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Online Gambling in Iranian Social Media Users: Prevalence, Related Variables and Psychiatric Correlations

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Abstract

The exponential increase in Internet use has been associated with dangers and harms. Recently, the prevalence of online gambling is increasing in various countries. Online gambling can be a prelude to gambling disorder. No study has been conducted in this field in Iran yet. The aim of this study was to investigate the prevalence of online gambling (without disorder and pathological), and its relationship with demographic variables and psychiatric symptoms. 3252 people participated in this study online. Research tools included gambling disorder screening questionnaire-Persian (GDSQ-P), brief symptom inventory (BSI), Young's addiction questionnaire, and Demographic questionnaire. The prevalence of online gambling was 8.9%. 26.6% of online gamblers experience moderate to severe degrees of pathological gambling. 74.7% of online gamblers were male. Online gamblers have a lower mean age than non-online gamblers ($p < 0.001$). Online gamblers were equally from all economic classes. The most common methods of gambling were CRASH game and sports betting. Online gamblers had no significant difference in the rate of face-to-face (physical) gambling history, compared to non-online gamblers (6.9% vs 5.6%), ($p > 0.05$). In BSI-assessed psychiatric symptoms, online gamblers showed higher scores on anxiety and obsession, and lower scores on paranoid ideation, compared to the control group ($p < 0.05$). Also, Internet addiction and daily use of the Internet as entertainment were significantly higher in online gamblers than non-online gamblers ($p < 0.05$). Also, a positive and significant correlation was found between the severity of gambling and the severity of Internet addiction, severity of depression, severity of anxiety, and severity of obsession in online gamblers ($p < 0.05$). Overall, online gambling is common in Iran and is associated with psychiatric problems. Health professionals and the government should pay special attention to online gambling and its related problems.

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Introduction

The Internet plays a key role in many aspects of human life such as career, education, entertainment, and science (Chou et al., 2005). More than 70% of Iranians actively use the Internet, and more than 20% of Iranians suffer from Internet addiction, which is much higher than many other countries (Modara et al., 2017). A great amount of this use is by smartphones. The prevalence of mobile phone use for the Internet has reached more than 50% of the Iranian population. One of the main uses of the Internet for these people is being on social networks and entertainment websites (Kheradmand et al., 2019). Overall, this amount of Internet use creates positive aspects such as content and science learning, easy access to mass media, and doing individual and social activities easily (Chou et al., 2005; Pezoa-Jares et al., 2012). However, this use also has negative aspects including cyberbullying and problematic internet use (Modara et al., 2017).

One of these negatives aspects is online gambling. This method of gambling is increasing day by day due to ease of use, social acceptance, speed, improved regulation of operations and the attractiveness and structure of games (McCormack & Griffith, 2013; Kairouz et al., 2012; Díaz and Pérez 2020). It is estimated that the industry will reach $100 billion in turnover by 2025. This turnover will almost double every five years (Díaz & Pérez, 2020). In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), pathological gambling is classified as a group of disorders in the substance-related and addictive disorders category. This diagnostic sequence stems from studies that have shown that pathological gambling and substance abuse have similar pathological mechanisms and common symptoms (Association 2013). In DSM, this diagnosis can be considered for both face-to-face and online gambling. This diagnostic sequence stems from studies that have shown that pathological gambling and substance addiction have similar pathological mechanisms and common symptoms (Association 2013). Regarding the increase in problematic gambling among online gamblers, the results of international studies showed that 14% of online gamblers have severe problems related to gambling. More than 36% also experience moderate or severe problems (McCormack et al., 2013). Various studies on online gambling have led many researchers to conclude that this type of gambling has a higher potential for addictive and related problems than other gambling methods (LaBrie et al., 2007; Meyer et al., 2011; Monaghan, 2009). In addition, these people become more vulnerable to morbid gambling disorder (in-person/online) in long-term. Recent studies on online gambling have focused on identifying risk factors of problematic gambling. Studies have shown that the risk of getting into gambling is reduced with higher level of education. Gender (male), unemployment, celibacy also increase the risk of pathological gambling (Effertz et al., 2018). There are contradictory conditions in Iran as an Islamic country. Gambling is a crime. Any game of gambling in any place identified by the government and the police is considered as a crime. Therefore, there are places for underground gambling and it is done only by individuals in limited and small groups. Recently, gambling on horse riding and swimming competitions has been allowed in Iran. Other sports games, card games, etc. are prohibited in any format. However, in recent years, a large number of influencers and Persian-language online pages inside/outside of Iran have been advertise widely to encourage online gambling. These ads

