Original Article

The Mediating Roles of Self-compassion and Emotion Regulation in the Relationship among Alexithymia, Gambling Frequency, Risky Decision-Making, and Gambling Severity in Online Gamblers

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Abstract

Background: The research literature about the relationship between alexithymia, risky decision-making, and gambling severity has been contradictory and limited. Besides, there is no study on the mediating roles of self-compassion and emotion regulation in online gambling. Moreover, the role of these mediators in gambling frequency has not been studied. Thus, the present study aimed to investigate the relationship between alexithymia, risky decision-making, and gambling frequency by considering the mediating role of self-compassion and emotion regulation in online gamblers.

Methods: A total of 319 Iranians who gambled online at least once a week in the past three months were investigated using an online survey including Farsi Toronto Alexithymia Scale-20 (FTAS-20), Difficulties in Emotion Regulation Scale (DERS), and Gambling Disorder Screening Questionnaire-Persian (GDSQ-P). Statistical analyses were conducted by SPSS 26.0 for Windows. The relationships between the variables were analyzed using correlation analysis. In cases where significant relationships were observed, the hypotheses of the regression model were tested.

Findings: The mean age of the participants was 24.6 ± 6.06 and 253 participants (73.9%) were male. Furthermore, no significant differences were observed between men and women in terms of risky decision-making ($P = 0.051$), gambling severity ($P = 0.59$), and age ($P = 0.293$).

Conclusion: Alexithymia had both a direct and indirect relationship with gambling severity through the mediating roles of emotion regulation and self-compassion. Moreover, alexithymia was significantly associated with risky decision-making and gambling frequency, through the mediating role of difficulties in emotion regulation, both directly and indirectly.

Keywords: Gambling, Emotion regulation, Impulsivity, Addiction, Addictive behaviors

Introduction

Despite the numerous benefits of the internet, its development has been associated with many problems. One of these problems is online gambling.[1-3] Online gambling has more benefits and conveniences than land-based gambling; for example, in online gambling, people have access to a wide range of gambling types at anytime and anywhere.[1] Besides, the audiovisual appeal of online gambling websites fascinates people. Thus, according to various studies, the number of online gamblers is increasing, leading to an increase in the prevalence of gambling disorder and the severity of problems associated with it.[2,4]

On the other hand, online gambling is also on the rise in countries where land-based gambling is banned or restricted, as it provides an accessible tool for everyone. For example, in Iran, where gambling is only allowed for swimming and horseback riding, the online gambling rate is reported to be around 9%, while more than a quarter of the people involved experience varying degrees of gambling-related problems.[5] The results have shown that online gambling, like land-based gambling, is associated with great psychological problems. For instance, the levels of depression, anxiety, and gambling severity of online gamblers are similar to those of land-based gamblers.[6]

Recent studies have shown that alexithymia plays an important role in gambling disorder (GD). Alexithymia is defined as a set of problems in identifying, describing, and

communicating emotions. In the context of gambling, high levels of alexithymia cause a person to misunderstand his or her feelings and misinterpret any arousal as tension and temptation for gambling. People with high levels of alexithymia also experience discomfort, confusion, and emptiness and try to resolve these experiences through gambling. Then, they experience many losses through gambling and eventually experience gambling-related problems.[7]

