Research Paper

Cite this article as: Firoozi, M., Firoozi, A. A., & Karimi Riabi, E. (2022). The Global Prevalence of Internet Addiction in Adolescents Post-COVID-19 Period: Examining Iran's Situation. *Journal of World Sociopolitical Studies*, *6*(4), pp. 673-703 https://doi.org/10.22059/wsps.2023.358588.1346

The Global Prevalence of Internet Addiction in Adolescents Post-COVID-19 Period: Examining Iran's Situation*

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(Received: Apr. 30, 2022 Revised: Jul. 09, 2022 Accepted: Jul. 31, 2022)

Abstract

The widespread use of the Internet has led to both beneficial and detrimental impacts on adolescents and young adults worldwide. Understanding the factors that contribute to these effects enables the development of culturally appropriate strategies for addressing them at a global scale. The COVID-19 pandemic has led to a global surge in Internet use, particularly among adolescents. This study aimed to explore the prevalence of Internet addiction among adolescents in Iran during the post-COVID-19 period. In this web-based cross-sectional study, 1358 Tehran-based adolescents aged 13-18 completed the Young's Internet Addiction Questionnaire. Findings revealed a 10.3% prevalence of Internet addiction among the participants following the COVID-19 pandemic. Factors such as age of first exposure to the Internet and time spent online were correlated with addiction, while gender played no significant role. Additionally, Internet addiction was significantly linked to recreational use, gaming, and insufficient parental support, but not to educational usage. By comparing the cultural contexts of Iran and other countries, this study determines Iran's standing in terms of Internet addiction and the influence of culture. The implications of the findings suggest the need for policymakers, educators, and healthcare providers to devise effective strategies to combat this emerging public health concern.

Keywords: Adolescents, COVID-19, Global Perspective, Internet Addiction

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* The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in this manuscript.

Journal of **World Sociopolitical Studies**| Vol. 6| No. 4| Autumn 2022| pp. 673-703
Web Page: https://wsps.ut.ac.ir//Email: wsps@ut.ac.ir
eISSN: 2588-3127 PrintISSN: 2588-3119

1. Introduction

The COVID-19 pandemic has resulted in a dramatic shift in the day-to-day lives of individuals across the globe. The swift dissemination of the virus and the necessity for containment strategies have compelled people to adopt novel approaches to living, working, and learning (Nicola et al., 2020). In response to the pandemic, numerous countries, Iran included, instituted quarantines and social distancing protocols, disrupting daily routines and activities (Satici et al., 2020). Consequently, global Internet usage has surged as individuals seek alternative methods for communication, work, and educational access (Gao et al., 2020).

Adolescents have been particularly impacted by the pandemic, experiencing disruptions in their education, social interactions, and mental well-being (Fegert et al., 2020). The heightened dependence on the Internet for educational and social purposes has sparked concerns about a potential increase in Internet addiction among this demographic population (Király et al., 2020). Internet addiction, characterized by excessive or uncontrolled Internet use that hinders daily functioning and induces emotional, social, and psychological issues, is an emerging global public health challenge (Kuss et al., 2017).

Home quarantines and reduced social interactions have led to long-lasting psycho-social effects. For instance, as reported by the United Nations (UNESCO), school closures affected 172 countries and over 1.5 billion students, representing 90% of the global student population (Coleman, 2021). During this period, educational practices underwent significant changes to counter the COVID-19 pandemic, with virtual learning replacing in-person instruction (Khlaif & Salha, 2020). Utilizing educational platforms

necessitates Internet access, and the abrupt shift from traditional to online education presented numerous challenges and issues (d'Orville, 2020). Many students found themselves unfamiliar with online environments, complicating their ability to manage Internet usage effectively.

In addition to education, the Internet encompasses online shopping, gaming, and social media—areas previously less accessible to adolescents (Khlaif & Salha, 2020). Although the Internet has made substantial contributions to education, its excessive and uncontrolled use can result in Internet addiction (Shaw & Black, 2008).

