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A Dominance Analysis Approach Applied to Psychological Factors Associated with Binge Drinking among University Students

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Introduction

Binge Drinking (BD), generally defined as a heavy alcohol consumption over a short period (NIAAA, 2004), is considered as a major public health issue, and especially among university students as it concerns 28% of European student samples (European Union: Directorate General Communication, 2010). While previous studies have evidenced the role of several psychological factors related to BD (e.g., drinking motives¹, drinker identity², alcohol subjective norms³, emotional states^{4,5}, metacognitions beliefs⁶), little is known about the strength of each of these factors as determinants of BD, mostly because they were often considered separately. The present study therefore proposes to examine the strength of their relative contribution and to identify the most associated factors to BD.

Material and Methods

A community sample of 2851 university students ($M_{age} = 20.50$; $SD = 2.00$; 62.9% of women) participated in an internet survey-based study that was included in the larger research ADUC project ("Alcool et Drogues à l'Université de Caen"). The participants provided information on alcohol related variables (AUDIT, BD score), demographics (sex, age), as well as subjective norm, social identity, external motivations, internal motivations, meta-cognitions, impulsivity and personality traits. The data were first processed via a backward linear regression analysis with repeated K-fold cross-validation⁷ to identify the factors that are significantly associated to BD. Second, to counteract the limitations of traditional statistical methods assessing the strength of factors in models, the relative

importance of significant psychological factors associated with BD was assessed by performing a bootstrapping dominance analysis⁸.

Results

First, the backward linear regression analysis evidenced a best 14-variable model ($R^2 = .512$, $F(14,1893) = 142$, $p < .001$; $RMSE = 14.659$; $MAE = 10.172$), excluding positive metacognitions, negative metacognition (i.e., prejudice), some dimensions of impulsivity (i.e., perseverance and sensation seeking), anxiety trait, and depression. Second, the bootstrapping dominance analysis showed that the strongest variables associated with BD were enhancement motives and drinking identity (average $\Delta R^2 = 21.81\%$), followed by alcohol subjective norm and social motives (average $\Delta R^2 = 13.99\%$). Other associated variables (average $\Delta R^2 = 2.84\%$) were negative metacognition on uncontrollability, sex, coping motives, lack of premeditation, positive metacognition on cognitive self-regulation, positive urgency, lack of perseverance, age, conformity motives and loneliness.

Conclusion

The comparison of the relative importance of variables associated to BD has allowed to identify four major psychological factors, namely enhancement motives, drinking identity, alcohol subjective norm and social motives, suggesting that BD is largely motivated by inter-individual factors. These results have major empirical and clinical implications. Indeed, they highlight specific psychological factors which, not only, should be explored more in depth in the understanding of BD, but also, should be targeted as a priority in new prevention strategies to solve the BD issue.

Keywords: binge drinking, dominance analysis, identity, enhancement motives, subjective norm, social motives

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