are done especially through Instagram and Telegram. Due to the high number of these people and the various methods of paying and receiving money, online gambling has become common in Iran. So far, no study has examined the prevalence of online gambling and its severity in Iran. However, unofficial rates indicate a rapid prevalence of morbid gambling and morbid gambling disorder. Given the population of 80 million Iranians and the high rate of use of the Internet and social networks by the home Internet/smartphone, it is necessary to conduct studies in Iran to study the prevalence and demographic variables related to online gambling.

Gambling behaviors, on the other hand, are associated with psychiatric symptoms. Various results have shown that in both Gambling disorders and subsyndromal gambling there are significant symptoms of depression and anxiety (Reise and Waller, 2009; Welte et al., 2001). More than a third of gamblers have comorbid anxiety disorders (Fidler et al., 2011) and a much higher rate of subsyndromal gamblers have anxiety symptoms such as phobias (Desai & Potenza, 2008). The persistence of anxiety symptoms also increases the severity of pathological gambling and vice versa. This vicious circle increases the symptoms of anxiety and the severity of gambling and causes a severe decline in quality of life (Desai & Potenza, 2008). In addition, patients with obsessive compulsive disorder with several similarities to gambling disorder, have similar levels of impulsivity, risky decision-making system, and reward system. These structures are the core of addictive disorders (Grassi et al., 2020). On the other hand, there is a comorbidity between the symptoms of OCD and pathological gambling (Medeiros & Grant, 2018). Despite these cases, no study has been conducted on the correlation between major psychiatric symptoms and online gambling. Examining the psychiatric symptoms in these individuals can help the better understanding of features and nature of online gambling. In addition, with the identification of the most common psychiatric symptoms in these people, more effective and accurate treatment protocols will be designed. Overall, one of the main objectives of the present study is to investigate the prevalence of online gambling and related demographic factors in Iranian social media users. In this study, the problems related to the use of the Internet in these people also are examined. The next goal is to examine the psychiatric symptoms in these people.

Methods

Participants

The design of the present study is cross-sectional. The sampling method was non-random Convenience Sampling. Participants included 17–60-year-old Iranians on popular social networks in Iran (Instagram/Facebook/Telegram). The sampling process and study criteria are described in the "Procedure" section. 3369 people answered the questionnaire. After reviewing the answers, 117 samples were excluded due to inconsistencies in the answers and failure to complete the questionnaire according to the instructions. A total of 3252 people entered the research process. The mean age of participants was 27.5 years with a standard deviation of 7.8. Among the participants, 1668 (52.1%) were women. Among the participants, 1101 (33.9%) were undergraduate

or bachelor's graduated students. 1026 (31.5%) were master's graduate students with a master's degree or higher. The rest of the participants had a diploma or lower.

Instruments

Demographic Characteristics

Demographic characteristics including age, gender, level of education, history of online gambling and more detailed information about the types and amount of gambling, were assessed by a questionnaire made by the authors.

Gambling Severity

Gambling severity were assessed by gambling disorder Screening Questionnaire-Persian (GDSQ-P). The GDSQ-P consists of 27 questions that designed based on DSM.5 criteria. The results of the psychometric properties of this questionnaire show that GDSQ-P is a valid and reliable tool to screen for gambling disorders. The cut-off threshold for GDSQ-P was estimated as 4 with 98.9% sensitivity and 98.3% specificity (Maarefvand et al., 2019).

