

## Personality Profiles Associated With Vulnerability to Substance Use Among Moroccan Middle School Students Aged 12–14 Years: An Exploratory Study Using the Substance Use Risk Profile Scale (SURPS)

Sawcen Bouchaara, Ahmed Maad

Laboratory of Educational Sciences, Humanities and Languages (SESHUL), École Normale Supérieure de Rabat, Mohammed V University in Rabat, Rabat, Morocco

Corresponding author: Sawcen Bouchaara, Email: [sawcenbouchaara@gmail.com](mailto:sawcenbouchaara@gmail.com)

### How to cite:

Bouchaara, S. & Maad, A. (2026). Personality Profiles Associated With Vulnerability to Substance Use Among Moroccan Middle School Students Aged 12–14 Years: An Exploratory Study Using the Substance Use Risk Profile Scale (SURPS). *International Journal of Linguistics and Translation Studies*, 7(3), 225-239. <https://doi.org/10.36892/ijlts.v7i3.770>

### ARTICLE HISTORY

Received:  
30/06/2026

Accepted:  
20/08/2026

### Keywords:

SURPS;  
adolescence;  
personality;  
substance use  
vulnerability;  
prevention;  
Morocco

### Abstract

Early prevention of addictive behaviors requires a better understanding of individual differences that may increase adolescents' vulnerability. The Substance Use Risk Profile Scale (SURPS) assesses four personality dimensions theoretically associated with distinct risk pathways: hopelessness, anxiety sensitivity, impulsivity, and sensation seeking. This cross-sectional, descriptive, and exploratory study aimed to describe these dimensions among Moroccan middle school students and to examine the internal consistency of the administered Arabic version. The sample included 150 students aged 12 to 14 years. Analyses comprised descriptive statistics, Cronbach's alpha coefficients, comparisons by sex, age, and parents' marital status, and correlations between subscales. The mean total SURPS score was 53.52 (SD = 8.28), with acceptable internal consistency for exploratory purposes ( $\alpha = .70$ ). When adjusted for the number of items, sensation seeking showed the highest mean ( $M/\text{item} = 2.83$ ), followed by anxiety sensitivity (2.45), impulsivity (2.36), and hopelessness (1.79). Reliability was acceptable for hopelessness ( $\alpha = .75$ ), modest for anxiety sensitivity ( $\alpha = .64$ ), and low to modest for impulsivity ( $\alpha = .55$ ) and sensation seeking ( $\alpha = .54$ ). After correction for multiple comparisons, no sex difference remained statistically significant. No significant differences were found by age or parents' marital status. Correlations between dimensions were small to moderate, with the strongest association observed between impulsivity and sensation seeking ( $r = .29$ ). These findings provide an initial description of SURPS personality profiles in this Moroccan sample; however, they do not support conclusions regarding actual substance use, motives for use, or effects sought. Further psychometric validation in larger and more diverse samples is required.

### 1. Introduction

Adolescence is a decisive period in the development of health-related habits. It is a time when autonomy, peer influence, exploration of new experiences, and the search for a personal

identity intensify. These changes do not necessarily lead to problematic behaviors, but they may increase exposure to certain forms of risk-taking, including experimentation with psychoactive substances. From a developmental perspective, sensitivity to rewards and novelty tends to increase more rapidly than the capacities for self-control and anticipation of consequences, which continue to consolidate throughout adolescence (Steinberg, 2010). Although sensation seeking and impulsivity are often discussed together, they do not follow exactly the same developmental trajectory: the former tends to increase during early and middle adolescence, whereas the latter declines more gradually as self-control matures (Steinberg et al., 2008). This period therefore represents an important window for identifying vulnerabilities before they become embedded in regular or harmful behaviors.

In Morocco, school-based surveys confirm the need for early prevention. Findings from the Mediterranean School Survey Project on Alcohol and Other Drugs (MedSPAD) have documented experimentation with different substances among school-attending adolescents and indicated that initiation may occur before the end of secondary education (El Omari & Toufiq, 2015). Other Moroccan studies have documented the use of tobacco, alcohol, cannabis, and other substances among middle and high school students, as well as associations between these behaviors and several individual and environmental factors (El Moubchiri et al., 2026; Zarrouq et al., 2016). Such data are essential for estimating the scope of the problem. However, they are not sufficient to explain why adolescents exposed to comparable contexts do not all display the same level of vulnerability.

