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Confirmatory factor analysis of the Spanish version of the Gamblers' Beliefs Questionnaire in a sample of Argentinean gamblers☆

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ABSTRACT

Introduction: Cognitive distortions are related to gambling frequency and gambling severity. Having a culturally sensitive measure to assess cognitive distortions will facilitate the early detection of people who might be at risk of developing problematic gambling behaviors. The Gamblers' Beliefs Questionnaire was translated into Spanish (GBQ-S) but no previous study explored the structure of the GBQ-S in a non-US sample with different levels of gambling involvement. Aim: The present study examined the factor structure of the GBQ-S in a community sample of gamblers from Argentina. It also analyzed the association between cognitive distortions and type of gambling activity and frequency of gambling behaviors and the predictive utility of the GBQ-S on gambling severity. Participants: 508 youth and adults completed the GBQ-S. Results: The CFA showed an overall acceptable fit to the data confirming the proposed two-factor model. Scores of the two GBQ sub-scales were positively and significantly correlated with scores on gambling severity. Cognitive distortions have a significant effect on gambling severity after controlling for frequency of engagement in gambling activities. Luck and perseverance, but not illusion of control, was positively related to gambling severity. Discussion: scores measured by the GBQ-S exhibit adequate psychometric properties for the accurate assessment of cognitive distortions across adults and youth from the general community of Argentina.

1. Introduction

Gambling is a prevalent recreational activity in many countries and across diverse cultures (Clark, 2010; Frascella et al., 2010; Ledgerwood et al., 2009). The large majority of people who gamble do not experience adverse consequences, however, a subset of players experience gambling-related problems and develop severe forms of gambling disorder (French et al., 2008; Korman et al., 2006). Gambling opportunities are rapidly expanding in Argentina. For instance, in the state of Cordoba, where the present study was conducted, there are 19 casinos and 3600 slots (National Lottery of Cordoba, 2016). Unfortunately, there is a scarcity of studies assessing prevalence of recreational, problem or disordered gambling in this country. Some evidence, however, suggest that 60% of Argentinean college students gambled at least once in their lifetime while between 6 and 12% meet the cut score criteria for problem gambling based on SOGS' scores (Tuzinkievich, del Vera, Caneto, Garimaldi, & Pilatti, 2013a,b). These rates of gambling engagement are similar to those found in United States (Huang, Jacobs, Derevensky, Gupta, & Paskus, 2007) and Canada (Huang & Boyer, 2007; Ladouceur, Dubé, & Bujold, 1994) employing the DSM IV and SOGS criteria, respectively. The aims of the current study were to examine the behavior of Argentinian gamblers and enrich the psychometric validity of the Spanish Version of the Gamblers' Beliefs Questionnaire (GBQ-S).

Cognitive perspectives on gambling emphasize the presence of a number of cognitive distortions, including overestimation of personal ability to influence a win, superstitious beliefs and lucky rituals assumed to increase the chance of winning, and a misunderstanding of random sequences and the independence of turns (Fortune & Goodie, 2012). Cognitive distortions are prevalent among gamblers across the severity spectrum, from social gamblers to disordered gamblers, and even non-gamblers (e.g., Ladouceur, 2004; Winfree, Meyers, & Whelan, 2013). Strong confidence in these beliefs is presumed to maintain problematic gambling behavior despite repeated negative outcomes.

Two prevalent cognitive distortions reported in the literature are illusion of control and illusory correlation (Fortune & Goodie, 2012). Illusion of control underlies the belief that gambling is a game of skill, instead of a game of chance, leading the gamblers to believe their skills are determinant to win the game. In other words, illusion of control refers to "an expectancy of a personal success probability

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that is higher than the objective probability should warrant" (Fortune & Goodie, 2012, pp. 301). Illusory correlation is the process of relating two events, based on experience or perceptions, even when there is no association between them (Fortune & Goodie, 2012). This cognitive distortion underlies the belief that luck plays an important role in gambling outcomes and different superstitions in relation to gambling (Fortune & Goodie, 2012). Illusory correlation is the core element of the association between particular habits, thoughts and superstitions with winning (Fortune & Goddie, 2012).

A greater level of these cognitive distortions is related to greater severity of gambling, not only among clinical disordered gamblers (Michalczuk et al., 2011; Winfree et al., 2015), but also among non-clinical adolescents (Donati et al., 2015; Taylor et al., 2014) and college students (Mackillop et al., 2006; Winfree et al., 2013). The illusion of control has become an important phenomenon in experimental studies (Stefan & David, 2013, meta-analysis), however, its relevance to explain gambling behavior and disordered gambling is limited by the fact that some forms of gambling involve a genuine component of skill (e.g. poker: Meyer et al. 2013). Traditionally, two different categories have been used to classify the broad range of gambling activities: chance based games versus skill based games (Myrseth et al., 2010) or strategic versus non-strategic games (Grant et al., 2012). Skill or strategic games include gambling activities where some level of knowledge or skills in the game (e.g. poker, sports betting) can influence the outcome, at least potentially. In games of chance or non-strategic games, the gambler has no control or influence on the gambling outcomes (e.g. slots machines, lottery, and bingo). There is evidence that cognitive distortions are differentially related to different game preferences and, for example, skill gamblers, compared to chance gamblers, showed higher scores on the illusion of control scale of the Gamblers' Beliefs Questionnaire (Myrseth et al., 2010).