Gambling requires making decisions in ambiguous and risky situations. Making decisions in ambiguous situations is a kind of risky decision-making. People with difficulty in risky decision-making experience higher levels of impulsive behaviors.[8,9] Moreover, people with a high level of alexithymia will have poorer performance in decision-making situations (e.g., gambling), due to their externally oriented thinking and inability to explain and recognize their feelings. This reduction in performance causes people to experience many problems after frequent losses and paves the way for experiencing GD.[10] Various studies have shown a positive correlation between alexithymia, gambling, and deficits in risky decision-making.[11,12] These studies are specific to land-based gambling. However, according to recent studies, online gambling has a relatively different profile from land-based gambling. Online gambling is more similar to internet-related disorders such as internet game addiction.[13] For example, a recent study found that premeditation, as an important part of impulsivity and risky decision-making, is more common in online gamblers than in land-based gamblers.[6] In addition, alexithymia has different dimensions, and there is a challenge as to which dimension is involved in pathological gambling and the findings of recent studies are also contradictory.[14,15] These inconsistencies are due to the heterogeneity of gambling as an addictive behavior. Therefore, the relationship between gambling severity and alexithymia should be examined in different gambling contexts.[16] However, no studies have examined the relationship between alexithymia and risky decision-making in online gamblers. The results of a study showed no significant relationship between alexithymia and gambling severity in online gamblers,[17] and the results of previous studies are contradictory.[18] According to the previous studies, the relationship between alexithymia and GD is not influenced by the common nature of pathological gambling, and one of the potential causes for this heterogeneity is the type of gambling (online or offline).[15] Hence, it is necessary to examine the relationship between alexithymia and gambling severity in the context of online gambling.

Current studies on addiction show that the relationship between alexithymia with addictive problems and impulsive behavior is not always direct. Emotion regulation is a variable that can mediate the relationship between gambling and alexithymia. For example, a study showed that emotion regulation mediates the relationship between alexithymia and pathological gambling in land-based gamblers.[19] In another study, emotion regulation was indicated to mediate the relationship between alexithymia and impulsive aggressive behavior.[20] Difficulty in identifying feelings is one of the dimensions of alexithymia, and alexithymia is a construct close to emotion regulation. On the other hand, making decisions in ambiguous situations or risky decision-making requires recognizing emotions and communicating with them. Some researchers even consider the risky decision-making process as a kind of cognitive-emotional process in which people with difficulty in emotion regulation experience a wide range of problems. Nevertheless, current studies on addiction demonstrated that the relationship between alexithymia and impulsive and addictive behavior problems is not always direct. One variable that can mediate between gambling and alexithymia is emotion regulation. A study showed that emotion regulation mediates alexithymia and pathologic gambling in land-based gamblers.[19]

Recent studies about risky decision-making and pathological gambling have shown that self-compassion can moderate the relationship between risky decision-making and gambling severity. Higher levels of self-compassion can prevent individuals from taking too much risk in ambiguous situations. Furthermore, even in pathological gamblers, high levels of self-compassion can protect them from making risky and harmful decisions and reduce the risks of pathological gambling. However, self-compassion can also be affected by alexithymia. People with high levels of alexithymia cannot recognize their emotions, hence it seems logical that they cannot have compassion for their thoughts and emotions. In addition, based on the previous studies in different populations, alexithymia is the strongest (negative) predictor for self-compassion in a hierarchical regression.[21] Nonetheless, these studies are conducted on the general population.

To date, the predictive role of alexithymia for self-compassion in gambling has not been investigated and no studies have been conducted on self-compassion in online gambling. Therefore, due to the potentially different nature of online gambling from land-based gambling, it is necessary to examine these relationships in the context of online gambling. Besides, no study was found about the relationship between alexithymia and the frequency of presence at gambling websites. The question is, "Do higher levels of alexithymia predict a higher presence at gambling websites and vice versa?" The other question is, "If there is a relationship between alexithymia and the frequency of presence at gambling websites, is this relationship mediated by the variables such as emotion regulation and self-compassion?". These are the questions that have remained unanswered so far. Therefore, the present study examines the

relationship between alexithymia and risky decision-making, gambling frequency, and gambling severity by considering the mediating role of emotion regulation and self-compassion in online gamblers.

Materials and Methods
Study Design
This study was a correlational cross-sectional one. The variables included alexithymia, frequency of daily use of gambling websites, risky decision-making, gambling severity, emotion regulation, and self-compassion.

