

RISK FACTORS FOR INTERNET ADDICTION IN ADOLESCENTS: A SYSTEMATIC REVIEW OF LITERATURE

*¹Silas Tavares Rodrigues, ²Thais Rosa Ahnert, ³Gabriel S. Thiago Cavalleiro, ²Tayane Moura Giovanini Cavalcante and ⁴Kleitton Santos Neves

¹Physician Graduate Degree In Psychiatry. Instituto do Cérebro do Sul Fluminense, Volta Redonda-RJ, Brasil.

²Student of the Medical Course at the Universidade de Vassouras, Vassouras-RJ, Brasil.

³Physician of the Medical Residency Program in Gastroenterology of Universidade Estadual Paulista, São Paulo, Brasil.

⁴Physician Pediatrician, Master in Health Administration, Doctor in Clinical and Experimental Pathophysiology, Professor of Medicine at the Universidade de Vassouras, Vassouras-RJ, Brasil.

Received date: 11 April 2023

Revised date: 01 May 2023

Accepted date: 21 May 2023

*Corresponding Author: Silas Tavares Rodrigues

Physician Graduate Degree In Psychiatry. Instituto do Cérebro do Sul Fluminense, Volta Redonda-RJ, Brasil.

ABSTRACT

Objective: The aim of this review was to summarize the literature and examine risk factors for adolescents to develop internet addiction or problematic internet use in general. Our intention is to clarify risk behaviors and the profile of users, in order to understand this modern phenomenon and contribute to preventive practices. **Method:** Articles of risk factors for internet Addiction (IA) from the platforms SciELO and PubMed were collected over the last 10 years. In total, 37 articles were selected for the review. **Discussion:** The main risk factors found are depression and/or anxiety, ADHD, male, aged between 14-18 years, living in an urban area, belonging to the middle class, being sedentary, having an unbalanced diet, alcohol consumption and/or drugs, using the internet for online games and/or pornography, the feeling of loneliness, having few friends in real life, high degree of neuroticism, having family conflicts and low family communication.

KEYWORDS: Internet addiction disorder; Adolescents; Risk factors.

INTRODUCTION

For adolescents, the internet can be a valuable tool for learning, exploring new ideas, and connecting with others. It can provide access to educational resources, online communities, and social support networks. However, excessive and uncontrolled use of the internet by adolescents can lead to addiction, which can have negative consequences on their mental and physical health, academic performance and social relationships.^[1,2,3,5]

The concept of internet addiction (IA) is still not clear and established, and terminological discussions and diagnostic tools are still underway. However, the notion is that is a type of behavioral addiction that involves excessive use of the internet to the point that it interferes with daily life and causes distress or impairment, with negative consequences for the individual's life. Common signs of IA in adolescents include spending excessive amounts of time online, neglecting responsibilities,

social isolation, mood swings, and withdrawal symptoms when not using the internet.^[1,3]

It is also true that different types of excessive internet use may be associated with different risk factors. For example, research suggests that males may be more susceptible to developing IA compared with girls. Other risk factors may include underlying mental health issues, social isolation, and a lack of other fulfilling activities or hobbies.^[1,2,7,9]

The aim of this systematic review is to assess the main risk factors associated with internet addiction. It was not our purpose to discuss problems related to definitions, appropriate terms, or diagnostic criteria and tools.

METHOD

Inclusion and exclusion criteria

We first specify the scope and limits of the review using the PICO strategy. Inclusion criteria were that the

studies: 1) assessed risk factors for internet addiction; 2) include at least 10 participants per group to exclude very small pilot feasibility studies or single-case projects; and 3) we specify the search date for works published within the last 10 years, including original articles, literature reviews, and randomized studies.

