

brief report

Psychometric Properties of the Swedish Version of the Reasons for Gambling Questionnaire (RGQ)

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Abstract

The Reasons for Gambling Questionnaire (RGQ) is a self-report instrument containing 15 items to assess individual motives or reasons to gamble. This study presents psychometric data on the Swedish version of the instrument with a focus on factor structure. A Swedish sample ($N = 19,530$) was screened for risk gambling with the Lie/Bet questionnaire, the effective study sample ($n = 237$) consisting of respondents with a positive answer on this questionnaire who agreed to participate in an additional postal questionnaire and had no missing items on the RGQ. The originally proposed subscales of the instrument fit the data poorly and a slightly different five-factor solution was suggested. We conclude that the RGQ needs further revision and that the dimensionality of gambling motives is a question that deserves further attention.

Keywords: assessment, gambling motives, psychometrics

Résumé

Le questionnaire sur les raisons du jeu (RGQ) est un instrument d'auto-évaluation proposant quinze points d'évaluation des motivations ou raisons de jouer. Cette étude présente quelques données psychométriques sur la version suédoise du questionnaire en mettant l'accent sur la structure factorielle. Un échantillon suédois ($n = 19\ 530$) a été soumis à l'examen pour déterminer le jeu à risque à l'aide du questionnaire Lie-Bet, et l'échantillon efficace ($N = 237$) était formé de répondants ayant obtenu un résultat positif au questionnaire Lie-Bet, ayant accepté de participer à un questionnaire supplémentaire par la poste et n'ayant omis aucun élément dans le RGQ. La sous-échelle du questionnaire proposée à l'origine a mal adapté les données, et on a proposé une solution à cinq facteurs légèrement différente. En conclusion, le RGQ doit être révisé, et la dimensionnalité des raisons du jeu est une question qui mérite une attention accrue.

Introduction

Excessive gambling seems to be a heterogeneous phenomenon, and classifying individuals on the basis of the severity of their problems might not be sufficient to understand the character of an individual's gambling habits. An important part of understanding an individual's problem relates to the reasons, motives, or drives to play. Differences in gambling motives can illustrate that there are different types of gamblers (cf. the pathways model; Blaszczynski & Nower, 2002), and their drives to play discriminate the different types to some extent. On the other hand, there is also reason to believe that the motives to gamble change during an individual's gambling career, with a focus on social and stimulating reasons early on and a focus on coping and relief of negative affect later.

The Reasons for Gambling Questionnaire (RGQ) was originally developed to be used in the British Gambling Prevalence Survey (Wardle et al., 2011). The instrument was derived from other similar instruments such as the Gambling Motives Questionnaire (GMQ; Stewart & Zack, 2008) and the Gambling Motives Scale (Chantal, Vallerand, & Vallieres, 1995). The instrument comprises 15 items with five subscales. Based on differences in the results from factor analyses, slightly different ways to subscale the instrument have been proposed. In the work by Wardle and colleagues (2011) and in the psychometric evaluation by Canale, Santinello, and Griffiths (2015), a five-factor model was used that omitted one of the items. In the latter study, the model showed a reasonable fit in a confirmatory factor analysis, but in a study by Francis, Dowling, Jackson, Christensen, and Wardle (2015), this model showed a poor fit to data. As a consequence of the poor fit, Francis et al. conducted an exploratory factor analysis of the RGQ, with a slightly different five-factor solution that also omitted one item. Further, in a qualitative study by Cripps and Blake (2009), suggestions were made on how to change and classify the items, and these suggestions were later adapted in a study by Sundqvist, Jonsson, and Wennberg (2016). In summary, there seem to exist at least three ways to subscale the instrument. In this study, we compared these three ways with respect to how well they fit the data in a sample ranging from mild risk gamblers to gamblers with more severe problems.

This study aimed to examine the psychometric properties of the Swedish version of the RGQ, with a focus on the factor structure of the instrument and comparing the previously suggested subscale alternatives of the RGQ.

Method

Recruitment and Participants

Recruitment of study participants was done in two steps. In a large, randomly selected, population-based sample ($N = 19,530$), respondents were screened in telephone interviews for risky gambling habits by using the Lie/Bet instrument.