Young was the first to introduce the term "Internet addiction", which refers to an individual's increasing need for virtual spaces and the experience of anger and confusion when disconnected from them (Young, 1999). The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) recognized Internet addiction in the form of online gaming as a new psychiatric disorder, leading to the term's popularization (Cho et al., 2014). Internet dependence has two dimensions: first, an obsessive and excessive use of the Internet, associated with mental preoccupation and loss of control; second, the tendency for individuals to spend significant time in virtual spaces, neglecting social activities (Chou, 2005).

As the pandemic continues, the increased reliance on the Internet for various aspects of daily life has the potential to exacerbate Internet addiction among adolescents. The risks associated with Internet addiction include reduced academic performance, social isolation, and negative impacts on physical and mental health (Li et al., 2021). To mitigate these risks, it is crucial

to develop and implement strategies that promote a balanced and healthy use of the Internet.

Internet addiction rates differ across the globe. For instance, following the COVID-19 outbreak, the prevalence of Internet addiction was reported as 19.8% in China (Li et al., 2021), 14.4% in Indonesia (Siste et al., 2020), 24.4% in Taiwan (Lin, 2020), 10.6% in Mexico (Priego-Parra et al., 2020), 29.4% in Bangladesh (Ahammed et al., 2022), 4.8% in Turkey (Ozturk & Ayaz-Alkaya, 2021), 34.8% in Italy (Servidio et al., 2021), and 33.3% in Persian Gulf countries (Al-Khani et al., 2021). Research on Internet addiction in Iran presents some inconsistencies. A majority of the studies focus on individuals above 20 years old and students, with limited research on adolescents. In 2019, approximately 31.5% of Iranian adults were found to be addicted to the Internet (Salarvand, 2022), while only 2.4% of adolescents exhibited symptoms of Internet addiction during the same year (Mousavi, 1399 [2020 A.D.]). In subsequent years, i.e., 2020, 34.5% of youth in Bushehr province (Najafi-Sharjabad & Rayani, 2020) and 28.5% of youth in Hamadan province in 2021 were identified with Internet addiction (Shahrezagamasaei & Shahyad, 2022). These findings suggest that adolescents had limited access to the Internet before the pandemic, leading to a stark difference in prevalence between adolescents and young adults. The current status of Iranian adolescents regarding Internet addiction after the pandemic remains uncertain.

In a comprehensive review study consisting of 94 studies and 237,657 participants, it was revealed that the current prevalence of general Internet addiction is 11.1%. Furthermore, specific addictions were reported as follows: smartphone addiction at 30.7%, online gaming addiction at 3.5%, media addiction at 3.5%, social media addiction at 15.1%, online food-watching addiction at

21%, sports addiction at 7%, sex addiction at 20%, gambling addiction at 2.7%, and shopping addiction at 2.7% (Alimoradi et al., 2022).

Various factors contribute to the development of Internet addiction. For instance, a meta-analysis discovered that gender does not have a significant impact on Internet addiction. The most substantial effect was observed in Asian countries, while the least effect was seen in North America, Africa, and Europe. Researchers believe that economic factors, internet availability, and social norms play essential roles (Su et al., 2019). In another meta-analysis conducted in 113 countries, it was found that Internet addiction has been on the rise since 1996, and researchers noted that human-machine interaction has increased in recent years (Pan, 2020). Another study demonstrated that adolescents are at a higher risk compared to young adults (Dou & Shek, 2021). The consequences of Internet addiction are wide-ranging, from individual factors such as depression and anxiety (Yang et al., 2020), to social consequences like hikikomori or social withdrawal (Kato, 2020). Studies have also indicated that Internet addiction is linked to physical health problems like obesity and sleep disorders (Aşut et al., 2019).

The expression and prevalence of Internet addiction among adolescents vary across cultures. For instance, research has demonstrated that Iranian adolescents are more addicted to social media and online chat compared to their peers in other countries (Błachnio et al., 2019). This may be a reflection of cultural differences in the emphasis placed on social interaction and communication. Nonetheless, cultural differences in understanding Internet addiction at the international level should be taken into account.