Substance use behaviors result from complex interactions among the family environment, peer groups, the school context, substance availability, social representations, and individual characteristics. Among these characteristics, personality occupies a particular place because it influences how adolescents perceive situations, respond to emotions, seek rewards, and regulate immediate responses. Certain traits should not be regarded as direct causes or deterministic markers of future addiction. A high score on a personality dimension means neither that an adolescent is already using substances nor that the adolescent will necessarily develop a disorder. Rather, it reflects a pattern of functioning that may, under certain circumstances, increase the likelihood of a risk trajectory.

This perspective led to the development of the Substance Use Risk Profile Scale (SURPS), a brief measure centered on four dimensions: hopelessness, anxiety sensitivity, impulsivity, and sensation seeking (Woicik et al., 2009). The selection of these dimensions is based on a model in which personality vulnerabilities may be associated with distinct motivational pathways. Hopelessness and anxiety sensitivity are theoretically linked to behaviors intended to reduce or avoid distressing affective states, whereas impulsivity and sensation seeking are more closely associated with immediate gratification, stimulation, and positive reinforcement. The SURPS was therefore designed to assess four personality dimensions that have been theoretically associated with different patterns of vulnerability to substance use, rather than to identify a single general “addictive personality” (Woicik et al., 2009).

This theoretical basis must nevertheless be distinguished from the empirical focus of any study using the scale. Measuring the four SURPS dimensions does not, in itself, measure the subjective effects of substances, motives for use, or reinforcement mechanisms. Directly testing these mechanisms would require data on the substances used, circumstances of use,

expectancies, motivations, and the effects sought or perceived. In the absence of such measures, the reinforcement model should be presented as the conceptual foundation of the instrument rather than as a hypothesis directly tested by the study. The value of the SURPS then lies in identifying potential dimensions of vulnerability among adolescents, including before regular substance use becomes established.

The four dimensions refer to differentiated patterns of functioning. Hopelessness reflects a tendency toward negative expectations about oneself and the future. Anxiety sensitivity refers to fear of sensations associated with anxious arousal and their interpretation as dangerous. Impulsivity refers to difficulty inhibiting an immediate response and sufficiently considering its consequences. Sensation seeking refers to attraction to novelty, intensity, and stimulating experiences. Longitudinal studies indicate that these dimensions are not associated in identical ways with psychological symptoms and substance use behaviors. Personality may, for example, moderate relationships between anxiety or depressive symptoms and changes in alcohol use (Mackie et al., 2011). Impulsivity, hopelessness, and sensation seeking are also differentially associated with externalizing behaviors and substance misuse (Castellanos-Ryan & Conrod, 2011). These findings support examining the subscales separately rather than reducing vulnerability to a total score.

Early studies of the SURPS supported its four-factor structure and construct validity (Woicik et al., 2009). In a large longitudinal sample of Canadian adolescents, Krank et al. (2011) confirmed the instrument's structure and showed that several dimensions were associated with current or future substance use, while also finding that the relationships were not identical across the four profiles. This lack of uniformity underscores that the dimensions are not four interchangeable variants of the same risk and that their interpretation must take account of age, context, and the behaviors actually assessed.

The SURPS has subsequently been examined across several linguistic and cultural contexts. The Spanish version tested among Mexican adolescents showed a factor structure close to that of the original scale and satisfactory validity indices (Robles-García et al., 2014). Favorable findings have also been reported among Australian (Newton et al., 2016) and Turkish adolescents (Uygun et al., 2021). These studies support the use of the SURPS beyond its original context, but they also show that adaptation cannot be reduced to literal translation. Item comprehension, norms surrounding emotional expression, gender differences, and cultural representations of risk may influence responses. The performance of the scale must therefore be examined in each new context.

Previous research has shown that brief interventions tailored to personality profiles may reduce or delay certain substance use behaviors among at-risk adolescents (Conrod et al., 2011). These findings do not mean that the SURPS provides a diagnosis. Rather, they illustrate the potential value of differentiated identification: an adolescent primarily characterized by stimulation seeking may not have the same needs as an adolescent marked by hopelessness or fear of anxiety-related sensations. Recognizing this diversity may help move beyond uniform prevention messages and support interventions that are more closely aligned with young people's psychological needs.

Although Moroccan research has provided valuable data on the prevalence and correlates of substance use among adolescents, personality-based vulnerability remains comparatively understudied in this population. In particular, little is known about the personality dimensions

assessed by the SURPS among younger Moroccan middle school students. The present study addresses this gap by examining these dimensions in adolescents aged 12–14 years. The present study does not aim to demonstrate the effects of substances or directly test motives for use. It seeks to describe the four vulnerability dimensions assessed by the SURPS in a sample of Moroccan middle school students aged 12 to 14 years, evaluate the internal consistency of the instrument in this context, and explore score variations according to selected sociodemographic characteristics. This approach constitutes a first step toward a contextually grounded understanding of individual vulnerabilities that may inform early identification and prevention.