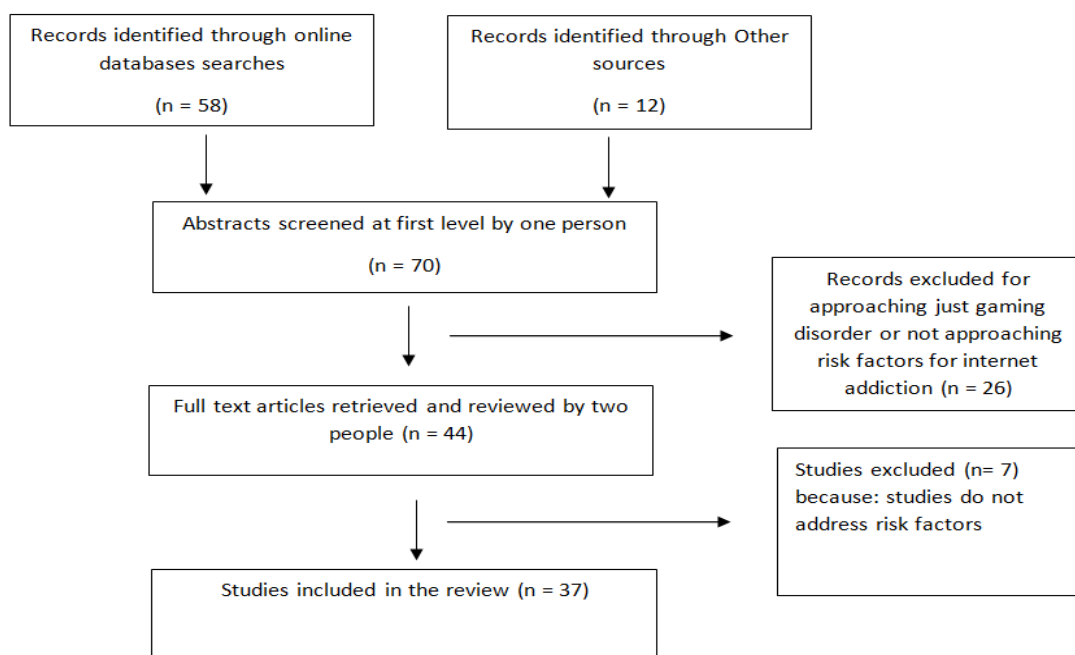
The final date of the review was set for February 28, 2023, when searches were carried out in the databases. Studies were excluded if: 1) they focused on the treatment of gaming or internet addiction and did not address risk factors. 2) were not available in English, Portuguese, or Spanish.

Search Strategy

We searched PubMed and ScieELO using the following combination of MESH search terms: [“Adolescent” OR “child” OR “young adult” [Mesh]] AND [“Risk factors” [Mesh]] AND [“Internet addiction disorder” [Mesh] OR “internet abuse” [TW] OR “problematic internet abuse” [TW]].

Screening Abstracts

Two different researchers selected and reviewed 58 abstracts from January 2012 to February 2023. The 37 articles selected for this review somehow evaluated risk factors related to internet addiction. We selected 12 articles from other data sources for the theoretical basis of the subject.



RESULTS

Of the 37 articles selected for this review, there is a difference in the risk factors considered or in the emphasis given to each one of them. For this reason, the works were subdivided into groups according to the aspects considered. 12 papers investigated the association of IA and psychiatric comorbidities.^[1,2,6,7,8,9,21,22,23,24,27,32] 8 focused on the type of content consumed on the internet.^[8,15,21,23,25,29,32,33] 10 evaluated lifestyle.^[10,11,15,19,20,26,28,29] 4 analyzed personality aspects.^[23,35,36,37] and, finally, 8 studies investigated the family relationship.^[5,11,12,13,17,18,26,29] Thus, the same study can assess several different risk factors and can be mentioned in several subtopics.

Psychiatric Comorbidities

Of the 12 studies that evaluated the relationship between psychiatric comorbidities and IA, a statistically significant association was found between IA, anxiety and depression disorders in 6 studies.^[1,2,5,6,7,8,21,22,23,24,27,32]

Anxiety was evaluated clinically and effectively found as a risk factor in two studies.^[7,21]

Three studies found attention deficit hyperactivity disorder (ADHD) as a risk factor.^[1,5,27] Li, G., who used a hierarchical linear model to assess depression and anxiety variables in a group of 1033 Chinese adolescents between 11 and 19 years old, appreciated that depression and anxiety are risk factors and highly predictive of internet addiction. The higher levels of anxiety and depression, the more severe the IA.^[6] ($p < 0,001$).

