View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Nottingham Trent Institutional Repository (IRep)

Published as: 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.

Validation of the Reasons for Gambling Questionnaire (RGQ) in a British Population Survey

Natale Canale

Department of Developmental and Social Psychology, University of Padova

Massimo Santinello

Department of Developmental and Social Psychology, University of Padova

Mark D. Griffiths*

International Gaming Research Unit, Psychology Division, Nottingham Trent University

***Corresponding Author**

Correspondence concerning this article should be addressed to:

Mark D. Griffiths

International Gaming Research Unit, Division of Psychology, Nottingham Trent University,

Burton Street, Nottingham NG1 4BU, UK

e-mail: mark.griffiths@ntu.ac.uk

Validation of the Reasons for Gambling Questionnaire (RGQ) in a British Population Survey

Abstract

Introduction. The aim of the study is to validate the five-dimensional structure of the Reasons for Gambling Questionnaire (RGQ) and to test the differences between different types of gamblers (i.e., offline gamblers who gambled in-person only vs.mixed-mode gamblers who gambled both online and offline) on the five dimensions of the RGQ.

Methods. Data from the 2010 British Gambling Prevalence Survey (BGPS) were used. The analysed data comprised 5,677 individuals (52.7% female; mean age=47.64 years; SD=17.82). Confirmatory factor analysis and independent-samples t-tests were applied.

Results. The five-dimensional structure of the RGQ wasconfirmed in the general sample and among gender and age subgroups. Furthermore, mixed-mode gamblers (MMGs) who gambled both online and offline had higher scores for enhancement, recreation and money motives than offline gamblers that gambled in-person only (IPGs). In addition among males, there was a significant difference in the scores for enhancement and recreation motives across MMGs and IPGs. Among past-year gamblers aged 16-34 years, MMGs had higher scores for enhancement, recreational and monetary motives than IPGs whilst among past-year gamblers aged 35-55years, MMGs had higher scores for enhancement and recreational motives than IPGs.

Conclusions. The results are consistent with a previous test of the RGQ and the findings indicate that the RGQis a valid instrument to assess gambling motives among the general population.

Keywords:gambling motives,reasons for gambling, confirmatory factor analysis, online gambling, subgroups

Validation of the Reasons for Gambling Questionnaire (RGQ) in a British Population Survey

1. Introduction

The most recent British Gambling Prevalence Survey(BGPS)published in 2011 showed that problem gambling in Great Britain had risen from 0.6% to 0.9% (i.e., a 50% increase) compared to the previous BGPS published in 2007 (Wardle et al., 2011) using the DSM-IV criteria (American Psychiatric Association, 2000). One of the most important aims of the survey was to examine reasons for gambling that, in turn, shape gambling behavior. In order to develop prevention programs aimed at promoting responsible gambling, researchers need to have a sound knowledge based on empirical evidence of the reasons as to why people participate in gambling. This is important for any research that aims to uncover determinants of varying levels of gambling involvement (Binde, 2009).

Studies suggest that motives for gambling are an important proximal factor related to problematic gambling among young people and adults (e.g., Griffiths, 2011; Stewart, Zack, Collins, Klein & Fragopoulos, 2008). Despite the existence of some psychometric instruments developed to assess gambling motives and related constructs – such as the Gambling Motivation Scale (GMS: Chantal et al. 1994) and the Gambling Motives Questionnaire (GMQ: Stewart & Zack 2008) – the Reasons for Gambling Questionnaire (RGQ: Wardle et al. 2011) was the first standardised measure of gambling motives to be included in a large-scale national prevalence survey. The 15-item RGQ was specifically designed to reflect broad motivations for gambling evident among gamblers in general, after determining that the available scales (i.e., GMS and GMQ) had some gaps in the range of motives identified in previous studies. For example, the GMQ fails to capture motives related to money, because items are derived from the alcohol literature (Dechant & Ellery, 2011). While people generally do not drink alcohol for monetary gain, winning money has frequently been reported among the primary reasons for gambling (e.g., Hodgins 2008). Based on these considerations, Wardle et al. (2011) developed the RGQ to measure the five gambling motives implied: social motives (e.g., because it is something that is engaged in with friends and family), monetary motives (e.g., for the chance of winning large amounts of money), enhancement motives (e.g., for the excitement), recreational motives (e.g., to fill time), and copingmotives (e.g., to relieve tension). Thus, the RGQ has a number of

distinctadvantages in that it:(i) can be applied to the general population(including those with gambling problems), (ii) includes a wide range of gambling motives, (iii) canmeasure general gambling motives, rather than relative to a specific gamblingactivity (Wardle et al. 2011).