## 2. Method

### 2.1. Study Design and Objectives

The present research used a quantitative, cross-sectional, descriptive, and exploratory design. It aimed to describe the personality dimensions measured by the Substance Use Risk Profile Scale (SURPS) among Moroccan middle school students, examine the internal consistency of the instrument in this sample, and explore possible score variations according to selected sociodemographic characteristics. The study assessed neither actual substance use, subjective effects, nor motives for use. The findings therefore concern personality traits that, within the theoretical model underlying the SURPS, are associated with differential vulnerability to addictive behaviors. They cannot be interpreted as evidence of substance use or as a direct test of positive and negative reinforcement mechanisms.

### 2.2. Participants and Sampling Method

The analyzed sample comprised 150 adolescents enrolled in the first year of middle school in two private middle schools located in the urban area of Salé, Morocco. The schools are not identified by name in order to preserve institutional and participant confidentiality. Participants were 12 to 14 years old. Of these, 93 were aged 12 years (62.0%), 53 were aged 13 years (35.3%), and 4 were aged 14 years (2.7%). The sex distribution was relatively balanced: 72 girls (48.0%) and 78 boys (52.0%). Regarding parents' marital status, 141 participants (94.0%) had married parents and 9 (6.0%) had divorced parents.

Participants were recruited through nonprobability convenience sampling. Inclusion criteria were being 12 to 14 years old at the time of data collection, being enrolled in one of the participating schools, and agreeing to take part in the study. Questionnaires that were insufficiently completed or contained a substantial number of missing responses were excluded. This recruitment method allowed an initial exploration within the school context under study, but it does not ensure representativeness of Moroccan middle school students as a whole.

### 2.3. Measures

#### 2.3.1. Sociodemographic Questionnaire

A sociodemographic form collected information on age, sex, parents' marital status, parental occupation, self-reported socioeconomic level, and siblings. These data were used to describe the sample and explore possible between-group differences. In the present article, only variables with sufficient group sizes and usable coding were retained for statistical comparisons.

#### 2.3.2. Substance Use Risk Profile Scale

The SURPS was developed by Woicik et al. (2009) to assess four personality dimensions associated with differentiated vulnerability profiles for substance use behaviors: hopelessness, anxiety sensitivity, impulsivity, and sensation seeking. The scale contains 23 items rated on a four-point Likert scale ranging from 1 (“strongly disagree”) to 4 (“strongly agree”). The hopelessness subscale contains seven items, the anxiety sensitivity subscale five items, the impulsivity subscale five items, and the sensation-seeking subscale six items. After reverse-worded items are recoded, responses are summed within each dimension; higher scores indicate a more pronounced level of the relevant trait.

Consistent with the theoretical design of the instrument, the four subscales were the primary indicators in this study. A total score may be calculated for descriptive purposes and to assess the internal consistency of all items, but it must be interpreted cautiously: the SURPS was designed to distinguish several pathways of vulnerability rather than reduce them to a single factor. The analyses and discussion therefore prioritize the dimensional profiles.

### **2.3.3. Linguistic Adaptation of the SURPS**

The version administered to the students was in Arabic. The linguistic adaptation was conducted using a translation and back-translation procedure. The translated version was reviewed by experts in Arabic language and psychology to assess linguistic clarity, semantic equivalence, and psychological appropriateness. A comprehension trial was also conducted with a small group of students to identify difficult terms, ambiguities, or wording that might not be understood consistently by Moroccan adolescents.

This process supports the linguistic equivalence and face comprehensibility of the items in the target population. It should not, however, be presented as a full validation of the Arabic version, which would require, among other elements, factor analysis in a larger sample, an assessment of temporal stability, and evidence of convergent, discriminant, and predictive validity. The present study primarily provides exploratory information on the performance and internal consistency of this version in the sample examined.

### **2.4. Data Collection Procedure**

Data collection was conducted after the necessary administrative authorizations had been obtained from the relevant educational authorities, including the Regional/Provincial Directorate of Education (Direction Provinciale de l'Éducation / Moudiriya Iklimiya), and approval had been granted by the participating school administrators. Sessions were organized in consultation with school leadership and took place in classrooms during periods scheduled by the schools.