Terroso, L. B., in a multivariate model, analyzing 1485 young people, also found a significant association between depressive symptoms, impulsivity, and IA. For each point on the depression scale, the rate of moderate/severe IA increased by 6%.^[8]

Gender and Age

The vast majority of studies indicate that boys are at greater risk of IA than girls.^[7,9,22,27,32,35,36]

In Malaysia, 27,497 people were analyzed and no significant differences were shown between boys and girls. However, it may have influenced gender in relation to the use of the internet. For example, boys are more likely to games, entertainment and leisure, while girls are more likely to engage in online shopping, blogging, Instagramming and Facebooking.^[9]

In Brazil, the data point in another direction, with a 45% higher prevalence of IA in boys than in girls.^[8]

With regard to age, the data indicate that from the age of 14 onwards, adolescents become more likely to develop IA, or to worsen their symptoms.^[10,34]

Type of content consumed

In all, eight studies assessed the type of content accessed in some way. Pornographic content was considered a risk factor for IA in half of them.^[21,23,32] Four studies pointed out that using the internet for online games is a significant risk factor for IA.^[8,23,25,32] Finally, four papers found a statistical relationship between time spent on social media and IA.^[15,25,29,33]

Individuals whose main use of the internet is for gaming have a 61% higher prevalence of moderate/severe internet Addiction when compared to those who use the internet for other reasons.^[8]

Alexandraki, K. et al has postulated that the onset of sexual interest in adolescence, the high motivation to explore, associated with easy access to sexual content and the anonymity that the internet provides, are strong ingredients for the development of abusive and dysfunctional use of the internet. In his work, evaluating 648 Greek youths between 16 and 18 years old, he concluded that preference for sexual content is a significant risk factor for IA ($b = 10.56$, $p < 0.001$) and that this association is independent of the time of use and does not decrease with pass age.^[21]

Lifestyle

The time of daily use was a variable evaluated in 12 articles. Among these, there was a statistically significant relationship between time spent and IA in ten studies.^[9,10,15,23,26, 28,29,32,33,34] with $> 3\text{h/day}$ being the average found as a risk factor. In two studies, no significant relationship was found between IA and time spent on the internet.^[22,24] Young adults who use the internet for more than 6 hours have a 96% higher prevalence of moderate/severe IA than those who use it for less than 4 hours a day.^[9]

Ten works proposed to evaluate lifestyle and environmental factors as risk factors. The risk factors found were: loneliness and isolation,^[1,19,20,26,30] obesity, and sedentary lifestyle.^[9,10,26] Other behaviors found as a risk to internet Addiction were alcohol consumption,^[9,28] unhealthy food.^[9]

Regarding the socioeconomic aspect, there are some divergences. Cruz, F. for example, found that the higher the quality of life (physical, social, emotional and educational aspects), the less chance of developing IA. Likewise low-income adolescents had higher rates of addiction (24%) than higher-income adolescents (10%) in Brazil.^[15] In other studies, on the contrary, the results showed middle-class young people as more likely to develop AI than low-income ones.^[29,34]

In Malaysia, a survey was conducted among 27,497 randomly selected secondary school students. Results revealed that urban adolescents were more likely to develop IA than rural adolescents (OR = 1.31; 95% CI: 1.16-1.49). Students from higher grades were twice as likely to have IA than those from lower grades. Underweight adolescents were negatively associated with IA (OR = 0.83; 95% CI: 0.73-0.95), while overweight adolescents (OR = 1.03; 95% CI: 0.92-1, 17) or obesity (OR = 1.12; 95% CI: 0.99-1.26) were positively associated with IA; however, the positive association was not statistically significant.