To date, the RGQhas been developed and analyzedin the large-scale BGPSpopulation study (Wardle et al., 2011)and was also employed in the second Social and Economic Impact Study (SEIS) of Gambling in Tasmania study conducted in 2011 in Australia (Francis et al., 2014). In the Australian study, the most commonly endorsed reasons for gambling were for fun, for the chance of winning big money, because it is something to do with friends and family, to be sociable, and for the excitement.The objective of this studywas to test, validate, and further psychometrically analyze theRGQ in the same sample that was used in theoriginal BGPS study (Wardle et al., 2011).Thefirst aim was to confirm the five dimensionalstructures(i.e., social, monetary, enhancement, recreation, and coping) and other measurement properties such asmodel fit, itemloadings, and internal consistencies. The second aim was to demonstrate whether the RGQperforms aswell across gender (male vs. female) and age band (i.e., 16-34 years, 35-55years and 55+ years). The third aim was to demonstrate concurrent validity by testing the differences between different types of gamblers (more specifically, those who gamble in person only gamblers [i.e., offline] vs.those who gamble both in person and online [mixed-mode]) on the five dimensions of the RGQ.This is because Wardle et al. (2011) found that the reasons for gambling vary significantly between different groups of gamblers (problem gamblers, regular gamblers).

In addition, previous studies have shown that online gamblers and non-online gamblers display different motivations to gambling related to the online specific characteristics (e.g. privacy, greater variety of games) (Gainsbury, Wood, Russell, Hing & Blaszczynski, 2012; McCormack & Griffiths, 2012; Parke & Griffiths, 2011). Considering the motivations for gambling evident among gamblers in general, Lloyd and colleagues (2010) demonstrated that among internet gamblers, gambling to regulate mood, gambling for monetary motives, and gambling for enjoyment were higher in individuals at a heightened risk of problematic gambling. In a more recent study, Dowling et al., (2015) found thatreasons for gambling among internet gamblers were more likely to be for a challenge, for positive feelings, for fun and/or excitement, or to relieve boredom compared non-internet gamblers.Thus in this study,it was hypothesized that mixed-mode gamblers(those who gambled both online and offline),were more likely to gamble for enhancement, coping, and money reasons, than those who gambled offline only.

2. Method

2.1 Participants

Data were extracted from the 2010 British Gambling Prevalence Survey and further methodological details are provided in the published study (Wardle et al., 2011). A total of 7,756 individuals participated in the BGPS. In order to specifically address gambling motives, the 2,039 individuals (26.29%) who had not gambled in the 12 months prior to participating in the survey were excluded from analysis, in addition to 40 individuals (0.5%) that were excluded because they failed to answer more than one question related togambling motives. The analysed data therefore comprised 5,677 individuals (52.7% female). The mean age of the final sample was 47.64 years (SD=17.82).

2.2 Instruments

2.2.1 Gambling motives

All participants who had gambled in the 12 months prior to participating in the survey were administered theRGQ(Wardle et al. 2011). All 15 items of the RGQ are statements concerning the frequency of gambling for five distinct dimensions (i.e., enhancement, recreation, social, coping and monetary). Participants were asked to consider all the times they had gambled in the past 12 months and to indicate how oftenthey had gambled for each given motive. Items were answered on a 4-point Likert scale ranging from "never" (coded as 1) to "always" (coded as 4).

2.2.2 Gambling participation

Participants were required to indicate whether they had taken part in any of 16 differentgambling activities for money in the previous 12 months. Of these 16 activities, nine could beengaged in both online and offline. For activities where different modes of participation were available, participants were asked to report whether they had undertaken the activity in-person (i.e., offline), online, or both.Consistent with a previous categorizationusing BGPS data (i.e., Wardle, Moody, Griffiths, Orford & Volberg, 2011) gamblers were considered 'offline gamblers' when they reported gambling in-person only and 'mixed-mode gamblers' when they reported gambling both online and offline for at least one activity in the past year.