This research adds to the growing body of literature on the long-term impacts of the pandemic on mental health and well-being by investigating the connection between the COVID-19 pandemic and Internet addiction in Iranian adolescents. Additionally, it offers valuable insights for policymakers, educators, and healthcare providers in Iran and other countries similarly affected by the epidemic. Internet addiction is more than just a simple psychological issue; it is a destructive phenomenon worldwide that has proliferated following globalization and the expansion of online technologies. This problem disrupts people's daily lives and can hinder societal progress in the long run. Internet addiction has been measured in Iran on numerous occasions, but no research has been conducted on adolescents with internet addiction after the COVID-19 pandemic. Conducting post-pandemic research allows for comparisons of changes over time, as well as comparisons with other countries. Moreover, identifying factors associated with internet addiction can inform policies for prevention and intervention. The aim of this study is to investigate the prevalence of internet addiction and its related factors among Iranian adolescents in the aftermath of the COVID-19 pandemic.

2. Methods

The present study utilized a web-based cross-sectional design to investigate internet addiction among Iranian adolescents in the post-COVID-19 era. The research aimed to explore the prevalence, risk factors, and potential consequences of internet addiction in this population. Questionnaires were prepared with Pursline platform and provided to the participants. We used a non-random sampling method, distributing the online questionnaire to potential participants via various social media. Participants were adolescents

aged 12-19 years, and were aware that their responses would be used strictly for research purposes and that their anonymity would be maintained. We ensured anonymity and confidentiality by informing participants that their responses would be used only for research purposes, and they could withdraw at any time. While online sampling does not allow to generalize the findings to a wider population, it offers a valuable insight into the specific group under study.

2.1. Data Collection, Population and Sampling

The online questionnaires were distributed through various social media platforms and email to ensure wide reach. To maintain anonymity and confidentiality, all participants were assigned a unique identifier. Our study does not claim to generalize the findings to a wider population, but it provides valuable insights into the situation in Tehran, a highly populated urban area. The participants' responses were gathered anonymously, ensuring confidentiality.

The target population for this study included adolescents aged 13 to 18 years old, residing in Tehran during the spring of 2023. The sampling method employed was stratified sampling, considering different areas of Tehran to ensure a diverse and representative sample of the city's adolescent population. After discarding confusing or incomplete questionnaires, the final sample size included 1,358 participants. To be eligible for the study, participants had to be students with experience in online classes. Participants with a psychiatric history that prevented them from responding to the questionnaire were excluded from the study.

2.2. Research Tool

The research tool employed in this study was Young's Internet Addiction Questionnaire, a widely recognized instrument for assessing internet addiction levels among individuals. Developed by Kimberly Young in 1998, this self-administered questionnaire consists of 20 items and uses a Likert scoring system. The scores obtained classify participants into three categories: normal internet users, users with problems due to excessive use, and addicted users who are dependent on excessive use and require treatment. The questionnaire evaluates various aspects of internet addiction and determines the impact of excessive internet use on different areas of an individual's life (Murali & George, 2007).

2.2.1. Validity and Reliability

The internal validity of Yang's Internet Addiction Questionnaire has been reported as higher than 0.92, and its test-retest reliability has been found to be significant (Yang et al., 1996). In a study by Vidianto and McMorran (2004), the face validity of the questionnaire was reported to be very high, and factor analysis identified six prominent factors: excessive use, neglect of job duties, lack of control, social problems, and impact on performance. These findings demonstrated the instrument's internal consistency and validity. In Yu et al.'s study (2002), the Cronbach's alpha of the questionnaire was reported to be higher than 0.90.

In previous studies conducted in Iran, the reliability of Young's Internet Addiction Questionnaire was reported with Cronbach's alpha coefficients of 0.81 by Nasti Zaei and 0.88 by Ghasemzadeh (Zarbakhsh Bahri et al., 2013). In another study involving 233

students in Isfahan, the Cronbach's alpha was 0.88, and the clinical cut-off point was set at 46 (Alavi et al., 1389 [2010 A.D.]).

