

ORIGINAL RESEARCH

Validity and Reliability Study of South Oaks Gambling Screen-Revised for Adolescents in A Sample of Turkish High School Students

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Main Points

- This study aimed to test the reliability and validity of the South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA; Winters, Stinchfield, & Fulkerson, 1993) in Turkish among high school students.
- The Cronbach's alpha value was satisfactory ($\alpha=0.88$).
- Confirmatory factor analysis supported the unifactorial structure of the scale.
- Positive and significant correlations of the SOGS-RA scores with gambling motives, gambling-related faulty cognitions, and gambling frequency supported the concurrent validity of the scale.
- Lack of re-test reliability data and convenience sampling are the major limitations of the present study that can be taken into consideration in future studies.

Abstract

This study was conducted to test the validity and reliability of the Turkish version of the South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA). The study included a sample of 356 Turkish high school students who reported that they had gambled at least once in the previous year (26.4% females, 73.6% males; mean age=17.09; SD=1.33; range 14-19). In addition to the SOGS-RA gambling motives, gambling related faulty cognitions, and gambling frequency of the participants were also utilized for the relevant analyses. The internal consistency analysis revealed a satisfactory value ($\alpha=0.88$) for the Turkish version of the SOGS-RA. Confirmatory factor analysis supported the unifactorial structure of the scale. Positive and significant correlations of the SOGS-RA scores with gambling motives, gambling-related faulty cognitions, and gambling frequency supported the validity of the scale. The results suggested that the Turkish version of the SOGS-RA was a valid and reliable instrument to assess gambling problems among Turkish adolescents.

Keywords: Problem gambling, SOGS-RA, Turkish adolescents, validity, reliability

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Introduction

From the past to present day, gambling has become a widespread and socially acceptable activity (McComb & Sabiston, 2010). Gambling is defined as risking something worthwhile in order to win something more valuable (Wilber & Potenza, 2006). Gambling is usually associated with motives such as avoidance, entertainment, monetary gains, socialization, and excitement (Lee et al., 2007). Although the individuals who engage in gambling ex-

pect positive outcomes, it may cause them serious harm (Neal, Delfabbro, & O'Neil, 2005), which can emerge in many different areas of the gambler's life. Financial problems represent one of the most prominent harms related to gambling (Downs & Woolrych, 2010; Stuhldreher, Stuhldreher, & Forrest, 2007). Gambling may also lead to workplace problems such as wasting time on gambling instead of performing work responsibilities, reduced work performance, increased absenteeism, and termination of employment (Binde, 2016; Downs & Wool-

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rych, 2010; Griffiths, 2009). In addition, gambling may cause interpersonal problems. Social isolation (Holdsworth, Hing, & Breen, 2012; King, Delfabbro, & Griffiths, 2010), conflicts with family and friends (Downs & Woolrych, 2010; Raisamo, Halme, Murto, & Lintonen, 2013), and neglecting the family (Downs & Woolrych, 2010) are some examples of those problems.

Traditionally, gambling has been considered as an adult activity (Derevensky, Sklar, Gupta, & Messerlian, 2010). In the related literature, gambling problems have usually been investigated with adult samples. However, empirical evidence indicates that adolescents are also quite interested in gambling activities. Researchers have noted that problem gambling among adolescents is quite prevalent (Griffiths, 2011), especially among high school adolescents (Canale et al., 2016). Minimum legal gambling age is 18 years old in many countries such as Italy (Canale et al., 2016), United Kingdom (Gambling Act; The National Archives, 2005), Iceland (Olason et al., 2011), some American states (Welte, Barnes, Tidwell, & Hoffman, 2009), or Turkey (Milli Piyango Idaresi Genel Mudurlugu Bilet Satis, Cekilis ve Ikramiye Yonetmeligi; Resmi Gazete 2006) in order to avoid the potential harm; however, it is suggested that the younger generation is at risk for gambling problems (Derevensky, 2012; Volberg, Gupta, Griffiths, Ólason, & Delfabbro, 2010). According to the results of various studies, problem gambling rates among adolescents range between 1.3% (Kristiansen & Jensen, 2014) and 11% (Canale, Scacchi, & Griffiths, 2016). Some researchers estimate that problem gambling rates among adolescents are 2 to 3 times higher than the rates among adults (Burge, Pietrzak, & Petry, 2006; Potenza, Kosten, & Rounsaville, 2001). These high prevalence rates demonstrate that most gambling activities are easily accessed by adolescents in spite of the legal age limit of 18 years for gambling activities in many societies (Derevensky & Gilbeau, 2015).

Adolescent gambling patterns are considered a reliable predictor of adulthood gambling problems (Rahman et al., 2012). It has been shown in various studies that gambling onset in early age predicts gambling problems in the following years (Australian Productivity Commission, 1999; Carbonneau, Vitaro, Brendgen, & Tremblay, 2015; Rahman et al., 2012). Thus, examination of adolescent gambling is important for exploring the risk factors and developing preventive programs for problem gambling.

Appropriate measurement tools are required to understand problem gambling among adolescents. The South Oaks Gambling Screen (SOGS), originally developed by Lesieur and Blume (1987) for assessment of gambling severity among adults, was revised by Winters, Stinchfield, and Fulkerson (1993) for adolescents as the South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA). This revision study of the scale was conducted with participants who were between the ages of 15 to 18 years in order to test if symptoms of problem gambling were relevant to adolescents and if they were similar to the symptoms included in adult measures of problem gambling, and it was concluded that the adolescent version of the scale showed promising results (Winters et al., 1993). SOGS-RA is a commonly used scale that measures gambling problems in adolescents. The screen includes items about lifetime and previous year participation in various gambling activities, gambling expenditure, parental gambling involvement, and gambling-related problems to assess gambling severity. SOGS-RA has been adapted to different languages such

as Italian (Colasante et al., 2014), Lithuanian (Skokauskas, Burba, & Freedman, 2009), and Swedish (Volberg, Abbott, Ronnberg, & Munck, 2001). Those studies reveal that SOGS-RA was a valid and reliable instrument for measuring problem gambling severity among adolescents in different societies. Duvarcı and Varan (2001) have previously adapted the adult version of the SOGS to the Turkish language, and their findings revealed that the Turkish form of the scale was reliable and valid for measuring gambling problems among adults with minor revisions, such as replacing three original items with two culturally relevant items and changing the cutoff score as 8 instead of 5 in order to identify probable pathological gamblers.

