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### Addictive Behaviors



# Predicting treatment failure in pathological gambling: The role of personality traits



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#### HIGHLIGHTS

- Impulsivity is a significant predictor of treatment failure.
- Pathological gamblers score higher on N-Anx compared to controls.
- The ZKPQ is a useful tool for identifying PGs at risk of treatment failure.
- Personality traits are useful in deciding the clinical approach to PG.

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#### ABSTRACT

Introduction: The aim of this study was twofold: First, to assess the personality profile of treatment-seeking adult outpatients with pathological gambling compared to a matched control group under the Alternative Five Factor Model perspective, and second, to determine which personality variables would predict treatment outcome. *Methods:* The final total sample consisted of 44 consecutive treatment-seeking pathological gamblers (PGs) and 88 controls paired by age and sex who completed the Zuckerman–Kuhlman Personality Questionnaire (ZKPQ). Twelve months after starting an open program of individual cognitive-behavioral therapy, PGs were categorized as abstinent or treatment failure.

Results: PGs scored significantly higher on Neuroticism–Anxiety. Those who had relapsed or dropped out showed higher Impulsivity and Sensation Seeking scores. Impulsivity emerged as a significant predictor of treatment failure. Treatment-seeking PGs scored higher on Neuroticism–Anxiety and Impulsivity appeared as a risk factor of relapsing or dropping out.

Conclusions: Our findings support the importance of individual differences in personality on therapy outcomes. The ZKPQ may constitute a useful tool to identify these individual differences that might be considered when making personalized treatment decisions to improve the effectiveness and quality of treatment interventions.

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#### 1. Introduction

Pathological gambling (PG) is characterized by an inability to resist recurrent urges to gamble excessively, despite harmful consequences to the gamblers themselves, their families and the society. Estimates indicate that 70–90% of North Americans have engaged in some form of gambling activity (Raylu & Oei, 2002), although epidemiological surveys place the prevalence rate of PG at 1–2% of the general population

(Petry, 2005) suggesting that the majority of individuals who gamble do not develop PG. The discrepancy between those who gamble and do not develop PG, and those who gamble and do, has led researchers to search for vulnerability factors related to this disorder and its characteristics.

In this search for vulnerability factors, in a recent meta-analysis Maclaren, Fugelsang, Harrigan, and Dixon (2011) summarized studies on personality and pathological gambling concluding that the personality profile of pathological gamblers is similar to that of people with substance use disorders and as such, they should be treated as those having a behavioral addiction. In view of these empirical findings, the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) has included several modifications to the diagnosis of pathological gambling: (a) The name of the disorder has been changed to Gambling Disorder, (b) the Gambling Disorder has been

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moved to the chapter on "Substance-Related and Addictive Disorders", (c) the threshold for diagnosing has been reduced from five criteria to four, and (d) one of the criteria has been removed: "Has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling".

It is known that individual differences in personality may play an important role in explaining the risk of developing and maintaining PG. Most of the research on the association between personality and PG has been conducted under the Five Factor Model (FFM) of personality pointing out that the personality profile of PG seems to be characterized by high Neuroticism, low Conscientiousness and a tendency towards low scores on Agreeableness or its facets (Bagby et al., 2007; Kaare, Mõttus, & Konstabel, 2009; Maclaren, Fugelsang, Harrigan, & Dixon, 2011; Myrseth, Pallesen, Molde, Johnsen, & Lorvik, 2009).

Although few studies have focused on the personality profile of pathological gamblers, still fewer have focused on which personality traits might predict treatment outcome (Ledgerwood & Petry, 2006). Systematic reviews on treatment outcome have found that the prevalence of relapses in pathological gambling is very high (Ledgerwood & Petry, 2006) and that dropouts from psychological treatment identified percentages ranging from 14–50% with a median of 26% (Melville, Casey, & Kavanagh, 2007). These findings are highly significant if we consider that PGs who seek treatment comprise a minority within those found in community samples (Slutske, 2006).

Reviewing the literature on treatment outcome, specifically on relapse and dropout, Ledgerwood and Petry (2006) and Melville et al. (2007) found that personality variables such as Neuroticism and Impulsivity were associated with treatment failure. Their reviews highlighted several points to consider: (a) There is no consistent operational definition regarding what constitutes relapse and dropout in PG, (b) the field is characterized by a failure to replicate results, (c) to date, only a small number of variables have been studied in relation to the association between PG and treatment outcome, and (d) individual differences in personality may play an important role in explaining the risk of relapsing and dropping out. These authors could hardly identify a handful of studies that specifically addressed the relationship between personality and relapse or dropout. In this sense, a recent study by Ramos-Grille, Gomài-Freixanet, Aragay, Valero, and Vallès (2013) addressed this question. The authors researched which personality domains would predict relapse and dropout after 1-year follow-up by administering the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992) to 73 treatment-seeking slot-machine PGs attending an open program of individual cognitive-behavioral therapy. This study identified low scores on Conscientiousness as a significant predictor of relapse; whereas low scores on Conscientiousness and Agreeableness were significant predictors of dropout. These findings support the importance of differential patterns of individual differences on treatment outcome.