Psychiatric Symptoms

Brief Symptom Inventory (BSI) was used for psychiatric symptoms. The scale measures nine mental disorders including physical complaints, interpersonal sensitivity, obsessive-compulsive disorder, depression, anxiety, militancy, morbid fear, paranoid thoughts, and psychosis. According to psychometric properties, alpha validity was determined with an average of 0.7 and retest between 0.68 and 0.91 (Mohammadkhani et al., 2010).

Internet Addiction

In this study, Yang Internet Addiction Questionnaire was used. The IAT consists of 17 items that the subject must answer on a Likert scale from rarely (0) to always (McCormack & Griffith, 2013). Scores 0–30 are considered as no internet addiction and normal user, score 31 to 49 as mild internet addiction, score 50 to 79 as moderate internet addiction and score 80 and above are considered as severe internet addiction cut score. During a reliability examination, the Persian version of this questionnaire was calculated using Cronbach's alpha coefficient of 0.79 (Doosti Irani et al., 2017).

Procedure

A computer version of the research tool was created. This test complex was placed in Google Form format. The link related to Google Form along with a brief description of the research was shared by researchers through social networks (Instagram, Facebook and Telegram). The link was also provided to several Instagram pages with more than 150,000 followers. They also shared the Google Form link. All tools and results were anonymous. Participants were assured that the results would be reviewed confidentially and anonymously. A telephone number was also provided for possible questions and comments from participants. An audiobook (novel) produced by one of the authors was given to people as

a gift to participate in the research. Inclusion criteria included: being at least 17 years old, speaking Persian, willingness to participate in research, using social networks for at least 6 months, and using the Internet normally for at least the last 6 months. Exclusion criteria included: incomplete questionnaires and inconsistencies in the information provided. From July 9, 2020 to December 3, 2020, 3320 people participated in the study. Among these people, the data of 3203 people entered the analysis process.

Data Analysis

All statistical analyses were conducted by IBM SPSS version 26 software and Microsoft excel 2013. We applied methods and statistics appropriate to the natures of scale and the specific parameters utilized. Categorical data are displayed as frequencies and percentages, and group comparisons were made using the chi-square and Student's t-tests for the comparison of means. For drawing radar chart we used mean scores in Microsoft Excel software.

Results

The prevalence of online gambling or betting was 8.9%. The mean age of online gamblers was 24.4 years old (SD =5.5), and 74.7% of online gamblers were male. Table 1 shows the prevalence of online gambling according to demographic variables.

As shown in Table 1, online gambling rates are significantly higher in men. The 23-27 year old group had the highest gambling rates. The lowest rate of online gambling was at older ages and with increasing age, the rate of online gambling decreased. Figure 1 shows the age distribution graph of online gamblers. In addition, most online gamblers had a