2.3 Analysis

First, given the *a priori* knowledge of a factor structure[1], a confirmatory factor analyse (CFA) using robust weighted least squares for ordinal items (e.g., Likert-type scales) was used to test the structure of the RGQ. The R program (R Development Core Team, 2013) was used with the "lavaan" library (Rosseel, 2012). To evaluate the overall model fit, the following were considered: goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA)[90%confidence interval (CI)]. Cronbach'salpha (and CIs) assessed internal consistencies of the dimensions. To determine the equivalence of factor structure in different subgroups, a multi-group CFA was also performed to examine measurement invariance of the RGQ across gender (males vs. females), and age (i.e., the age band groups16-34 years, 35-55 years, and 55+ years). A hierarchical approach was taken by successively constraining model parameters and comparing changes in model fit (Steenkamp & Baumgartner, 1998). Three models (i.e., configural, metric, and scalar) were estimated and are considered prerequisites for meaningful across-group comparisons based on factor scales. The use of ΔX^2 values have been criticized because of their sensitivity to sample size (Cheung & Rensvold, 2002). For this reason, testing for invariance was examined through the practical perspective (Byrne & Stewart, 2006), which recommends that invariance can be based on two criteria: (a) the multigroup factor model exhibits an adequate fit to the data and (b) the change in values for fit indices (e.g.,ΔCFI, ΔRMSEA) is negligible. A ΔCFI of larger than 0.01 and a change larger than .015 in RMSEA is indicative of non-invariance (Cheung & Rensvold, 2002, Gilson et al., 2013). To confirm the concurrent validity of the RGQ, independent-sample t-teststo compare gambling motives in gambling subgroups were performed. Due to the large sample size, an alpha of 0.001 was used and effect sizes are reported for all t-tests.

3. Results

3.1. Confirming the factor structure

The results of the CFA revealed high and homogenous item loadings (see Table 1). For each dimension, item loadings were 0.50 or higher. Greatest endorsement was shown for the chance of winning large amounts of money and gambling being fun. There were substantial endorsementsfor monetary and recreational motives. In contrast, coping motives were infrequently endorsed, with the "to impress other people" item showing the lowest endorsementcompared to other items. The fit indices revealed a good model fit with CFI and GFI values of 0.98 and 0.99, respectively. Similarly, the RMSEA value was .058(.056-.061).

The internal consistency of all five gambling motive factors was just within conventionallyaccepted limits, varying from α =.59 (CI=.57-.61) to .69 (CI=.67-.70).

[INSERT TABLE 1 ABOUT HERE]

3.2Measurement invariance across gender and age

Before measurement invariance testing, the five-factor RGQmodel was estimated separately in both male and females.Results demonstrated that the model fit was adequate to excellentfor both men ($X^2_{(67)}$=709.4, CFI=.98, RMSEA=.060[.056-.064]) and women ($X^2_{(67)}$=731.6, CFI=.97, RMSEA=.058[.054-.061]). A configural model was first established as a baseline model, and all parameters were freely estimated (unconstrained) across gender. Fit indices showed that this model had adequate fit for the data ($X^2_{(134)}$=1441.1, CFI=.978, RMSEA=.059[.056–.061]) suggesting that the factor structure is similar across groups. A subsequent metric model that tested for invariance of all factor loadings was established ($X^2_{(143)}$=1496.6, CFI=.977, RMSEA=.058[.055–.060]). All item loadings related to each factor, were constrained to equality. Fit statistics showed that this model (compared to the configural model) did not result in a significant degradation of fit (ΔCFI=.001; ΔRMSEA=.001) suggesting that the five-factor RGQ assesses similar underlying factors across both males and females. Scalar invariance was tested by constraining the intercept of each item whilst maintaining constraints on the factor loadings ($X^2_{(166)}$=1577.1, CFI=.976, RMSEA=.055[.052–.057]). Fit statistics showed that this model (compared to the metric model) did not result in a significant degradation of fit (ΔCFI=.001; ΔRMSEA=.003).

The CFA was also performed separately acrossdifferent age band groups. The model fit was excellent within each year group: 16-34 years ($X^2_{(67)}$=588.6, CFI=.975, RMSEA=.072[.067–.077]), for 35-54 years($X^2_{(67)}$=566.1, CFI=.975, RMSEA=.059[.055–.064]) and for 55+ years ($X^2_{(67)}$=372.4, CFI=.984, RMSEA=.047[.042–.052]). Fit indices showed that the configural model had adequate fit for the data ($X^2_{(201)}$=1527.1, CFI=.978, RMSEA=.059[0.056–0.062]) again suggesting that the factor structure is similar across groups. Fit statistics showed that the metric model ($X^2_{(219)}$=1577.4, CFI=.977, RMSEA=.057[.055–.060]) (compared to the configural model) did not result in a significant degradation of fit (ΔCFI=.001; ΔRMSEA=.002) suggesting that the five-factor RGQ assesses similar underlying factors across age band groups. Fit statistics showed that scalar model ($X^2_{(265)}$=2029.1, CFI=.971,

RMSEA=.059[.057–.062]) (compared to the metric model) did not result in a significant degradation of fit (ΔCFI=.006; ΔRMSEA=-.002).

