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Psychometric evaluation of the Gamblers' Beliefs Questionnaire with treatment-seeking disordered gamblers

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HIGHLIGHTS

- Psychometric evaluation of Gamblers' Beliefs Questionnaire with disordered gamblers.
- GBQ scores correspond significantly with measures of gambling severity.
- Factor analytic data support a unique factor structure with clinical sample.
- The findings support validity of GBQ for clinical assessment.

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ABSTRACT

Growing evidence for the efficacy of cognitive–behavioral therapy for disordered gambling supports the need for a comprehensive set of gambling-related assessment measures that have been validated with treatment-seeking samples. The Gamblers' Beliefs Questionnaire (GBQ) is a self-report measure that was designed to identify gambling-related cognitive distortions (Steenbergh, Meyers, May, & Whelan, 2002). In this study, the GBQ demonstrated good internal consistency and adequate construct validity in a treatment-seeking sample of disordered gamblers. Additionally, scores on the measure significantly decreased across a brief cognitive–behavioral treatment, providing validity support for use of the GBQ with a clinical population.

1. Introduction

Growing evidence supports the role of gambling-related cognitive distortions in the development and maintenance of disordered gambling (for reviews, see Fortune & Goodie, 2012; Goodie & Fortune, 2013). There is also evidence supporting the utility of assessing such distortions when treating individuals with gambling problems (Ladouceur et al., 2001; Toneatto & Gunaratne, 2009). Given the role of cognitive distortions in disordered gambling, a valid and efficient method of assessing gambling-related cognitive distortions is needed for research and clinical efforts (Goodie & Fortune, 2013). The present investigation was designed to evaluate the psychometric properties and treatment sensitivity of a self-report measure of gambling-related cognitive distortions in a sample of treatment-seeking disordered gamblers.

The literature establishing the role of cognitive distortions in disordered gambling has stimulated the use of cognitive interventions as a component when treating gambling problems (for recent reviews, see Fortune & Goodie, 2012; Gooding & Tarrier, 2009). The accurate assessment of gambling related cognitive distortion is valuable because the use of cognitive restructuring as a component of treatment has been shown to have a role in reducing problem gambling behavior (Ladouceur et al., 2001; Whelan, Steenbergh, & Meyers, 2007). Toneatto and Gunaratne (2009) found that an overall reduction in cognitive distortions was an important indicator of beneficial treatment outcomes.

Self-report has been shown to be a valid and efficient method for assessing cognitive distortions. Goodie and Fortune (2013) aggregated findings from self-report measures and evaluated the association between cognitive distortions and disordered gambling. Since gambling-related cognitive distortions are drawn from the general literature on heuristics and biases present across the whole population, even recreational gamblers endorse some level of cognitive distortions about chance outcomes. What is significant is that disordered gamblers overwhelmingly endorse more cognitive distortions and hold these distortions more strongly. Additionally, specific groupings of cognitive distortions, such as thoughts related to illusions of control and the gambler's fallacy, tend to differentially correspond with gambling rates. However, Goodie and Fortune (2013) did not find that these dimensions were on their own better predictors of generalized distortion or disorder, cautioning the perceived importance of these predictive dimensions "appears to be either a coincidence or an accident of

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researchers predilections (p. 12)." Goodie and Fortune (2013) reported a large effect for the overall association between cognitive distortions and disordered gambling. They recommended future efforts focus on understanding the role of specific distortions and the performance of distortions in populations meeting diagnostic criterion (Goodie & Fortune, 2013).

According to Goodie and Fortune (2013), one self-report measure that discriminated non-disordered and disordered gamblers was the Gamblers' Beliefs Questionnaire (GBQ; Steenbergh, Meyers, May, & Whelan, 2002). The GBQ items were developed based on empirical evidence on cognitions associated with gambling, expert recommendations, and examination of the theoretical literature (Steenbergh et al., 2002). The measure can be used to assist in case conceptualization, treatment planning, cognitive restructuring, and monitoring behavior change (Lipinski, Whelan, & Meyers, 2007).

The GBQ was initially evaluated with a diverse sample of community gamblers and college students (Steenbergh et al., 2002). It demonstrated high internal consistency ($\alpha = .92$), 1-month test–retest reliability ($r = .77$), and significant convergence with scores on measures of gambling severity, the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987), and the DSM-IV-Questionnaire (DSM-IV-Q; Shaffer, LaBrie, Scanlan, & Cummings, 1994). Disordered gamblers reported significantly more cognitive distortions on the GBQ than non-disordered gamblers, and higher GBQ total scores were associated with longer gambling sessions.

Additionally, the results of a factor analysis suggested patterns of distortions that were highly correlated with each other and emerged along two dimensions. The first dimension included distortions related to illusion of control and overestimating the influence of one's skills on the outcome of chance-determined games. The second dimension included distortions of perseverance and luck such as overestimating the chance of winning, and beliefs that one is prone to good fortune. Several items were also related to the gamblers' fallacy (e.g., "I should keep the same bet even when it hasn't come up lately because it is bound to win").