Problem gambling during adolescence has often been the subject of Western studies. However, recent studies conducted in non-Western countries revealed that problem gambling was also remarkably prevalent among adolescents who were living in developing countries such as India (Jaisooriya et al., 2017) and Romania (Lupu & Todirita, 2013). To our knowledge, no study has been conducted about gambling problems in adolescents in Turkey. Moreover, there is no reliable and valid measurement instrument to assess gambling problems of Turkish adolescents. Thus, the goal of the current study was to investigate whether the Turkish translated version of the SOGS-RA shows promising psychometric properties for screening problem gambling among Turkish adolescents. The present study also tested the evidence if the SOGS-RA measures a common construct of gambling severity among adolescents above and beyond cultural diversities. Law prohibits gambling and betting for individuals who are under the age of 18 in Turkey as most of the other Western countries exemplified above such as Italy (Canale et al., 2016), United Kingdom (Gambling Act; The National Archives, 2005) or Iceland (Olason et al., 2011). Thus, legal attitude towards gambling of adolescents is consistent across cultures. However, distinct from Western countries, Turkey is a predominantly Muslim country and gambling is not approved according to the Islamic faith. Sin was reported as a major reason not to gamble according to the results of a study of a nationally representative sample conducted by the Government Inspection Board, a foundation of the Presidency of the Republic of Turkey (2009). On the other hand, although relevant Turkish literature lacks prevalence studies which are conducted in representative samples to assess gambling problems, limited number of scale adaptation studies reveal hints of the presence of problem gambling in Turkish society among adults (Arcan & Karanci, 2015; Duvarcı & Varan, 2001). Adaptation or development of gambling related scales in Turkish for adolescents is required to improve the relevant literature. Thus, to have a gambling severity measurement instrument in Turkish for adolescents and to contribute to the relevant literature from a non-Western society were the primary reasons for conducting the present study.

Methods

Study Group

The population of the present study was high school students in İstanbul, and the sample composed of 356 high school students selected through convenience sampling in İstanbul, Turkey. The sample size that was needed for the present study was computed as 355 (surveysystem.com) with a confidence interval of 5.2 in the 95% confidence level considering the population density of İstanbul

Table 1.
Demographics of the Participants

	Total Answer	n	%	M	SD	Range
Age	356			17.09	1.33	14-19
14		2	0.6			
15		47	13.2			
16		87	24.4			
17		62	17.4			
18		98	27.5			
19		60	16.9			
Grade	356					
9 th		64	18.0			
10 th		84	23.6			
11 th		68	19.1			
12 th		140	39.3			
GPA	336					0-100
0 - 44 (Failure)		5	1.5			
45 - 54 (Marginal)		51	15.2			
55 - 69 (Satisfactory)		97	28.9			
70 - 84 (Superior)		119	35.4			
85 - 100 (Excellent)		64	19.0			
Grade Retention	355					
Yes		276	77.7			
No		79	22.3			
Maternal Education Status	354					
Illiterate		12	3.4			
Literate		17	4.8			
Primary School		71	20.1			
Secondary School		51	14.4			
High School		107	30.2			
Undergraduate		77	21.8			
Graduate		19	5.3			
Paternal Education Status	355					
Illiterate		4	1.1			
Literate		19	5.4			
Primary School		37	10.4			
Secondary School		48	13.5			
High School		126	35.5			
Undergraduate		104	29.3			
Graduate		17	4.8			

M: mean; SD: standard deviation; GPA: grade point average

bul (cnnturk.com) and population size of Turkey for adolescents who were between the ages of 14 and 19 years (www.nufusu.com) according to the 2018 estimates. Moreover given that a ratio of 10 participants per item was sufficient for factor analysis (Tabachnick & Fidell, 2007), the sample size in the present study met the requirement since the SOGS-RA has only 12 items. Participants signed a written informed consent form including the information that participation was voluntary and withdrawal at any time of the study was possible. The ethical approval of the study was confirmed by the Ethical Committee of Maltepe University (Protocol No: 63316977/100-1141). Involvement in a gambling

activity at least once in the previous year was the inclusion criterion for the participants of the study since responding items of the SOGS-RA necessitated gambling participation in the last 12 months. Of the participants, 26.4% were females and 73.6% were males. The mean age of the participants was 17.09 (SD=1.33, 14-19 age range). Eighteen percent of the participants were students of the 9th grade (n=64), 23.6% were of the 10th grade (n=84), 19.1% were of the 11th grade (n=68), and 39.3% were of the 12th grade (n=140). The participants were students of both private and government high schools. The demographics of the participants have been presented in Table 1.

Materials

Personal Information Form

The personal information form consisted of demographic information such as gender, age, grade, grade point average (GPA), and educational status of the participants' parents.

Gambling-Related Faulty Cognitions

Gambling-related faulty cognitions were assessed by two statements from the Canadian Problem Gambling Index (Ferris & Wynne, 2001): "I could win more if I use a certain system or strategy" and "After losing many times in a row, I am more likely to win." The participants rated these statements on a 3-point Likert scale (1=did not agree, 3=agreed). Internal consistency coefficient of these two items that measured gambling-related faulty cognitions was found to be 0.58 for this study. This relatively low value was probably related to the assessment of faulty cognitions by only two items. Small number of items in a scale has been remarked as the possible reason of a low Cronbach's alpha value (Pallant, 2010).

South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA)

SOGS, which is used for assessing gambling problems in adult populations, was developed by Lesieur and Blume (1987). SOGS was adapted for adolescents by Winters and his colleagues (1993), and this version was named as the South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA).

First question of the SOGS-RA enquired if the participants had ever participated in various types of gambling such as cards, sports games, or horse races in their lifetime and in the last 12 months, including information regarding the frequency of their participation ("Never," "Less than monthly," "Monthly," "Weekly," "Daily"). For the Turkish adaptation, "okey" and "national lottery" which are culturally available gambling activities were added to the scale. Gambling activities listed in the SOGS-RA that are not available in Turkey, such as jai-alai, pull tabs, casino, and bolita were removed from list (Appendix 1).