Participants
Online gamblers were selected through ads on forums, websites, and Instagram pages, as well as the telegram channels promoting online gambling. The inclusion criteria were (a) being at least 18 years old, (b) gambling online at least once a week in the past three months, and (c) willingness to participate in the study. Finally, 149 people who met the inclusion criteria and filled out the questionnaires completely, entered the study.

Procedure
Regarding participation in the research, from February 9, 2021, to March 24, 2021, the researchers advertised in Telegram and Instagram (the most popular Iranian social networks) as well as the forums related to online gambling. Individuals were asked to answer a set of questions in Google Forms. Furthermore, for neuropsychological assessment, individuals were taught how to install the free version of PEBL by a video file. They were then asked to send the test file (EXCEL format) to the authors using WhatsApp, Telegram, or email. To appreciate the participation of people, a variety of gifts were considered. Individuals completing the questionnaires could choose to have a free session of academic, psychological, or psychiatric counseling on the Sabatavan online platform (under the auspices of the University of Social Welfare and Rehabilitation Science, Tehran, Iran), a film and serial subscription gift code on the Iranian platforms, or a 60-minute gift card to receive a free phone call. As filling out the questionnaire takes a long time, these gifts were also described to increase the participants' motivation in the advertisement. It was also explained that all the information was anonymous and there was no access to their personal information.

Measures
Demographic Information Questionnaire: This researcher-made questionnaire assesses demographic information (e.g., age, gender, educational status, gambling habits). In this study, the "frequency" variable was assessed by this question "In the last month, how many days have you been on a gambling website and virtual platform more than once?"

Self-compassion: The Self-Compassion Scale (SCS), originally developed by Neff (2003), consists of six subscales including humanity, perceived isolation, self-kindness, self-judgment, mindfulness, and over-identification. In the Persian version, the results showed that the six-factor structure of SCS has good psychometric properties.[22]

Emotion regulation: The Difficulties in Emotion Regulation Scale (DERS) is a self-report measure developed to assess clinically relevant difficulties in emotion regulation. It has 36 items rated on a five-point Likert scale, ranging from 1 (almost never) to 5 (almost always). DERS items are recoded so that higher scores in every case indicate greater difficulties in emotion regulation (i.e., greater emotion dysregulation). In Iranian normal and clinical samples, this scale showed suitable psychometric properties.[23]

Internet addiction: In this study, Yang Internet Addiction Questionnaire was used. This scale consists of 17 items on a five-point Likert scale from rarely (0) to always (5). Scores 0 to 30 show no internet addiction and normal user, scores 31 to 49 mild internet addiction, scores 50 to 79 moderate internet addiction, and scores 80 and above indicate severe internet addiction cut score. The reliability of the Persian version of the questionnaire was calculated using Cronbach's alpha coefficient as 0.79.

Gambling severity: The Gambling Disorder Screening Questionnaire-Persian (GDSQ-P) was used to determine the level of gambling. The 27 yes/no questions that make up the GDSQ-P were developed using the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM.5) criteria. The results of this psychometric analysis demonstrated that GDSQ-P is a reliable and valid screening tool for gambling disorders. According to estimates, the GDSQ-P cut-off threshold is 4, with 98.9% sensitivity and 98.3% specificity.[24]

Alexithymia: The Persian version of Toronto Alexithymia Scale-20 was used for assessing Alexithymia. This 20-item scale measures the subscales of alexithymia including externally oriented thinking (EOT), difficulty describing feelings (DDF), and difficulty identifying feelings (DIF). The scores are rated on a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree). The total score greater than 60 shows alexithymia.[25]

Risky decision-making: Iowa Gambling Task (IGT) is a tool used for investigating an individual's decision-making in real situations. The participants are faced with four cards. Despite a larger reward, the first two cards can sometimes contain high negative scores; whereas, the last two cards include fewer rewards and lower losses in failure. The final score is obtained by deducting the total scores of the first two cards from the last two cards' total scores. In this research, the assignment was performed by the IGT desktop version, which has reliability and validity

with the traditional test.[26]

Data analysis

All date analyses were conducted by SPSS (version 26) and AMOS (version 26). The relationships between the variables were examined using correlation analysis. In cases where significant relationships were observed, regression model hypotheses were tested and regression and mediation analyses were performed. Does this method examine whether alexithymia can predict risky decision-making and gambling severity significantly or not? Does mediation analysis examine whether self-compassion and emotion regulation strategies can link alexithymia with risky decision-making and gambling severity or not?

