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Original Article

Validation of Gambling Related Cognitions Scale-Iranian Version (GRCS-IR)

Mohsen Jadidi[1], Farid Ahmadrad[2*], Samaneh Sadat Sarkeshikian[3], Mahsa Seyed Moradpoor[4]

[1]Department of Clinical Psychology, Islamic Azad University, Qods Branch, Tehran, Iran
[2]Allameh Tabataba'i University, Tehran, Iran
[3]Sociology of Social Groups, Islamic Azad University, Central Tehran Branch, Tehran, Iran
[4]Islamic Azad University, Qods Branch, Tehran, Iran

Abstract

Background: The change in gambling forms, a wide variety of advertising methods, the access to gambling, as well as the increase in participation in online gambling have made it important to know and investigate gambling, particularly as pathological gambling leads to psychological and physical damage.

Methods: The present study investigated the factor structure of the Gambling Related Cognitions Scale (GRCS) proposed by Raylu and Oei in addiction. The study sample included 574 participants (40.2% male, 59.8% female) between 18 and 56 years of age. The instruments used in the present study included the GRCS, the South Oaks Gambling Screen Questionnaire (SOGS), the Victorian Gambling Screen (VGS), and the Problem Gambling Severity Index (PGSI).

Findings: A 5-factor GRCS model provided the best fit to the data, and gambling-related cognitions were a strong predictor of disordered gambling among adults. All subscales presented good internal consistency and scalability. The findings showed that the total score of the GRCS-IR was significantly different among men and women.

Conclusion: The findings of this study confirmed that the Iranian version of the GRCS-IR is an effective multidimensional instrument that accurately measures cognitive distortions related to gambling. Consequently, it can be utilized as a valuable tool for assessing GRC (Gambling Related Cognitions) to understand the severity of pathological gambling and has the potential capacity to measure treatment outcomes.

Keywords: Validation, Gambling, Gambling related cognitions scale, Iranian version

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Introduction

Gambling often indicates an inability to control impulses or prevent certain behaviors that individuals cannot react to stop.[1,2] People who gamble tend to be less risk-averse than others, but they do not necessarily consider the situations in which they participate to be overly dangerous.[3] Therefore, the phenomenon of gambling, as well as its scope has been expanded,[4] and 86% of the adult population is engaged in traditional forms of gambling.[2] In fact, gambling as a commercial industry has grown over the past three decades.[4] It is also noteworthy that gambling has created many legal problems, and nearly 80% of the total losses from gambling are associated with fraud.[5] The rise in gambling, change in its forms, different ways of advertising, and access to gambling make investigating and understanding gambling important, and in the meantime, the participation of people in online gambling has also increased significantly.[6]

While the majority of people engage in gambling, a minority of them meet the criteria for gambling disorder (GD), recognized as a psychiatric condition involving repetitive and maladaptive gambling behaviors that lead to significant clinical distress. Gambling involves risking something valuable in the hope of gaining something more valuable. In many cultures, people bet on games and events, and most of them do so without difficulty. However, some people have major problems with their gambling behaviors. An essential feature of GD is the persistent and frequent maladaptive gambling behavior disrupting personal, family, and/or professional activities,[7] which is also included among addictive behaviors in the International Classification of Diseases, 11th Edition (ICD-11) diagnostic system.[8]

Gambling disorder has been recognized as a major public health problem associated with significant personal, social, and psychiatric costs.[9] In this regard, studies have shown that pathological gambling problems significantly harm the individual and are associated with

*Corresponding Author: Farid Ahmadrad, Email: f.ahmadrad@gmail.com

rising problems similar to substance dependence that can also lead to chronic physical illness.[10, 11]