3.3. Mean differences in gambling motives across gambling subgroups

Independent-sample t-tests to compare gambling motives in gambling subgroups were performed to determine the concurrent validity of the RGQ (see Table 2). Among the past-year gamblers, a total of 4,614 (81.1%) were classified as in person (i.e., offline) only gamblers (IPGs) and 1,075 (18.9%) were classified as mixed-mode gamblers (MMGs) as they gambled both online and offline. MMGs had higher scores for enhancement, recreational, and monetary motiveswhen compared to IPGs. In addition, other independent-sample t-tests were conducted to compare gambling motives in gambling subgroups across gender and age. Among males, there was a significant difference in the scores for enhancement and recreation motives across MMGs and IPGs. Among past-year gamblers aged 16-34 years, MMGs had higher scores for enhancement, recreational and monetary motives than IPGs whilst among past-year gamblers aged 35-55years, MMGs had higher scores for enhancement and recreational motives than IPGs.

[INSERT TABLE 2 ABOUT HERE]

4. Discussion

In addition to the psychometric properties of the RGQ reported by Wardle and colleagues (2011), the present study extends the information about this new measure of gambling motives by using more robust statistical analyses to confirm the five-dimensional structure of the RSQ.More specifically, the present study,provided other measurement properties not investigated in the original analysis by Wardle et al., (2011) such as model fit, internal consistencies and measurement invariance of the RGQ across gender (males vs. females), and age (i.e., the age band groups 16-34 years, 35-55 years, and 55+ years).More specifically, results of the present study indicate that the hypothesized five-factor structure of the RGQ(Wardle et al., 2011) provided a good fit to the data. Most dimensions had acceptableinternal consistency with the expectancy dimension coming close to the required α=0.70 threshold (Nunnally & Bernstein, 1994). The relative rates of endorsement – with monetary and recreational motives being most strongly endorsed – were highly consistent with findings of a recent study conducted in in a large-scale survey of an Australian population (i.e., Francis et al., 2014) that reported a five-factor structure that is a little

different from that reported in the BGPS(i.e., for money, for regulating internal state, to gain positive feelings, for social reasons, and for a challenge). Furthermore, the invariance of the RGQ across different gender and age groups was confirmed. According to Lloyd et al., (2010), mixed-mode gamblers that gambledonline have higher scores on enhancement, recreational and monetary motives than offline (in-person) only gamblers.In contrast, there was no difference in coping motives. This result could beconsidered alongside the results of Stewart and Zack (2008) where coping motives were unique independently covarying with gambling severity than gambling behavior in pathological gamblers. In addition, some of these differences were present among male gamblersand among past-year gamblers aged 16-34 years and 35-55 years. More specifically regarding age, the difference between MMGs and IPGs concerning monetary motives was significant only in the younger age group, suggesting that for these gamblers, the prospect of winning money represents a more important determinant of motivation than older gamblers.Thus, the difference between gambling subgroups may be explained in part by motivational factors (Griffiths, Wardle, Orford, Sproston, & Erens, 2011).

The present study is not without itslimitations. Firstly, the study did not include usual concurrent validity that generally tests the links between motives and problematic behaviours (e.g., multiple regression analyses) because the problem gambling prevalence rates in the BGPS were very low (0.9%). Outcomes for problem gambling and gambling-related problems should be included in future studies in order togain a more comprehensive analysis of the concurrent validity. Secondly, the 'coping' dimension with only two items shows low Cronbach's alpha. Adding more items to the scale could be recommended for future research.Thirdly, as with all survey data, the data collected were based on self-report and subject to attendant problems of this mode of collection (e.g., social desirability biases, memory recall biases, etc.). Fourthly, although the overall sample size was large, the base sizes for some of the past-year gambling subgroups were small. Therefore, the subgroups presented in the present study were not definitive. It is plausible that further subgroups exist and other analytical techniques couldperhaps be used to examine this more thoroughly.

5. Conclusion

Examining the findings as a whole, the present study is one of a few studies (i.e., Francis et al., 2014; Wardle et al., 2011)thathave provided detailed evidence for the utility and usefulness of the RGQ. The results confirmed the overall five-dimensional structure of the

RGQ, and across gender (males vs. females), and age (16-34 years, 35-55 years and 55+ years).

Notes

[1]In the original analysis of the RGQ, afinal principal component factor analysis was performed on 14 items. The item "because I'm worried about not winning if I don't play" was not included in this analysis. Further details are provided in the original published study (Wardle et al., 2011).

References

American Psychiatric Association (APA) (1994).*Diagnostic and statistical manual of mental disorders (4th ed).*Washington DC: American Psychiatric Association.

