

ORIGINAL RESEARCH

Screening Scale for Behavioral and Socioeconomic Risk Factors for Gambling Addiction: A Validity and Reliability Study

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Main Points

- The cut-off point of the Gambling Risk Screening Scale is 9.5. It has been determined that people taking over 9.5 in this scale are risky in terms of gambling addiction.
- The average score of participants on the Gambling Risk Screening Scale is 16.13±3.64.
- Gambling Risk Screening Scale (KURT) is a valid and reliable scale that evaluates the level of gambling risk.

Abstract

This study aimed to develop a measurement tool suitable for determining the gambling risk levels in Turkey. A total of 128 outpatients at two facilities with complaints of gambling were included in the study. The South Oaks Gambling Screen (SOGS) was used in the study. The Gambling Risk Screening Scale (GRSS), which evaluated the level of gambling risk, was developed. The GRSS has two factors-gambling behavior and economic and social problems-and they account for 59% of the total variance. The factor loadings for the first factor ranged from 0.55 to 0.77, whereas for the second factor, the factor loading ranged from 0.77 to 0.95. The Cronbach's alpha of the entire scale was 0.84 and that of its subscales were 0.82 and 0.89. The cutoff point of the scale was 9.5, its sensitivity was 0.98, and its specificity was 0.87. The GRSS scores correlated statistically with the SOGS scores. These findings indicated that GRSS could be considered a valid and reliable scale for determining the gambling risk levels.

Keywords: Gambling, addiction, scale, behavioral addiction, validity and reliability

Introduction

In recent years, the legalization of gambling, technological developments, interactive gambling opportunities, and acknowledgment of gambling as a socially acceptable activity have led to an unprecedented increase in gambling (Caler et al., 2016; Clark, 2014). When it reaches a pathological level, gambling, seen as a leisure activity and a form of entertainment in almost all cultures, is known to have negative consequences in many areas, including economic well-being, physical and mental health, and legal and social relationships (Buran et al., 2019; Caler et al., 2016).

Continuing a behavior despite its negative consequences and the accompanying need and urge to engage in the addictive behavior leads to the problem of addiction (Yau & Potenza, 2015). Gambling addiction has clinical indications similar to those of substance abuse, such as craving, tolerance, withdrawal symptoms, comorbidities, and neurobiological profile (Leeman & Potenza, 2012).

The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), published in 2013, includes gambling disorder in the subsection, "Non-Substance-Related Disorders," in the category, "Substance-Related and Addictive Disorders."

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Tekin et al. Gamble Risk Screening Scale

The American Psychiatric Association defines gambling disorder as persistent and repetitive gambling behaviors, characterized by the inability to control gambling behavior and the impairment of individual, family, or professional functionality (American Psychiatric Association, 2013).

Meta-analytic studies report that the prevalence of gambling disorder among adults ranges from 0.1% to 2.7%. Of the adult population, 0.2% – 5.3% individuals develop gambling disorder at some point of their lives (Çakmak et al., 2018; Morgas et al., 2015).

Although it is prohibited by legislative regulations, the prevalence of gambling among youngsters is substantial (Dowling et al., 2017; Molinaro et al., 2018). A study of the prevalence of gambling and substance use and other risk factors in young people in 33 European countries found that a total of 22.6% (16.2% online, 18.5% offline) of 16-year-old students had gambled in the previous year (Molinaro et al., 2018). Gambling problems in adults may appear owing to the patterns that develop in childhood and adolescence (Derevensky et al., 2003).

Studies on the early risk factors for the development of problematic gambling have identified these risk factors: male sex, poor socioeconomic status, gambling at a young age, history of huge earnings, impulsivity, excitement seeking, risk-taking tendencies, maladaptive coping styles, alcohol and substance use, signs of attention deficit hyperactivity disorder, anxiety, depression, emotional problems, gambling problem in relation to peers, poor academic performance, parental substance abuse, parental gambling problems, inconsistent parental discipline, and cultural gambling norms (Dowling et al., 2017). Identifying the protective factors is an important advantage of determining the risk factors that cause gambling to begin and continue. Oei and Goh (2015) believed that the risk factors interacted considerably with protective factors to reduce the severity of gambling.

Retrospective studies show that psychiatric disorders emerge in approximately one-fourth of the individuals with gambling disorder. Therefore, if gambling disorder remains undetected and untreated, other problems may emerge, especially mental health problems (Dowling et al., 2019).

Correctly diagnosing gambling disorder is important to determine its prevalence, to conduct public health studies, and to measure the diagnosis and treatment results of the patients. It can also be used as a tool for raising awareness about the disorder and informing the people about the warning signs (Stinchfield et al., 2016).