Results

Descriptive statistics

Initially, 374 people completed the study questionnaires and sent them to the researchers. Among them, the answers of 38 participants included incorrect and incomplete information, and the answers of 17 participants contained contradictory information. These participants were excluded from the study, and finally, the answers of 319 participants were analyzed. The mean age of the participants was 24.6 ± 6.06 and 253 participants (73.9%) were male. Demographic and clinical characteristics are presented in Table 1. Based on the results, there were no significant differences in the intensity of risky decision-making ($P = 0.051$), gambling severity ($P = 0.59$), and age ($P = 0.293$) between male and female participants.

Correlation analysis

Pearson correlation coefficients were calculated for the

Table 1. Descriptive statistic on clinical and demographic variables

Variables	Mean ± SD/No. (%)
Socioeconomic status	
Low	112 (35.1%)
Middle	92 (28.8%)
High	115 (36.1%)
Educational level	
Diploma or under diploma	113 (35.4%)
University student/Bachelor's degree	163 (51.1%)
University student/Master's degree	43 (13.5%)
Daily hours spending on internet	3.4 ± 1.8
Internet addiction	38.7 ± 14.4
Alexithymia	53.2 ± 18.03
Frequency	13.7 ± 6.9
Difficulty in emotion regulation	94.07 ± 36.7
Gambling severity	2.2 ± 1.6
Risky decision-making	0.8 ± 7.9
Self-compassion	74.7 ± 28.7

clinical variables. The results demonstrated that all the clinical variables had a significant correlation with risky decision-making and gambling severity. Therefore, in the next steps, all the paths were entered into the model, and their effects were measured. Table 2 shows the results of the correlation analysis.

Testing the mediating roles

In the model related to gambling severity (Model 1), the fitness indices were examined to evaluate the studied model's fitness. As shown in Table 3, the values of all the indices are appropriate, which indicates the appropriate fitness of the studied model. The result of dividing the chi-square value by the degree of freedom is less than 3, which indicates the fitness of Model 1.

Direct, indirect, and total effects in model 1 (gambling severity)

After determining the model's fitness, the direct and indirect effects between the variables of model 1 (gambling severity) were examined. Alexithymia significantly affects gambling severity, both directly and indirectly (through self-compassion and emotion regulation). Moreover, the results showed that alexithymia directly affects the frequency of gambling. People with high levels of alexithymia are more likely to be exposed to gambling-related contexts. However, only emotion regulation had a significant mediating effect on gambling frequency, and the self-compassion variable had no role in this equation. Thus, alexithymia can mediate the frequency of gambling through the emotion regulation variable, and eventually, people with more emotion regulation problems show more frequency of gambling. The direct, indirect, and total effects among the variables are indicated in Table 4.

The results of the bootstrap test on the mediator variable of this equation are shown below. As shown in Table 5, the path of alexithymia → difficulty in emotion regulation → gambling severity and other pathways are significant. However, the path of alexithymia→self-compassion → gambling frequency was not significant at the level of 0.05.

The final model of this equation is shown in Figure 1.