2.2.2. Data Analysis

To analyze the collected data, descriptive and inferential statistics were employed using statistical software SPSS. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the demographic characteristics of the participants and their responses to the Young's Internet Addiction Questionnaire. Inferential statistics, including chi-square tests, t-tests, and logistic regression, were utilized to examine the relationships between demographic variables and internet addiction levels, as well as to identify potential risk factors for internet addiction.

3. Findings

The study examined the prevalence and factors associated with internet addiction among 1,358 teenage participants. Table 1 presents the demographic information of the 1365 research participants. According to the data, the gender distribution shows that 63% (n=859) are female, while 37% (n=506) are male. In terms of age, the group is mainly divided into early adolescents (12 to 14 years old), making up 40.95% (n=559), and late adolescents (15 to 19 years old), comprising 59.05% (n=806).The table also categorizes the participants by their geographic location, with 36.84% (n=503) residing in the central urban area, followed by 22.16% (n=303) in the east, 20.04% (n=273) in the south, 12.4% (n=169) in the west, and 8.56% (n=117) in the north. When

considering the age at which participants became familiar with the internet, most participants (55%, or n=747) started using the internet between 8 to 12 years old, followed by 32.8% (n=448) who started at less than 8 years old, and 12.2% (n=170) who started using it after the age of 12. In terms of social media usage, Instagram is the most popular platform among the participants, with 76.1% (n=1032) using it, followed by TikTok (38.08% or n=517), Twitter (35.05% or n=476), and Telegram (31.88% or n=433). Regarding how they learned about the internet, the majority of participants (81.1% or 1101 participants) were self-taught, 15.96% (n=217) learned from friends, and 2.94% (n=47) were taught by their parents. Finally, concerning the internet usage rate, 62.01% (849 participants) use the internet for more than 5 hours daily, while 37.99% (n=516) use it for 5 hours or less. This comprehensive demographic information enables us to better understand the background of our study sample and informs our analysis of their internet use patterns.

Table 1. Demographic Information of Research Participants

Variables	Frequency (%)	Actual Numbers
Sex		
Male	37%	506
Female	63%	859
Age		
Early adolescence (12 to14 years old)	40.95%	559
late adolescence (15 to 19 years old)	59.05%	806
Urban Areas		
Urban Area north	8.56%	117
Urban Area south	20.04%	273
Urban Area east	22.16%	303
Urban Area west	12.4%	169
Urban Area center	36.84%	503

Variables	Frequency (%)	Actual Numbers
Age of familiarity with internet		
Less than 8 years	32.8%	448
8 to 12 years	55%	747
More than 12 years	12.2%	170
Social Media Usage		
Instagram	76.1%	1032
TikTok	38.08%	517
Twitter	35.05%	476
Telegram	31.88%	433
How they learned about the Internet		
Self-taught	81.1%	1101
Friends	15.96%	217
Parents	2.94%	47
Internet Usage Rate		
5 hours and less	37.99%	516
More than 5 hours	62.01%	849
Total Number of Participants	-	1365

Source: Authors' Data

Table 2 presents the statistical characteristics of the overall scores of internet addiction. The average score of internet addiction among the participants was 31.65, with a standard deviation of 3.74, indicating a moderate level of addiction.

Table 2. Statistical Characteristics of Overall Scores of Internet Addiction

Variable	Number	Minimal	Maximum	Tilt	Elongation	Average	Standard Deviation
addiction to Internet	1358	0	156	0.63	—0.13	31.65	3.74

Source: Authors' Data

Table 3 presents the findings regarding the relationship between the severity of internet addiction and various factors. There was no significant difference in internet addiction rates between boys and girls. However, a significant association was observed between the age of familiarity with the internet and internet addiction. Participants who started using the internet before the age of 8 had a higher prevalence of mild to severe addiction compared to those who began during their teenage years. Additionally, participants who were self-taught in using the internet showed a higher prevalence of addiction compared to those who learned from others.