Of these respondents, 607 (3.1%) screened positive on the Lie/Bet and of those who did, about 63% gave their informed consent for participation in a postal questionnaire. In all, 257 individuals returned the postal questionnaire, which, in addition to the RGQ, included other questions on gambling, personality, and more. Since there was also an internal dropout of some items on the RGQ, the effective data sample comprised 239 participants. A more detailed description of the questionnaire and the recruitment procedure has been described elsewhere (see Sundqvist et al., 2016). The mean age in the sample was 49 years (ranging from 17 to 82 years) and 70% were males. The severity of their gambling problem ranged from very mild (a single gambling-related symptom either on the Lie/Bet or on the National Opinion Research Center DSM-IV Screen for Gambling Problems – Preoccupation/Escape/Risked Relationships/Chasing [NODS-PERC]) to severe (four of four symptoms on the NODS-PERC).

Translation

Translation of the RGQ from English to Swedish was done by using a procedure sometimes called committee translation. The two authors (PW and KS) translated the instrument independently and the two translations were compared and discussed to reach consensus.

Data Analysis

Item endorsement and mean scores for each item are presented. Three different factor models were compared with confirmatory factor analyses. Estimation was done by using the asymptotic distribution free function as a robust alternative to maximum likelihood, as it does not require multivariate normality in the data. The fit of the three models was summarized with standardized factor loadings, as well as chi-square and common fit statistics: root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker Lewis index (TLI). As a rule of thumb, a RMSEA below 0.05 suggests a close fit between the model and the data and a RMSEA between 0.05 and 0.08 suggests a reasonable fit; for CFI and TLI, a value above 0.95 suggests a good fit (Bowen & Guo, 2011). Covariance between latent variables was allowed for if statistically significant (i.e., had modification indices above 3.84). Unfortunately, the sample size did not allow for tests of structural invariance across sex or age. In addition, internal consistency (Cronbach's alpha and Guttman's lambda 2) was calculated for each set of subscales. Finally, the model with the best fit in the confirmatory factor analyses was cross-validated against other measures as a test of convergent and divergent validity. The analyses were done in SPSS v24 and Stata v14.

Results

Descriptive Data

The English wording of the items and endorsement rates are presented in Table 1. As the sample consisted of risk gamblers, too low endorsement did not occur in any of

Table 1
Item Endorsement and Mean Scores in the RGQ (n=239)

Item	Response (%)			
	Never	Sometimes	Most of the time	Almost always
1. For the chance of winning big money	14.2	34.7	28.0	23.0
2. Because it's fun	9.6	25.1	38.1	27.2
3. As a hobby or past-time	40.2	25.9	21.3	12.6
4. To escape boredom or to fill your time	53.1	28.0	17.2	1.7
5. To compete with others (e.g. bookmaker, other gamblers)	58.2	29.7	10.0	2.1
6. Because I am worried about not winning if I don't play	72.0	19.7	5.9	2.5
7. Because it's exciting	13.8	33.9	31.0	21.3
8. For the challenge or to learn about the game or activity	46.0	34.3	14.2	5.4
9. Because of the sense of achievement I get when I win	57.3	24.7	13.8	4.2
10. To impress other people	78.2	17.2	2.1	2.5
11. To be sociable	53.6	30.5	12.6	3.3
12. Because it helps when I am feeling tense	85.4	10.5	3.3	0.8
13. To make money	28.0	32.2	22.2	17.6
14. To relax	74.1	19.2	5.4	1.3
15. Because it's what I usually do with friends or family	45.2	38.9	9.6	6.3

Note. RGQ = Reasons for Gambling Questionnaire.

the items. Items 6, 12, and 14 showed the highest level of difficulty in terms of item endorsement.

Factor Structure

Factor loadings, fit statistics, and internal consistency are presented in Table 2. Despite the low number of items, internal consistency (Cronbach's alpha) was satisfactory in most of the subscales and models. In Model 1, all presented factor loadings were statistically significant ($p < .001$), but two of the loadings in the Escape subscale in Model 1 were low (Items 6 and 12) and one item in the Social subscale was rather low (Item 10). Item 6, which was omitted in Models 2 and 3, appeared as a weak item in Model 1. In addition to the low factor loadings in the Escape subscale, internal consistency was higher in that subscale without Item 6 (alpha rising from .73 to .75).