Direct, indirect, and total effects in model 2 (risky decision-making)

First, all the potential pathways were entered into the model based on Pearson's correlation coefficients. Then, it was found that the path of difficulty in emotion regulation toward risky decision-making was not significant at the level of 0.05 ($P = 0.375$, estimate = -0.013, standard regression: 0.059). Furthermore, the indirect path of alexithymia toward risky decision-making mediated by "difficulty in emotion regulation" was not significant at the level of 0.05. Therefore, in this model, only the mediating role of self-compassion is studied. As

Table 2. Pearson's correlation coefficients

		1	2	3	4	5	6	7	8
1	Gambling severity	1	-0.452**	0.313**	0.361**	0.418**	0.552**	-0.575**	0.417**
2	Risky decision-making		1	-0.268**	-0.307**	-0.259**	-0.328**	0.428**	-0.270**
3	EOT.ALEX			1	0.411**	0.467**	0.269**	-0.259**	0.296**
4	DIF.ALEX				1	0.432**	0.360**	-0.319**	0.343**
5	DDF.ALEX					1	0.351**	-0.345**	0.305**
6	Difficulty in emotion regulation						1	-0.445**	0.567**
7	Self-compassion							1	-0.350**
8	Gambling frequency								1

** Correlation is significant at the 0.01 level (2-tailed), EOT.ALEX: Externally Oriented Thinking, DIF.ALEX: Difficulty Identifying Feelings, DDF.ALEX: Difficulty Describing Feelings.

Table 3. Goodness-of-fit indices of the measurement model

Indices	Chi-square	DF	χ^2/DF	P value	RMSEA	CFI	NFI
Model 1	26.78	11	2.43	0.005	0.067	0.97	0.96
Model 1	4.47	4	1.11	0.364	0.019	0.98	0.89

NFI, normed fit index; CFI, comparative fit index; RMSEA, root-mean-square error of approximation.

Table 4. Direct, indirect, and total effects among variables

	Direct effect	P value	Indirect effect	P value	Total effect	P value
Alexithymia on self-compassion	-0.54 (-0.63–0.44)	0.001			-0.54 (-0.63–0.44)	0.001
Alexithymia on emotion regulation	0.56 (0.45-0.66)	0.001			0.56 (0.45-0.66)	0.001
Alexithymia on gambling severity	0.31 (0.16-0.46)	0.001	0.30 (0.23-0.38)	<0.001	0.61 (0.50-0.70)	0.001
Alexithymia on gambling frequency	0.29 (0.18-0.43)	<0.001	0.22 (0.15-0.30)	0.001	0.51 (0.43-0.61)	0.001
Emotion regulation on gambling severity	0.24 (0.13-0.35)	0.003			0.01 (0.13-0.35)	0.003
Emotion regulation on gambling frequency	0.40 (0.25-0.50)	0.003			0.07 (0.25-0.50)	0.003
Self-compassion on gambling severity	-0.30 (-0.39–0.19)	0.001			-0.01 (-0.39–0.19)	0.001

Table 5. Bootstrap test results for the mediator variable

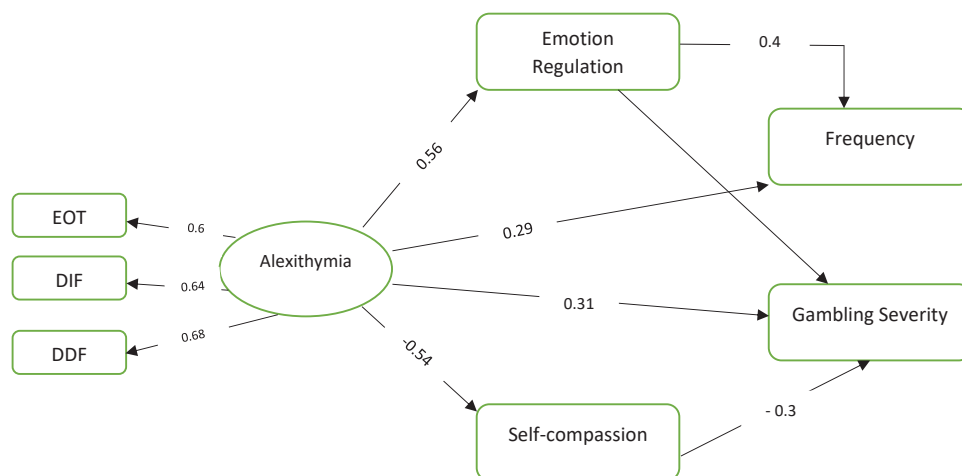| Dependent variable → independent variable → mediator variable	Estimate (lower-higher)	P value
Alexithymia → difficulty in emotion regulation → gambling frequency	0.40 (0.28-0.56)	0.001
Alexithymia → difficulty in emotion regulation → gambling severity	0.07 (0.05-0.01)	<0.001
Alexithymia → self-compassion → gambling severity	0.06 (0.04-0.9)	0.001