Trait theories of personality have attempted to associate known psychobiological mechanisms with personality traits. One of the models of personality based on a psychobiological approach is the Alternative Five Factor Model (AFFM) proposed by Zuckerman, Kuhlman, Joireman, Teta, and Kraft (1993). Factor analyses using biological markers for each hypothesized trait yielded five reliable and identifiable factors across genders: Neuroticism-Anxiety (N-Anx), Activity (Act), Sociability (Sy), Impulsive Sensation Seeking (ImpSS), and Aggression-Hostility (Agg-Host). In this model, no measures of cultural interests or intellectual styles were included because of Zuckerman's (1984) conception that basic traits should be easily comparable to traits in other species and found throughout the human lifespan. Aggression rather than Agreeableness, and Impulsive Sensation Seeking rather than Conscientiousness were included. Furthermore, the broad dimension of Extraversion was divided into the separate factors of Activity and Sociability (Zuckerman, 2002). In this AFFM, the dimension of N-Anx does not include either Impulsivity or Hostility traits, as does the NEO PI-R; instead, specific scales for these two traits are included. This conceptual and empirical differentiation may be heuristic in the conceptualization of PG as an addictive disorder, as Impulsivity is one of the most consistently associated traits with addictive disorders (Verdejo-García, Lawrence, & Clark. 2008).

The aim of this study is twofold: First, to assess the personality profile of treatment-seeking adult outpatients with PG compared to a matched control group under the AFFM perspective; and second, to determine which personality variables would predict treatment outcome, defined as relapsing or dropping out after 1-year follow-up. From the results obtained using other models of personality assessment and paralleling the FFM with the AFFM, we hypothesized that: (a) PGs, compared to a control group, would score higher on Neuroticism–Anxiety and Impulsivity, and would show a tendency towards high scores on Aggression–Hostility, and (b) Impulsivity would predict the risk of relapsing or dropping out.

To our knowledge, no studies have been conducted with the AFFM to identify the personality profile of treatment-seeking PGs and the personality variables that might predict treatment outcomes. Identifying the personality traits that will predict those who will abstain is of great importance in attempting to maximize the effectiveness and outcome of treatment interventions.

#### 2. Material and methods

#### 2.1. Participants

For the purposes of this study, we used two samples matched by age and sex. The age range for both samples was from 21 to 75 years ( $M_{age}=39.84;\,SD=13.61$ ), 90.9% were men. The clinical sample consisted of 44 White consecutive adult pathological gambler outpatients who sought treatment at the Pathological Gambling Unit of Consorci Sanitari de Terrassa during the period January 2011–December 2012.

Pathological gambling was diagnosed with the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS; Gerstein et al., 1999) and the mean number of DSM-IV-TR criteria for pathological gambling met in the last three months before starting treatment was  $6.9 \ (SD=1.37)$ . Participants were engaged in the following forms of gambling: Slot machines 90.9%; bingo 15.9%; lotteries 13.7%; Internet gambling 9.2% and table games played at casinos 2.3%. More than half of the sample (52.3%) presented co-occurring psychopathology: 20.6% had a mood disorder; 18.2% abused or were dependent on alcohol and 16.1% had an anxiety disorder.

The control sample comprised 88 subjects extracted from a more comprehensive general population sample pool, stratified by sex and age, consisting of 570 males and 599 females ranging in age from 18 to 93 years. This general population sample, which formed part of a wider study designed to obtain the Spanish norms of the ZKPQ, matched the IDESCAT Census Projections in the distribution of age and sex groups (Gomà-i-Freixanet & Valero, 2008).

#### 2.2. Instruments

Gambling behavior was assessed with the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS, Gerstein et al., 1999). The NODS questionnaire is based on DSM-IV criteria and contains 17 lifetime items. The test–retest reliability of this instrument is 0.99 (Gerstein et al., 1999).

Before beginning treatment, participants completed an extensive clinical history comprising sociodemographic data (age, gender, race, employment, marital status, and years of schooling), data regarding their lifetime history of gambling (age of onset, duration of the gambling problem, frequency of gambling, and time and money spent gambling) and other clinical variables of interest such as abuse or dependence on alcohol, use or abuse of illegal substances and pharmacological treatment were also considered. In addition, in every treatment session and throughout the follow-up, we registered additional clinical

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