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Risk factors for substances use and misuse among young people in France: What can we learn from the Substance Use Risk Profile Scale?



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ABSTRACT

Background: The prevention of addictions in young people is a challenge for Mental and Public Health policies, and requires specific risk-screening tools. Specific personality traits, as assessed using the Substance Use Risk Profile Scale (SURPS), could play a key role in the onset and escalation of substance use. This study aimed to examine (1) measurement invariance across age and gender (2) the effects of age and gender on associations between SURPS scores and the most frequently-consumed substances.

Methods: Analyses were based on the responses from 5069 participants (aged 14–20 years) from the 2011 ESPAD-France dataset. Substance-use outcomes were experimentation and current frequency of alcohol, tobacco and cannabis use, and drunkenness.

Results: Our approach, consisting in analysing measurement and structural invariance and interaction terms, established the stability of (i) SURPS profiles, and (ii) relationships between these scores and substance experimentation and use over a developmental period ranging from mid-adolescence to early adulthood. Measurement invariance across genders was also confirmed despite the absence of scalar invariance for 2 items. Significant interactions between gender and SURPS factors were established, highlighting differential vulnerability, especially concerning Hopelessness and experimentation of alcohol and drunkenness, or Impulsivity and tobacco experimentation. Finally, Anxiety Sensitivity could be protective against substance use, especially for cannabis in girls.

Conclusions: Our results suggest the relevance of the SURPS to assess vulnerability towards drug use, and underline the need to consider gender differences in addiction risks.

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1. Introduction

Despite the growing number of prevention campaigns, drug and alcohol consumption in adolescence and early adulthood remains a major concern in developed countries (WHO, 2012). The most widely consumed substance is alcohol, followed distantly by tobacco and cannabis, with respectively 57% of 15–16

year-old European students reporting current (past month) alcohol consumption, 28% cigarette use and 7% cannabis use (Hibell et al., 2012). Since alcohol and drug exposure early in life is known to impact socio-affective development (academic and professional achievement, mental health) and to be important contributing factors to psychiatric vulnerability (Batal, 2000; Chambers et al., 2003), these data call for increased prevention efforts. One strategy considered promising is to gain knowledge on the people more at risk. Indeed, besides the influence of environmental factors (e.g., parental educational level, parenting practices, peer influence), there is accumulating evidence that some individuals are predisposed, and that the interplay between specific personality traits and environmental conditions could play a key role in the onset, esca-

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lation and later development of substance misuse and dependence (Ersche et al., 2012). Motivational models and characterization of specific personality profiles for substance misuse and associated assessment instruments have thus progressively emerged (Cox and Kingler, 1988; Cooper, 1994; Conrod et al., 2000).

The Substance Use Risk Profile Scale (SURPS) is a brief self-report questionnaire that was elaborated to measure personality and affect-related styles liable to increase risks of engaging in substance misuse and abuse (Conrod et al., 2000; Woicik et al., 2009). The SURPS evaluates four distinct personality traits that have been consistently associated with intensive and problematic drug use: Impulsivity (IMP), Sensation Seeking (SS), Hopelessness/Negative Thinking (H/NT), and Anxiety Sensitivity (AS; Woicik et al., 2009). This self-report has been adapted into Chinese (Siu, 2011), Dutch (Malmberg et al., 2010), French (Castonguay-Jolin et al., 2013), German (Jurk et al., 2015), Japanese (Omiya et al., 2015), Korean (Saliba et al., 2014), Portuguese (Canfield et al., 2015), Sinhala (i.e., Sri Lanka) and Spanish (Robles-García et al., 2014). Overall, the SURPS appears to have a stable four-factor structure with satisfactory internal consistency and test-retest reliability, and has demonstrated both convergent and discriminant relationships with theoretically relevant measures of personality and motivations for substance use. The SURPS H/NT, IMP and SS scores have been repeatedly associated with an increased risk for current and later substance (mis)use in adolescent and adult samples (see Table 1 for a summary of key validation studies on SURPS predictive validity*). Regarding SURPS AS scores, as illustrated in Table 1, results are inconsistent: a minority of studies reported the expected increased risk for substance use (mostly alcohol-related, e.g. quantity per drinking occasion and problematic drinking), while the remaining studies reported either no effect or a protective effect. To account for these inconsistencies, and in line with the documented relationship of AS with substance (mis)use in adults or in clinical samples (Schlauch et al., 2015), it has been hypothesized that AS might influence substance use differently in early and late adolescence (Woicik et al., 2009; Krank et al., 2011; Castellanos-Ryan et al., 2013; Lammers et al., 2013; Malmberg et al., 2013; Peeters et al., 2014).