Several lifestyle factors, such as inadequate fruit and vegetable intake (OR = 1.21; 95% CI: 1.10-1.33), soft drink intake at least once a day (OR = 1.16; 95% CI: 1.07-1.26), fast food intake at least three days a week (OR = 1.40; 95% CI: 1.26-1.55) and sedentary behavior (OR = 2.44; 95% CI: 2.25-2.65) were significantly associated with AI. Those who used electronic cigarettes (OR = 1.37; 95% CI: 1.20-1.57) and alcohol drinkers (OR = 1.20; 95% CI: 1.05-1.37) were also at risk significantly higher for IA.^[9]

In Brazil, a population-based cross-sectional study was carried out with 1,387 adolescents aged 14 to 18 enrolled in high schools in the city of Rio Branco, Acre. Adolescents who spent more than two hours on the computer on weekdays and weekends had IA association rates of 2.39 (OR 3.79) and 2.08 (OR 2.44) respectively. Those who did not practice physical activity were 2.27 times more likely to become addicted than those who practiced at least 300 minutes of physical activity per week. $p > 0.001$ for all.

Participants who went out to dance at concerts or nightclubs at least twice a week were 3.32 times more likely to have IA than those who never or rarely went to such places (OR 3.23 and $p < 0.001$).^[10]

In a study conducted in China during the COVID-19 pandemic, information was collected from 20,472 people over 15 years of age. The overall prevalence of IA was 36.7%, with 33.9% being moderate. Among those evaluated, almost half of the participants (43.8%) reported worsening internet addiction during the pandemic. The factors that contributed to this worsening were: being a student, having little social support, and having had traumatic and negative events in life. Those who use the internet for online gaming, occasional

smokers, alcohol drinkers have also been found to be at risk for IA.^[20]

Personality factors

Of the four studies that proposed to evaluate aspects of personality or individual characteristics as variables, two of them found that high neuroticism is a risk factor for IA.^[32,35] The other two resulted in low self-esteem.^[36] and shyness.^[37]

In the interesting investigation carried out by Monteiro A. P., 1050 young people were evaluated. The results showed that those who were more neurotic, more extroverted, less prudent and, less kind were more likely to develop IA.^[35]

Family relationship

Of the eight studies that evaluated family relationships, all of them corroborate the hypothesis that family dysfunction is a risk factor for IA.^[5,11,12,13,17,18,27,29]

Aponte Rueda, D.R., et al, pointed out that the most significant family variables were low cohesion, low harmony, low affection and low communication between members.^[19]

Problems in family communication have been pointed out as a major factor that contributes to family conflicts and, consequently, to IA.^[18]

Both children's conflicts with their parents and conflicts between parents are harmful to family harmony.^[13] The results also show that a good parental relationship is a protective factor for internet addiction, especially for those who are at the beginning of the adolescence.^[27]

Factors such as: anxious and overprotective parents, depressed parents and little display of affection are also significant variables for low family harmony and IA.^[11,12,13]

DISCUSSION

The present study aimed to clarify the main factors that lead adolescents to become addicted or have problematic internet use. In view of the data found, we can, with ballast in all the literature on the subject, point out the following aspects:

First, individuals with negative emotions may use the internet as a compensatory means to escape reality or alleviate their symptoms. It can be a means to suppress difficulties encountered in real-life activities.^[2,26]

A second point is the problematic use of the internet by adolescents with greater impulsiveness, in search of novelties and quick rewards, among which stand out those who suffer from ADHD.^[5,8,27]

The literature highlights links between adolescents who suffer from loneliness, depression and anxiety with the

use of the internet as a coping strategy.^[1,6,19,22] Adolescents who suffer from relational difficulties make use of the internet to compensate for their deficits in social capital, to fill in the lack of social support and are more likely to develop addiction.^[20]

We can safely say that boys are more likely to develop IA than girls, at least up to the present moment.^[7,22,27,9]

Regarding the type of content accessed, those who engage in online activities, especially games and social networks, as well as those who access sexual content, are more prone to IA.^[8,21,23,25,32,33] Online gaming, much like pornography, promotes quick rewards, high dopamine release, and facilitates addiction.^[8,21] On the other hand, in social networks, adolescents find the opportunity to mitigate their needs for social interaction, bonding and decrease the feeling of loneliness. The internet offers less risky possibilities for social interactions than face-to-face, due in large part to the sense of anonymity it provides. However, studies indicate that internet addiction tends to increase isolation and feelings of loneliness.^[1,19,26]

Based on the data found, we can conclude that individuals who use the internet more than 3 hours a day, are sedentary, without rules of use or time limit, have an unbalanced diet, middle class, are inhabitants of urban areas, are socially isolated and without friends, who consume alcohol or drugs, are more prone to IA.^[9,10,15,23,26,28,29,32,33,34]

Individuals with a higher degree of neuroticism and low self-esteem are also at risk.^[32,35,36,37]

Family conflicts and poor parental relationship, with low demonstration of affection, low cohesion and low communication between family members, are also variables found as risk factors for IA.^[5,11,12,13,17,18,27,28]

Conflicts of Interest: The author has no conflict of interest.

