prax. 2008;35(2):80-3. doi: 10.1055/s-2007-970888. PubMed PMID: 17546534.
4. Block JJ. Issues for DSM-V: internet addiction. Am J Psychiatry. 2008;165(3):306-7. doi: 10.1176/appi.ajp.2007.07101556. PubMed PMID: 18316427.
5. Wang H, Zhou X, Lu C, Wu J, Deng X, Hong L. Problematic internet use in high school students in Guangdong Province, China. PLoS One. 2011;6(5):e19660. doi: 10.1371/journal.pone.0019660. PubMed PMID: 21573073; PubMed Central PMCID: PMC3089638.
6. Ko CH: Internet gaming disorder. Current Addiction Reports. 2014;1:177-185. doi: 10.1007/s40429-014-0030-y.
7. Sharma MK, Rao GN, Benegal V, Thennarasu K, Thomas D. Technology Addiction Survey: An Emerging Concern for Raising Awareness and Promotion of Healthy Use of Technology. Indian J Psychol Med. 2017;39(4):495–499. doi: 10.4103/IJPSYM.IJPSYM_171_17. PubMed PMID: 28852246; PubMed Central PMCID: PMC5560000.
8. Musetti A, Cattivelli R, Giacobbi M, Zuglian P, Ceccarini M, Capelli F, et al. Challenges in Internet Addiction Disorder: Is a Diagnosis Feasible or Not? Front Psychol. 2016;7:842. doi: 10.3389/fpsyg.2016.00842. PubMed PMID: 27375523; PubMed Central PMCID: PMC4894006.
9. Young KS. Internet Addiction: The Emergence of a New Clinical Disorder. CyberPsychol Behav. 1998;1(3):237-244. doi: 10.1089/cpb.1998.1.237.
10. Amichai-Hamburger Y. Youth internet and wellbeing. Computers in Human Behavior. 2013;29(1):1-2. doi: 10.1016/j.chb.2012.05.023.
11. Cheung M, Wong S. The effects of insomnia and Internet addiction on depression in Hong Kong Chinese adolescents: An exploratory cross-sectional analysis. J Sleep Res. 2011;20(2):311-7. doi: 10.1111/j.1365-2869.2010.00883.x. PubMed PMID: 20819144.
12. Choi K, Son H, Park M, Han J, Kim K, lee B, et al. Internet overuse and excessive daytime sleepiness in adolescents. Psychiatry Clin Neurosci. 2009;63(4):455-62. doi: 10.1111/j.1440-1819.2009.01925.x. PubMed PMID: 19490510.
13. Kim JH, Lau CH, Cheuk KK, Kan P, Hui HLC, Griffiths SM. Brief report: predictors of heavy Internet use and associations with health-promoting and health risk behaviors among Hong Kong university students. J Adolesc. 2011;33(1):215-20. doi: 10.1016/j.adolescence.2009.03.012. PubMed PMID: 19427030.
14. An J, Sun Y, Wan Y, Chen J, Wang X, Tao F. Associations between problematic internet use and adolescents' physical and psychological symptoms: possible role of sleep quality. J Addict Med. 2014;8(4):282-7. doi: 10.1097/ADM.0000000000000026. PubMed PMID: 25026104.
15. Kim K, Ryu E, Chon MY, Yeun EJ, Choi SY, Seo JS, et al. Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey. Int J Nurs Stud. 2006;43(2):185-92. doi: 10.1016/j.ijnurstu.2005.02.005. PubMed PMID: 16427966.
16. Ipsen DH, Tveden-Nyborg P, Lykkesfeldt J. Dyslipidemia: Obese or Not Obese-That Is Not the Question. Curr Obes Rep. 2016;5(4):405-412. doi: 10.1007/s13679-016-0232-9. PubMed PMID: 27687811.
17. Vekic J, Zeljkovic A, Stefanovic A, Jelic-Ivanovic Z, Spasojevic-Kalimanovska V. Obesity and Dyslipidemia. Metabolism. 2019;92:71-81. doi: 10.1016/j.metabol.2018.11.005. PubMed PMID: 30447223.
18. Pygeyre M, Meyre D. Monogenetic Obesity. In Freemark SM, Robert C, Atkins V, editors. Pediatric Obesity: Etiology, Pathogenesis and Treatment (Contemporary Endocrinology).

2nd ed. Switzerland: Springer International Publishing; 2018. p. 135-152.
19. Gupta PP, Fonarow GC, Horwich TB. Obesity and the Obesity Paradox in Hearth Failure. Can J Cardiol. 2015;31(2):195-202. doi: 10.1016/j.cjca.2014.08.004. PubMed PMID: 25661554.
20. Yousefi R, Mottaghi A, Saidpour A. Spirulina Platensis Effectively Ameliorates Anthropometric Measurements and Obesity-Related Metabolic Disorders in Obese or Overweight Healthy Individuals: A Randomized Controlled Trial. Complement Ther Med. 2018;40:106-112. doi: 10.1016/j.ctim.2018.08.003. PubMed PMID: 30219433.
21. Mohammadi H, Nafei H, Baniasadi T, Chaharbaghi Z. Accelerometer-Based Physical Activity and Health-Related Quality of Life in Children with ADHD. Int J Pediatr. 2022;10(7):16362-16369. doi: 10.22038/IJP.2022.63699.4847.
22. Naeimikia M, Gholami A. Effect of Physical Activity on the Level of Perceived Mental Pressure during Home Quarantine due to Coronavirus Outbreak. Sci J Rehabil Med. 2020;9(3):217-224. doi: 10.22037/jrm.2020.114158.2503. Persian.
