



## Short Communication

# Examining the relationship between personality and affect-related attributes and adolescents' intentions to try smoking using the Substance Use Risk Profile Scale



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## HIGHLIGHTS

- Smoking incidence in adolescence has not decreased in recent years in developed countries.
- Increased susceptibility remains in the form of intention, during this period.
- Specific personality/affect-related traits could associate with increased intention.
- Intention associated with higher hopelessness, sensation seeking and impulsivity.

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## ABSTRACT

Assessments of adolescents' smoking intentions indicate that many are susceptible to smoking initiation because they do not have resolute intentions to abstain from trying smoking in the future. Although researchers have developed personality and affect-related risk factor profiles to understand risk for the initiation of substance use and abuse (e.g., alcohol), few have examined the extent to which these risk factors are related to the tobacco use intentions of adolescents who have yet to try tobacco smoking. The objective of this study was to examine the relationships between personality and affect-related risk factors measured by the Substance Use Risk Profile Scale (SURPS) and smoking intentions in a sample of adolescents who have not experimented with tobacco smoking. Data is based on responses from 1352 participants in the British Columbia Adolescent Substance Use Survey (56% female, 76% in Grade 8) who had never tried smoking tobacco. Of these 1352 participants, 29% (n = 338) were classified as not having resolute intentions to not try smoking. Generalized estimating equations were used to examine the relationship between each SURPS dimension (*Anxiety Sensitivity*, *Hopelessness*, *Impulsivity* and *Sensation Seeking*) and the intention to try cigarettes in the future. *Hopelessness* (AOR 1.06, 95% CI [1.03, 1.10],  $p < .001$ ), *Impulsivity* (AOR 1.07 [1.03, 1.11],  $p < .001$ ) and *Sensation Seeking* (AOR 1.05 95% CI [1.02, 1.09],  $p < .01$ ) had independent statistically significant associations with having an intention to try smoking. These findings may be used to inform a prevention-oriented framework to reduce susceptibility to tobacco smoking.

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## 1. Introduction

Cigarette smoking continues to be a leading preventable cause of morbidity and mortality in the Western Hemisphere (Stewart et al., 2009; US Department of Health and Human Services, 2014). Despite extensive tobacco control efforts, research indicates that 30% of

Canadian adolescents have tried smoking at least once by the time they reach 19 years of age (Health Canada Controlled Substances and Tobacco Directorate, 2010). Additionally, close to one third of youth who had never tried smoking were classified as being susceptible to smoking, as defined by having low smoking refusal skills when offered a cigarette by a friend and having an intention to try smoking in the future (Propel Centre for Population Health Impact, 2012). Understanding the factors associated with developing the intention to smoke represents a potentially important target for tobacco prevention research.

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Researchers have confirmed that the intention to smoke is a key proximal predictor of subsequent smoking behavior (Ajzen, 1985a, 2002; Fishbein & Ajzen, 1975), and that adolescents with resolute or well-defined intentions to not smoke are much more likely to maintain their abstinence overtime (Mazanov & Byrne, 2002; Sheeran, 2002; Sheeran & Abraham, 2003). Fishbein and Yzer proposed an Integrative Model of Behavior Prediction, which includes personal characteristics, normative and behavioral beliefs, and self-efficacy, all of which have been shown to influence behavioral intention (Fishbein & Yzer, 2003). Personality and affect-related characteristics have been identified as theoretically important upstream factors influencing the intention to smoke (Fishbein & Yzer, 2003) and have been found to predict smoking. Research over the past two decades has identified specific personality and affect-related characteristics that appear to predispose individuals to substance use (Jaffee & D'Zurilla, 2009; Kear, 2002; King, Iacono, & McGue, 2004). For example, negative emotional states, such as depression and anxiety (Baler & Volkow, 2011; Brown, Kahler, Zvolensky, Lejuez, & Ramsey, 2001; Cohen, McCarthy, Brown, & Myers, 2002; Kassel, Paronis, & Stroud, 2003; Milani, Parrott, Turner, & Fox, 2004; Nezami et al., 2005; Patton, Coffey, Carlin, Sawyer, & Lynskey, 2005; Simons-Morton & Haynie, 2003; Swan et al., 2003; Wu & Anthony, 1999), impulsivity (Baler & Volkow, 2011; Comeau, Stewart, & Loba, 2001; Milani et al., 2004; Nezami et al., 2005; Simons-Morton & Haynie, 2003) and sensation seeking (Comeau et al., 2001; Martin et al., 2002; Schepis et al., 2008; Urban, 2010) have been shown to predict smoking behavior. However, there is limited research on the extent to which these factors are associated with the formation of an intention to smoke among those who have yet to try.