REFERENCES

1. Machado, M. de R., Bruck, I., Antoniuk, S. A., Cat, M. N. L., Soares, M. C., & Silva, A. F. da.. Internet addiction and its correlation with behavioral problems and functional impairments – A cross-sectional study *Jornal Brasileiro De Psiquiatria*, 2018; 67(1): 34–38. <https://doi.org/10.1590/0047-2085000000181>.
2. Bueno, G. Viana, M. Neto, E.D. Common mental disorder in late adolescence and internet dependence: possible associations. *Rev. psicologia, saúde e doença*, 2021; 22(3): 1061-1078. <https://doi.org/10.15309/21psd220324>
3. Király O, Griffiths MD, Urbán R, Farkas J, Kökönyei G, Elekes Z, Demetrovics Z. Problematic internet use and problematic online gaming are not the same: Findings from a large nationally

- representative adolescent sample. *Cyberpsychology, Behavior, and Social Networking*, 2014; 17(12): 749–754.
4. CONTI, MA, et al. Avaliação da equivalência semântica e consistência interna de uma versão em português do *internet addiction test* (IAT). *Rev. Psiq. Clín.*, 39: 106-10, 2012.
 5. Vicente-Escudero, J. L., Saura-Garre, P.; López-Soler, C., Martínez, A., y Alcántara, M. Adicción al móvil e internet en adolescentes y su relación con problemas psicopatológicos y variables protectoras. *Escritos de Psicología*, 2019; 12: 103-112.
 6. Li, G. Hierarchical Linear Model of Internet Addiction and Associated Risk Factors in Chinese Adolescents: A Longitudinal Study. *International journal of environmental research and public health*, 21 14008. 27 Oct. 2022. doi:10.3390/ijerph192114008
 7. Britos Esquivel, M. Uso de Internet y Ansiedad en Adolescentes Escolarizados de una Institución Educativa Gubernamental, año 2016. *Rev. cient. UCSA* [online], 2017; 4: 3.
 8. Terroso, L. B., Pante, M., Krimberg, J. S., & Almeida, R. M. M. Prevalence of internet addiction and its association to impulsivity, aggression, 9-depression, and anxiety in young adult university students. *Estudos de Psicologia* (Campinas), 2022; 39: e200024. <https://doi.org/10.1590/1982-0275202239e200024>.
 9. Ying Ying, C.; Awaluddin, SM.; Kuang Kuay, L.; Siew Man, C.; Baharudin, A.; Miaw Yn, L.; Sahril, N.; Omar, M.A.; Ahmad, N.A.; Ibrahim, N. Association of Internet Addiction with Adolescents' Lifestyle: A National School-Based Survey. *Int. J. Environ. Res. Public Health*, 2021; 18: 168. <http://dx.doi.org/10.3390/ijerph18010168>
 10. Dalamaria, T., Pinto, W. de J., Farias, E. dos S., & Souza, O. F. de INTERNET ADDICTION AMONG ADOLESCENTS IN A WESTERN BRAZILIAN AMAZONIAN CITY. *Revista Paulista De Pediatria*, 39, e2019270. <https://doi.org/10.1590/1984-0462/2021/39/2019270>, 2021.
 11. Giulia Ballarotto, Barbara Volpi, Eleonora Marzilli, Renata Tambelli, "Adolescent Internet Abuse: A Study on the Role of Attachment to Parents and Peers in a Large Community Sample", *BioMed Research International*, vol. 2018, Article ID 5769250, 2018; 10. <https://doi.org/10.1155/2018/5769250>