Binde, P. (2009). Gambling motivation and involvement: A review of social science research.http://www.responsiblegambling.org/articles/binde-gambling-motivation-review.pdf. Accessed 23 December 2014.

Byrne, B. M., & Stewart, S. M. (2006). The MACS approach to testing for multigroup invariance of a second-order structure: A walk through the process. *Structural Equation Modeling, 13*, 287-321.

Chantal, Y., Vallerand, R. J., & Vallieres, E. F. (1994). Construction et validation l'echelle de motivation relative aux jeux de hasard et d'argent. On the development and validation of the Gambling Motivation Scale (GMS). *Society and Leisure, 17*, 189–212.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness of-fit indexes for testing measurement invariance. *StructuralEquation Modeling: A Multidisciplinary Journal, 9*, 233-255.

Dechant, K., & Ellery, M. (2011). The effect of including a monetary motive item on the gambling motives questionnaire in a sample of moderate gamblers.*Journal of Gambling Studies*, *27*(2), 331-344.

Dowling, N. A., Lorains, F. K., & Jackson, A. C. (2015). Are the profiles of past-year internet gamblers generalizable to regular internet gamblers? *Computers in Human Behavior, 43*,118-128.

Francis, K. L., Dowling, N. A., Jackson, A. C., Christensen, D. R., & Wardle, H. (2014). Gambling Motives: Application of the Reasons for Gambling Questionnaire in an Australian Population Survey. *Journal of Gambling Studies*, 10.1007/s10899-014-9458-1 [Epub ahead of print]

Gainsbury, S., Wood, R., Russell, A., Hing, N., & Blaszczynski, A. (2012). A digital revolution: Comparison of demographic profiles, attitudes and gambling behavior of Internet and non-Internet gamblers. *Computers in Human Behavior*,*28*(4), 1388-1398.

Gilson, K. M., Bryant, C., Bei, B., Komiti, A., Jackson, H., & Judd, F. (2013). Validation of the Drinking Motives Questionnaire (DMQ) in older adults.*Addictive Behaviors*, *38*(5), 2196-2202.

Griffiths, M.D. (2011). Adolescent gambling. In B. Bradford Brown & Mitch Prinstein (Eds.), *Encyclopedia of Adolescence (Volume 3)* (pp.11-20). San Diego: Academic Press.

Griffiths, M., Wardle, H., Orford, J., Sproston, K., & Erens, B. (2011). Internet gambling, health, smoking and alcohol use: Findings from the 2007 British Gambling Prevalence Survey. *International Journal of Mental Health and Addiction*, *9*(1), 1-11.

Hodgins, D. C. (2008). What we see depends mainly on what we look for (commentary). *Addiction*, *103*(7), 1118-1119.

Lloyd, J., Doll, H., Hawton, K., Dutton, W. H., Geddes, J. R., Goodwin, G. M., & Rogers, R. D. (2010). How psychological symptoms relate to different motivations for gambling: An online study of internet gamblers. *Biological Psychiatry*, *68*(8), 733-740.

McCormack, A., & Griffiths, M. D. (2012). Motivating and inhibiting factors in online gambling behaviour: A grounded theory study. *International Journal of Mental Health and Addiction*, *10*(1), 39-53.

Nunnally, J. C., & Bernstein, I. H. (1994).*Psychometric theory, 3rd ed.* New York:McGraw-Hill.

Parke, A. & Griffiths, M.D. (2011). Effects on gambling behaviour of developments in information technology: A grounded theoretical framework. *International Journal of Cyber Behaviour, Psychology and Learning*, *1*(4), 36-48.

R Core Team. (2013). R: A language and environment for statistical computing [Computer software manual]. Vienna, Austria. Available from http://www.R-project.org/

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1-36.

Steenkamp, J. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research, 25*, 78–90.

Stewart, S. H., & Zack, M. (2008). Development and psychometric evaluation of a three‐dimensional Gambling Motives Questionnaire. *Addiction, 103*(7), 1110-1117.

Stewart, S. H., Zack, M., Collins, P., & Klein, R. M. (2008). Subtyping pathological gamblers on the basis of affective motivations for gambling: Relations to gambling problems, drinking problems, and affective motivations for drinking. *Psychology of Addictive Behaviors*, *22*(2), 257.

Wardle, H., Moody, A., Griffiths, M., Orford, J., & Volberg, R. (2011). Defining the online gambler and patterns of behaviour integration: Evidence from the British Gambling Prevalence Survey 2010. *International Gambling Studies*,*11*(3), 339-356.

Wardle, H., Moody, A., Spence, S., Orford, J., Volberg, R., & Jotangia, D. et al. (2011).*British gambling prevalence survey 2010* London: The Stationery Office.