The valid assessment of gambling-related cognitive distortions can support evidence-based treatments targeting these distorted cognitions. The Gamblers' Beliefs Questionnaire (GBQ; Steenbergh et al., 2002) was developed to assist in case conceptualization, treatment planning, cognitive restructuring, relapse prevention, and monitoring behavior change (Whelan, Steenbergh, & Meyers, 2007). Factor analytic data from a community sample supported a two-factor structure: Illusion of Control and Luck/Perseverance (Steenbergh et al., 2002). The Illusion of Control factor was comprised of items that shared a theme of overestimating the influence of one's skill orientation on the outcome of chance-determined games. The Luck/Perseverance factor was comprised of items that share a common theme of an overestimation of chances of winning, including beliefs that one is prone to good fortune (i.e., illusory correlation).

The GBQ showed adequate psychometric properties regarding internal structure, confiability and concurrent validity (Steenbergh et al., 2002). Recently, the GBQ was examined in a treatment-seeking sample of disordered gamblers (Winfree et al., 2015). As expected, GBQ scores significantly decreased following a brief cognitive-behavioral intervention for disordered gambling. Results indicated that the original two-factor model provided a better fit than a single-factor model. However, the original two-factor model did not provide an overall adequate fit to the data. This finding is likely a result of the treatment-seeking sample endorsing more overall distortions and endorsing them more strongly (Winfree et al., 2015).

A Spanish version of the GBQ has also shown promise. Winfree, Meyers, & Whelan (2013) evaluated a Spanish adaptation of the measure (GBQ-S) in a U.S. based adult Latino sample and found adequate psychometric evidence and replicated the factor structure of the original English version. These results, however, do not guarantee the adequacy and appropriateness of this version to assess cognitive distortions in other Spanish speaking samples. The International Test Commission (ITC) asks for a comprehensive examination of the potential linguistic and cultural differences among the population for whom the versions of an instrument are intended (ITC, 2010). To date, the measure has not been evaluated in a Spanish-speaking sample outside US and, therefore, further validation of this measure in other Spanish-speaking samples from other parts of the world is an important next step.

Most psychological constructs are highly dependent on the cultural aspects where the tests are used, therefore, bias in test construction and test adaptation have a profound and deleterious impact on decisions regarding treatment and intervention (ITC, 2010). Argentina is a South American country with a large prevalence of European descent, and this European immigration has influenced Argentinean culture. The socio-cultural background is, therefore, quite dissimilar to that found among Hispanic population in U.S., mostly characterized by Mexican ascendant (US Department of Commerce Economics and Statistics Administration, 2012). It is reasonable; therefore, not to assume in advance that psychometric tests will behave similarly across diverse cultural groups, despite they speak the same language. Additionally, there is a need to study psychological variables in more diverse cultural groups (Henrich et al., 2010).

Evaluating the GBQ-S in an Argentinian sample would provide valuable information regarding gambling behavior and cognitive distortion endorsement among the Argentinian community. Having a culturally sensitive measure to assess cognitive distortions will facilitate the early detection of people who might be at risk of developing problematic gambling behaviors. The present study examined the factor structure of the GBQ-S in a sample of gamblers from Argentina with different levels of gambling involvement. Additionally, we analyzed the association between cognitive distortions and type of gambling activity and frequency of gambling behaviors. Finally, we examined the predictive validity of the GBQ-S by assessing its association with level of gambling severity.

2. Methods

2.1. Sample

The study's sample comprised 616 (209 men, 407 women) participants. A majority of the participants ($n = 339$, 54.9%) completed a paper-and-pencil survey while 277 (45.1%) participants completed an online survey. Participants who completed the paper-and-pencil survey were recruited from psychology (40.4%), engineering (24.9%) and biology (7.1%) courses at the National University of Cordoba (Argentina). We approached all department chairs via email or phone; yet only those from these three departments accepted being part of the study, and, as such, only students enrolled in these classes were included in the study. Twenty-seven cases were eliminated due to missing >20% of data. Participants who completed the online survey were recruited through advertisements on social network sites (i.e. Facebook and Twitter), and e-mailing lists. This advertisement asked for young adults and adults (ages between 18 and 60 years) from the general community who gambled within the previous twelve months. Participants did not receive any monetary compensation for their participation. Only participants who reported lifetime gambling were retained for the study. Eighty-one cases from the paper-and-pencil survey reported no lifetime prevalence of gambling and were not included in the study. The final sample was composed of 508 participants (65.6% females). The mean age of 25.50 years ($SD = 9.46$ years) was statistically similar across males and females. Of the total sample, 82.5% were between 18 and 30 years old and 17.5% between 31 and 60. The majority of the sample (70.9%) reported living in the state of Cordoba, however; only 46.5% indicated they were born in that state. The remaining participants were from (53.5%) and lived in (29.1%) other states of Argentina. None of the participants indicated a different nationality. Table 1 shows sex, age and lifetime gambling engagement as a function of method of data collection.