Figure 1. The final model for gambling severity

shown in Table 3 (Model 2), this model fits well through the mediating role of self-compassion. The result of dividing the chi-square by the degree of freedom equals 1.11, which is less than three and indicates that the model is sufficient. Besides, the values of CFI and NFI are close to 1, which indicate the fitness of the proposed model.

After determining the model's fitness, the direct and indirect effects between the variables in Model 2 (risky decision-making) were examined. Alexithymia has a significant effect on risky decision-making, both directly and indirectly (through self-compassion). People with higher levels of alexithymia experience more impairments in risky decision-making, and this effect occurs both directly and indirectly (through a reduction in the self-compassion of individuals). Table 6 shows the direct, indirect, and total effects between the variables.

The results of the bootstrap test for the mediator variable of this equation are presented below. As shown in Table 7, the path of alexithymia → difficulty in emotion regulation → risky decision-making is significant.

The final model for this equation is shown in Figure 2.

Discussion
The present study investigated the relationship between alexithymia and gambling severity, risky decision-making, and online gambling frequency considering the mediating roles of emotion regulation and self-compassion in the Iranian society. The findings demonstrated different models for gambling severity (Model 1) and risky decision-making (Model 2). The results showed that alexithymia was significantly associated with the gambling severity directly and indirectly (through the mediating roles of emotion regulation and self-compassion). In this relationship, the size of the direct and indirect effect (partial) was almost equal. Indeed, individuals with higher levels of alexithymia experience higher pathological problems related to gambling severity. Moreover, people with higher levels of self-compassion (as a mediator), which is considered a protective factor, experience less gambling severity. In addition, the significant mediating role of difficulty in emotion regulation in the relationship between alexithymia and gambling severity suggested that individuals with high levels of alexithymia are prone to pathological gambling through difficulty in emotion regulation. Not only alexithymia, but also difficulty in emotion regulation plays an important role in pathological gambling. Besides, in this study, there was a significant relationship between alexithymia and monthly gambling frequency both directly and indirectly (through difficulty in emotion regulation). This finding is in line with previous studies. For example, one study examined the relationship between pathological gambling and alexithymia in different types of gambling. The results suggested that the increase in the levels of alexithymia is associated with increase in gambling severity and gambling frequency, which is in line with the findings of the present study.[14] The results of another study demonstrated that alexithymia is significantly associated with gambling frequency and the rate of this behavior through difficulty in emotion regulation, which is also consistent with findings of the present study.[19]

Numerous studies have investigated the direct relationship between alexithymia and gambling severity, and the results of the present study are in line with

Table 6. Direct, indirect, and total effects between alexithymia and risky decision-making through self-compassion

	Direct effect	*P* value	Indirect effect	*P* value	Total effect	*P* value
Alexithymia on self-compassion	-0.467 (-0.58 – -0.34)	0.001			-0.467 (-0.58 – -0.34)	0.001
Alexithymia on risky decision-making	-0.278 (-0.406 – -0.103)	0.001	-0.139 (-0.216 – -0.087)	0.001	-0.417 (-0.521 – -0.292)	0.001
Self-compassion on risky decision-making	0.298 (0.178 – 0.420)	0.001			0.298 (0.178 – 0.420)	0.001