There is a naming variation in Turkish for gambling. For instance national lottery, betting on sports or horse races may be called luck or fortune games in Turkey. Public perception and legal status (prohibition) of those games may vary as compared to the other types of gambling. However, there is no such distinction in the research of gambling. Consensus in the relevant researches to accept luck or fortune games as gambling can be followed both in the international studies (e.g. Boudreau & Poulin, 2007; Colasante et al., 2014; Derevensky & Gilbeau, 2015; Lesieur & Blume, 1987; Olason et al., 2006; Winters et al., 1993) and also in the limited number of Turkish studies (e.g. Arcan & Karanci, 2014; Arcan & Karanci, 2015). Moreover, examples of judicial decisions accepting betting and luck games as gambling according to the Turkish Criminal Law have been cited in the Government Inspection Board's (2009) report which was referred in the introduction section. Finally, definition of gambling as risking something worthwhile in order to win something more valuable (Wilber & Potenza, 2006) already contains luck games as monetary dealing accompany those games. Taking these reasons into consideration, games which are recognized as luck or fortune games in Turkey were also included in the gambling list of the present study. In order to prevent any confusion or misunderstanding, participation in the gambling activities was limited to those where money could be won. For instance play-

ing cards or okey and their frequency was marked by the participants if they participated in those games to win money.

The first four items of the scale that are about gambling participation, maximum gambling expenditure, and parents' gambling participation of the adolescents are not scored. The rest of the items (except item 5) are answered either "yes" or "no". Positive and negative responses starting with item 5 are scored as 1 or 0 respectively. The total problem gambling scores range between 0 and 12. Those participants who gambled in the last 12 months can be classified in "non-problematic gambling" (total score 0-1), "at-risk gambling participation" (total score 2-3), or "problematic gambling" (total score 4 or higher) groups. The internal consistency value of the SOGS-RA was reported 0.80 in the original study (Winters et al., 1993).

Gambling Motives Scale

The five-factor gambling motives scale (GMS) was developed by Lee and his colleagues (2007) and adapted to the Turkish language by Arcan and Karanci (2014). Socialization, amusement, avoidance, excitement, and monetary motives were established for gambling in the original version of the scale, which was composed of 36 items (Lee et al., 2007). Confirmatory factor analyses showed better fit indices when excitement and amusement motives were combined in a single factor, according to the results of the Turkish adaptation study. The Turkish version of the GMS consisted of four motives of gambling: socialization, amusement and excitement, avoidance, and monetary (Arcan & Karanci, 2014). A shorter version of the GMS composed of 12 items was utilized for the present study. Three highly loaded items were selected for each motive considering the results of the study by Arcan and Karanci (2014). The participants rated the items on a 3-point Likert scale (1=I do not agree, 2=I partially agree, 3=I agree). The internal consistency coefficients were found as 0.80, 0.79, 0.89, and 0.90 respectively for the motives of amusement and excitement, avoidance, socialization, and monetary gains in the present study.

Procedure

Translation and back translation methods were conducted during the adaptation of the Turkish version of the SOGS-RA. Translation of the original form into Turkish by the researchers of the present study was followed by the evaluation of the translated items by two independent judges in respect to comprehensibility. Before back translation of the Turkish items into English by two other independent judges, the Turkish form was evaluated with respect to grammatical and semantic suitability by a Turkish language teacher. The final version of the form was decided upon by the researchers of the present study.

Results

Gambling Involvement of the Participants

National lottery (67.5%), betting on sports (57.5%), other lottery activities (41.8%), and playing okey (30.5%) were the most popular gambling activities among the sample of the present study, considering the participants' previous year participation. Similarly, the most popular games were national lottery (74.2%), betting on sports (61.8%), other lottery activities (47.5%), and playing okey (37.6%) in lifetime participation. The details of gambling participation frequency in respect to gambling types have been presented in Table 2.

Table 2.
Gambling Involvement of the Participants (n=356)

Gambling Type	Previous year											Lifetime				
	Total answer		Never		Less than monthly		Monthly		Weekly		Daily		Total Participation		Total Participation	
	n		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Cards	356		258	72.5	45	12.6	22	6.2	21	5.9	10	2.8	98	27.5	133	37.4
Okey	354		246	69.5	55	15.5	28	7.9	18	5.1	7	2.0	108	30.5	134	37.6
Coin Flipping	352		271	77.0	45	12.7	19	5.4	8	2.3	9	2.6	81	23.0	116	32.7
Betting on Games of Personal Skill	354		251	70.9	54	15.3	32	9.0	10	2.8	7	2.0	103	29.1	125	35.1
Betting on Sports Teams	356		151	42.5	53	14.8	39	10.9	65	18.3	48	13.5	205	57.5	220	61.8
Betting on Horse Races	354		273	77.1	29	8.2	18	5.1	18	5.1	16	4.5	81	22.9	355	25.6
Dice games	354		313	88.4	20	5.6	13	3.7	4	1.1	4	1.1	41	11.6	52	14.6
National Lottery	354		115	32.5	183	51.7	39	11.0	8	2.3	9	2.5	239	67.5	264	74.2
Other Lottery	354		206	58.2	86	24.3	28	7.9	24	6.8	10	2.8	148	41.8	169	47.5
Stratch Tabs	353		261	73.9	53	15.0	24	6.8	12	3.4	3	0.8	92	26.1	112	31.5
Bingo	354		264	74.6	61	17.2	16	4.5	8	2.3	5	1.4	90	25.4	117	32.9
Online Gambling	346		264	74.3	28	8.1	19	5.5	15	4.3	20	5.8	82	23.7	86	24.2
Other	337		287	85.2	23	6.8	8	2.4	4	1.2	15	4.5	50	14.8	56	16.6

Table 3.
SOGS-RA Reliability Analyses

	M±SD	Cronbach's alpha if item deleted	Item-total r
Item 5	0.33±0.47	0.86	0.64
Item 6	0.37±0.48	0.87	0.55
Item 7	0.26±0.44	0.86	0.64
Item 8	0.40±0.49	0.86	0.66
Item 9	0.30±0.46	0.86	0.67
Item 10	0.21±0.41	0.88	0.30
Item 11	0.25±0.43	0.87	0.50
Item 12	0.28±0.45	0.87	0.55
Item 13	0.23±0.42	0.86	0.60
Item 14	0.14±0.35	0.87	0.55
Item 15	0.21±0.41	0.86	0.57
Item 16	0.20±0.40	0.86	0.62

Cronbach's alpha=0.88. M: mean; SD: standard deviation.

Reliability

According to the results of the reliability analysis, the Cronbach's alpha value was computed as 0.88 for the Turkish version of the SOGS-RA. Corrected item-total correlation coefficients were .30 and above. Mean and standard deviation values of the items, Cronbach's alpha values if item deleted, and item-total correlation coefficients have been detailed in Table 3. The first four items of the scale are not scored and hence not included in Table 3.