Gambling evaluation scales are frequently used to evaluate the rate and prevalence of the disorder. The recently created scales evaluate comprehensive information, including risk factors, cravings, impulse control disorder, cognitive impairments, and thinking errors. Gambling is related to more severe psychiatric symptoms, alcohol and substance abuse, interpersonal and economic problems, poor physical health and social functioning, cognitive impairment, impulsiveness, suicide, and personality pathologies (Caler et al., 2016). Longitudinal studies have shown that gambling disorder coexists with psychiatric disorders such as depression, mood disorders, and anxiety disorders. These serious con-

sequences indicate that screening for gambling disorder is very important (Caler et al., 2016; Dowling et al., 2019).

Multiple measurement tools are used to evaluate the different dimensions of gambling disorders, including the DSM-V (APA, 2013), South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987), the Canadian Problem Gambling Index (Ferris & Wynne, 2001), and the Problem and Pathological Gambling Measure (Williams & Volberg, 2010). However, the SOGS is the only valid and reliable measurement tool used in Turkey. The SOGS is widely used to screen for pathological gamblers. The SOGS is the only test used for evaluation in Turkey; however, it takes a long time to administer, indicating that there is a need for a new screening scale.

This study aimed to develop a measurement tool for measuring the risk of gambling addiction that is suitable for the Turkish culture and is easy to administer, evaluate, and get feedback in clinics.

Methods

Development of the Gambling Risk Screening Scale

After the literature review (Ursua & Uribealrrea, 1998; Stewart & Zack, 2008; APA 2013) and on the basis of the clinical experience of the authors, a question pool was created, which included items about the risk levels for gambling addiction. The questions were sent to five experts on gambling disorder, and their feedback was taken into consideration. The form was administered to 15 people. The unclear questions were removed according to their feedback, and a 10-item scale was created. It is a 3-point Likert-type self-reporting scale with responses such as never, sometimes, and almost always.

Sample

A total of 128 outpatients with complaints of gambling in a psychiatric and neurology hospital and a counseling center were included. Of these, 61% (n=78) visited the counseling center and 39% (n=50) visited the psychiatry and neurology hospital outpatient clinic. The study was conducted between August and September 2019 and involved people aged 18-65 years without psychotic symptoms who agreed to participate. The research protocol was approved by the university ethics committee, and the study was confidential and anonymous (2019/75).

Tools

This study used the SOGS to ensure the diagnostic and correlational validity of the Gambling Risk Screening Scale (GRSS). The original 20-item self-reporting SOGS was developed by Lesieur and Blume (1987). The Cronbach's alpha of the scale was 0.97, and its test-retest level was 0.71 (Lesieur & Blume, 1987). Its validity value was 0.60. The adaptation into Turkish was conducted by Duvarcı and Varan in 2001 (Duvarcı & Varan, 2001). The Turkish version of the scale included 19 items. The original scale had a cutoff score of 5, and the Turkish version had a cutoff score of 8. People who scored 8 or more out of 19 points on the Turkish version were potential pathological gamblers. The scale has items about things related to gambling that people hide, whether they spend more money than planned, whether they argue with their family because of gambling, and whether they take on debts to pay gambling debts or to gamble. The scale has a Cronbach's

alpha coefficient of 0.87 and a test-retest level of 0.95 (Altıntaş, 2018; Duvarcı & Varan, 2001).

The SOGS has been used in many studies related to gambling in Turkey. Altıntaş (2018) used the SOGS to evaluate gambling behavior, anxiety, depression, ruminative thoughts, and impulsivity in patients with gambling disorder and to compare them with a healthy control group. Vayısoğlu et al. (2019) used the SOGS to determine the university students' frequency of gambling and pathological gambling, and they also examined the relationship between gambling and excitement-seeking behavior. The validity and reliability study of the Turkish version of the Gambling Craving Scale also used the SOGS (Buran et al., 2019). The SOGS was used by Elmas et al. (2017) to identify the predictive levels of alexithymia and difficulties with emotional self-regulation.

Data Collection

After the first two interviews, the participants were informed about the study and given informed consent forms, and they agreed to participate. A demographic information form, including questions about sex, age, marital status, education level, and family history of gambling, the GRSS and SOGS were administered to the participants.