Table 3. The relationship between the severity of Internet addiction and gender, age of familiarity, amount of use and the way in which users became familiar with the Internet

	Gender		**The age of familiarity with the Internet**	**Internet usage rate**	**How to get to know the Internet**
	Girl	Boy	8 & less	More than 5	Self-taught
Addiction to Internet	10.1	10.3	14.5	12.43	10.4
Moderate internet addiction	16.2	16.7	18.4	10.9	9.12
Mild internet addiction	22.98	23.54	16.7	9.54	7.52
No internet addiction	50.72	69.54	50.4	7.83	5.69

Source: Authors' Data

Additionally, the study examined the prevalence of Internet addiction among the participants. It was found that a considerable proportion of adolescents exhibited excessive Internet usage, which could potentially lead to negative consequences in their academic, social, and mental well-being.

The study's findings revealed that the average Internet addiction score among the 1,358 teenage participants was 31.65, with a standard deviation of 3.74. The prevalence of Internet addiction was rather similar between boys (10.3%) and girls (10.1%), with no significant difference observed between the two groups.

A noteworthy finding was that 14.5% of the participants were introduced to the Internet at the age of 8 or younger. Among those with mild to severe Internet addiction, 49.6% started using the Internet before turning 8 years old. A significant difference was found between this group and those who began using the Internet during their teenage years ($p < 0.001$).

This finding suggests that there is a significant correlation between the age at which participants were introduced to the Internet and their tendency towards Internet addiction in later life. The statement notes that 14.5% of all participants started using the Internet at age 8 or younger. Interestingly, within the group of participants who demonstrated mild to severe Internet addiction, a much larger proportion (49.6%) had started using the Internet before turning 8 years old. In summary, this finding suggests that being introduced to the Internet at an early age (specifically, 8 years or younger) may be associated with a higher risk of developing Internet addiction.

Furthermore, self-taught Internet users accounted for 27.4% of the participants with mild to severe Internet addiction. A significant

difference was observed between the self-taught group and those who learned from others ($p < 0.05$).

Interestingly, there was no significant difference between boys and girls in terms of Internet addiction rates, with 10.3% of boys and 10.1% of girls exhibiting addictive behavior. When considering the age at which participants were first introduced to the Internet, 14.5% of them started using it before the age of 8. Among those with severe to mild Internet addiction, 49.6% had begun using the Internet at such a young age, which showed a significant difference when compared to those who started during their teenage years ($p < 0.001$).

Another noteworthy finding is that 27.4% of participants with severe to mild Internet addiction had taught themselves how to use the Internet. The difference between the self-taught group and those taught by others was significant ($p < 0.05$), as demonstrated by the T test results. Regression analysis revealed that recreational Internet use and identifying as a gamer were positive predictors of Internet addiction. On the other hand, the presence of strong parental social support served as a negative predictor, indicating that it may play a protective role against addiction. Further examination of the data revealed that participants who spent more than 4 hours per day on the Internet were 2.5 times more likely to develop Internet addiction compared to those who spent less time online. It was also observed that increased social media usage was positively associated with Internet addiction, with 60.8% of severe to mild addicts being active social media users.

Table 4. Standard and Non-Standard Regression Prediction Coefficients

Predictor Variable	Standardized β	Unstandardized β	S. E	T	P
Educational use of the Internet	233.989	133.4	133	-0.768	0.500
Recreational use of the Internet	232.45	231.76	354	5.897	0.001
Being gamer	433.35	132.65	354	6.876	0.001
Having parental support	131.74	232.54	577	-9.665	0.001

Source: Authors' Data

Finally, regression analysis revealed that recreational Internet use and being a gamer were positively associated with Internet addiction, while having parental social support was negatively associated with Internet addiction.