Table 4.
Fit Indices for Confirmatory Factor Analysis of SOGS-RA

χ^2	DF	p value	GFI	NFI	NNFI	CFI	RMSEA
89.54	48	0.000329	0.960	0.975	0.984	0.988	0.0494

χ^2 : Chi-square; DF: degrees of freedom; GFI: goodness-of-fit index; NFI: normed fit index; NNFI: non-normed fit index; CFI: comparative fit index; RMSEA: root mean square error of approximation

Confirmatory Factor Analysis

To test the structural validity of the SOGS-RA, confirmatory factor analysis (CFA) was conducted via LISREL 8.71 program. The aim was to test if the unifactorial structure of the SOGS-RA (Boudreau & Poulin, 2007; Colasante et al., 2014; Olason, Sigurdardottir, & Smari, 2006; Winters et al., 1993) would be supported in the Turkish sample. According to the results of the CFA, the fit indices were satisfactory. Chi-squared (χ^2), Goodness of Fit Index (GFI), Normed Fit Index (NFI), Non-normed Fit Index (NNFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA) values were computed as shown in Table 4.

As seen in Table 4, although the χ^2 value was significant, the χ^2 /DF ratio (89.54/48) had a smaller value than 2, which indicated a good fit for the model. The GFI, CFI, NFI, and NNFI values were higher than 0.90, and the RMSEA value was smaller than 0.05, revealing acceptable fit for the data. The results of the CFA suggested that the one-factor model had an acceptable fit for the Turkish data. The loadings of the items were 0.53 and above, except item 10, as shown in in Figure 1 and Appendix 2. T-values of factor loadings ranged from 5.70 to 15.22, indicating that all of them were statistically significant at $p=0.01$.

Table 5.
Correlations of SOGS-RA with Gambling-Related Variables

	Correlation coefficient with
Gambling frequency (during last year)	0.59*
Gambling-related faulty cognitions	0.45*
GMS- amusement/excitement	0.49*
GMS- avoidance	0.38*
GMS- socialization	0.53*
GMS- monetary	0.48*

SOGS-RA: South Oaks Gambling Screen – Revised for Adolescents, GMS: gambling motives scale.
*p<0.001, N=356.

Validity

In order to analyze concurrent validity, the correlations of the SOGS-RA with the Gambling Motives Scale (GMS), gambling frequency, and the items measuring gambling-related faulty cognitions were analyzed. As shown in Table 5, the SOGS-RA scores were positively and significantly correlated with amusement/excitement (r=0.49, p<0.001), avoidance (r=0.38, p<0.001), socialization (r=0.53, p<0.001), and monetary (r=0.48, p<0.001) motives as well as gambling frequency of the participants (r=0.59, p<0.001). Most frequently participated gambling type in the previous year was taken into consideration for the gambling frequency variable in the analysis. In addition, positive and significant correlation was found between gambling-related faulty cognitions and the SOGS-RA scores (r=0.45, p<0.001). These findings supported the concurrent validity of the SOGS-RA for the Turkish sample.

