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Comparison of personality risk factors in bulimia nervosa and pathological gambling

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Abstract

Objective: The objective of the study was to assess the predictive value of personality profiles to classify individuals with bulimia nervosa (BN), pathological gambling (PG), and a nonpsychiatric comparison group while controlling for sex.
Methods: The sample comprised 270 BN (241 women, 29 men), 429 PG (42 women, 387 men), and 96 comparison (nonpsychiatric) subjects (35 women, 61 men). All patients were consecutively admitted to our Psychiatry Department and were diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders*, *Fourth Edition*, *Text Revision* criteria. We administered the Temperament and Character Inventory–Revised as well as other clinical indices. Multinomial and binary logistic regression models adjusted for age and stratified by sex were used to assess the predictive value of personality in relation to group status.
Results: In comparison to controls, high Novelty Seeking ($P < .001$) was specifically associated with a diagnosis of PG. Independently of sex, low Self-Directedness was associated with both BN ($P < .001$) and PG ($P < .001$). Some sex-specific differences were also observed; namely, women with BN and PG displayed higher Harm Avoidance and Cooperativeness than control women, whereas men with PG reported higher Reward Dependence and Persistence than control men.
Conclusions: Our results suggested that, whereas there are some shared personality traits between BN and PG when compared with healthy controls, there are also some sex- and diagnostic-specific personality traits that weigh against the consideration of BN as an impulse control disorder.

1. Introduction

The *Diagnostic and Statistical Manual of Mental Disorders*, *Fourth Edition*, *Text Revision* (DSM-IV-TR) impulse control disorders include pathological gambling (PG), pyromania, kleptomania, intermittent explosive disorder, and trichotillomania, as well as impulse control disorders not otherwise specified. Overall, these disorders are characterized by a "failure to resist an impulse, drive, or temptation to perform an act that is harmful to the person or to others" (see APA, 2000) [1]. This clinical description might also be applicable to some symptoms of eating disorders (EDs), especially bulimia nervosa (BN). In this respect, shared vulnerabilities have been described in impulse control disorders and EDs. In particular, BN and PG have been hypothesized to be associated with dysfunction in the brain's reward system [2-5]. Such underlying processes might explain the reinforcing efficacy of both gambling and binge eating and purging. Insofar as personality profiles are hypothesized to reflect underlying neurotransmitter function [6-8], they may be a valuable window into the nature of this dysfunction and a means to identify similarities and differences between the 2 disorders both in men and women.

Although many studies of EDs have explored impulsivity as a behavior or as a personality trait, the relation between EDs and *diagnosed* impulse control disorders has rarely been investigated. The few studies that have studied impulse control disorders in individuals with EDs report a lifetime prevalence ranging from 3% to 24% [9]. These numbers and

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the association of these disorders to impulsivity have led some authors to propose the existence of a subgroup of eating-disordered patients, specifically BN patients, called *multi-impulsive bulimia* [10-12]. This subgroup of patients displays more frequently comorbidity with alcohol abuse and other impulsive behaviors such as self-harm, shoplifting, and others, as well as a family history of alcohol abuse. In general psychiatric populations, individuals who also present with impulse control disorders tend to report earlier age of onset and greater severity of the primary disorder, greater comorbidity, and poorer prognosis [13,14].

The literature on the personality profile of individuals with PG is quite inconsistent. Most studies focus on impulsivity and sensation seeking, so studies addressing the general personality profile of these patients are scarce and inconclusive. Whereas some studies report high scores on impulsivity [15,16], others do not find differences in comparison to healthy controls [17]. Some have resolved these disagreements by proposing the existence of subgroups of pathological gamblers [18].

In contrast, the literature on personality of BN patients is more consistent, with reports of high impulsivity, lack of goal direction, harm avoidance, and, paradoxically, sensation seeking, together with increased rates of cluster B and, to a lesser degree, cluster C personality disorders [19-22]. The relatively frequent presence of impulsivity (both as a trait and as behavior) in BN has favored the consideration of this diagnosis as an impulse control disorder. However, scarce evidence exists to evaluate this proposition.