 12. WONG C-K, CHEN Y-M, YEN C-F. Associations of parental bonding and adolescent internet addiction symptoms with depression and anxiety in parents of adolescents with attention deficit/hyperactivity disorder. *Arch Clin Psychiatry* (São Paulo) [Internet], 2019 Mar; 46(2): 40–3. Available from: <https://doi.org/10.1590/0101-60830000000190>
 13. Terres-Trindade M, Mosmann CP. Conflitos Familiares e Práticas Educativas Parentais como Preditores.
 14. De Dependência de *Internet*. *Psico-USF* [Internet], 2016Sep; 21(3): 623–33. Available from: <https://doi.org/10.1590/1413-82712016210315>
 15. Cruz, F. A. D., Scatena, A., Andrade, A. L. M., & De Micheli, D. Evaluation of Internet addiction and the quality of life of Brazilian adolescents from public and private schools. *Estudos de Psicologia* (Campinas), 2018; 35(2): 193-204. <http://dx.doi.org/10.1590/1982-02752018000200008>.
 16. Khatcherian, E.; Zullino, D.; De Leo, D.; Achab, S. Feelings of Loneliness: Understanding the Risk of Suicidal Ideation in Adolescents with Internet Addiction. A Theoretical Model to Answer to a Systematic Literature Review, without Results. *Int. J. Environ. Res. Public Health*, 2022. <https://doi.org/10.3390/ijerph19042012>
 17. Castaño Castrillón, J. & Páez Cala, M. Funcionalidad familiar y tendencias adictivas a internet y a sustancias psicoactivas en estudiantes universitarios. *Psicología desde el Caribe*, 2019 36(2), 177-206.
 18. Rodrigues, D. A., Relva, I. C., & Fernandes, O. M. Funcionamento familiar e dependência da internet em adolescentes. *Rev. CES Psico*, 2022; 15(1): 44-67. <https://dx.doi.org/10.21615/cesp.5900>.
 19. Bakioğlu F. Adicción a Internet y autoeficacia social: el papel mediador de la soledad. *An. psicol.* [Internet], 2020; 36(3): 435-42. Disponible en: <https://revistas.um.es/analesps/article/view/394031>
 20. Li YY, Sun Y, Meng SQ, Bao YP, Cheng JL, Chang XW, Ran MS, Sun YK, Kosten T, Strang J, Lu L, Shi J. Internet Addiction Increases in the General Population During COVID-19: Evidence From China. *Am J Addict.* 2021 Jul; 30(4): 389-397. doi: 10.1111/ajad.13156. Epub 2021 Mar 19. PMID: 33738888; PMCID: PMC8251395.
 21. Alexandraki K, Stavropoulos V, Burleigh TL, King DL, Griffiths MD. Internet pornography viewing preference as a risk factor for adolescent Internet addiction: The moderating role of classroom personality factors. *J Behav Addict*, 2018 Jun 1; 7(2): 423-432. doi: 10.1556/2006.7.2018.34. Epub 2018 May 23. PMID: 29788747; PMCID: PMC6174585.
 22. Cabral, F., Pereira, M., & Teixeira, C. M. Internet, Physical Activity, Depression, Anxiety and Stress. *PsychTech & Health Journal*, 2018; 2(1): 15-27. <https://doi.org/10.26580/PTHJ.art10-2018>
 23. Ávila G, dos Santos EN, Jansen K, Barros FC. Internet addiction in students from an educational institution in Southern Brazil: prevalence and associated factors. *Trends Psychiatry Psychother*, 2020; 42(4): 302-310. <http://dx.doi.org/10.1590/2237-6089-2019-0098>.
 24. Moromizato, M. S., Ferreira, D. B. B., Souza, L. S. M. de ., Leite, R. F., Macedo, F. N., & Pimentel, D..