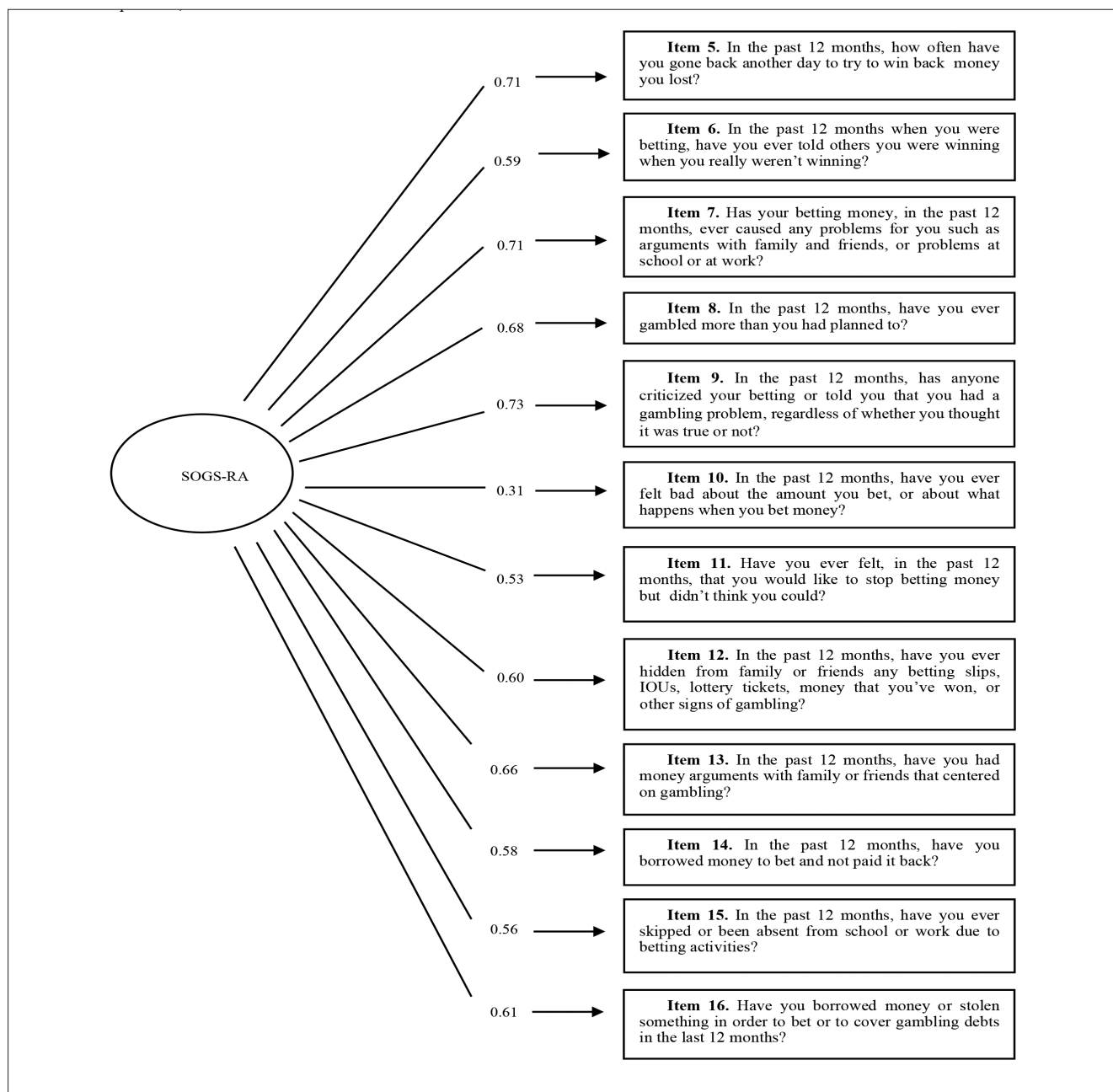


Figure 1. The confirmatory factor analysis diagram of SOGS-RA

Discussion

According to the results of the present study, the Turkish version of the SOGS-RA showed promising psychometric properties to be used in future research in order to assess gambling problems of adolescents in Turkey. The results of the CFA supported the unifactorial structure of the scale in line with the original study (Winters et al., 1993) and the adaptation studies (Boudreau & Poulin, 2007; Colasante et al., 2014; Olason et al., 2006). The loadings of the items were satisfactory. On the otherhand, relevant analyses supported the reliability of the Turkish version of the SOGS-RA. The internal consistency value was compatible with the values reported for the original version (Winters et al., 1993) and the adapted versions in Italian (Colasante et al., 2014), Lithuanian (Skokauskas et al., 2009), and Swedish (Volberg et al., 2001). Additionally, corrected item-total correlation coefficients supported the reliability of the Turkish version of the SOGS-RA. The exception was item 10 (Have you ever felt bad about the amount of money you bet, or about what happens when you bet money?). It had relatively lower item-total correlation coefficient and loading value as compared to the other items of the scale. Factor loadings greater than |0.30| are minimally acceptable and values greater than |0.50| are necessary for practical significance (Hair, Black, Babin, & Anderson, 2014). However, item-total correlation coefficient and loading value of the item 10 were statistically satisfactory, and deletion of that item did not further improve the internal consistency of the scale. Moreover, sample size of the present study (n=356) was adequate for statistical significance when minimum sample size required for statistical significance of .30 factor loading (n ≥ 350; Hair et al., 2014) was considered. Relations of the scale were also examined with well-established gambling-related variables according to the results of the previous studies in order to check the validity of the Turkish version of the SOGS-RA. The SOGS-RA scores of the participants were positively and significantly correlated with their gambling motives, gambling-related faulty cognitions, and gambling frequency as expected in the beginning of the study.

In conclusion, the findings of the present study indicate that the SOGS-RA can be used to assess gambling problems among Turkish adolescents. However, the study has several limitations that should be considered. First, the lack of re-test reliability and the cross-sectional nature of the data must be noted as major limitations of the study. Moreover, the participants in the study were high school students. Future research including adolescent participants who have dropped out of school will be required to improve the generalizability of the findings of the present study. In relation to the generalizability of the findings, the convenience sampling method of the present study is another limitation to be considered. Legal prohibition of gambling under age 18 in Turkey might have caused some adolescents to refuse to participate in the study although they had gambled previously. Besides, under-reporting of gambling behavior and problems by some of the participants may be possible as gambling is a socially undesirable behavior and is legally prohibited under the age of 18 years in Turkey. Thus, reliance on the self-reports of participants about their gambling involvement and related problems may be considered as another limitation of the study. Finally, validity of the categories defined as non-problematic, at-risk, and problematic gambling according to the SOGS-RA scores (Winters et al., 1993) is not examined in the present study. Examination of the validity of those categories in future research considering gambling involvement patterns or

gambling related negative outcomes will be necessary to confirm the power of the scale to discriminate risk groups.

As noted in the introduction section, SOGS was adapted to the Turkish sample earlier to screen adult gambling problems, and the adult version of the scale showed promising results to be used in Turkish culture (Duvarcı & Varan, 2001). Although limited in number, the scale was used in several studies to examine gambling related variables among Turkish adults (Arcan & Karanci, 2014; Arcan&Karanci, 2015; Çakıcı, 2012; Çakıcı, Çakıcı, & Karaaziz, 2016). However, there was no available scale to assess gambling problems among Turkish adolescents. Thus the aim of the present study was to test the psychometric properties of the SOGS-RA in the Turkish language among Turkish adolescents. This aim was considered important to examine the psychometric properties of the scale in a distinctive society, especially with respect to the low acceptability of gambling in Turkey due to the predominance of the Islamic faith. Promising results of the present study revealed that gambling-related problems among adolescents might have commonalities in spite of the presence of the cultural diversities, including religious constraints. These results are considered encouraging to enlarge the research of adolescent gambling problems in non-Western countries and to promote a deeper understanding of the nature and extent of those problems.

Ethics Committee Approval: Ethical committee approval was received for this study from the Ethics Committee of Maltepe University (Protocol No: 63316977/100-1141).

Informed Consent: Written informed consent was obtained from the participants.

Peer-review: Externally peer-reviewed.

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References

- Arcan, K., & Karanci, A. N. (2014). Adaptation, validity, and reliability study of the Five-Factor Gambling Motives Scale. *Anatolian Journal of Psychiatry, 15*, 248-256. [\[Crossref\]](#)
- Arcan, K., & Karanci, A. N. (2015). Adaptation Study of the Turkish Version of the Gambling-Related Cognitions Scale (GRCS-T). *Journal of Gambling Studies, 31*, 211-224. [\[Crossref\]](#)
- Australian Productivity Commission. (1999). *Australia's gambling industries: Inquiry report*. Canberra, Australia: AusInfo. <https://www.pc.gov.au/inquiries/completed/gambling/report/gambling1.pdf/> Accessed 8 August 2019.
- Binde, P. (2016). Gambling-related embezzlement in the workplace: A qualitative study. *International Gambling Studies, 16*(3), 391-407. [\[Crossref\]](#)
- Boudreau, B., & Poulin, C. (2007). The South Oaks Gambling Screen-revised Adolescent (SOGS-RA) Revisited: A cut-point analysis. *Journal of Gambling Studies, 23*(3), 299-308. [\[Crossref\]](#)
- Burge, A. N., Pietrzak, R. H., & Petry, N. M. (2006). Pre/early adolescent onset of gambling and psychosocial problems in treatment-seeking pathological gamblers. *Journal of Gambling Studies, 22*(3), 263-274. [\[Crossref\]](#)