Recently, the role of gambling cognitions in the etiology and maintenance of gambling has garnered significant attention.[12,13] The cognitive approach to explaining GD is based on the principle that gamblers have incorrect interpretations of randomness and misconceptions (e.g., "luck helps") and hold erroneous beliefs (e.g., "gambling makes everything better"), leading to the perception of learned rewards and eventually forming habits.[13,14] The evidence for this approach mainly comes from the use of "think-aloud" techniques, where gamblers verbally express their perceptions and beliefs during gambling activities. This method allows direct insight into gamblers' cognitions and attitudes, helping to investigate cognitive processes in gamblers. The technique aids in content analysis and critiquing of thoughts and beliefs, playing a significant role in understanding the etiology and consequences of gambling and related disorders.[15] Research has shown that cognitive therapy, considering the role of cognitive distortions, can not only significantly reduce the number of cognitive errors in gambling but also decrease financial risk, frequency of gambling, and the inclination to place bets. Furthermore, it diminishes the illusion of control associated with gambling activities.[16-18]

In addition, studies have indicated that men and gamblers are more likely to commit these cognitive errors than women and non-gamblers, respectively.[14,18,19] Accordingly, cognitive reconstruction plays an essential role in the treatment of gambling,[20] which is why urgent understanding and treatment of gambling-related cognitions have led to the development of the Gambling Related Cognitions Scale (GRCS).[14] This tool has been translated and validated in different languages and various cultures in the following studies: Arcan and Karanci[21], Donati et al[22], Grall-Bronnec et al[23], Kale and Dubelaar,[24] Taylor et al,[25] Yang et al,[26] Yokomitsu et al,[27] and Smith et al.[28] The psychometric features of this instrument in the mentioned studies are in such a way that five and one general factors have been obtained in first-order and second-order confirmatory analysis, respectively. The first factor, namely illusion of control (GRCS-IC), involves the belief that gambling outcomes can be controlled (for example, the conviction that superstitious behaviors such as carrying a rabbit's foot affect gambling outcomes). The second factor, i.e. predictive control (GRCS-PC), involved the belief that gambling outcomes could be predicted based on salient signs (such as weather) or past wins/losses. The third factor or interpretive control/bias (GRCS-IB) involves the re-framing of gambling outcomes encouraging individuals to continue gambling (e.g. attributing success to their own skill and failure to the influence or chance of others). These three categories are similar to those identified by Toneatto,[29] while the other two categories, including gambling-related expectancies (GRCS-GE) and perceived inability to stop gambling (GRCS-IS), were similar to the cognitions detected in the creation and maintenance of substance use problems.[30,31]

Nevertheless, most studies have focused mainly on gambling behavior and ignored the cognitions underlying the onset and continuance of gambling; therefore, there is a significant lack of information about gambling cognition from cultural groups, which is at least partly related to the absence of sufficient criteria to evaluate gambling-related cognitions in different cultures. In other words, there are no valid tools for assessing gambling cognition. Therefore, it is argued that the Iranian version of the GRCS not only assists in identifying various gambling-related cognitions in Iranian samples but also aids experts in understanding the prevalence and persistence of gambling and its associated cognitive problems. As a result, the present study focused on examining and validating the Iranian version of the Gambling Related Cognitions Scale (GRCS-IR) based on the 23-item GRCS.[14]

Methods

In the following, the tools used in this study will be discussed. It is worth mentioning that these tools were initially translated into Persian, and to assess the comprehension and grammatical adaptation of the questionnaires, they were re-translated into English by another individual who had both Western and Iranian educational backgrounds and was familiar with visual impairment studies. This process ensured the equivalence of the questions' meanings and their conceptual understanding. The following questionnaires were employed in this study:

Gambling Related Cognitions Scale

This instrument was developed by Raylu and Oei.[14] It consists of 23 questions created using a community-based sample (N = 968) of adults in the age range of 16-73 years. A 5-factor structure was reported for the GRCS, including: (1) Illusion of control error (GRCS-IC); (2) Predictive control (GRCS-PC); (3) Interpretive bias (GRCS-IB); (4) Gambling-related expectancies (GRCS-GE); and (5) Perceived inability to stop gambling (GRCS-IS).[32,33] Raylu and Oei[14] reported that GRCS has concurrent, predictive, and criterion validity with sufficient criterion as well as good reliability (Cronbach's alpha = 0.81). Cronbach's alpha for the Iranian version was 0.87.

