



Personality correlates of pathological gambling derived from Big Three and Big Five personality models

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ABSTRACT

Personality traits have proved to be consistent and important factors in a variety of externalizing behaviors including addiction, aggression, and antisocial behavior. Given the comorbidity of these behaviors with pathological gambling (PG), it is important to test the degree to which PG shares these trait correlates. In a large community sample of regular gamblers ($N=354$; 111 with diagnoses of pathological gambling), the relations between measures of two major models of personality – Big Three and Big Five – were examined in relation to PG symptoms derived from a semi-structured diagnostic interview. Across measures, traits related to the experience of strong negative emotions were the most consistent correlates of PG, regardless of whether they were analyzed using bivariate or multivariate analyses. In several instances, however, the relations between personality and PG were moderated by demographic variable such as gender, race, and age. It will be important for future empirical work of this nature to pay closer attention to potentially important moderators of these relations.

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1. Introduction

The study of externalizing behavior from the perspective of personality has yielded valuable data regarding the correlates of substance use, aggression, and antisocial behavior (e.g., Jones et al., 2011; Kotov et al., 2010). Meta-analyses suggest that personality traits related to neuroticism, impulsivity, and antagonism are the largest and the most consistent of externalizing behaviors. The personality literature on pathological gambling (PG) is at a more nascent stage, at least compared to the literature on the aforementioned externalizing behaviors with which PG tends to be comorbid (e.g., Petry et al., 2005). The comorbidity of PG with these behaviors, particularly substance use and abuse, has resulted in a significant change in how PG will be categorized in the official diagnostic nosology. Pathological gambling, which is described in the Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV-TR; APA, 2000) as a pattern of “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits” (p. 671), is classified in the DSM-IV-TR as an “Impulse-Control Disorder.” This is likely to change in the DSM-5 (www.dsm5.org) such that PG is set to be included in the “Substance Use and Addictive Disorders” category.

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Although there are potential advantages and disadvantages of this change (Petry, 2006), one benefit is that it is likely to result in a substantial increase in the study of PG from a variety of perspectives, including an examination of PG’s personality correlates. Work of this nature is currently ongoing in the area of PG; a recent meta-analysis (MacLaren et al., 2011) found that traits related to neuroticism, disagreeableness, and disinhibition are among the most consistent personality correlates of PG. The authors of this meta-analysis suggest that the personality profile associated with PG is consistent with that found for substance use and other externalizing disorders. Similarly, research by Slutske et al. (2005) found that personality traits can help explain the statistical covariance between PG and substance use disorders. Findings such as these lend credence to the movement of PG from an impulse-control disorder to a category encompassing addictive disorders.

One limitation of the extant research on personality and PG is that many of the studies have relied on a single operationalization of personality such as measures of the Five-Factor Model (e.g., Bagby et al., 2007), Cloninger’s seven-factor Temperament and Character model (e.g., Janiri et al., 2007), Tellegen’s three-factor model (King et al., 2010) or Eysenck’s three-factor model (e.g., Blanco et al., 2001). Although these models can be integrated in meaningful ways (Markon et al., 2005), it is advantageous to study these relations using more than one measure of personality simultaneously, so as to ensure that findings are not specific to a given assessment.

A second limitation of many existing personality-based examinations of PG is the focus on the bivariate associations between personality traits and PG. The failure to examine the relations between personality domains and PG simultaneously makes it impossible to examine the unique relations between personality and PG. This is particularly important given that many of the domains from most major models of personality tend to manifest some degree of inter-relation. For instance, the Five-Factor Model (FFM) domains, as assessed by the Revised NEO Personality Inventory (Costa and McCrae, 1992), manifested correlations that ranged from -0.53 (Neuroticism–Conscientiousness) to 0.40 (Extraversion–Openness) in the data set used to develop norms for this instrument. The degree of overlap found among many traits may obscure the manner in which these traits are related to PG.

Finally, there has been little attention paid to moderators of the relations between personality and PG. This is unfortunate as the relations between personality and important clinical outcomes have been found to vary based on a number of factors including sample characteristics and assessment strategies (e.g., Jones et al., 2011; Samuel and Widiger, 2008). It is likely that the relations between personality and PG may be significantly stronger or weaker in the context of other variables such as gender, race, treatment status, and psychiatric comorbidity.

In the current study, we sought to address each of these issues. We examined the relations between personality and PG using two measures of the Big Five/FFM model of personality and an operationalization of Tellegen's three-factor model, which assesses three broad domains of negative emotionality, positive emotionality, and constraint, as well as 11 narrower subscales. In general, measures of these two models overlap substantially with significant convergence between Tellegen's negative emotionality factor and FFM neuroticism and antagonism, Tellegen's positive emotionality domain and FFM extraversion, and Tellegen's constraint domain and FFM conscientiousness (see Gaughan et al., 2009). We first examined the bivariate relations among these personality traits and PG with the expectation that traits related to negative emotionality/neuroticism, disconstraint, and disinhibition would manifest significant correlations. Second, we used exploratory factor analysis (EFA) to derive personality factors found across the three measures and examined the bivariate and unique relations between the EFA factors and PG. Finally, we examined whether the relations between personality and PG were moderated by three demographic variables: gender, race, and age.

