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Personality factors as predictors of pathological gambling

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ABSTRACT

The aim of this study was to investigate the relationship between different personality variables and pathological gambling (PG). The NEO-FFI and measures of impulsivity and sensation-seeking were administered to a sample of pathological gamblers ($n = 90$) and to a contrast group of non-pathological gamblers ($n = 66$) matched on sex and age. Gender, age, education level and the personality variables were entered into crude and adjusted logistic regression analyses with PG-status as the dependent variable. The results showed that educational level and all personality variables were significant predictors of PG in the crude analyses, however only four of the 12 significant predictor variables (Neuroticism, Openness, Impulsivity, and need for Stimulus Intensity) remained significant in the adjusted analysis. All predictor variables accounted for 71% of the variance in PG-status. Clinical implications of the findings are discussed.

1. Introduction

Pathological gambling (PG) has been classified as an impulse-control disorder in the Diagnostic and Statistical Manual for Mental Disorders-IV (DSM-IV; American Psychiatric Association, 2000). The lifetime prevalence of problem and pathological gambling has been found to be between 1% and 3% in the adult population of North America (Shaffer & Hall, 2001). So far there have been few and limited studies focusing on personality characteristics of pathological gamblers, although it has been hypothesized that personality is one of many factors contributing to the development and maintenance of PG (Bagby et al., 2007). Hence, more knowledge about personality characteristics could be helpful in understanding antecedents related to PG, and as well as for designing more effective prevention and intervention strategies.

Previous studies have shown impulsivity to be associated with PG severity (Alessi & Petry, 2003), to be a mediator between depression and PG (Clarke, 2005), as well as to be related to drop-out from treatment (Leblond, Ladouceur, & Blaszczynski, 2003). In addition, several studies have demonstrated that pathological gamblers are characterized by higher rates of impulsivity than non-(pathological) gamblers (Nower, Derevensky, & Gupta, 2004; Steel & Blaszczynski, 1998). However, one study found that impulsivity was not higher in gamblers than in other substance abuse control groups, suggesting that impulsivity may not be specific for gambling addiction but rather associated with addictions in general (Allcock & Grace, 1988).

Blaszczynski and Nower (2002) propose in their "pathway model" of problem gambling that impulsivity may be an important factor in the developmental process of the disorder. They suggested the existence of three subgroups of PG and proposed that impulsivity is only characteristic of a sub-group of pathological gamblers. According to their model, the first group is essentially normal in character with no pre-morbid psychological disturbance, but they lose control over gambling due to classical and operant conditioning and distorted cognitions related to probabilities of winning. The second subgroup, they proposed, is characterized by disturbed family and personal histories, poor coping and problem-solving skills, and affective instability, and gambling serves the function of emotional escape through dissociation while gambling. The third group is characterized by a biological vulnerability toward impulsivity, early onset, attentional deficits, antisocial traits and poor response to treatment. Dysfunctional neurological structures and dysregulation of neurotransmitter systems are thought to play an important role in this subtype.

Impulsivity has in some studies been associated with sensation seeking (Nower & Blaszczynski, 2006), and Zuckerman (1994) suggested combining sensation seeking with impulsivity to create a super trait called 'impulsive sensation seeking'. Sensation seekers are generally defined as 'those who seek novel, varied or complex sensations or experiences and who are willing to take risks for the sake of such experiences' (Breen & Zuckerman, 1999), and Zuckerman (1999) proposed that pathological gamblers are the prototype of a high sensation seeker. Although some studies have shown that

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pathological gamblers have high scores on measures of sensation seeking (Anderson & Brown, 1984), findings in this field have been contradictory and several studies have failed to support the link between PG and sensation seeking (Hammelstein, 2004). Breen and Zuckerman (1999) suggest that the failure of some studies to support the "sensation seeking hypothesis" in pathological gamblers might be due to methodological weaknesses such as small samples or failure to control for variables such as age and sex. Studies have for example shown that adults usually score lower on measures of sensation seeking than adolescents, and that males often score higher than females (Arnett, 1994). There has also been some controversy regarding the assessment of sensation seeking (Hammelstein, 2004). Arnett (1994) suggested a new concept of sensation seeking which emphasizes both *novelty* and *intensity* as the two components of sensation seeking, and developed a scale measuring the need for novelty and intensity of stimulation; the Arnett Inventory of Sensation Seeking (AISS).

The Five-Factor Model of personality is one of the best documented personality taxonomies (McCrae & Costa, 2003). According to the model there are five main dimensions underlying individual differences in personality: Neuroticism (easily upset, maladjusted, not calm), Extraversion (assertive, energetic, and talkative), Openness (imaginative, independent-minded, and intellectual), Agreeableness (cooperative, good-natured, trusting), and Conscientiousness (dependable, orderly, responsible) (Costa & McCrae, 1992). To the best of our knowledge, only one study (Bagby et al., 2007) has so far investigated the Five-Factor Model in pathological gamblers. In that study it was found that pathological gamblers scored higher on Neuroticism and lower on Conscientiousness compared to non-pathological gamblers. However, no differences in the excitement-seeking facet were found. It was concluded that pathological gamblers were characterized by a personality profile combining high impulsivity with emotional vulnerability, but that excitement-seeking, a personality construct closely resembling sensation seeking, was not specific for PG, but rather a characteristic of all who gambled (Bagby et al., 2007).