23. Yaali R, Naeimi Kia M, Gholami A. Effect of weight transfer training on static and dynamic balance of older women. JRSM. 2018;8(16):47-59. doi: 10.29252/JRSM.8.16.47. Persian.
24. Mohammad Gholinejad P, Hojjati H, Ghorbani S. The Effect of Aerobic Exercise on Body Composition and Muscle Strength of Female Students at Elementary Schools of Ali Abad Katoul in 2018. Int J School Health. 2019;6(4):27-33. doi: 10.30476/INTJSH.2019.45892.
25. Hashemi Motlagh S, Baniasadi T, Chaharbaghi Z, Moradi L. The Effects of Socioeconomic Status on Physical Activity in Children: Mediating Role of Motivation. Int J Pediatr. 2022;10(8):16538-16544. doi: 10.22038/IJP.2022.63421.4834.
26. Naeimikia M, Izanloo Z, Gholami A, Ahar S. The Effect task training with increased cognitive load on the traits of related to balance in elderly males. JGN. 2018;4(3):43-53. Persian.
27. Abdoshahi M, Gholami A, Naeimikia M. The correlation of Autonomy Support with Intrinsic Motivation, Anxiety, and Intention to Do Physical Activities in Children. Int J Pediatr. 2022;10(3):15623-15629. doi: 10.22038/IJP.2022.63021.4810.
28. Gholami A, Rostami S. Effect of a Fun Virtual Purposeful Active Play Program on Children's Physical Fitness during Home Quarantine due to the Outbreak of Covid-19. Mot Behav. 2021;13(44):171-190. doi: 10.22089/mbj.2021.10913.1980. Persian.
29. Gholami A, Abani Arani M, Ghasemi A, Ghafari B. The Effect of Selected Rainbow Parachute Games on Motor and Social Development of Pre-school Children. Mot Behav. 2016;8(24):189-204. doi: 10.22089/mbj.2016.791. Persian.
30. Naeimikia M, Gholami A, Najafzadeh F. Effect of Participation in a Course of Recreational Sports Activity on the Self-Efficacy and Resilience of the Physical Education Teachers. Sport Psychol. 2021;1400(1):51-62. doi: 10.52547/mbsp.6.1.51. Persian.
31. Sheikh M, Bay N, Ghorbani S, Esfahaninia A. Effects of Peers on Motivation and Physical Activity Behavior of Adolescent Students: An Investigation of Trans-Contextual Model. Int J School Health. 2021;8(1):47-54. doi: 10.30476/INTJSH.2021.90210.1129.
32. Sheikh M, Bay N, Ghorbani S, Esfahani nia A. Effects of Social Support and Physical Self-efficacy on Physical Activity of Adolescents. Int J Pediatr. 2022; 10(4):15823-15834. doi: 10.22038/IJP.2022.62762.4793.
33. Dana A, Nodeh H, Salehian M, Mokari Saei S, Sarvari S. Smartphone Usage Status, Sleep Pattern, Health-Related Quality of Life, and Physical Activity among Adolescents from before to during the COVID-19 Confinement: A Cross-Sectional Study. Int J School Health. 2021;9(1):1-9. doi: 10.30476/INTJSH.2021.92822.1178.
34. Dana A, Khajehaflaton S, Salehian M, Sarvari S. Effects of an Intervention in Online Physical Education Classes on Motivation, Intention, and Physical Activity of Adolescents during the COVID-19 Pandemic. Int J School Health. 2021;8(3):158-166. doi: 10.30476/INTJSH.2021.91103.1145.
35. Kirwil L. Parental mediation of children's internet use in different European countries. Journal of Children and Media. 2009;3(4):394-409. doi: 10.1080/17482790903233440.
36. Eastin MS, Greenberg BS, Hofschire L. Parenting the internet. Journal of Communication. 2006;56(3):486-504. doi: 10.1111/j.1460-2466.2006.00297.x.

37. Melamud A, Nasanovsky J, Otero P, Canosa D, Enríquez D, Köhler C, et al. Internet usage in households with children between 4 and 18 years old. Parent's supervision. Results of a national survey. Arch Argent Pediatr. 2009;107(1):30-36. doi: 10.1590/S0325-00752009000100008. PubMed PMID: 19350141. Spanish.
38. Siomos K, Floros G, Fisoun V, Evaggelia D, Farkonas N, Sergentani E, et al. Evolution of internet addiction in Greek adolescent students over a two-year period: the impact of parental bonding. Eur Child Adolesc Psychiatry. 2012;21(4):211-9. doi: 10.1007/s00787-012-0254-0. PubMed PMID: 22311146.
39. van den Eijnden RJ, Spijkerman R, Vermulst AA, van Rooij TJ, Engels RCME. Compulsive internet use among adolescents: bidirectional parentchild relationships. J Abnorm Child Psychol. 2010;38(1):77-89. doi: 10.1007/s10802-009-9347-8. PubMed PMID: 19728076; PubMed Central PMCID: PMC2809946.
40. Lee SJ, Chae YG. Children's internet use in a family context: influence on family relationships and parental mediation. Cyberpsychol Behav. 2007;10(5):640-4. doi: 10.1089/cpb.2007.9975. PubMed PMID: 17927531.
41. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety Stress Scales. 2nd ed. Sydney: Psychology Foundation; 1995.
42. Ghorbani S, Rezaeeshirazi R, Shakki M, Noohpisheh S, Farzanegi P. The role of BMI, physical activity and the use of electronic device in the status of trunk abnormalities in male adolescents. J Gorgan Univ Med Sci. 2020;22(3):129-136. Persian.