2. Method

2.1. Participants

Participants included 368 frequent gamblers (i.e., gambled at least weekly), who were recruited using newspaper advertisements and word of mouth. Participants were excluded from the following analyses for lack of effort, inadequate familiarity with computers, and missing large portions of data; these exclusions resulted in a total sample of 354. The majority of participants were male (78%) with a mean age of 35.3 (S.D.=12.2; range: 18–64) who primarily self-identified as Caucasian (52%) or African American (43%). Eighty-one percent of the sample reported attending school for 12 or more years. Across gambling modalities, individuals endorsed the highest weekly frequencies for gambling via the lottery, followed by card games, betting on sports, and the use of slot machines.

2.2. Procedure

Potential participants first completed a phone screen to determine eligibility. Individuals were excluded from participation if they did not gamble at least once a week, currently lived with someone who already completed the study, could not use a computer, reported psychotic symptoms, or were younger than 18 or older than 65.

After providing informed consent, participants completed a diagnostic interview for PG, as well as a variety of self-report questionnaires. Participants were paid \$30 for their participation. Following payment, participants were debriefed and informed of local treatment resources available to gamblers. All procedures were approved by the University of Georgia Institutional Review Board.

2.3. Measures

2.3.1. Structured Clinical Interview for Pathological Gambling (SCI-PG)

The SCI-PG (Grant et al., 2004) is a semi-structured interview that assesses participants' current and heaviest gambling periods. In this study, current SCI-PG scores were used ($M=3.24$; S.D.=2.84; $\alpha=0.88$). One hundred and eleven individuals met criteria for a DSM-IV diagnosis of PG.

2.3.2. NEO Five-Factor Inventory (NEO-FFI)

The NEO-FFI (Costa and McCrae, 1992) is a 60-item measure of the Five-Factor Model of personality. Twelve items are used to assess each of the following domains: Neuroticism, Extraversion, Openness to experience, Agreeableness, and Conscientiousness. Coefficient alphas in the current study ranged from 0.67 (Openness) to 0.81 (Neuroticism).

2.3.3. Big Five Inventory (BFI)

The BFI (John et al., 1991) is a 44-item measure of the Big Five domains that are largely congruent with those posited in the FFM. In the current study, alpha coefficients ranged from 0.73 (Extraversion) to 0.82 (Neuroticism).

2.3.4. Multidimensional Personality Questionnaire-Brief Format (MPQ-BF)

The MPQ (Patrick et al., 2002) is a 155-item, self-report inventory that assesses 11 personality trait scales and three broad personality domains (i.e., Positive Emotionality, Negative Emotionality, Constraint) included in the model of Tellegen (in press) model. In this study, alpha coefficients for the 11 traits ranged from 0.65 (Harm Avoidance) to 0.87 (Stress Reaction) and from 0.79 (Constraint) to 0.91 (Negative Emotionality) for the domains.

2.3.5. Shipley Institute of Living Scale

Shipley Institute of Living Scale (Zachary, 1991) is a measure of intelligence, which consists of two brief subtests that assess vocabulary and abstract reasoning. Shipley scores are strongly correlated with scores from longer measures of intelligence (e.g., Matthews et al., 2011). The mean raw Shipley score in this sample was 50.59 (S.D.=15.6). Using an algorithm designed by Zachary et al. (1985), this Shipley score corresponds to a mean WAIS-R IQ of 90.38.

3. Results

3.1. Correlations among personality measures and pathological gambling

A p -value of <0.01 was used for all tests of statistical significance except for tests of moderation, which tend to be underpowered. For these analyses, a p -value of <0.05 was used so as to lower the probability of making type II errors. The two sets of domains from the measures of the Big Five and FFM manifested significant convergence with correlations ranging from 0.46 (Openness) to 0.79 (Neuroticism), with a median of 0.68 (see Table 1). In all cases, the convergent validity correlations (e.g., BFI Neuroticism–NEO-FFI Neuroticism) were larger than the off-diagonal correlations (e.g., BFI Neuroticism–NEO-FFI Conscientiousness). The measures of the Big Five/FFM also manifested similar correlations with the MPQ domains and subscales. At the domain level, BFI and NEO-FFI Neuroticism manifested their largest correlations with MPQ Negative Emotionality. BFI and NEO-FFI Extraversion manifested their largest domain level correlations with MPQ Positive Emotionality. FFI Openness manifested its strongest correlation (negatively valenced) with MPQ Constraint, whereas BFI Openness manifested its largest correlation with the domain of Positive Emotionality. BFI and NEO-FFI Agreeableness manifested their largest correlations (negatively valenced) with the domain of Negative Emotionality. Finally, BFI and NEO-FFI Conscientiousness manifested their largest correlations with the domain of Constraint.

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