Table 1 Prevalence of online gambling according to demographic variables

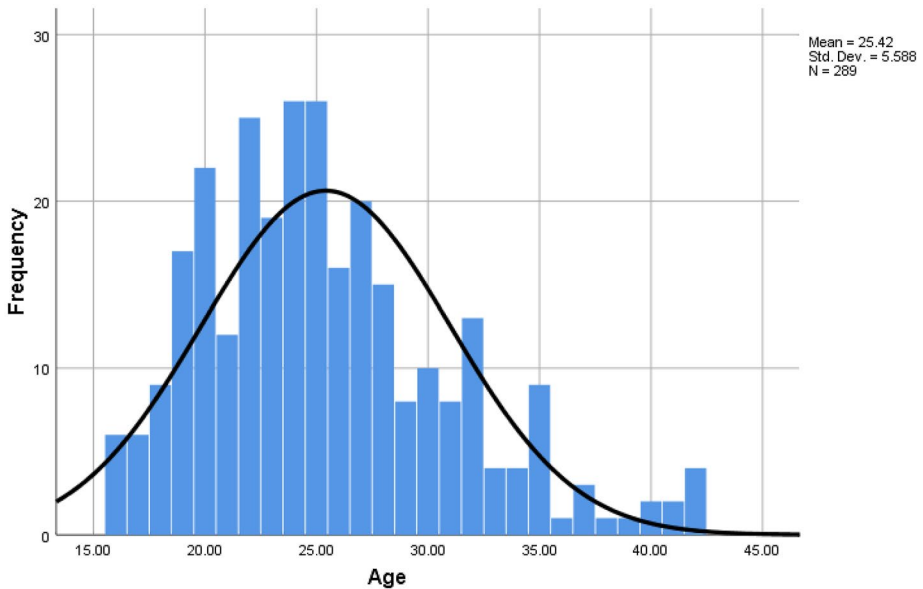| Variables	N (% online gambling)	$\chi2$	p
Gender			
Male	216 (74.7%)	91.2	0.001
Female	73 (25.3%)		
Age group			
17-22	97 (33.5%)	74.5	0.001
23-27	107 (37%)		
28-35	71 (24.5%)		
36-50	14 (4.8%)		
Education			
Diploma and under	79 (27.3%)	23.3	0.001
BSc student or graduated	174 (60.9%)		
MSc/PhD/ MD	36 (12.45%)		
Economic status			
Low	95 (32.87%)	1.09	0.557
Middle	103 (35.64%)		
high	91 (31.48%)		

Fig. 1 Age distribution in online gamblers

bachelor's graduates or bachelor's degree students. The fewest people who gamble online were those with a master's/medical degree or a doctorate. Regarding the economic level, there was no significant difference between individuals in this variable. Individuals at different economic levels participated in online gambling alike.

Regarding the severity of gambling in online gamblers, 73.4% of people gamble without any problems. The rest (23.5%), show some degree of difficulty. In addition, people were classified based on the most common type of online gambling. Sport competitions with 34.3% and crash with 33.2% were the two most common types of online gambling in the Iranian population. Table 2 shows the results of the intensity of online gambling and the most common type of online games.

Regarding the comparison of the two groups, the results showed that the average age of online gamblers was lower than the comparison group (without online gambling). So online gamblers are younger and have lower age average. In the online gamblers group, the use of the Internet for recreation (minus the time allotted for academic and professional

Table 2 Description of online gambling severity and common gambling types

Gambling severity	N (%)	Most gambling type	N (%)
No disorder	212 (73.4%)	Sport competitions	99 (34.3%)
Mild	58 (20%)	Roulette	15 (5.2%)
Moderate	11 (3.8%)	Poker	21 (7.3%)
Severity	8 (2.7)	Magic wheel	21 (7.3%)
		Dice roller	27 (9.3%)
		Crash	96 (33.2%)
		Other games	10 (3.5%)

work) is significantly higher than in the comparison group. In parallel with this issue; Online gamblers show significantly more severe Internet addiction than control group. Regarding psychiatric symptoms, the online gambling group showed higher levels of anxiety, depression, and OCD than non-gamblers. Conversely, in online gamblers, the severity of paranoid beliefs is significantly lower. In other BSI subscales, there is no significant difference between the two groups. Another issue is the existence of physical (face-to-face) gambling, the results showed that there is no significant difference between the two groups in the rate of offline (face-to-face) gambling. Table 3 expands and describes the comparison results of the two groups in the mentioned variables. Also, in Fig. 2, the radar chart of quantitative variables is shown visually. Due to the numerical difference between the two groups, z scores cannot be used for radar charts. Therefore, only the averages of the groups' own scores have been used to draw this figure.

Table 4 shows the correlations between the variables. Pearson correlation was used to determine the relationship between gambling intensity and the studied variables. Showed that there is a positive and significant relationship with the intensity of gambling in online gamblers, the intensity of the daily recreational usage rate of the Internet, the severity of Internet addiction, the severity of OCD, the severity of depression, and the severity of OCD symptoms.