South Oaks Gambling Screen Questionnaire

South Oaks Gambling Screen Questionnaire (SOGS) is a 20-item self-report questionnaire based on mandatory choice answers (yes/no). The instrument is used for screening gambling addiction and was validated in a sample of 1046 people in the United States. SOGS measures gambling addiction in the past twelve months

and over a lifetime, with alpha coefficients of 0.69 and 0.86 in the general and clinical populations, respectively. It also demonstrates acceptable validity with DSM-IV diagnostic criteria. Although SOGS has shown good classification accuracy in the clinical gambling population, its screening accuracy in the general population has been poorly assessed. Compared to DSM-IV diagnostic criteria, this instrument estimated the number of pathological gamblers in the general population to be higher than the actual limit,[34] and Cronbach's alpha of 0.75 was obtained for SOGS using a similar Iranian sample.

Victorian Gambling Screen

The Victorian Gambling Screen (VGS) was validated in a sample of 332 people in Australia. This 21-question instrument measures gambling addiction over the past twelve months, and is used to assess pathological gambling in the general population and identify the need for treatment at a medical center. The internal reliability of the VGS instrument was reported to be 0.85, which shows a moderate correlation with SOGS,[35] and Cronbach's alpha of 0.83 was obtained for VGS using an Iranian sample.

Problem Gambling Severity Index

The Problem Gambling Severity Index (PGSI) is a 9-question instrument validated on a sample of 3120 people in Canada that is designed to measure the prevalence and types of pathological gambling in the general population. The results of this study reported the total alpha coefficient to be in the 0.53-0.70 range,[36] and in the present study, Cronbach's alpha was equal to 0.68.

Participants

The study sample consisted of 574 participants (40.2% male, 59.8% female) in the age range of 18-56 years (m age = 26.14, SD = 8.45). In terms of education level, 69.7% held a BSc degree, 10.8% MSc degree, 8.7% high school diploma and lower, 8.4% associate degree, and 2.4% held a PhD degree. Besides, 71.1% of the participants were single. Data were collected online from September to March 2021 during the crisis of the COVID-19 epidemic. The online survey was shared through social media sites, e-mail campaigns, online blogs, and WhatsApp Messenger. The criteria considered for entering the study included: (1) not suffering from mental illnesses, (2) not using drugs, and (3) being literate. The participants were selected via the convenience sampling method. The online survey link was distributed randomly in virtual social networks (the set of above questionnaires was provided in the same order). The participants were allowed to withdraw at any stage of filling out the questionnaires without the need to justify, and were assured that their information would remain confidential and anonymous.

Statistical analysis

Scale validity

The results of the confirmatory factor analysis (CFA) on the expected structure demonstrated a good fit, as indicated by the values of the standardized root mean square residual and root mean square error of approximation being less than 0.08. The comparative fit index and the normed fit index were 0.93 and 0.91, respectively, which also suggest a good fit. However, the goodness of fit index was slightly below 0.9, which is commonly used as a threshold for acceptable interpretation. The factor loadings related to the questions of each factor are shown in Figure 1. As noted, the factor loadings of the questions are more than 0.30 (0.35-0.84), which indicates the good fit of the measurement model with the data.

Interfactor correlations for the five-factor model

The correlation coefficients between the scores of the five subscales are shown in Table 1. As can be seen, all correlations are significant in the 0.88-0.98 range, which indicates a positive relationship between the five dimensions. In addition, the scores of all five subscales were highly correlated with the total score (coefficients in the 0.81-0.88 range).