4. Discussion

With the growing accessibility and affordability of the internet, today's youth are dedicating more time to online activities, which can result in various adverse outcomes. This study focuses on understanding the prevalence of Internet addiction among adolescents in Iran. The widespread availability of the Internet has provided numerous opportunities for online interactions, gaming, and social media engagement, all of which can have both positive and negative effects on the mental health and well-being of young individuals. Given the swift advancements in technology and the Internet's expanding reach, it is crucial to examine the incidence

and trends of Internet addiction among adolescents in diverse cultural settings and draw comparisons with other nations.

The findings of this study revealed that the prevalence of internet addiction among adolescents in Tehran increased to 10.3% following the COVID-19 pandemic. This differs from the 2019 results in Iran (Mousavi, 1399 [2020 A.D.]). Our findings suggest an increase in the prevalence of internet addiction among adolescents in Tehran compared to the 2019 results by Mousavi, which may not be a direct comparison due to potential differences in the sample population.

Several factors contribute to this discrepancy. Firstly, the 2019 research was conducted at a time when virtual social spaces were not yet as prevalent. In recent years, however, the vast majority of adolescents have become familiar with various online platforms. Nowadays, internet access is readily available to all adolescents, whereas in previous years, parents were more hesitant to expose their children to the internet.

The majority of adolescents in this study reported being self-taught in their internet use and did not rely on their parents for guidance. Many of them had started using the internet at a young age, which, according to the study's findings, was linked to internet addiction. Additionally, the shift to remote learning facilitated easier access to the internet, removing restrictions on its usage. As a result, staying home led to increased time spent online, rather than socializing with friends or attending school and extracurricular activities.

Furthermore, the constant evolution and advancement of technology make it increasingly appealing. New demands are being met every day, leading to a greater reliance on the internet. The

inherent characteristics of the internet also contribute to this dependency. For instance, the speed of the internet provides immediate gratification, making the time spent online enjoyable. Technological advancements continually enhance the user experience, making virtual reality more closely resemble actual reality (Evli & Şimşek, 2022). The internet also enables adolescents to connect easily with others, allowing those in search of group identity to find a sense of belonging among their peers.

Previous research has shown that internet addiction rates have grown over time (Pan et al., 2020). The ongoing development of the internet could be a contributing factor to the increased prevalence of internet addiction, with the pandemic-induced lockdowns and shift to remote learning only accelerating this trend.

The study found that factors such as the age at which adolescents first engaged with cyberspace, the number of hours spent online, and the way they learned to use the Internet were all associated with Internet addiction. However, gender did not play a significant role in this relationship. Moreover, recreational use of the Internet, gaming, and a lack of parental support were significantly correlated with Internet addiction, while using the Internet for educational purposes showed no significant connection.

These findings regarding gender align with the results of previous research (Eidi & Delam, 2020). The other results indicate that online education by itself does not pose a risk for Internet addiction. Instead, engaging in web surfing and spending extensive time playing online games are considered risk factors, as confirmed by earlier studies (Tahir et al., 2021). Being self-taught and becoming familiar with the Internet at a younger age were also identified as risk factors. Meanwhile, emotional support from parents served as a protective factor.

The implications of these findings are that regulating adolescents' Internet usage is more crucial than restricting their access altogether. It appears that educational policymakers should explore new strategies to prevent Internet addiction. For instance, it might be more beneficial for students to receive instruction on proper Internet use rather than learning through trial and error. This study suggests that early exposure to the Internet is inadvisable, as it may contribute to the development of Internet addiction during adolescence. Simultaneously, parents should not withhold their support and supervision from their teenage children.

When comparing different countries, it becomes evident that the prevalence of internet addiction varies across nations. The findings indicate that internet addiction is lower in countries like Indonesia and Mexico. One common characteristic of these countries is that they are still developing and do not possess the advanced facilities of more developed nations. The internet is expensive in these regions, and individuals often need to prioritize work over spending time online, which reduces their likelihood of becoming dependent on the internet (Siste et al., 2020; Priego-Parra et al., 2020).