Discussion

The present study examined the prevalence of online gambling, demographic and psychiatric variables in the Iranian population who's using social media. The prevalence of online gambling in this population was 8.9%. Almost one third of these people (74.7%) were male. More than a quarter of these people (26.6%) showed moderate to severe levels of pathological gambling. They also had a lower mean age than non-gambler online individuals. Also, online gamblers were equally from all economic classes. Also, Internet addiction and the daily use of the Internet as recreation, were significantly higher in online gamblers than in non-gambler online individuals.

Table 3 Comparison of variables between online gamblers and non-online gamblers

| Variables	Non-online gamblers	Online gamblers	t or χ2	p
Age	27.7 (7.9)	25.4 (5.5)	6.4	0.001*
Recreational use of internet(H)	3.2 (2.7)	3.8 (1.9)	− 3.95	0.001*
Internet addiction	30.7 (16.2)	32.8 (15.3)	− 2.1	0.03*
BSI. OCD	9.2 (5.9)	10.8 (6.7)	− 4.38	0.00*
BSI. Phobic anxiety	9.9 (3.2)	10.1 (3.2)	− 0.8	0.4
BSI. Anxiety	10.9 (5.3)	12.01 (5.1)	− 3.1	0.002*
BSI. Paranoid ideations	6.8 (3.7)	6.3 (3.8)	2.5	0.011*
BSI. somatization	11.4 (5.6)	11.3 (5.7)	0.3	0.7
BSI. Depression	9.5 (5.2)	10.8 (5.3)	− 4.8	0.00*
BSI. Psychoticism	8.5 (3.9)	8.4 (3.9)	0.34	0.7
BSI. interpersonal problems	7.02 (3.7)	7.2 (3.6)	− 0.99	0.32
BSI. Hostility	8.4 (4.6)	8.7 (4.3)	− 1.045	0.29
Presence on non-online gambling	20 (6.92%)	166 (5.6)	0.8	0.21
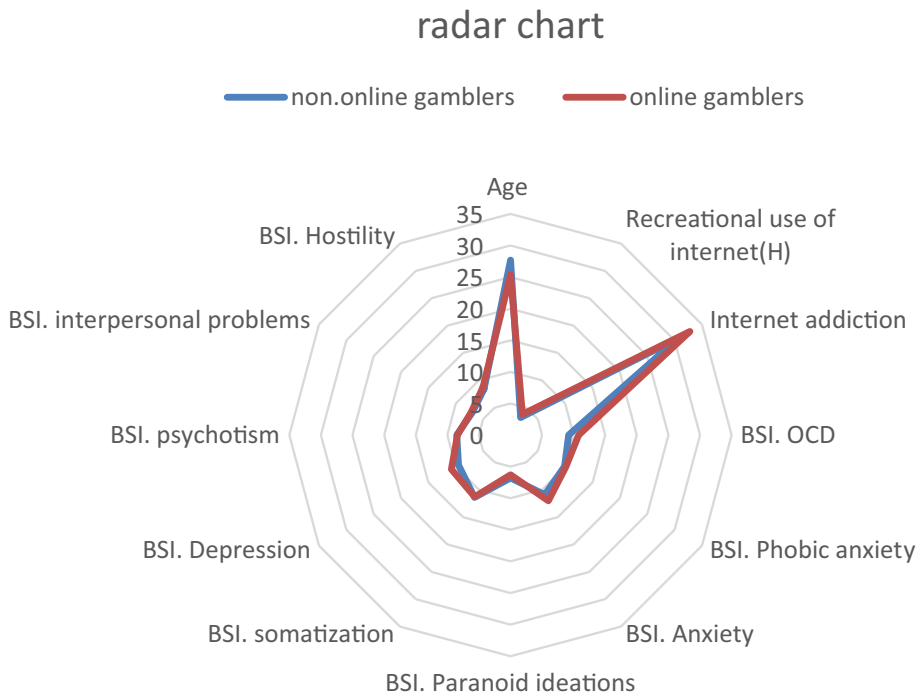
Fig. 2 Radar chart (Mean scores are plotted)