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- Canale, N., Scacchi, L., & Griffiths, M. D. (2016). Adolescent gambling and impulsivity: Does employment during high school moderate the association? *Addictive Behaviors, 60*, 37-41. [\[Crossref\]](#)
- Canale, N., Vieno, A., Griffiths, M. D., Marino, C., Chieco, F., Disperati, F., & Santinello, M. (2016). The efficacy of a web-based gambling intervention program for high school students: A preliminary randomized study. *Computers in Human Behavior, 55*, 946-954. [\[Crossref\]](#)
- Carboneau, R., Vitaro, F., Brendgen, M., & Tremblay, R. E. (2015). Trajectories of gambling problems from mid-adolescence to age 30 in a general population cohort. *Psychology of Addictive Behaviors, 29*(4), 1012-1021. [\[Crossref\]](#)
- cnnturk.com. Retrieved from <https://www.cnnturk.com/ekonomi/turkiye/turkiyede-hangi-yasta-kac-kisi-var?page=22> Accessed 03 January, 2020
- Colasante, E., Gori, M., Bastiani, L., Scalese, M., Siciliano, V., & Molinaro, S. (2014). Italian adolescent gambling behaviour: Psychometric evaluation of the South Oaks Gambling Screen: Revised for Adolescents (SOGS-RA) among a sample of Italian students. *Journal of Gambling Studies, 30*(4), 789-801. [\[Crossref\]](#)
- Çakıcı, M. (2012). The prevalence and risk factors of gambling behavior in Turkish Republic of Northern Cyprus. *Anatolian Journal of Psychiatry/ Anadolu Psikiyatri Dergisi, 13*(4). Retrieved from <https://pdfs.semanticscholar.org/6d95/b2f537094e73925c6b015298e55883ab0688.pdf> Accessed 8 August 2019.
- Çakıcı, M., Çakıcı, E., & Karaaziz, M. (2016). Lifetime of prevalence and risk factors of problem and pathologic gambling in North Cyprus. *Journal of Gambling Studies, 32*(1), 11-23. [\[Crossref\]](#)
- Derevensky, J. L., & Gilbeau, L. (2015). Adolescent gambling: twenty-five years of research. *Canadian Journal of Addiction, 6*(2), 4-12.
- Derevensky, J., Sklar, A., Gupta, R., & Messerlian, C. (2010). An empirical study examining the impact of gambling advertisements on adolescent gambling attitudes and behaviors. *International Journal of Mental Health and Addiction, 8*(1), 21-34. [\[Crossref\]](#)
- Derevensky, J. L. (2012). *Teen gambling: Understanding a growing epidemic*. Lanham MD: Rowman & Littlefield Publishers.
- Downs, C., & Woolrych, R. (2010). Gambling and debt: The hidden impacts on family and work life. *Community, Work & Family, 13*(3), 311-328. [\[Crossref\]](#)
- Duvarci, İ., & Varan, A. (2001). Reliability and validity study of the Turkish Form of the South Oaks Gambling Screen. *Turkish Journal of Psychiatry, 12*(1), 34-45. <http://www.turkpsikiyatri.com/en/default.aspx?module=home/> Accessed 8 August 2019.
- Ferris, J., & Wynne, H. (2001). *The Canadian problem gambling index: Final report*. Ottawa, Ontario, Canada: Canadian Consortium for Gambling Research. Retrieved from <http://www.ccgr.ca/en/projects/resources/CPGI-Final-Report-English.pdf/> Accessed 8 August 2019.
- Gambling Act (United Kingdom). The National Archives s. 19:45-64 (2005). Retrieved from http://www.legislation.gov.uk/ukpga/2005/19/pdfs/ukpga_20050019_en.pdf Accessed 8 August 2019.
- Griffiths, M. (2009). Internet gambling in the workplace. *Journal of Workplace Learning, 21*(8), 658-670. [\[Crossref\]](#)
- Griffiths, M. (2011). Adolescent gambling. In *Encyclopedia of Adolescence* (pp. 11-20). San Diego, CA: Academic Press. [\[Crossref\]](#)
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis (7th ed.)*. Essex: Pearson Education Limited
- Holdsworth, L., Hing, N., & Breen, H. (2012). Exploring women's problem gambling: A review of the literature. *International Gambling Studies, 12*(2), 199-213. [\[Crossref\]](#)
- Jaisoorya, T. S., Beena, K. V., Beena, M., Ellangovan, K., Thennarassu, K., Bowden-Jones, H., ... George, S. (2017). Do high school Students in India gamble? A study of problem gambling and its correlates. *Journal of Gambling Studies, 33*(2), 449-460. [\[Crossref\]](#)
- King, D., Delfabbro, P., & Griffiths, M. (2010). The convergence of gambling and digital media: Implications for gambling in young people. *Journal of Gambling Studies, 26*(2), 175-187. [\[Crossref\]](#)
- Kristiansen, S. G., & Jensen, S. M. (2014). Prevalence and correlates of problematic gambling among Danish adolescents: Prevalence and gambling correlates. *International Journal of Social Welfare, 23*(1), 89-99. [\[Crossref\]](#)
- Lee, H. P., Chae, P. K., Lee, H. S., & Kim, Y. K. (2007). The five-factor gambling motivation model. *Psychiatry Research, 150*(1), 21-32. [\[Crossref\]](#)
- Lesieur, H. R., & Blume, S. B. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *The American Journal of Psychiatry, 144*(9), 1184-1188. [\[Crossref\]](#)
- Lupu, V., & Todirita, I. R. (2013). Updates of the prevalence of problem gambling in Romanian teenagers. *Journal of Gambling Studies, 29*(1), 29-36. [\[Crossref\]](#)
- McComb, J. L., & Sabiston, C. M. (2010). Family influences on adolescent gambling behavior: A review of the literature. *Journal of Gambling Studies, 26*(4), 503-520. [\[Crossref\]](#)
- Milli Piyango İdaresi Genel Müdürlüğü Bilet Satış, Çekiliş ve İkramiye Yönetmeliği, Turkey (2006). Resmi Gazete;Sect 3:12 (col. 4). Retrieved from <http://www.resmigazete.gov.tr/eskiler/2006/10/20061004-9.htm> Accessed 8 August 2019.
- Neal, P. N., Delfabbro, P. H., & O'Neil, M. G. (2005). *Problem gambling and harm: Towards a national definition* (Report). Adelaide, South Australia: Office of Gaming and Racing, Victorian Government Department of Justice. Retrieved from <https://digital.library.adelaide.edu.au/dspace/handle/2440/40558/> Accessed 8 August 2019. www.nufus.com Retrieved from <https://www.nufus.com/> Accessed 03 January, 2020
- Olason, D. T., Kristjansdottir, E., Einarisdottir, H., Haraldsson, H., Bjarnason, G., & Derevensky, J. L. (2011). Internet gambling and problem gambling among 13 to 18 year old adolescents in Iceland. *International Journal of Mental Health and Addiction, 9*(3), 257-263. [\[Crossref\]](#)
- Olason, D. T., Sigurdardottir, K. J., & Smari, J. (2006). Prevalence estimates of gambling participation and problem gambling among 16-18-year-old students in Iceland: A comparison of the SOGS-RA and DSM-IV-MR-J. *Journal of Gambling Studies, 22*(1), 23-39. [\[Crossref\]](#)
- Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS program (4th ed.)*. Maidenhead, Australia: Open University Press/McGraw-Hill.
- Potenza, M. N., Kosten, T. R., & Rounsaville, B. J. (2001). Pathological gambling. *JAMA, 286*, 141-144. [\[Crossref\]](#)
- Presidency of the Republic of Turkey, Government Inspection Board. (2009). Inspection of activities of races and games of chances within the years of 2006 and 2007 and evaluation of shares from those activities for public services. Retrieved from <https://www.tcgb.gov.tr/en/presidency/projects/> Accessed 28 February, 2011.
- Rahman, A. S., Pilver, C. E., Desai, R. A., Steinberg, M. A., Rugle, L., Krishnan-Sarin, S., & Potenza, M. N. (2012). The relationship between age of gambling onset and adolescent problematic gambling severity. *Journal of Psychiatric Research, 46*(5), 675-683. [\[Crossref\]](#)
- Raisamo, S., Halme, J., Murto, A., & Lintonen, T. (2013). Gambling-related harms among adolescents: A population-based study. *Journal of Gambling Studies, 29*(1), 151-159. [\[Crossref\]](#)
- Skokauskas, N., Burba, B., & Freedman, D. (2009). An assessment of the psychometric properties of Lithuanian versions of DSM-IV-MR-J and SOGS-RA. *Journal of Gambling Studies, 25*(2), 263-271. [\[Crossref\]](#)
- Stuhldreher, W. L., Stuhldreher, T. J., & Forrest, K. Y. Z. (2007). Gambling as an emerging health problem on campus. *Journal of American College Health, 56*(1), 75-88. [\[Crossref\]](#)
- www.surveysystem.com <https://www.surveysystem.com/sscalc.htm> Accessed 03 January, 2020
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics (5th ed.)*. Boston, MA: Allyn & Bacon/Pearson Education.
- Volberg, R. A., Abbott, M. W., Ronnberg, S., & Munck, I. M. E. (2001). Prevalence and risks of pathological gambling in Sweden. *Acta Psychiatrica Scandinavica, 104*(4), 250-256. [\[Crossref\]](#)
- Volberg, R. A., Gupta, R., Griffiths, M. D., Ólason, D. T., & Delfabbro, P. H. (2010). An international perspective on youth gambling prevalence studies. *International Journal of Adolescent Medicine and Health, 22*(1), 3-38. [\[Crossref\]](#)
- Welte, J. W., Barnes, G. M., Tidwell, M. C. O., & Hoffman, J. H. (2009). Legal gambling availability and problem gambling among adolescents and young adults. *International Gambling Studies, 9*(2), 89-99. [\[Crossref\]](#)
- Wilber, M. K., & Potenza, M. N. (2006). Adolescent gambling: Research and clinical implications. *Psychiatry (Edgmont), 3*(10), 40-48. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2945873/> Accessed 8 August 2019.
- Winters, K. C., Stinchfield, R., & Fulkerson, J. (1993). Patterns and characteristics of adolescent gambling. *Journal of Gambling Studies, 9*(4), 371-386. [\[Crossref\]](#)