In contrast, countries in the Persian Gulf have witnessed traditional spaces being replaced by the digital world. People in these regions not only have high access to technology, but also tend to spend more time indoors and on the internet due to the hot climate. A study by Al-Khani et al., 2021 focusing on Saudi Arabia, United Arab Emirates, and Qatar indicated a high rate of internet use in these countries. Meanwhile, in other Middle Eastern countries, such as Syria and Yemen, ongoing conflicts and wars, coupled with limited access to high-speed internet, have led to a decrease in internet addiction prevalence (Servidio et al., 2021).

When it comes to Western countries, the rates of internet addiction are at their highest. A comprehensive study by Błachnio et al., (2019), which covered the United States, the United Kingdom, Germany, and France, revealed an alarming prevalence of internet addiction. Meta-analyses in this field conducted by Alimoradi et al., (2022), which analyzed data from 20 countries across the globe, revealed a positive relationship between internet addiction and economic well-being, social progress, and human development. At the same time, they highlight the negative impacts of internet addiction on human health, safety, and security. In conclusion, access to the internet and social welfare plays a significant role in contributing to internet addiction. There has been a notable increase in internet addiction among adolescents in Iran, which can be attributed to the spread of COVID-19 and the consequent rise in internet access.

Research has demonstrated that Internet addiction is a global concern, impacting young individuals across various cultural backgrounds. Nevertheless, the prevalence of Internet addiction differs among countries. A study by Kuss et al. (2017) revealed that 23.8% of adolescents in Iran experienced Internet addiction, a rate significantly higher than the global average of 6%. Similar findings from other studies confirm that Internet addiction is a pressing issue among Iranian adolescents.

On the other hand, research from other countries has reported lower instances of Internet addiction among young people. For instance, a study conducted in the United States discovered that a mere 4.9% of adolescents were classified as Internet addicts (Tsitsika et al., 2014). In South Korea, a study by Kim et al. (2019) found that the prevalence of Internet addiction among adolescents was 8.4%. These results suggest that Iranian adolescents may be

more susceptible to Internet addiction compared to their counterparts in other parts of the world.

Cultural differences might contribute to the varying prevalence of Internet addiction among adolescents across the globe. In collectivist cultures, such as Iran, social norms and values emphasize group harmony and conformity. Consequently, young individuals may feel compelled to adhere to social norms, including spending excessive time online. Furthermore, Internet use could be perceived as a means of connecting with peers and maintaining social relationships, particularly in cultures where in-person interactions are limited.

In contrast, individualistic cultures, like the United States, prioritize individualism and self-expression. As a result, young people in these cultures might engage in a wider array of activities, including offline socializing, hobbies, and sports, rather than spending excessive time online. Cultural differences can also influence the types of online activities in which young people participate, which may contribute to Internet addiction. For instance, while online gaming might be more popular and socially acceptable in some cultures, social networking sites could be more prevalent in others, such as Iran. These cultural variations may result in differences in the types of online activities that are considered addictive.

Cultural norms and values in Iran differ from those in other countries, potentially leading to varying attitudes and behaviors towards technology and the Internet. For instance, in Iran, factors such as family structure, the role of parents in regulating Internet usage, the availability of alternative leisure activities, and the level of access to technology can all contribute to the development of Internet addiction in adolescents. It is essential to recognize that

cultural context influences the way in which people perceive and interact with technology, and that distinct cultural factors may either exacerbate or mitigate the risks associated with Internet addiction.

The findings of this study can contribute to the development of culturally sensitive prevention and intervention strategies that take into account the unique needs and challenges faced by adolescents in various cultural contexts. For instance, in Iran, where cultural and religious values are integral to family life, interventions involving parents and emphasizing the importance of monitoring and regulating their children's Internet usage may prove more effective.

Our findings may also be of interest to parents, who play a critical role in managing their children's Internet use. Parents are encouraged to help their children develop responsible online habits and find a healthy balance between online and offline activities.