As there still is controversy about which personality factors typically characterize pathological gamblers, we conducted a study combining measures of the Five-Factor Model of personality with measures of impulsivity and sensation seeking. As far as our knowledge extends, this is the first study combining these measures in a comparative study of pathological and non-pathological gamblers. The aim of the present study was hence to investigate which personality and demographic variables are significantly associated with PG, and to investigate which of these predictor variables will still remain significant while controlling for the joint contribution of the other variables.

2. Method

2.1. Participants and procedure

The sample consisted of 90 pathological gamblers (PGs) (66 men and 24 women) and a contrast group (CG) of non-pathological gamblers ($n = 66$) matched on sex and age. The PGs were treatment seeking patients who were recruited to participate in either an outpatient ($n = 69$) or in-patient ($n = 21$) treatment study for PG through advertisement in regional newspapers, referrals from the national help-line or by referrals from general practitioners. All of the participants in the PG-group satisfied the DSM-IV diagnostic criteria for PG (American Psychiatric Association, 2000) satisfying five or more symptoms ($M = 7.8$, SD = 1.6) of PG in the last 3 months. Their mean age was 37.9 years (SD = 12.7). All participants signed an informed consent prior to inclusion in the study. Participants in the PG group completed the instruments as a part of the screening procedure before entering treatment. The CG was also recruited through advertisement in a regional newspaper, and was offered a gift-certificate with a value of 12.5 EUR/18 USD/9.5 GBP (at the time of testing) for completing a research protocol consisting of measures of gambling behavior, impulsivity, sensation seeking and personality characteristics. In order to be included in the CG, the participants had to receive a score of 3 or less on the South Oaks Gambling Screen Revised (SOGS-R) (Lesieur & Blume, 1987). Two of the respondents received a SOGS-R score > 3, and were hence excluded from the analyses. The mean age for the CG was 40.2 years (SD = 12.3). The study was approved by the Regional Committee for Medical and Health Research Ethics in Western Norway and by the Norwegian Social Science Data Service. The study complied with the tenets of the Helsinki Declaration.

2.2. Instruments

The South Oaks Gambling Screen – Revised (SOGS-R) (Lesieur & Blume, 1993) is a self-report screening instrument consisting of 16 items measuring gambling problems during the last 3 months. The scores range from 0 to 20. According to Lesieur and Blume (1987), a score of 5 points or higher serves to identify probable pathological gamblers. The SOGS is based on the DSM-III-R criteria for PG (Lesieur & Blume, 1987).

The NEO-Five Factor Inventory (NEO-FFI) is a short version of the NEO PI-R consisting of 60 items, providing a brief, comprehensive measure of the five domains of the Five-Factor Model; Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A) and Conscientiousness (C), each subscale measured by 12 items scored on a five point Likert scale (Costa & McCrae, 1992). The Cronbach alphas for the scales in the present study were 0.90 (Neuroticism), 0.83 (Extraversion), 0.78 (Openness), 0.66 (Agreeableness), and 0.82 (Conscientiousness), respectively.

The Eysenck Impulsivity Scale, Narrow Impulsiveness subscale (EIS-nI) (Eysenck & Eysenck, 1977) is a measure of narrow (pathological) impulsivity consisting of 13 items regarding the ability to plan, postpone or think before acting. The instrument has good intercorrelations with other measures of impulsivity, and has been found to consistently identify a specific form of impulsivity that correlates with the personality trait of psychoticism (Nower et al., 2004). The instrument uses dichotomous answer categories of 'yes' and 'no'. The Kuder-Richardson-20 value for the EIS-nI in this study was 0.81.

The Barratt Impulsiveness Scale (BIS-11) (Patton, Stanford, & Barratt, 1995) is a 30 item measure of impulsivity using a 4-point Likert scale (1 = never/seldom, 2 = sometimes, 3 = often and 4 = always/almost always) to indicate severity of each item. The BIS-11 consists of three subscales: Motor Impulsiveness, Attentional Impulsiveness, and Non-planning Impulsiveness. The Cronbach alpha for the BIS-11 was 0.87 in the present study.

The Arnett Inventory of Sensation Seeking (AISS) (Arnett, 1994) is a Likert based instrument of 20 items, where the response categories indicate how well each statement fits (1 = very well, 2 = somehow, 3 = not good, 4 = not at all). The AISS consists of 2 subscales: need for Novelty and need for Stimulus Intensity. The Cronbach's alpha for the AISS was 0.74 in this study, and 0.63 and 0.66 for the subscales need for Novelty and need for Stimulus Intensity, respectively.

2.3. Statistics

The data were coded and processed using the SPSS version 15. T-scores for the NEO-FFI subscales were calculated using adult norms for men and women, respectively. Crude (not adjusted) logistic regression analyses were conducted to examine whether different demographic variables (gender, age, education level) and