Appendix 1

SOUTH OAKS KUMAR TARAMA TESTİ – GÖZDEN GEÇİRİLMİŞ ERGEN FORMU

1. Aşağıdaki kumar türlerini PARASINA oynama sıklığınızı tüm yaşamınız ve son 12 ayınız için ayrı ayrı belirtin.

	YAŞAM-BOYU				SON 12 AY		
	Hiçbir zaman	En azından 1 kere	Hiçbir zaman	Ayda 1'den az	Ayda 1	Haftada 1	Hemen her gün
Parasına kağıt oyunları oynamak	()	()	()	()	()	()	()
Parasına okey oynamak	()	()	()	()	()	()	()
Parasına yazı tura atmak	()	()	()	()	()	()	()
Bilardo, bowling gibi kişisel beceri isteyen oyunlara bahis oynamak	()	()	()	()	()	()	()
"İddaa" ya da spor takımlarına diğer bahis oyunları oynamak	()	()	()	()	()	()	()
At yarışlarına bahis oynamak	()	()	()	()	()	()	()
Barbut gibi parasına zar oyunları oynamak	()	()	()	()	()	()	()
On numara, sayısal loto, süper loto, şans topu bileti almak	()	()	()	()	()	()	()
Hemen kazan oynamak	()	()	()	()	()	()	()
Parasına tombala oynamak	()	()	()	()	()	()	()
Milli Piyango bileti almak	()	()	()	()	()	()	()
İnternette kumar oynamak (Lütfen oyun türünü belirtin)	()	()	()	()	()	()	()
Burada belirtilmeyen kumar çeşitleri (Lütfen yazınız:)	()	()	()	()	()	()	()

2. Son 12 ayda, kumar oynadığınız en fazla miktar ne kadardır? lira

3. Ebeveynlerinizden herhangi biri parasına şans oyunu oynar mı?

() Evet	() Hayır	() Bilmiyorum
Yanıtınız evet ise hangisi	() Sadece annem	() Sadece babam
		() Hem annem hem babam

4. Ebeveynlerinizden herhangi birinin çok fazla kumar oynadığını düşünüyor musunuz?

() Evet	() Hayır	() Bilmiyorum
Yanıtınız evet ise hangisi	() Sadece annem	() Sadece babam
		() Hem annem hem babam

Son 12 ayda şans/bahis oyunları ve kumar oynamadıysanız bundan sonraki soruları boş bırakın.

5. Son 12 ayda, ne sıklıkla kumarda kaybettiğiniz parayı geri kazanmayı denemek için bir başka gün tekrar kumar oynadınız?