Besides age, gender is also likely to contribute to our understanding of the mechanism linking personality and substance use (Castellanos-Ryan and Conrod, 2012). Indeed, whereas boys generally show higher levels of substance use than girls, it seems that these gender differences vary in the course of development, with the smallest differences at the youngest ages, and the largest during the transition from late-adolescence to adulthood (Kuhn, 2015). There is also evidence for gender differences in personality traits in general and for higher SURPS AS and H/NT scores, but lower SS scores among females/girls than males/boys (Malmberg et al., 2010; Castonguay-Jolin et al., 2013; Hustad et al., 2014). However, relatively few studies that examined gender differences in substance (mis)use simultaneously investigated different dimensions of personality vulnerability.

To correctly interpret interactive effects of age/gender and these personality traits, we need first to determine whether the underlying psychometric properties of the scales are invariant (i.e., equivalent) across age/gender (Gregorich, 2006). Indeed, age/gender differences could manifest themselves (Richardson et al., 2011) at structural level (e.g., differences in the number of dimensions) or at item level (e.g., differential item meanings, differential acquiescence response styles). For instance, socio-cultural norms within genders might systematically produce lower self-reported scores to the AS items among men compared to women, as it is culturally less acceptable for men to report being “frightened or scared” (whatever the level of AS). Importantly, these gender-specific cultural norms may evolve through adolescence and thus apply differently to younger vs. older adolescents. Thus if Mea-

surement Invariance (MI) across age/genders does not hold, total score differences across age/gender groups are difficult to interpret, as they could result either from measurement differences or from genuine personality differences. To date, the French version of the SURPS has been validated in a Canadian sample of 15-year-olds (Castonguay-Jolin et al., 2013) and a French sample of 13–15-year-olds (Jurk et al., 2015). The question whether the four-factor structure is reliable in older French-speaking cultures and is invariant between younger and older adolescents' remains. Moreover, besides the pivotal study by Woicik et al. (2009) among adults (mean age 19.3), the MI across genders of the SURPS has only been assessed among 13–15 year-old adolescents [Western Canadians: (Memetovic et al., 2014); in a mix of English, French and German adolescents: (Jurk et al., 2015)], and there is a need to further investigate this issue among older adolescents.

Here, we sought to further validate the SURPS in a French-speaking sample using a representative community sample of young people aged 14–20 years. We aimed (1) to replicate the factorial structure among both adolescents and young adults and to confirm measurement invariance across genders, (2) to examine effects of age and gender on associations between SURPS scores and the most widely consumed substances.

2. Methods

2.1. Participants

A school-based population survey was conducted in France in 2011 as a part of the ESPAD study. Sampling and data collection procedures are summarized here; full details have been reported in the 2011 ESPAD Report (Hibell et al., 2012).

Briefly, a national representative sample of 9–12th grade students was randomly selected in 198 schools (junior and senior high school, and vocational school) and 396 classes. At the time of the survey, 87% of the students were present. Standardized data collection was performed using an anonymous self-administered questionnaire completed on a voluntary basis in the classroom setting, including individual/demographic information, the SURPS, and data on alcohol, tobacco and illicit substance use. The current analysis was performed on the 5069 high school students (14–20 years old) who fully completed the SURPS.

2.2. Measures

2.2.1. Substance Use Risk Profiles Scales (SURPS). The English version of the SURPS has been translated into French, implementing standard methods of translation and reverse translation (Castonguay-Jolin et al., 2013). We used the shorter 20-item version (Krank et al., 2011): 7 items for H/NT (Hopelessness, introversion, bleak expectations about oneself and the future); 4 items for IMP (lack of premeditation, and difficulties with response inhibition); 4 items for SS (need for intense and novel experiences), and 5 items for AS (a fear of anxiety-related physical sensations). Participants rate each item on a 4-point Likert scale. Subscale scores were computed by calculating the average score for each item in the subscales (Woicik et al., 2009).

2.2.2. Substance use behaviours. From the ESPAD questionnaire, four indicators of substance use were taken into account: (i) cigarette (ii) cannabis (iii) alcoholic beverages (iv) drunkenness.

Responses to the following questions were used: On how many occasions (if any) have you: (i) smoked cigarettes? (ii) used marijuana or hashish (cannabis)? (iii) had any alcoholic beverage to drink? (iv) been intoxicated from drinking alcoholic beverages, for example staggered when walking, not being able to speak prop-

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