Internal consistency and scalability

Cronbach's alpha was high for the overall GRCS-IR scale

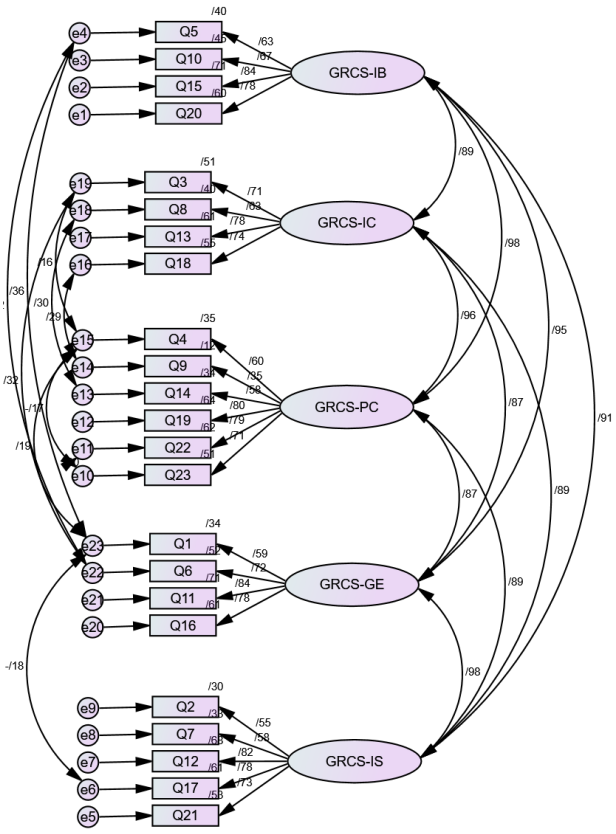

Figure 1. GRCS-IR Factor Structure. Abbreviations: IS, perceived inability to stop gambling; IB, interpretive bias; IC, illusion of control; GE, gambling-related expectancies; PC, predictive control

(a = 0.944). Cronbach's alpha values and Guttman and Spearman-Brown coefficients for each GRCS dimension are presented in Table 2. All subscales showed proper internal consistency and scalability (H > 0.3). Considering the internal consistency and scalability, the results are consistent with the findings reported by Raylu and Oei.[14]

Convergent validity

There was no similar tool at the time of the authentication and validation of GRCS-IR in this study. As a result, a range of variables were used to assess concurrent validity (e.g., SOGS, PGSI, and VGS), which the gambling literature has shown to be positively correlated with gambling problems. A review of gambling literature showed people with higher scores on these variables are more likely to cognize gambling.[14] Therefore, a positive correlation was expected between these variables and the overall GRCS-IR score. The results showed that the total GRCS-IR score had a significant positive correlation with SOGS, VGS, and PGSI at 0.05 level (0.63, 0.73, and 0.69, respectively).

According to Table 3, the total score of the GRCS-IR scale is significantly different between men and women [F (1,572) = 16.53, $P < 0.001$]. This significant difference also applies to subscales: IB [F(1,572) = 18.8, $P < 0.001$]; IC [F(1,572) = 8.95, $P < 0.01$]; PC [F(1,572) = 7.93, $P < 0.05$]; GE [F(1,572) = 21.54, $P < 0.001$]; and LS [F(1,572) = 23.13, $P < 0.001$].

Table 1. Correlation between factors

GRCS test subscales			Estimate	SE	CR	*P*
IB	<-->	IS	0.906	0.029	12.01	***
IB	<-->	PC	0.980	0.037	12.25	***
IB	<-->	IC	0.890	0.044	11.92	***
IB	<-->	GE	0.951	0.029	12.73	***
IS	<-->	PC	0.889	0.024	11.45	***
IS	<-->	IC	0.889	0.030	11.58	***
IS	<-->	GE	0.983	0.021	12.46	***
PC	<-->	IC	0.958	0.039	11.81	***
PC	<-->	GE	0.872	0.024	11.74	***
IC	<-->	GE	0.866	0.030	11.85	***

Abbreviations: IS, perceived inability to stop gambling; IB, interpretive bias; IC, illusion of control; GE, gambling-related expectancies; PC, predictive control; SE, standard error; CR, critical ratio.
***P is less than 0.01.