The Substance Use Risk Profile Scale (SURPS) was developed to assess *Sensation Seeking* (a measure for risk taking); *Impulsivity* (a proxy for cognitive control); *Anxiety Sensitivity* (an assessment of the fear of experiencing anxiety related symptoms); and *Hopelessness* (a measure of negative affect) (Comeau et al., 2001; Woicik, Stewart, Pihl, & Conrod, 2009). Scores on the SURPS have been shown to predict alcohol, tobacco, and marijuana use in adolescents (Conrod, Castellanos, & Mackie, 2008; Krank et al., 2011; Woicik et al., 2009) with higher scores of *Impulsivity*, *Sensation Seeking* and *Hopelessness* being associated with increased odds of future smoking (Krank et al., 2011; Woicik et al., 2009). The aim of this study is to improve our understanding of the development of smoking susceptibility by investigating the relationships between adolescents' intentions to try smoking and the personality and affective traits measured by the SURPS. More specifically, it is expected that increases in *Impulsivity*, *Sensation Seeking* and *Hopelessness* will be independently associated with an increased probability of having an intention to try smoking among adolescents who have never tried.

## 2. Methods

### 2.1. Study sample and design

The British Columbia Adolescent Substance Use Survey (BASUS) collected psychosocial data related to substance use from a community-based cohort of adolescents biannually from October 2009 to December 2012. The cross-sectional sample used in this analysis consists of 1352 Grade 8/9 students who participated in the fall of 2010. Smoking naive participants ( $n = 1231$ ) were defined as having not selected the response "Yes" for the question, "Have you ever tried the following, even a puff or two: Cigarettes from a pack? Roll-your-own cigarettes?"

### 2.2. Measures

#### 2.2.1. Smoking intention

Participants who indicated that they had never tried even a puff of a cigarette were asked, "Do you think you might try smoking in the future?"

The following response options were presented on a 4-point Likert-type scale: "Definitely yes", "Probably yes", "Probably not", or "Definitely not". Participants who indicated that they would "Definitely not" try smoking in the future were considered to have intentions to not try smoking, and those who indicated otherwise were classified as having intention to try smoking. This dichotomization is based on research positing that youths who do not have firm intentions not to smoke are at higher risk of future smoking (Sheeran & Abraham, 2003).

#### 2.2.2. Substance Use Risk Profile Scale (SURPS)

The SURPS contains 23 items that measure *Anxiety Sensitivity* (5 items), *Hopelessness* (7 items), *Sensation Seeking* (6 items), and *Impulsivity* (5 items). Responses to each item were provided on a 4-point Likert-type scale: 1 ("strongly disagree") to 4 ("strongly agree"). Research supports the structural, concurrent validity and predictive validity of the SURPS in community and clinical samples (Castellanos-Ryan, O'Leary-Barrett, Sully, & Conrod, 2012; Conrod et al., 2008; Woicik et al., 2009) and gender-based measurement invariance among adolescents (Memetovic, Ratner, & Richardson, 2014).

#### 2.2.3. Sociodemographic variables

Participants identified the highest education obtained by their mother and (or) father, ranging from "Some high school" (*reference category*), to "Completed post-graduate degree". Participants were provided with a check-list of ethno-racial descriptors, collapsed into "Aboriginal," "Asian", "Other", and "White/Caucasian" (*reference category*) (see Table 1).

### 2.3. Analytic strategy

Cases with more than 1 item missing from each SURPS dimension were deleted and multiple imputation using logistic regression was used to generate 10 imputed datasets under the missing at random assumption (Rubin & Little, 2002). Five empirical models of the SURPS were analyzed with population-averaged general estimating equations (GEEs). Each of each of the SURPS dimension scores was mean centered, and the  $p$ -values in the final models were adjusted for multiple testing using the Bonferroni correction.

## 3. Results

### 3.1. Sample demographics and descriptive results

Of the 1352 participants, 1231 (91.8%) reported never having tried a cigarette. Of the 1192 participants who answered the question, "Do you think you might try smoking in the future?", 71% ( $n = 854$ ) had no intention of trying smoking in the future (i.e., "Definitely not"); 5% responded "Probably Yes" ( $n = 59$ ), and 23% ( $n = 273$ ) responded "Probably Not". None of the participants stated that they would definitely try smoking in the future. The means and standard deviations of the SURPS dimensions were as follows: *Anxiety Sensitivity* [11.73 (2.85)], *Hopelessness* [11.71 (3.43)], *Impulsivity* [10.97 (2.94)], and *Sensation Seeking* [14.90 (3.95)]. In the univariate models, parental education, gender, and school grade were not associated with the intention to try smoking. Identifying as being "Asian" was associated with a reduced risk in comparison to being "White/Caucasian" (unadjusted odds ratio (UOR) = 0.79; 95% confidence interval (CI): 0.53, 0.97).

### 3.2. Adjusted odds of intention to try smoking

The results of the models presented in Table 2 indicate that higher scores of *Hopelessness*, *Impulsivity*, and *Sensation Seeking* were associated with an independent increased risk of having an intention to try smoking. *Impulsivity* yielded the strongest effect, with a 7% increase in risk for a 1 point increase (AOR 1.07 [1.03, 1.11],  $p < .001$ ) representing a 23% increase in risk for a 1 standard deviation increase in *Impulsivity*.

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