Regarding the prevalence of online gambling, the results were close to the results in Iran's neighboring countries. For example, the prevalence of online gambling among Turkish adolescents was reported at 12.4%. In that study, a positive correlation was found between the severity of Internet addiction and gambling and its severity, which was in line with the findings of the present study. In addition, more than 80% of online gamblers were male. This result is also in line with the findings of the present study (Aricak, 2019). Women gamble online for fun, spending time, and curiosity, while men gamble because of striving for superiority, financial gain, and a sense of dominance. Online Women gamblers also experience higher shame, lower self-esteem, and guilt over losing. Therefore, with the slightest loss and problem, they gamble less and the duration of their gambling is much shorter than men, so men have a higher prevalence of online gambling (McCormack et al., 2014). In addition, in Iranian culture, the abomination of gambling in middle-aged populations reduces women's use of Online gambling. However, there are no studies on online gambling in Iran and the present study is the first study, so future studies will examine demographic issues and perceptions and causes of rate differences in more detail.

In other studies, the rate of pathological symptoms of gambling in other countries was lower than in the present study. For example, in a study of Spanish youth and adolescents, the results showed that only 7% of online gamblers had moderate to severe pathological levels of gambling (González-Cabrera et al., 2020). While in Iran, this rate according to the results of our study was 26.6%. However, in that study, a positive and significant relationship was reported between the problematic use of the Internet and

Table 4 Pearson Correlations between variables in online gamblers

		2	3	4	5	6	7	8	9	10	11	12	13
1	Gambling Severity	−.006	.083	.133*	.230**	.192**	.187**	.016	−.067	.010	.096	.069	−.037
2	Age		.000	.017	−.020	−.015	−.003	.019	.011	.012	.002	−.032	−.017
3	Daily internet use			−.022	−.003	.004	.043*	−.002	−.034	−.032	.001	−.009	.030
4	Internet addiction				.055**	.027	−.006	.014	.021	.015	−.012	−.017	.005
5	BSI. Anxiety					.012	.016	.005	−.004	.024	.009	.028	.011
6	BSI. Depression						.047**	−.003	−.004	.012	−.031	.016	.006
7	BSI.OCD							.011	−.016	.034	−.006	.028	−.020
8	BSI Phobic								.000	−.001	.004	.015	−.025
9	BSI paranoid									−.005	−.008	−.040*	−.011
10	BSI Somatization										.001	.010	.009
11	BSI Psychoticism											.012	.012
12	BSI Interpersonal problems												−.006
13	BSI. Hostility												1

**Correlation is significant at the 0.01 level (2-tailed)

**Correlation is significant at the 0.05 level (2-tailed)

Internet addiction with the severity of pathological gambling, which is in line with the findings of our study. Therefore, the rate of gambling problems in Iranian society is high, and in this group, there are widespread pathological signs of gambling. One of the reasons for this, is the high level of online gambling in Iranian society, the lack of legal places to gamble in-person. Therefore, online gambling is a platform for gambling without disturbance, and easily at home and at work. In addition, the attractiveness, easy payment and safe receiving has made young people inclined to this type of gambling. Given the spread of technology in youth, it is natural that online gamblers are more likely to be from young people (Olason et al., 2015; Grall-Bronnec et al., 2016).