Recent investigations have provided support for the validity of the GBQ. Mackillop, Anderson, Castelda, Mattson, and Donovick (2006a) reported convergence between the GBQ dimension scores, SOGS score, and subscales scores of the Gambling Passion Scale, and Eysenck Impulsivity Questionnaire. Mitrovic and Brown (2009) found GBQ dimension scores significantly correlated with scores on the Canada Problem Gambling Index, the Gambling Motivation Scale, and the Toronto Alexithymia Scale. These findings suggest that GBQ scores are significantly related to disordered gambling and other constructs associated with the development and maintenance of gambling pathology. Researchers have also found significantly higher GBQ scores among disordered gamblers as compared to non-disordered gamblers (Mackillop, Anderson, Castelda, Mattson, & Donovick, 2006b; Myrseth, Brunborg, & Eidem, 2010). Moreover, higher scores on items related to the Luck/Perseverance dimension have been associated with greater enjoyment of gambling and more negative attitudes toward seeking treatment for disordered gambling (Wohl, Young, & Hart, 2007). Recent findings have also established the GBQ as an internally consistent measure (e.g., Mackillop et al., 2006a; Myrseth et al., 2010).

Translations of GBQ have shown promising psychometric properties. Winfree, Meyers, and Whelan (2013) evaluated a Spanish adaptation of the measure (GBQ-S) and found evidence of convergent validity between GBQ-S scores and scores on two measures of gambling symptomatology. A Chinese-translated version (GBQ-C) correlated significantly with relevant measures of problem gambling in a sample of adolescents (Wong & Tsang, 2011). Finally, Marchetti and colleagues (unpublished manuscript) evaluated an Italian version of the GBQ. Preliminary evidence suggested adequate psychometric properties consistent with findings from other language versions. These results indicate that, across different cultures, gamblers endorse comparable cognitive distortions, with disordered gamblers reporting more cognitive distortions than non-disordered gamblers.

Based on these findings, the GBQ appears to be a valid and reliable measure of gambling-related cognitive distortions. Steenbergh et al. (2002) suggested a possible role for the measure in monitoring treatment changes. However, to date, the measure has not been evaluated with a treatment-seeking sample of disordered gamblers. Consistent with previous studies, we predicted that the GBQ would demonstrate good psychometric properties in a treatment-seeking sample. Consistent with the presumed maintenance role of cognitive distortions in disordered gambling behavior, we predicted that GBQ scores would significantly decrease across treatment for disordered gambling. In this study, we assessed the internal consistency of the GBQ. Next, we evaluated the convergence of the GBQ with indices of gambling severity and the divergence of the measure with demographic variables. Given the research that shows that disordered gamblers hold more cognitive distortions and endorse these distortions at a greater intensity, the factor of structure in a clinical sample needed to be confirmed. Finally, we examined the treatment sensitivity of the GBQ. Fulfilling these objectives should aid in the validation of the GBQ for clinical assessment.

2. Method

2.1. Participants

Participants were 170 individuals seeking services at an outpatient gambling treatment center. The majority of the sample was male (55.3%), Caucasian (67.6%), and married (47.6%). The average age was 45.5 years. See Table 1 for more details on participant demographics.

During the initial assessment, 92% ($n = 155$) of participants reported on the types of gambling they engaged in within the past year. Participants all reported engaging in more than one type of gambling activity. The majority of the sample spent time as casino gamblers; 88.2% ($n = 150$) had been to a casino at least once within the past year; 73.5% ($n = 125$) reported going to the casino at least monthly. Slot machine gambling (83.5%, $n = 142$) followed by cards playing (58.2%, $n = 99$) were the most frequently endorsed gambling activities. Engagement in the following gambling activities was also endorsed: bets on animals (33.5%, $n = 57$), sports betting (19.4%, $n = 33$), dice games (32.9%, $n = 56$), lotteries (32.9%, $n = 56$), bingo (38.2%, $n = 65$), stock market (29.4%, $n = 50$), bets on games of skill (25.5%, $n = 43$), and Internet based betting (10.0%, $n = 17$). Nearly 13% of the sample reported engaging in eight or more types of gambling. See Table 2 for more details of past year gambling frequency rates.

Table 1
Demographic characteristics of the total sample of treatment seeking gamblers.

Variables	*n*	%	*M*	*SD*	Range
Age (years)	170	–	45.5	10.2	18–69
Sex					
Female	76	44.7	–	–	
Male	94	55.3	–	–	
Ethnicity					
Caucasian	115	67.6	–	–	
African American	44	25.9	–	–	
Hispanic	2	1.2	–	–	
Other	9	5.3	–	–	
Marital status					
Single	27	15.9	–	–	
Married	81	47.6	–	–	
Previously married	57	33.6	–	–	
Did not respond	5	2.7	–	–	
Education					
Less than high school	3	2	–	–	
High school/equivalent	25	14.7	–	–	
Some college	68	40	–	–	
College degree	46	27.1	–	–	
Graduate degree	24	14.1	–	–	
Did not report	4	2.4	–	–	