- (2017). O Uso de Internet e Redes Sociais e a Relação com Índícios de Ansiedade e Depressão em Estudantes de Medicina. *Revista Brasileira De Educação Médica*, 41(4): 497–504. <https://doi.org/10.1590/1981-52712015v41n4RB20160118>.
25. Asrese K, Muche H (2020) Online activities as risk factors for Problematic internet use among students in Bahir Dar University, North West Ethiopia: A hierarchical regression model. *PLoS ONE*, 15(9): e0238804. <https://doi.org/10.1371/journal.pone.0238804>.
26. Masaaki Yamada, Michikazu Sekine, Takashi Tatsuse, Yukiko Asaka. Prevalence and Associated Factors of Pathological Internet Use and Online Risky Behaviors Among Japanese Elementary School Children, *Journal of Epidemiology*, 2021; 31(10): 537-544. Released on J-STAGE October 05, 2021.
27. Wu X, Chen X, Han J, Meng H, Luo J, et al. Prevalence and Factors of Addictive Internet Use among Adolescents in Wuhan, China: Interactions of Parental Relationship with Age and Hyperactivity-Impulsivity. *PLoS ONE*, 2013; 8(4): e61782. doi:10.1371/journal.pone.0061782.
28. Kapus, K.; Nyulas, R.; Nemeskeri, Z.; Zadori, I.; Muity, G.; Kiss, J.; Feher, A.; Fejes, E.; Tibold, A.; Feher, G. Prevalence and Risk Factors of Internet Addiction among Hungarian High School Students. *Int. J. Environ. Res. Public Health*, 2021; 18: 6989. <https://doi.org/10.3390/ijerph18136989>.
29. Aponte Rueda, Deyvar R., Castillo Chávez, Paola, & González Estrella, José E. Prevalencia de adicción a internet y su relación con disfunción familiar en adolescentes. *Revista Clínica de Medicina de Familia*, 2017; 10(3): 179-186.
30. Ilesanmi, O.S., Afolabi, A.A., & Adebayo, A.M. Problematic internet use (PIU) among adolescents during COVID-19 lockdown: A study of high school students in Ibadan, Nigeria. *The African Journal of Information and Communication (AJIC)*, 2021; 27: 1-22. <https://doi.org/10.23962/10539/31373>.
31. Andrade, A. L. M., Enumo, S. R. F., Passos, M. A. Z., Vellozo, E. P., Schoen, T. H., Kulik, M. A., Niskier, S. R., & Vitalle, M. S. de S. Problematic Internet Use, Emotional Problems and Quality of Life Among Adolescents. *Psico-usf*, 2021; 26(1): 41–51. <https://doi.org/10.1590/1413-82712021260104>.
32. Wu C-Y, Lee M-B, Liao S-C, Chang L-R Risk Factors of Internet Addiction among Internet Users: An Online Questionnaire Survey. *PLoS ONE*, 2015; 10(10): e0137506. doi:10.1371/journal.pone.0137506.
33. Puerta-Cortés, D. X. & Carbonell, X. Uso problemático de Internet en una muestra de estudiantes universitarios colombianos. *Avances en Psicología Latinoamericana*, 2013; 31(3): 620-631.
34. Piqueras-Rodríguez, J. A., Garcia-Oliva, C. y Mazo, J. C. Uso problemático de Internet en adolescentes: relación con sexo, edad, nivel socioeconómico y frecuencia de uso de Internet [Problematic Internet Use among Adolescents: Relationship with Gender, Age, Socioeconomic Status, and Frequency of Internet Use]. *Acción Psicológica*, 2019; 16(2): 129–146. <https://doi.org/10.5944/ap.16.2.22382>.
35. Monteiro, A. P., Sousa, M., & Correia, E. Adição à internet e características de personalidade: Um estudo com estudantes universitários portugueses. *Revista Portuguesa De Educação*, 2020; 33(2): 159–176. <https://doi.org/10.21814/rpe.17699>.
36. Błachnio, Agata, Przepiórka, Aneta, Senol-Durak, Emre, Durak, Mithat, & Sherstyuk, Lyubomyr. The role of self-esteem in Internet addiction: a comparison between Turkish, Polish and Ukrainian samples. *The European Journal of Psychiatry*, 2016; 30(2): 149-155.
37. Ahmad, Sheharyar, Nasreen, Lubna, & Aiman, Maria. Shyness and Psychological Well-Being as Predictors of Problematic Internet Use Among Students in Pakistan. *Psicología, Conocimiento y Sociedad*, 2020; 10(3): 5-18. Epub 01 de diciembre de 2020. <https://doi.org/10.26864/pcs.v10.n3.1>