Drinking motives as mediators between personality traits and alcohol use among young French people☆

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A B S T R A C T

Introduction: Relationships between personality traits and alcohol consumption behaviors have been inconsistently found. Research suggests that taking into account more proximal factors, such as drinking motives, would aid in explaining these inconsistent findings.
Method: Participants ($N = 690$) were administered measures of alcohol use, drinking motives and personality traits. Five multiple parallel mediator models were elaborated wherein drinking motives mediated the relationship between each trait and AUDIT scores once having controlled for age, school group and sex.
Results: Enhancement, social and conformity motives mediated the relationship between extraversion and alcohol use. The indirect effect between agreeableness or conscientiousness and alcohol use was mediated by decreased coping-depression, enhancement and social motives. Interestingly, neuroticism alone did not predict alcohol consumption, but a case of competitive mediation was observed. Neuroticism led to heightened coping-depression motives, which led to increased alcohol use, but also to increased conformity motives, which led to depleted alcohol consumption.
Discussion: Our study suggests that most Big 5 personality traits have a relationship with alcohol consumption in part because they develop into drinking motives. Inconsistent findings observed in the extent literature were explained in part by conditional processes.

1. Introduction

Understanding the processes leading up to hazardous alcohol use among youth could allow us to positively impact drinking behavior in this at risk population. Personality traits and alcohol consumption behaviors may be related, but findings are inconsistent and often contradictory. We hypothesize that personality traits would indeed be related to the likelihood of hazardous or harmful alcohol consumption, but mostly because they favor specific drinking motives.

1.1. Problematic alcohol use in France

Problematic alcohol use is an international public health concern and reportedly 16% of 18 to 29 year olds have been diagnosed with an Alcohol Use Disorder (American Psychiatric Association, 2013). In France, in the Pays de la Loire region where this study was conducted, alcohol consumption often starts at a young age, as drinking is strongly integrated into French social culture. For example, 91% of 15 year olds reportedly have consumed alcohol at least once in their lifetime and all

18–19 year olds reported having done so. In comparison to young women, young men tended to start drinking at an earlier age and to consume more alcohol. For example, 53% of young men aged 18–25 binge drank at least once a month (6+ standard units of alcohol on a single occasion), whereas this was true for 22% of young women (ORS Pays de la Loire, 2012).

1.2. Personality traits as determinants of alcohol consumption

Personality traits may determine alcohol consumption behaviors. At least 24 previous studies have looked into bivariate relationships between Big 5 traits and alcohol related outcomes. A meta-analysis conducted on such studies found that emotional stability, conscientiousness and agreeableness were associated with depleted alcohol consumption across studies (Malouff, Thorsteinsson, Rooke, & Schutte, 2007). However, every personality trait has been significantly associated with alcohol related outcomes in at least one study and each has trait yielded null findings in another. For every trait, there is at least one study that revealed a positive and negative relationship with alcohol consumption.

Furthermore, when significant effects were found, they were weak (2–4% of variance explained) suggesting that there are many other variables that were not measured determinant of alcohol consumption. Such inconsistencies may be explained in part by the intervention of other more proximal variables (i.e., mediators) such as drinking motives.

Drinking motives are considered the most proximal predictive factor of drinking behavior in which all other distal factors converge (Kuntsche, Knibbe, Gmel, & Engels, 2005). According to Cox and Klinger's (1988) framework that outlined the processes leading up to drinking behaviors, distal factors (e.g., personality traits) gave way to proximal factors (e.g., motives) that in turn determine drinking behaviors. In this framework, drinking motives were defined by the valence of the anticipated reinforcement: some people drink in order to reduce negative affect (e.g., drinking when sad), while others drink in order to increase positive affect (e.g., drinking at parties). This conceptualization of drinking motives was operationalized and complexified by Cooper (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992) who differed motives according to the source of reinforcement, which was either internal (psychological) or external (social). By crossing the source and the valence of reinforcement in a 2×2 cross-table (source x valence), four motives to drink were rendered: *social* (positive, external), *coping* (negative, internal), *conformity* (negative, external) and *enhancement* (positive, internal). More recently it was suggested to split coping motives into two distinct dimensions: anxiety or depression (Grant, Stewart, O'Connor, Blackwell, & Conrod, 2007).