Statistical Analysis

The reliability analysis of the GRSS was performed using the Cronbach's alpha and split-half test (Spearman-Brown and Guttman) correlation. Exploratory factor analysis was used to determine the sub-factors of the scale; Varimax rotation was chosen. The cutoff point of the scale was determined using receiver operating characteristics (ROC) analysis. All the statistics were analyzed using the IBM Statistical Package for Social Sciences version 22.0 (IBM SPSS Corp.; Armonk, NY, USA).

Results

Table 1 shows the participants' sociodemographic characteristics and family history of gambling. Of the participants, 97% (n=124) were male, and 3% (n=4) were female. Their mean age was 33.87 years. The fathers of 12% of the participants (n=15), other relatives of 20% of the participants (n=26), and a friend of or someone important to 52% of the participants (n=67) gambled. The participants' mean score on the GRSS was 16.13±3.64.

Validity Analysis

Exploratory factor analysis was conducted using the principal components method and Varimax rotation. From the exploratory factor analysis, two factors with eigenvalues above 1 were obtained; these factors accounted for 59.63% of the total variance. All the items on the scale had factor loadings above 0.30 and were included in a factor. The distribution of the questions to factors resulted as expected. The first factor, gambling behavior, accounted for 42.54% of the total variance; the second factor, economic and social problems, accounted for 17.09% of the total variance. The factor loadings for the first factor ranged from 0.55 to 0.77 and those for the second factor ranged from 0.77 to 0.95 (Table 2). The subscales correlated with each other statistically and with the entire scale score ($r=0.43$, $p<0.001$). The GRSS scores correlated statistically with the SOGS scores ($r=0.46$, $p<0.05$).

Table 1.
Participants' Sociodemographic Characteristics and Family History of Gambling

	n=128	%
Age (MS±SD)	33.87±8.12	
Sex		
Female	4	3
Male	124	97
Marital status		
Married	71	55
Single	52	41
Separated	1	1
Divorced	3	2
Other	1	1
Education status		
Finished primary school	2	1
Finished middle school	14	11
High-school graduate	56	44
University graduate	56	44
Family history of gambling		
Father		
No	113	88
Yes	15	12
Mother		
No	125	98
Yes	3	2
Siblings		
No	123	96
Yes	5	4
Grandmother		
No	120	94
Yes	8	6
Partner		
No	127	99
Yes	1	1
Children		
No	126	98
Yes	2	2
Other Relatives		
No	102	80
Yes	26	20
Friend or someone important		
No	61	48
Yes	67	52

SD: standard deviation; MS: average.

Reliability Analysis

The reliability analysis of the 10-item GRSS was performed using the Cronbach’s alpha and Spearman-Brown and Guttman levels. The Cronbach’s alpha of the entire GRSS was 0.84, and those of its subscales ranged from 0.82 to 0.89. The item-total score correlation levels of the scale ranged from 0.38 to 0.64, whereas the subscale-total score correlation levels ranged from 0.40 to 0.88. The Spearman-Brown level from the split-half test correlation was 0.70. The Guttman level was 0.69. The Cronbach’s alpha of gambling behavior, the first factor, was 0.82; its Spearman-Brown

level was 0.78, and its Guttman level was 0.77. For economic and social problems, the second factor, the Cronbach’s alpha level was 0.89, the Spearman-Brown level was 0.94, and the Guttman level was 0.83. Table 3 shows the findings of the reliability analysis.

ROC Analysis

The sensitivity and specificity values from the ROC analysis were used to investigate the GRSS’s ability to determine the gambling risk levels. The SOGS cutoff point of 8 was used as a benchmark for determining the optimal cutoff point. Figure 1 shows the ROC curve. After evaluating the GRSS’s 10 items, the area under the ROC curve was determined to be 0.82 (p<0.001, G.A.=0.70-0.95). The cutoff point was 9.5, the GRSS sensitivity was 0.98, and the GRSS specificity was 0.87.

Discussion

GRSS was designed to measure the gambling risk levels and prepare treatment plans. The study results show that it is a valid and reliable measurement tool. They also show that scores of 9.5 or above on the GRSS indicate higher gambling risk levels.

Gambling behavior includes questions about gambling behavior. Economic and social problems include questions about economic and social problems caused by gambling. The reliability levels of

Table 2.