5. Conclusion

In general, this article highlights the necessity for further research on the intricate interplay between cultural factors and Internet addiction among adolescents. Future studies should investigate the mechanisms through which cultural differences affect Internet addiction and assess the efficacy of culturally appropriate prevention and intervention strategies. The findings of this article underscore the importance of considering cultural contexts when devising strategies to address adolescent Internet addiction and the potential of these strategies to significantly impact youth mental health and well-being.

Educators, parents, and mental health professionals play critical roles in addressing Internet addiction among adolescents. They can guide young people in developing responsible online habits, setting boundaries for Internet usage, and encouraging offline activities to maintain a healthy balance. Additionally, it is essential to raise awareness about the risks associated with excessive Internet use and provide resources to help those struggling with addiction.

Furthermore, culturally sensitive interventions should be developed to address the unique needs of different populations. These interventions may include the integration of traditional coping mechanisms, local support networks, and tailored communication strategies to maximize their effectiveness. Future research should also focus on identifying the most successful approaches to reduce the prevalence and impact of Internet addiction in adolescents, taking into account the ongoing pandemic and the eventual return to a normal life.

In conclusion, as the pandemic persists and reliance on the Internet for various aspects of daily life grows, there is potential for exacerbating Internet addiction among adolescents. The risks associated with Internet addiction include reduced academic performance, social isolation, and negative impacts on physical and mental health (Li et al., 2021). To mitigate these risks, it is crucial to develop and implement strategies that promote balanced and healthy use of the Internet.

A key limitation of this research is its cross-sectional nature, which does not allow for an accurate comparison of the situations in different countries, including Iran. Meta-analyses and qualitative research in this field would provide valuable insights into

individual and social factors, as well as behavioral patterns of Internet addiction in each country. We now clearly state that while our study provides important insights into the issue of Internet addiction among adolescents in Tehran, these findings may not apply to the entirety of Iran, due to variations in socio-economic factors, Internet accessibility, and cultural differences among various regions.

In addition to exploring cultural factors, future research should also examine the role of other potential contributors to Internet addiction, such as personality traits, mental health issues, and family dynamics. This comprehensive approach can help create a more nuanced understanding of the factors that contribute to Internet addiction and inform the development of targeted prevention and intervention strategies.

Furthermore, cross-cultural collaborations and comparative studies can provide valuable insights into the global phenomenon of Internet addiction and identify effective approaches for addressing this issue across different cultural contexts. Sharing experiences and best practices from various countries can contribute to the development of a more cohesive and informed response to the challenge of Internet addiction among adolescents.

The study found a significant prevalence of Internet addiction among adolescents in Tehran, highlighting the need for urgent attention from educators, mental health professionals, and policymakers. While the results of this study primarily pertain to the Tehran region, they underscore the potential for similar patterns in other parts of Iran and the broader Middle East.

In light of the findings of this research, it is recommended that

parents actively participate in managing their children's Internet use. Developing guidelines for time spent online, maintaining open communication about Internet activities, and promoting offline activities can help ensure a balanced and healthy use of the Internet. Additionally, parents should stay informed about the potential risks associated with excessive Internet use and the signs of Internet addiction.

Given the widespread implications of Internet addiction among adolescents, the role of policymakers and politicians becomes vital. It is suggested that they take active steps in creating and enforcing legislations that safeguard adolescents from the potential harms of excessive Internet use. Policies that promote digital literacy, fund research into the impact of Internet use on adolescent health, and collaboration with educational institutions can significantly contribute to mitigating the risks associated with Internet addiction. Furthermore, it is recommended that public awareness campaigns be run to educate the general population about the need for balanced Internet use and the risks of addiction. In the global fight against Internet addiction, international collaboration for sharing research findings and best practices can lead to a more informed and cohesive approach.

The significant role of parents and policymakers in shaping the Internet habits of adolescents underscores the need for a collaborative approach in addressing Internet addiction. Future research should further explore these dynamics to provide more comprehensive and targeted intervention strategies.

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