Models 2 and 3 showed a worse fit to the data in terms of fit indices. In addition to these three models, other models were tested, but no five-factor model showed a better fit than did Model 1. In addition, a four-factor model that included the motive dimensions social reasons, negative affect regulation, positive affect, and monetary reasons was tested, but also showed a worse fit to data than did Model 1. We also

Table 2
 Fit Statistics and Factor Loadings for Three Models in Confirmatory Factor Analyses ($n=239$)

	Subscale	Item	Standardized factor loading	Reliability (Cronbach's α)	Reliability (Guttman's λ_2)
Model 1 (Sundqvist et al., 2016, based on Cripps & Blake, 2009)	Social	3	0.77	0.62	0.64
		10	0.48		
	Monetary	11	0.72	0.77	0.77
		15	0.63		
		1	0.77		
	Excitement/ Amusement	13	1.0	0.77	0.77
		2	0.85		
	Challenge	7	0.84	0.74	0.76
		5	0.68		
		8	0.80		
	Escape	9	0.72	0.73	0.74
		4	0.89		
		6	0.27		
		12	0.36		
		14	0.64		
Fit statistics	χ^2 (df 81) = 216.3 ($p < .001$); RMSEA = 0.084 (90% CI [0.070, 0.097]); CFI = 0.83; TLI = 0.77				
	Model 2 (see Francis et al., 2015)				
Model 2 (see Francis et al., 2015)	Money	1	0.79	0.77	0.77
		13	0.91		
	Positive feelings	2	0.0	0.79	0.80
		3	0.55		
		7	0.20		
	Regulate internal state	9	0.65	0.75	0.76
		4	0.67		
		12	0.70		
	Social	14	0.85	0.71	0.71
		11	0.86		
		15	0.50		

Table 2 Continued.

Subscale	Item	Standardized factor loading	Reliability (Cronbach's α)	Reliability (Guttman's λ_2)	
Challenge	5	0.62	0.66	0.67	
	8	0.70			
	10	0.67			
Fit statistics Model 3 (see Wardle et al., 2011; Canale et al., 2015)					
	$\chi^2 (df 71) = 301.5 (p < .001)$; RMSEA = 0.117 (90% CI [0.103, 0.130]); CFI = 0.68; TLI = 0.59 Enhancement				
	Recreation	5	0.40	0.77	0.77
		7	0.75		
		8	0.73		
		9	0.50	0.73	0.75
		2	0.79		
		3	0.80		
		4	0.67		
Social	14	0.54	0.71	0.71	
	11	0.79			
	15	0.73			
Coping	10	-0.11	0.45	0.45	
	12	0.40			
Money	1	0.75	0.77	0.77	
	13	1.0			
Fit statistics					
	$\chi^2 (df 71) = 268.0 (p < .001)$; RMSEA = 0.108 (90% CI [0.0.94, 0.122]); CFI = 0.727; TLI = 0.65				

Note. RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker Lewis index.

tested a hierarchical model of Model 1 in which excitement, challenge, and escape/coping were subfactors of the latent trait affect regulation, but that model also showed a worse fit than did the original Model 1. A three-factor model was tested that included the dimensions autonomous/intrinsic (Items 2, 4, 6, 7, 8, 9, 12, and 14), controlled/extrinsic (Items 3, 5, 10, 11, and 15), and monetary (Items 1 and 13). However, this model also did not fit the data satisfactorily (chi-square = 300.1, $df = 87$, $p < .001$; RMSEA = 0.101, 90% confidence interval [CI] [0.089, 0.114]; CFI = 0.73; TLI = 0.67). Finally, we tested a one-dimensional model as an indicator of the general motivation to gamble or perhaps the number of reasons to gamble. However, that model showed a poor fit to the data (chi-square = 90, $df = 90$, $p < .001$; RMSEA = 0.123, 90% CI [0.111, 0.135]; CFI = 0.58; TLI = 0.51).