Table 7. Bootstrap test results for the mediator variable

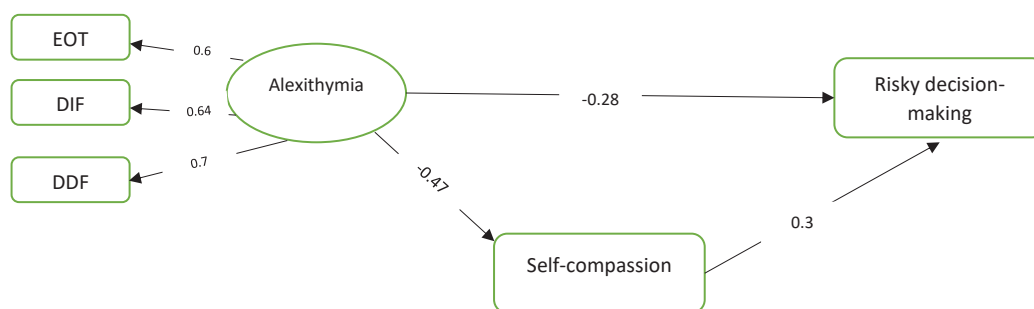| Dependent variable → independent variable → mediator variable	Estimate (lower-higher)	*P* value
Alexithymia → difficulty in emotion regulation → risky decision-making	-0.417 (-0.521 – -0.292)	0.001

Figure 2. Proposed model for risky decision making

them.[11] Although few studies have been conducted on the mediating role of emotion regulation, the results of the present study are consistent with them. For instance, the regression analysis of a study performed on the land-based gamblers in Turkey illustrated that the amount of money on gambling, alexithymia, and difficulty in emotion regulation can significantly predict pathological gambling. Moreover, difficulty in emotion regulation partially mediated the relationship between Alexithymia and pathological gambling.[19]

Although the results of this study were consistent with those of the present study, there were some differences. For example, the reviewed study was conducted only on males, while the present study examined males and females.

Furthermore in a study about alcohol, results demonstrated that alexithymia is significantly associated with alcohol craving (as an addictive behavior similar to gambling) both directly and indirectly (through emotion regulation , which is in line with the findings of the present study.[27] No study was found on the mediating role of self-compassion in the relationship between alexithymia and addictive behaviors. However, some relevant studies have been conducted in this field. For example, one study found that self-compassion is a strong (negative) predictor of alexithymia in adolescents. [21] In another study on gamblers, the results showed that self-compassion, as a part of Buddhist-derived interventions, could significantly reduce the problems associated with gambling, which is in line with the findings of the present study.[28] It can be said that high levels of difficulty in emotion regulation (high suppression and low reappraisal) make the person experience impulses that are not accurately recognized and perceived (due to the elevated alexithymia). Gambling is a way the individual knows. Hence, it causes temptation and distress and the person tries to find a way to eliminate them. Thus, despite many problems associated with gambling, the person does it repeatedly, and the gambling behavior is learned to reduce tensions and impulses. Finally, the frequency of gambling will increase over time.[15,16,18,20]

Concerning the significantly direct relationship between alexithymia and gambling frequency, it can be stated that people with high levels of alexithymia cannot recognize and understand their positive and negative emotions. However, they understand the tensions caused by the negative emotions. Accordingly, they try to discharge their emotions through gambling. Besides, people with high levels of alexithymia may gamble to solve their financial or social problems, and because of the many losses and consequences, they are more likely to experience more severe pathological gambling problems.[11,29] Regarding the mediating role of self-compassion, it can be said that people with alexithymia have difficulty in cognitive processing of emotional information. When emotional information cannot be perceived and evaluated through cognitive processing, the person becomes emotionally and cognitively disturbed and engages in self-destructive behaviors such as gambling. Increasing the alexithymia problems is associated with the development of impairments in the cognitive processing of emotion and eventually forms the pathological gambling pattern. Self-compassion generally acts as a cognitive emotion regulation strategy. Therefore, it can reduce the likelihood of engaging in pathological addictive behaviors and vice versa.[21,30,31]

