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BRIEF COMMUNICATION

Impulsivity and compulsive buying are associated in a non-clinical sample: an evidence for the compulsivity-impulsivity continuum?

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Objective: Compulsive buying is controversial in clinical psychiatry. Although it is defined as an obsessive-compulsive disorder, other personality aspects besides compulsivity are related to compulsive buying. Recent studies suggest that compulsivity and impulsivity might represent a continuum, with several psychiatric disorders lying between these two extremes. In this sense, and following the perspective of dimensional psychiatry, symptoms of impulsivity and compulsivity should correlate even in a non-clinical sample. The present study aims to investigate whether these two traits are associated in a healthy adult sample.

Methods: We evaluated 100 adults, with no self-reported psychiatric disorders, using the Barratt Impulsiveness Scale-11 and two scales of compulsive buying.

Results: Using multiple linear regressions, we found that impulsivity accounted for about 15% of variance in the compulsive-buying measure.

Conclusions: Our results suggest that an association between impulsivity and compulsive buying occurs even in non-clinical samples, evidence that compulsivity and impulsivity might form a continuum and that compulsive buying might be an intermediate condition between these two personality traits.

Keywords: Impulsivity; compulsivity; compulsive buying; dimensional psychiatry; personality

Introduction

There is growing interest regarding the relationship between extreme expression of dimensional personality traits and psychiatric disorders. Impulsive and compulsive acts are among those traits associated with several mental disorders, such as attention deficit/hyperactivity disorder, bipolar disorder, obsessive-compulsive disorder, autism spectrum disorder, and drug addiction.^{1,2} Impulsivity is related to acting without adequate thought or to a predisposition toward rapid and unplanned reactions without regard for behavioral consequences,³ while compulsivity is a trait in which actions are persistently repeated, despite adverse consequences.²

Berlin & Hollander recently proposed an interesting discussion about the role of compulsivity and impulsivity in the DSM-5,⁴ conceptualizing both traits as lying along a compulsive-impulsive dimension. Compulsivity would be related to relying on stimulus-response habit learning and/or risk-averseness, while impulsivity would be related

to devaluing risk and/or sensitivity to rewards. Some psychiatric disorders may be better characterized by one of these poles, such as obsessive-compulsive disorder or impulse-control disorders. However, other may show symptoms related to both impulsivity and compulsivity, such as trichotillomania and pathological gambling. The nature of the relationship between impulsive and compulsive behaviors is still unclear, but impulsivity may confer vulnerability to a range of compulsive behaviors, such as substance abuse.⁵ That said, it is reasonable to expect an important relationship between impulsivity and compulsive phenotypes in the more parsimonious portions of the compulsive-impulsive dimension.

A disorder likely to be affected both by impulsivity and compulsivity is compulsive buying, often termed “oniomania.” According to McElroy et al.⁴ compulsive buying involves a maladaptive preoccupation with buying or with impulses toward and behavior around shopping. These symptoms must occur independently from periods of mania or hypomania. According to a literature review that included epidemiological studies, the prevalence of compulsive buying is about 5%, and its clinical symptoms are associated with psychological distress, financial and legal problems, and interpersonal conflict.⁵ The proposed criteria for compulsive buying have created a more collaborative research framework.⁴ However, the clinical

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validity has been widely discussed, with important criticisms delivered by both psychiatrists and psychologists, since its symptoms are characteristic of many different mental disorders, including those expressed on an impulsivity-compulsivity continuum.

In this regard, we sought to investigate the potential association between impulsivity and compulsive-buying behaviors by following a dimensional perspective. Our hypothesis is that impulsivity will be significantly and moderately associated with compulsive-buying behavior. For this purpose, a non-clinical sample with no reports of psychiatric disorders or neurological diseases was preferred over a clinical sample, since knowledge about how behavioral measures are expressed across a broad range of severity is of utmost importance to the understanding of pathways that lead to more extreme or more problematic forms of traits.⁶

Methods

Participants

To assess our hypothesis, we evaluated 100 young adults (mean age 23.48 ± 5.34 years), predominantly students of a private School of Health Sciences in Belo Horizonte, state of Minas Gerais, Brazil. This convenience sample was recruited by the researchers through advertisements and social networks. Interested participants were personally contacted by the researchers. No inclusion criteria related to shopping habits were adopted. According to a Brazilian economic classification,⁷ most participants came from the B1 (38%) and B2 (26%) classes, which represents an average family income of US\$ 858 to US\$ 1,483. Participants were predominantly female (76%), single (85%), and had no self-reported psychiatric disorders or neurological disease. All participants

gave written consent for participation, and the local ethics committee approved the study.

Psychological assessment

Impulsivity

Participants answered the Barratt Impulsiveness Scale 11 (BIS-11).⁸ Briefly, this scale involves questions related to three different aspects of impulsivity: 1) non-planning (tendency to focus on the present); 2) attentional (quick decision-making); and 3) motor (inhibition of maladaptive responses). The scale has been adapted for use in Brazilian adults.⁹ We used the BIS-11 total score as our measure of impulsivity. The sum of items on the BIS-11 ranges from 30 to 120. Higher values represent higher impulsivity.

Compulsive buying

We adopted Brazilian versions of the Richmond Compulsive Buying Scale (RCBS)¹⁰ and Compulsive Buying Scale (CBS)¹¹ as compulsive-buying measures. These are well-established scales for the assessment of compulsive-buying symptoms. Although these scales are insufficient for defining a clinical diagnosis according to the McElroy et al. criteria,⁴ they are interesting nonetheless for characterizing the frequency and intensity of compulsive-buying behavior. Correlation between the CBS and RCBS scores was high ($r = -0.613$, $p < 0.001$). To avoid the use of different measures with opposite scoring systems, we inverted the CBS total score and added it to the RCBS total score, creating a unique measure of compulsive buying (μ CBS). Scores on this unified measure ranged from 13 to 77; higher scores were indicative of more frequent and intense compulsive-buying traits.