Discussion

This study described psychometric properties of the Swedish version of the RGQ with a special focus on the factor structure of the instrument. The results showed that all items were sufficiently endorsed. The originally proposed subscales of the instrument fit the data rather poorly and subscales based on the suggestions by Cripps and Blake (2009) and adapted by Sundqvist et al. (2016) showed a better (but still not satisfactory) fit to the data.

Two items (Items 6 and 12) showed worse psychometric properties than did the other items. These two items showed lower endorsement rates and factor loadings generally. Item 6 (“because I am worried about not winning if I don’t play”) was omitted from the analysis in the studies by Francis et al. (2015) and Canale et al. (2015) because of its psychometric properties, but neither of these studies showed the same problems with Item 12.

Although the three suggested methods for the subscales of the instrument show large similarities, there are some differences. One such difference concerns Item 4 (“to escape boredom or to fill your time”). This item is located in the Escape factor in Model 1 and in the Regulate internal state factor in Model 2, and both of these factors can be expected to be associated with problem gambling (cf. Myrseth & Notelaers, 2017). However, in Model 3, the item is located in the Recreation factor, a factor with a weaker association with problem gambling.

This study has strengths and limitations. The recruitment procedure was based on a large sample of the general Swedish population, giving us reason to believe that the responding gamblers were fairly representative and covered a wide span of gambling severity. Unfortunately, the low sample size did not allow us to test for structural invariants across sex, age, or gambling severity (as done by Canale et al., 2015).

In conclusion, the RGQ is an instrument that covers important aspect of motives to gamble, but because of some weak items and unclear dimensionality, it would benefit from further development. Considering some of the psychometric problems with the RGQ reported here, other instruments may be preferable. On the other hand, the

RGQ covers the aspect of gambling for the challenge, a factor that differentiated high-risk gamblers from low-risk gamblers in a previous study (Sundqvist et al., 2016), and this is a factor lacking in similar instruments such as the Gambling Motives Questionnaire. Finally, previous research and the present study give support to the idea that the dimensionality of gambling motives is still a question that deserves further attention.

References

- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97*, 487–499.
- Bowen, N. K., & Guo, S. (2011). *Structural equation modeling*. New York: Oxford University Press.
- Canale, N., Santinello, M., & Griffiths, M. D. (2015). Validation of the reasons for gambling questionnaire (RGQ) in a British population survey. *Addictive Behaviors, 45*, 276–280.
- Chantal, Y., Vallerand, R. J., & Vallieres, E. F. (1995). Motivation and gambling involvement. *The Journal of Social Psychology, 135*, 755–763.
- Cripps, H., & Blake, M. (2009). *Development of questions for a longitudinal study of gambling: Phase 2 report: Findings from cognitive question testing (April)*. Retrieved from: <http://infohub.gambleaware.org/wp-content/uploads/2014/09/Questionnaire-development-for-a-longitudinal-study-of-gamblers-phase-2-June-2009.pdf>
- Francis, K. L., Dowling, N. A., Jackson, A. C., Christensen, D. R., & Wardle, H. (2015). Gambling motives: Application of the reasons for gambling questionnaire in an Australian population survey. *Journal of Gambling Studies, 31*, 807–823.
- Myrseth, H., & Notelaers, G. (2017). Is the Gambling Motives Questionnaire really three-dimensional? A proposition of a four-dimensional Gambling Motives Questionnaire–Revised. *Addictive Behaviors, 65*, 68–73.
- Stewart, S. H., & Zack, M. (2008). Development and psychometric evaluation of a three-dimensional Gambling Motives Questionnaire. *Addiction, 103*, 1110–1117.
- Sundqvist, K., Jonsson, J., & Wennberg, P. (2016). Gambling motives in a representative Swedish sample of risk gamblers. *Journal of Gambling Studies, 32*, 1231–1241.
- Wardle, H., Moody, A., Spence, S., Orford, J., Volberg, R., Jotangia, D., ... Dobbie, F. (2011). *British Gambling Prevalence Survey 2010*. London, United Kingdom: Gambling Commission.

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