In the second model, alexithymia was significantly associated with risky decision-making, both directly and indirectly (through difficulty in emotion regulation). In this regard, there are very few studies in the context of gambling, but their results were consistent with the findings of the present study. For example, one study found that people with higher levels of alexithymia experienced more gambling problems and more impairments in risky decision-making than the general population, which is exactly in line with the findings of the present study.[12] Furthermore, the studies conducted in the context of addiction are also in line with the present study. For instance, the results of a study on alcohol drinkers suggested a significant relationship between alexithymia and impulsivity (as a structure similar to risky decision-making). Moreover, their results showed that emotional processes are associated with alcohol consumption.[32] Both these results were consistent with the findings of the present study.

Another study in China found that people with difficulty in risky decision-making experience higher levels of alexithymia[33] which is in line with the results of the current study. Regarding the role of emotion regulation, a study conducted on the alcoholics (as an addictive behavior) showed that difficulty in emotion regulation leads to impulsive behaviors that have positive and negative consequences in the short and long term, respectively.[34] These results suggested that people with higher alexithymia prefer immediate rewards, and it is difficult for them to follow an effective strategy for a long time.[12] This result is consistent with the previous ones suggesting a correlation between alexithymia and difficulty in decision-making ability. The growing underlying theory claims that alexithymia may be an essential personality trait and leads to decision-making deficiencies.[12] Furthermore, people with higher levels of alexithymia experience many problems regulating their emotions and actually have difficulty recognizing and describing them. Therefore, during gambling, they make decisions based on emotions that are not properly understood and act impulsively. This is an explanation of the significantly indirect path mediated through emotion regulation.[34]

Contrary to the hypothesis of this study, self-

compassion did not play a mediating role in this model. Therefore, it is necessary to conduct other studies in other similar contexts to examine this hypothesis. Of course, since the recent studies have suggested different patterns of psychological dimensions for different types of gambling, further studies can be helpful.

Despite the important results, the present study had some limitations. First, this was a cross-sectional study, and it is not clear how these correlations and direct and mediating effects change over time. Second, since self-report instruments were used in the study, there might be inconsistencies between reality and reporting due to addictive behaviors. Therefore, future research can conduct longitudinal studies in this field and provide dynamic images about the relationships between these variables. They can also investigate other variables that could potentially influence these relationships, such as obsessive beliefs and personality traits. Moreover, the attitudes of Iranians (those living in a country where gambling is a crime, except in a few cases such as horse riding) toward gambling can be investigated among online gamblers and others, and then the current models can be revised with the new findings. Finally, as the substance abuse and other psychological disorders are common among gamblers, addiction and psychological problems were not taken as exclusion criteria in this study.

Conclusion
Overall, alexithymia as an important variable can directly influence risky decision-making, gambling severity, and gambling frequency. Furthermore, self-compassion and difficulty in emotion regulation can mediate the relationship between alexithymia and gambling severity. However, only the emotion regulation variable can mediate the relationship of alexithymia with risky decision-making and gambling frequency. Therefore, this path can be affected by emotion regulation and difficulty in emotion regulation.

Authors' Contribution
Conceptualization: Mohammadreza Davoudi, Sepideh Tamrchi.
Data Curation: Sepideh Tamrchi.
Methodology: Sepideh Tamrchi, Fatemeh Mohebban.
Project Administration: Mohammadreza Davoudi.
Writing–Original Draft: Mohammadreza Davoudi, Fatemeh Mohebban.
Writing–Review & Editing: Fatemeh Mohebban.

Competing Interests
The authors declare no conflict of interest.

Ethical Approval
All procedures used in collecting survey data on which this article relies, are in accordance with the ethical standards of the Helsinki Declaration of 1964 and subsequent amendments or ethical standards. All data were collected anonymously, and no association could be established between the questionnaires and the responders.

Informed Consent
All participants were informed of the aim of the research. All data about confidentiality and anonymity of their responses were introduced.

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