On the other hand, although sex differences on personality traits and profiles are well known in the literature [23-25], studies that analyze this topic in-depth are lacking both in BN and PG. The markedly different sex distribution in both disorders (higher proportion of men in PG and of women in BN) is surely one of the main causes of this theoretical flaw. Bulimic men report greater body satisfaction, lower drive for thinness, higher perfectionism, greater interpersonal distrust, and more frequent homosexuality than bulimic women [26-28]. The functional significance of both bulimic symptoms and gambling could also differ across the sexes [29].

Given this proposed association between BN and impulse control disorders, we assessed the predictive value of personality profiles to classify individuals with BN (with no history of PG), individuals with PG (with no history of an ED), and healthy control subjects while controlling for the effect of sex.

Theoretically, as temperamental features predate the onset of axis I psychiatric disorders, we applied a different approach to the measure of these differences by using personality as a predictive factor of diagnosis, instead of simply comparing personality profiles among groups. We hypothesized that BN would share some similarities in personality traits with other impulse control disorders (namely, PG) but that there would also be differences between both disorders enough to consider BN as a different diagnosis in relation to impulse control disorders. Secondly, we hypothesized that there would be sex-specific differences between both disorders.

2. Methods

2.1. Participants

The sample comprised 270 BN patients (241 women, 29 men), 429 PG patients (42 women, 387 men), and 96 nonpsychiatric subjects (comparison group [CG]) (35 women, 61 men). All participants with PG or BN were diagnosed according to the DSM-IV criteria using a semistructured clinical interview, that is, the Structured Clinical Interview for DSM-IV Axis I Disorders [30], conducted by experienced psychologists and psychiatrists. All interviewers were trained in the administration of the Structured Clinical Interview for DSM-IV Axis I Disorders, although formal interrater reliability was not computed for this study. The PG and BN participants were consecutive referrals for assessment and treatment at the Department of Psychiatry of the University Hospital of Bellvitge in Barcelona.

The mean age of individuals with BN was 25.8 years (SD = 6.7) (men: 25.0 years, SD = 6.2; women: 25.9, SD = 6.8). Mean age of onset of the disorder was 19.3 years old (SD = 6.4) (men: 19.9, SD = 6.5; women: 19.2, SD = 6.4). Mean duration of illness was 6.6 years (SD = 5.1) (men: 5.1, SD = 3.5; women: 6.7, SD = 5.3). Eighty-seven percent (n = 235) were purging subtype. This percentage did not differ by sex (89.7% men vs 87.1% women; $P = .699$).

In PG patients, the mean age was 38.9 years (SD = 12.5) (men: 38.4, SD = 12.5; women: 43.7, SD = 12.0). Mean age of onset of the disorder was 32.7 years old (SD = 12.0) (men: 32.6, SD = 12.0; women: 33.9, SD = 12.1). The mean duration of illness was 6.1 years (SD = 6.1) (men: 5.8, SD = 5.7; women: 5.8, SD = 8.2). In this group, 93.5% (n = 401) were mainly slot machine gamblers and the remaining 6.5% (n = 28) were mainly bingo, casino, lottery, or card players. The distribution of the main gambling problem by sex was statistically different (slot machines: 95.6% men vs 87.5% women; $P = .001$).

Psychiatrically healthy subjects (CG) were recruited from individuals visiting the hospital for routine blood tests. None of the controls had a history of mental illness or had current substance abuse or dependence. All controls came from the same catchment area as our patients. Their mean age was 38.0 years (SD = 13.6) (men: 35.6, SD = 12.6; women: 42.1, SD = 14.5).

For the present analysis, from an initial sample of 537 ED and 698 PG, the following individuals were excluded: (*a*) participants with anorexia nervosa (n = 122 ED) or ED not otherwise specified (n = 146 ED and n = 3 PG); (*b*) patients with a psychotic episode (n = 29 PG); (*c*) patients who could not complete the assessment because of cognitive impairment, visual deficits, neurological diseases, etc (n = 2 ED and n = 117 PG); (*e*) patients who