Factor Loadings of the GRSS’s Exploratory Factor Analysis

	Factor loadings	
	Gambling behavior	Economic and social problems
Borrowing to gamble	0.77	
Gambling to escape from problems	0.76	
Gambling in the last month	0.75	
Gambling to win back gambling losses	0.67	
Gambling more than planned	0.63	
Feeling regret after gambling	0.59	
Lying because of gambling	0.55	
Family relationships affected by gambling		0.95
Economic problems owing to gambling		0.95
Criticism from family owing to gambling		0.77
Eigenvalue	4.25	1.71
Variance accounted for	33.12	26.51
Total variance	33.12	59.63

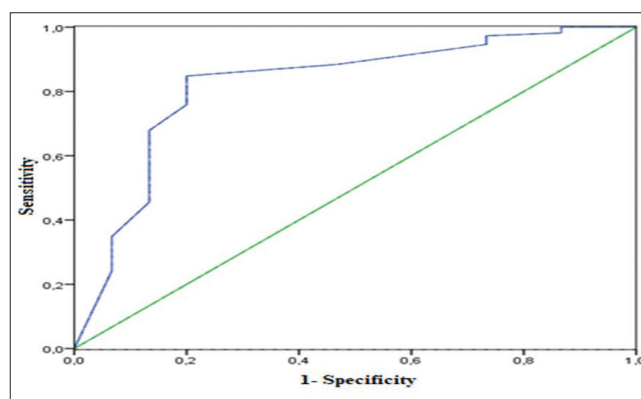


Figure 1. Receiver operating characteristics curve of the participants’ South Oaks Gambling Screen and Gambling Risk Screening Scale scores.

Table 3.

Reliability Levels of the Sub-factors of the Gambling Risk Screening Scale

	Scale mean score after item removal	Scale variance after item removal	Item-total correlation	Cronbach’s alpha level after item removal
Lying because of gambling	9.60	5.81	0.40	0.81
Gambling to win back gambling losses	9.40	6.00	0.58	0.78
Borrowing to gamble	9.51	5.44	0.67	0.76
Gambling to escape from problems	9.74	5.04	0.65	0.76
Feeling regret after gambling	10.06	5.08	0.51	0.80
Gambling more than planned	9.60	5.78	0.48	0.79
Gambling in the last month	9.65	5.45	0.59	0.77
Criticism from family owing to gambling	3.38	1.12	0.62	1.00
Family relationships affected by gambling	3.27	1.08	0.88	0.76
Economic problems owing to gambling	3.27	1.08	0.88	0.76

the subscales ranged from 0.82 to 0.89. Reliability levels of 0.60 or more are acceptable in scale development studies, and scales with lower values should be evaluated in terms of reliability (Field, 2005). The results indicate that the GRSS has good internal consistency.

SOGS is known as a valid and reliable measurement tool in Turkey and is valid in Turkish (Duvarcı & Varan, 2001). Scores of 8 or above on the SOGS indicate potential gambling pathology (Duvarcı & Varan, 2001). The participants who scored 9.5 or more on the GRSS were found to have high gambling risk levels. This study found that scores on the SOGS and GRSS were correlated.

The two-factor structure of the GRSS allows the clinicians to determine risky gambling behaviors that indicate gambling risk levels. Studies have shown that social and economic factors are important risk factors for gambling disorder (Dowling et al., 2016; Subramaniam et al., 2017; Vegni et al., 2019).

This study was carried out with people who gambled, had problems related to gambling behaviors, and sought treatment. Conducting studies with people who are not seeking treatment for gambling may be beneficial for determining the gambling risk levels in the general population. Increased sample size can also provide information about the broader population and help to develop methods of prevention and intervention.

Although the scales used by clinicians today provide information about gambling disorder, there is no known scale in the literature that evaluates the risk of gambling addiction. The GRSS is different from the other scales in the field. People who visited the clinic with gambling complaints were included in the study. They had not been diagnosed with gambling disorder. The scale is intended to evaluate the risk of gambling addiction. We believe that there are many factors that should be evaluated to make a diagnosis of gambling addiction. GRSS indicates the need for other essential examinations when gambling addiction risk is identified. We also believe that the GRSS is more practical than the SOGS because it has fewer questions, is more suitable for the Turkish culture, and can be used to screen for both gambling behavior and problems owing to gambling. It also facilitates feedback. Therefore, the GRSS is a valid and reliable tool for determining the gambling risk levels.

Limitations and Directions/Suggestions for Future Research

Almost all the participants were male, and this may have affected the sensitivity of the scale to sexual differences. Thus, studies with adequate numbers of female participants are needed. The sample was not very large. However, the literature reports that samples of 10 times the number of questions are adequate, and our sample met this criterion (Moi et al., 2011). Another limitation of our study is that no confirmatory factor analysis was performed. Similar studies are suggested to be carried out with different cultures and large populations.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of Hasan Kalyoncu University (2019/75).

Informed Consent: Informed consent was obtained from the participants in this study.

Peer-review: Externally peer-reviewed.

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