Another result of the present study is the prevalence of different types of online gambling. According to the results of the present study, the most common gambling methods were CRASH game gambling and betting on sports competitions. This result was similar to the results of similar studies. For example, in a study in Sweden, the results showed that sports betting was the most common type of online gambling (Håkansson, 2016). These results were repeated in another study (Håkansson & Widinghoff, 2020). These results were in line with the findings of our study. In this regard, sports competitions are one of the most popular events in the world. Therefore, it is natural for many people to be attracted to this type of bet due to their interest in various sports. There is also a lot of variety in this category that makes different people attracted to different types of this category. On the other hand, CRASH is the second most popular game in the Iranian population. The reason for this is high winning coefficients. In this game, every second the odds of winning and increasing the amount of money gambled increase (with losing all the money at an indefinite time). Another reason for the high popularity of this type of game is the extremely high advertising of Instagram influencers about it. The rest of the gambling methods were placed in the next classes due to less attractiveness, less fame and lack of connection with Iranian culture.

Regarding the psychiatric symptoms measured by BSI, online gamblers showed higher scores on anxiety, OCD, and lower scores on paranoid ideation than the control group. In addition, a positive and significant correlation was found between the severity of gambling and the severity of depression, severity of anxiety, and severity of OCD in online gamblers. These results are consistent with the results of previous studies. For example, in a study of Online Poker Players, the results showed that depression and anxiety were significantly higher in online gamblers. There is also a positive and significant relationship between depression and anxiety with the severity of gambling (Barrault et al., 2014). The results of that study are in line with the findings of the present study. One of the causes of depression and anxiety related to online gambling is emotional regulation problems. In fact, some people resort to online gambling as a mechanism to reduce this syndrome—to reduce depression and anxiety. This effort is due to problems in emotion regulation strategies. On the other hand, people with emotional regulation problems have a low ability to control their gambling. So, despite the problems caused by gambling, they continue to play. With this process, they experience more problems. Experiencing these problems can increase the symptoms of depression and anxiety. This vicious cycle causes more severe psychiatric symptoms in these people. Regarding paranoid symptoms, no study was found on online gamblers. However, a study in Spain found that gamblers (face-to-face) had more severe paranoid symptoms and obsessive-compulsive symptoms than non-gamblers. In the case of OCD, that study was consistent with the present study. However, regarding the symptoms of paranoid ideation, that finding was inconsistent with the findings of the present study (Estevez et al., 2015). In that article, no explanation was given too. Due to the novelty of this field, no explanation was found for this issue. But it can be said that people who are

online gamblers have a more optimistic view of the intentions and goals of others, so they participate in gambling with a higher desire. So, it is natural that their gambling rates are higher. On the other hand, the increase in obsessive-compulsive symptoms have cores in common with addictive behaviors (such as Impulse control deficits) (Frost et al., 2001; Blaszczynski, 1999). In addition, more than 30% of gamblers have lifelong obsessive-compulsive disorder, and more people have subliminal symptoms (Tavares & Gentil, 2007). However, this is the first study in this field and needs further research.

Conclusion

Overall, the prevalence of online gambling in the Iranian population was 8.9%. About a third of these people were male. More than a quarter of these individuals showed moderate to severe levels of pathological gambling. These people also had a lower age average than online non-gamblers. Also, online gamblers were equally from all economic classes. Also, Internet addiction and the daily use of the Internet as recreation, were significantly higher in online gamblers than in non-gambler online individuals. Online gamblers showed higher scores on anxiety and OCD, and lower scores on paranoid ideation than control group. Also, a positive and significant correlation was found between the severity of gambling and the severity of depression, severity of anxiety and severity of OCD in online gamblers.

Limitations and Future Directions

There are possible limitations of this work to be considered, the first one being a cross-sectional design, thus it is not possible to establish causality relations among variables the sample used. The second limitation is the lack of in-depth clinical interviews to determine the patterns and the causes of gambling in these individuals. Third, we use non-random sampling. So, in generalizing the results must be careful. Also, we used only social media users in sampling, whereas in—future research must collecting data from all Iranian population with/without using social Medias. In addition, the tools used were self-reportable and should be explained and supplemented with neuropsychological tools. Future studies should examine the personality and personality traits of online gamblers. It is also possible to compare the group between online gamblers and physical and face-to-face gamblers.

Compliance with Ethical Standards

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