Discussion

The present study aimed to investigate the psychometric properties of the GRCS-IR for assessing a wide range of gambling related cognitions in an Iranian sample. The findings of this study demonstrated that the GRCS-IR is a reliable tool for evaluating gambling related cognitions in this population and contributes to the understanding of the nature and mechanisms of gambling cognitions and/or their role in the development and maintenance of pathological gambling among Iranians. Raylu and Oei[14] showed that the GRCS reflects a five-factor model. Furthermore, there was a high level of intercorrelation between the factors, suggesting a higher-order model, in which the first-order cognitive subgroups load onto a general cognitive factor. The results of CFA confirmed that the five-factor model proposed by Raylu and Oei[14] is suitable for the Iranian sample, which indicates the accuracy of GRCS-IR psychometric properties. CFA also endorsed the higher-level factor, namely public recognition, as a good fit for the Iranian data. In addition, the whole scale had a high level of internal consistency. The results also revealed a significant positive correlation between GRCS-IR (Iranian version) and other gambling related variables as confirmed by previous research.[14] Moreover, the findings showed gender differences, with men showing more erroneous cognitions than women.[23,25,37] In general, these findings confirm the results of previous studies on adults. For instance, the three cognition categories related to expectations, efficiency, and perceived control, are consistently associated with gambling pathology.[3] Furthermore, as suggested by Tang

Table 3. Means and standard deviations of the subscale and total GRCS-IR scores for females and males (N = 574)

	Females Mean (SD)	Males Mean (SD)
IB	18.10 (2.82)	16.66 (3.57)
IC	17.937 (2.73)	16.93 (4.03)
PC	25.30 (4.24)	24.16 (5.51)
GE	18.75 (2.28)	17.47 (3.18)
IS	23.75 (2.55)	22.27 (3.92)
Total	103.85 (12.89)	97.52 (18.39)

Abbreviations: IS, perceived inability to stop gambling; IB, interpretive bias; IC, illusion of control; GE, gambling-related expectancies; PC, predictive control.

Table 2. Internal consistency and scalability

	GRCS-IB	GRCS-IC	GRCS-PC	GRCS-GE	GRCS-IS	Total
Cronbach's alpha	0.81	0.81	0.79	0.82	0.82	0.944
Spearman-Brown	0.86	0.81	0.80	0.79	0.83	0.905
Guttman	0.85	0.82	0.81	0.83	0.79	0.904
Loevinger's H	0.63	0.41	0.52	0.41	0.54	0.54

Abbreviations: GRCS, Gambling Related Cognitions Scale; IS, perceived inability to stop gambling; IB, interpretive bias; IC, illusion of control; GE, gambling-related expectancies; PC, predictive control.

and Wu,[33] the predictive power of these misconceptions can be explained by Bandura's[38] social cognitive theory, which states that behavior control is attained by action-outcome expectations and beliefs specific to efficacy.

Conclusion

In terms of practical implications, the present study confirmed that the observed psychometric properties of GRCS-IR enable its use in the measurement of gambling related cognitions in research and practice related to Iranian youth. Thus, this tool can help physicians and psychologists in the initial identification of at-risk young people who are characterized by misconceptions related to gambling and can also have a significant impact on the planning of treatment interventions.

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Authors' Contribution

Conceptualization: Mohsen Jadidi, Farid Ahmadrad.
Data curation: Farid Ahmadrad, Samaneh Sadat Sarkeshikian, Mahsa Seyed Moradpoor.
Formal analysis: Mohsen Jadidi, Farid Ahmadrad.
Investigation: Farid Ahmadrad, Samaneh Sadat Sarkeshikian.
Methodology: Farid Ahmadrad.
Project administration: Mohsen Jadidi.
Software: Farid Ahmadrad.
Supervision: Mohsen Jadidi, Farid Ahmadrad.
Writing–original draft: Mohsen Jadidi, Farid Ahmadrad.
Writing–review & editing: Farid Ahmadrad, Samaneh Sadat Sarkeshikian, Mahsa Seyed Moradpoor.

Competing Interests

The authors declared no conflict of interest.

Ethical Approval

Ethical considerations were taken into account in this study. Prior to conducting the study, all participants were provided with clear information about the research objectives, and their informed consent was obtained. They were given the necessary tools and questionnaires and were ensured that their participation was voluntary. Confidentiality of participants' information was strictly maintained throughout the research process. This adherence to ethical principles helps protect the rights and well-being of the participants and ensures the integrity of the study.

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