() Her zaman	() Çoğu zaman	() Bazen	() Hiçbir zaman
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6. Son 12 ayda, bahis oynarken gerçekte kazanmadığınız halde hiç başkalarına kazandığınızı söylediniz mi?

() Evet	() Hayır
----------	-----------

7. Son 12 ayda, parasına bahis oynamanız aile ve arkadaşlarla tartışma ya da okul veya işte problem gibi herhangi bir soruna yol açtı mı?

() Evet	() Hayır
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8. Son 12 ayda, hiç planladığınızdan daha fazla kumar oynadınız mı?

() Evet	() Hayır
----------	-----------

9. Son 12 ayda, siz doğru bulsanız da bulmasanız da herhangi biri bahis oynamanızı eleştirdi mi veya kumar probleminiz olduğunu söyledi mi?

() Evet	() Hayır
----------	-----------

10. Son 12 ayda, hiç bahis oynadığınız para miktarı veya bahis oynamaya para yatırdığınızda olanlar hakkında kendinizi kötü hissettiniz mi?

() Evet () Hayır

11. Son 12 ayda, hiç bahis oynamayı bırakmayı istediğinizi ama bunu yapamayacağınızı düşündüğünüzü hissettiğiniz oldu mu?

() Evet () Hayır

12. Son 12 ayda, hiç ailenizden ya da arkadaşlarınızdan bahis kuponlarını, piyango biletlerini, kazandığınız parayı ya da kumarla ilgili benzer şeyleri sakladınız mı?

() Evet () Hayır

13. Son 12 ayda, aileniz ya da arkadaşlarınızla kumar oynama üzerine yoğunlaşan para tartışmalarınız oldu mu?

() Evet () Hayır

14. Son 12 ayda, hiç bahis oynamak için borç para aldığınız ve geri ödemediğiniz oldu mu?

() Evet () Hayır

15. Son 12 ayda, hiç bahis ile ilgili uğraşlarınız yüzünden okuldan ya da işten kaçtığınız veya okula ya da işe gitmediğiniz oldu mu?

() Evet () Hayır

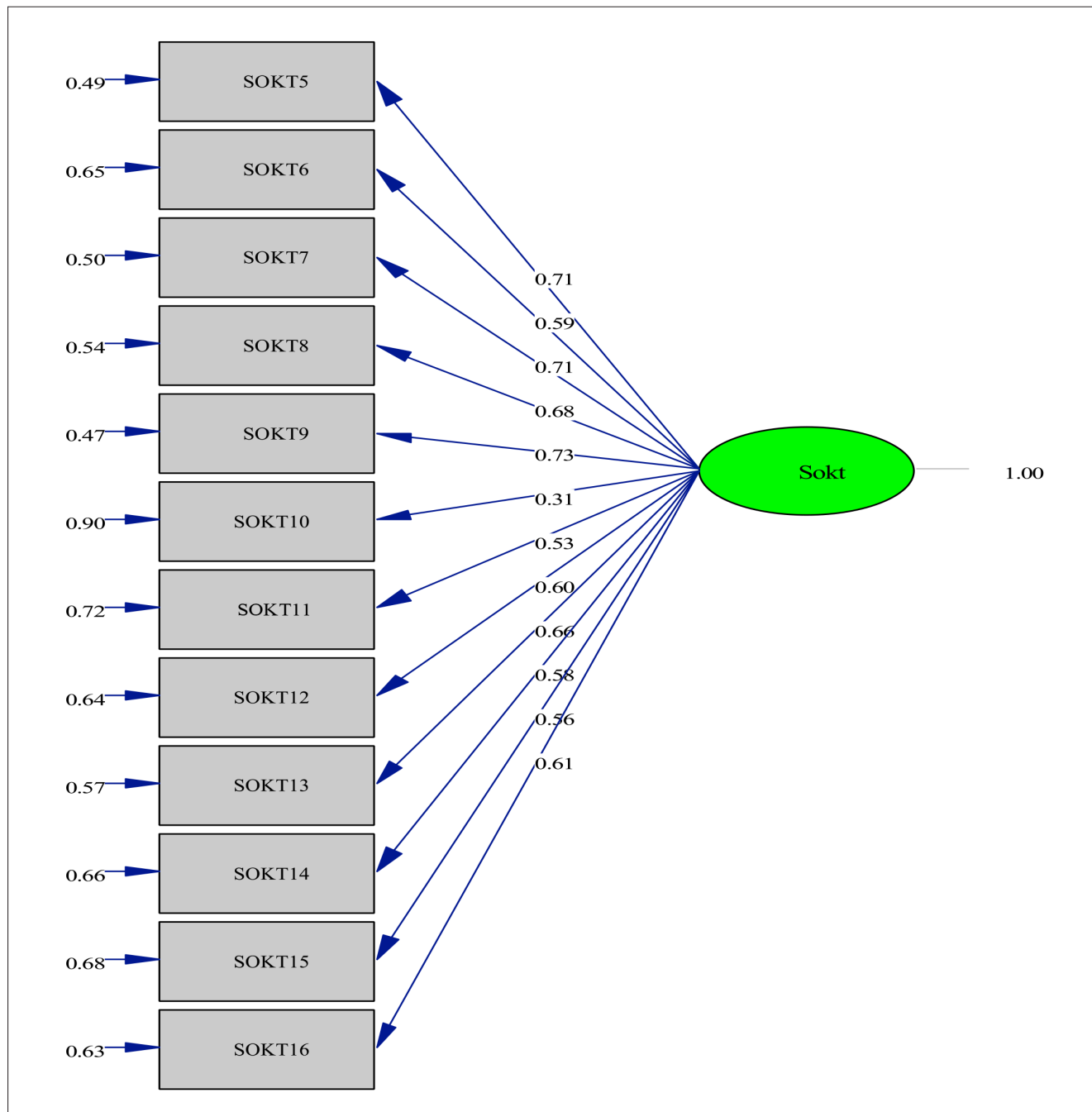
16. Son 12 ayda, bahis oynamak ya da kumar borçlarınızı kapatmak için borç aldığınız ya da bir şey çaldığınız oldu mu?

() Evet () Hayır

Yanıtınız evet ise kimden olduğunu ya da parayı veya eşyaları nereden bulduğunuzu işaretleyin.

() Ebeveynler () Kardeş(ler) () Diğer akrabalar () Arkadaşlar

() Tefeciler () Şahsi ya da aileye ait bir şeyler satma () Karşılıksız çek yazmak () Birilerinden çalmak



Appendix 2. The Original LISREL Output of the CFA