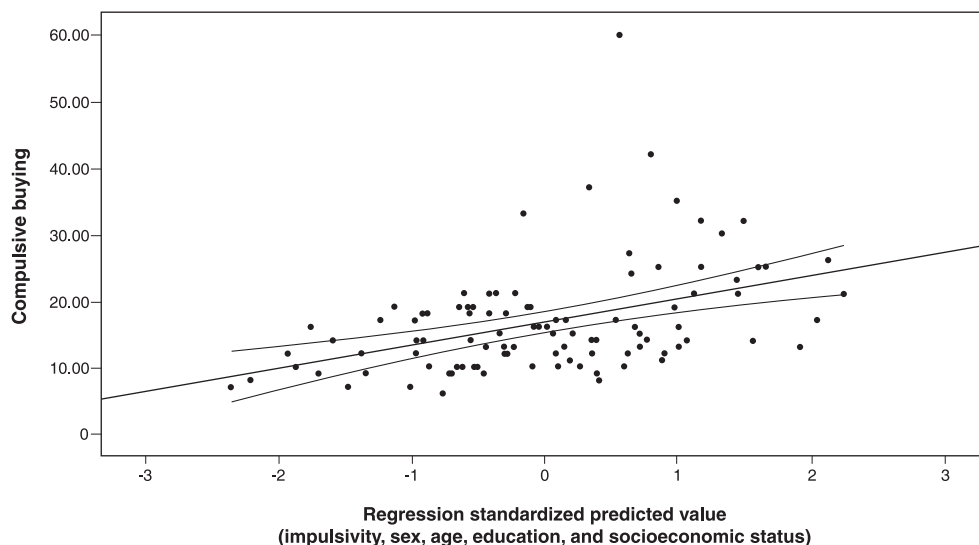


Figure 1 Association of the Barratt Impulsiveness Scale 11 (BIS-11) and sociodemographic factors with compulsive buying. The linear regression model, represented with the compulsive-buying measure as dependent variable and the BIS-11 and sociodemographic measures as independent variables, showed a moderate association between impulsivity and compulsive buying ($F = 6.92$, $p < 0.001$, adjusted $R^2 = 0.15$), where only the BIS-11 total score was a significant predictor of compulsive buying ($\beta = 0.45$, $t = 4.32$, $p < 0.001$).

Statistical analysis

To test for associations between impulsivity and compulsive buying, we used partial correlations, controlling for sociodemographic measures. This control procedure was adopted because age, socioeconomic status, education, and gender may be related to impulsivity and compulsive buying, thus inflating the association. Following the correlations, we performed a multiple linear regression analysis, entering the compulsive-buying measure as the dependent variable and impulsivity and the other socio-demographic measures as predictors.

Results

Participants' scores on the BIS-11 (mean of 58.80 ± 9.50) and on the uCBS compulsive-buying measure (mean of 16.74 ± 8.22) were significantly correlated after controlling for sociodemographic measures ($r = 0.426$, $R^2 = 0.18$, $p < 0.001$). These results suggest a moderate association between impulsivity and compulsive buying. The linear regression model showed a similar pattern ($F_{5,94} = 6.92$, $p = < 0.001$, adjusted $R^2 = 0.15$), where only the BIS-11 total score was a significant predictor of compulsive buying ($\beta = 0.45$, $t = 4.32$, $p < 0.001$). Figure 1 shows the results of linear regression. The association between impulsivity and compulsive buying was again moderate.

Discussion

Although most of the variance between BIS-11 and uCBS was independent, correlation and regression analysis showed a moderate amount of shared variance (approximately 15% in the corrected regression model) between impulsivity and compulsive-buying measures. This suggests that compulsive-buying behaviors are related to impulsivity in a non-clinical sample, supporting the proposed hypothesis. In addition, the result adds to a growing body of literature that stresses compulsive buying as an intermediate phenotype in the compulsive-impulsive dimension.^{1-3,12}

Impulsive and compulsive behaviors can be divided into more specific behavioral traits.² It is possible that these specific subtypes of impulsivity and compulsivity explain why several mental problems lie along a spectrum with a compulsive-impulsive dimension, with some aspects more intrinsically related than others (e.g., failures of response inhibition or "top-down" cognitive control are likely to influence both impulsive and compulsive traits).^{1,13} As discussed in a review, compulsive-buying behavior may begin with a closer relationship to the impulsivity pole, but may shift to the compulsive pole if associated with obsessive thoughts and after constant repetition.⁵ It would be helpful if the design of our study were applied "transdiagnostically" across disorders - perhaps including substance abuse, obsessive-compulsive disorder, autism-spectrum disorder, attention deficit/hyperactivity disorder, and eating disorders, along with compulsive buying - in order to discern possible commonalities among and differences between the influence of impulsivity on behaviors in these disorders at the extremes of a dimension.^{14,15} At any rate, in our non-clinical sample,

impulsivity seemed to be an important predictor of compulsive-buying problems.

In this study, we used only subjective measures (scales) of trait impulsivity and compulsive buying. There are, however, several objective measures from neuro-psychology and behavioral economics that might be useful for deeper investigation into this issue.^{1,2} This study also lacked specific measures of other psychiatric symptoms that may influence both impulsivity and compulsive buying, an important limitation. Future research should address this issue by using different methods and both clinical and non-clinical samples.

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Disclosure

The authors report no conflicts of interest.

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