A systematic review suggested that social motives lead to higher alcohol consumption, but not necessarily to alcohol related problems. Those who drink for enhancement motives do so in order to spice things up. This often leads to heavy alcohol consumption and can become problematic because with this internally driven motive, there may be a wide variety of situations that merit a boost. Conformity motives lead to decreased alcohol use, but supposedly to increased problems. People who drink for these motives personally may not want to drink, but they do so on specific occasions in which they think they need to drink in order to obtain social acceptance. Generic coping motives are consistently the most problematic of drinking motives and have led to a variety of hazardous drinking behaviors (Cooper, 1994; Kuntsche et al., 2005). Coping depression motives were related to increased alcohol use and related problems, but findings were inconsistent regarding the relationship between coping-anxiety motives and drinking behaviors (Grant et al., 2007; Loose & Acier, 2017; Mezquita et al., 2011). Among young French people, social, enhancement, and coping-depression motives led to increased alcohol consumption, conformity motives led to decreased alcohol use and coping anxiety motives were generally unrelated (Loose & Acier, 2017).

1.3. Drinking motives as mediators between traits and alcohol use

As suggested by Cox and Klinger (1988) personality traits give way to more proximal determinants such as drinking motives, which in turn determine alcohol consumption. However most research focuses on bivariate relationships, while leaving out or glossing over discussions about mediation (e.g. Theakston, Stewart, Dawson, Knowlden-Loewen, & Lehman, 2004). Nevertheless, several studies have concluded that motives mediate the relationship between personality traits and alcohol consumption (e.g. Kuntsche, von Fischer, & Gmel, 2008; Stewart & Devine, 2000; Stewart, Loughlin, & Rhyno, 2001). Generally speaking, internal motives (coping, enhancement) should be more in line with traits than are external motives (social, conformity). For example, among Canadian college students, more variance is explained by adding personality traits to the models explaining internal drinking motives (6–11%) than when explaining external drinking motives (3%) (Theakston et al., 2004).

Specific methodological differences may in part be responsible for inconsistent findings. Notably, studies did not necessarily measure all

five motives and five traits (e.g., Stewart et al., 2001), and the conditions for mediation, when present, were based on the classic causal steps approach (Baron & Kenny, 1986) which has important limitations that may have led researchers to discard some viable solutions. For example, in Stewart and Devine (2000), because extraversion did not directly predict drinking behaviors, the authors stated that they could not perform mediational analyses involving this trait. More recently, indirect only mediation has become part of the extent literature and statistical methods (Hayes, 2013).

We hypothesized that drinking motives are mediators between personality traits and the likelihood of hazardous or harmful alcohol consumption independently of participant age, school group (university/high school) and sex. We hypothesized that in part new advances in mediation analyses can help explain inconsistent findings and better nuance trajectories. Even if we aimed to study mediation, note that the Supplementary material section includes analyses of personality traits, drinking motives and alcohol consumption across control variables.

2. Methods

2.1. Population and procedure

550 university students (M_{age} = 21.65, SD_{age} = 2.45; women: n = 394, 72%) and 140 high school students (M_{age} = 17.46, SD_{age} = 1.40; women: n = 77, 55%) participated in this study. Age ranged from 15 to 31 years. University and high school students filled questionnaires online. University students were recruited online via social networks and student email diffusion lists. High school students were administered the questionnaires during school hours. Additionally, for high school students their parents were alerted of study and could exclude their child if they so wished. For all participants, data was collected anonymously and participation could be interrupted at any time. The procedure followed in this study complied with French ethical standards for non-interventional research.

2.2. Measures

The *Modified Drinking Motives Questionnaire Revised* (MDMQR) was first validated among English-speaking Canadians (Grant et al., 2007) and has since been validated in French (Loose & Acier, 2017). The MDMQR has 5 dimensions (social, conformity, enhancement, coping anxiety, coping depression), 28 items and takes approximately 10 min to administer. Participants responded using a 5-point Likert scale. An elevated score on a given dimension indicates that the participant is motivated to drink for the corresponding motive.

The *Alcohol Use Disorders Identification Test* (AUDIT) was originally validated in the United States (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) and has since been validated in France (Gache et al., 2005).

The AUDIT yields a total score that incorporates three subscales: hazardous alcohol use (items 1–3), dependence symptoms (items 4–6) and harmful alcohol use (items 7–10). Total scores superior to 7 or 8 are indicative of "hazardous and harmful alcohol use, as well as possible alcohol dependence" (Babor et al., 2001). However we analyzed the AUDIT as a continuous variable to 1) maximize variance, 2) eliminate arbitrary cut-offs, 3) measure a continuum of severity, 4) cater to a non-clinical sample and 5) focus on risk instead of psychopathology. Higher total scores indicate a higher "likelihood of hazardous and harmful drinking", i.e. a higher risk level associated with alcohol consumption (Babor et al., 2001). The AUDIT takes 2 min to administer.

The *Big Five Inventory French* (BFI-Fr) was used to measure personality traits. Plaisant, Courtois, Réveillère, Mendelsohn, and John (2010) found that the questionnaire had good psychometric proprieties among young French people. The questionnaire had 5 dimensions, 45 items and takes about 10 min to administer. Participants responded using a 5-