Questionnaires were administered during regular classroom periods in a single session for each participating class. Questionnaire completion required approximately 15 minutes. All sessions were conducted by the same researcher following a standardized administration procedure, and the classroom teacher remained present during questionnaire administration. Before administration, students received age-appropriate information about the general purpose of the research, the voluntary nature of participation, questionnaire anonymity, their right to decline participation or withdraw at any time without consequences, and the exclusively scientific use of the data. The questionnaires were self-administered, and no directly identifying information was requested. The researcher was present to restate the instructions and clarify, without directing responses, any terms or response options that some

students did not understand. After administration, questionnaires were checked, and those that were clearly incomplete were excluded before data entry.

## 2.5. Ethical Considerations

The research was based on the principles of voluntary participation, prior information, confidentiality, and anonymity. Students could decline participation or discontinue their involvement without academic consequences. Data were coded and analyzed in aggregate form. Because the study involved minors and addressed a sensitive topic, administration procedures avoided any request for public disclosure and any suggestion that a high score represented a diagnosis or actual substance use.

## 2.6. Statistical Analyses

Data were entered and analyzed using IBM SPSS Statistics. Sociodemographic characteristics were summarized using frequencies and percentages. For the SURPS scores, means, standard deviations, medians, and ranges were examined for the total score and each of the four dimensions. Because the subscales contain different numbers of items, mean item scores were also calculated to allow descriptive comparisons across dimensions.

Internal consistency reliability was assessed using Cronbach's alpha, calculated for the full scale and separately for hopelessness, anxiety sensitivity, impulsivity, and sensation seeking. Relationships among the subscales were explored using Pearson correlations. Differences by sex and parents' marital status were examined using Welch's independent-samples *t* tests. For the five sex comparisons, *p* values were also adjusted using the Benjamini–Hochberg procedure to limit the error risk associated with multiple testing. Variations across age categories were explored using one-way analysis of variance. Finally, mean item scores for the four dimensions were compared using the Friedman test, followed by Wilcoxon pairwise comparisons with Holm correction. Given the very small number of participants aged 14 years and the small group with divorced parents, the corresponding findings must be interpreted with particular caution.

Analyses were performed on available observations for each comparison after excluding missing data for the variables concerned. Statistical significance was set at  $p < .05$ . Given the cross-sectional design, convenience sampling, and sample size, the analyses are descriptive and exploratory in scope: they do not support causal inference, the establishment of national norms, or definitive validation of the Arabic version of the SURPS.

## 3. Results

### 3.1. Sample Characteristics

The final sample included 150 middle school students aged 12 to 14 years. Boys represented 52.0% of the sample ( $n = 78$ ) and girls 48.0% ( $n = 72$ ). Most participants were 12 years old (62.0%), and 94.0% had married parents. The limited representation of adolescents aged 14 years ( $n = 4$ ) and those whose parents were divorced ( $n = 9$ ) reduces the precision of comparisons involving these categories.

**Table 1: Sociodemographic Characteristics of Participants (N = 150)**

| Variable | Category | n  | %    |
|----------|----------|----|------|
| Age      | 12 years | 93 | 62.0 |

|                         |          |     |      |
|-------------------------|----------|-----|------|
|                         | 13 years | 53  | 35.3 |
|                         | 14 years | 4   | 2.7  |
| Sex                     | Girls    | 72  | 48.0 |
|                         | Boys     | 78  | 52.0 |
| Parents' marital status | Married  | 141 | 94.0 |
|                         | Divorced | 9   | 6.0  |

### **3.2. Distribution of SURPS Scores**

The total SURPS score had a mean of 53.52 (SD = 8.28), with values ranging from 32 to 73. Raw subscale means are not directly comparable because the subscales contain between five and seven items. Examination of mean item scores showed that sensation seeking was the highest dimension (M = 2.83, SD = 0.59), followed by anxiety sensitivity (M = 2.45, SD = 0.67), impulsivity (M = 2.36, SD = 0.58), and hopelessness (M = 1.79, SD = 0.56).

The within-participant comparison of the four mean item scores was statistically significant,  $\chi^2(3) = 161.61$ ,  $p < .001$ . Holm-corrected post hoc comparisons indicated that sensation seeking was significantly higher than hopelessness, anxiety sensitivity, and impulsivity (all adjusted p values < .001). Anxiety sensitivity and impulsivity did not differ significantly from each other (adjusted p = .218).

**Table 2: Descriptive Statistics for the Total Score and SURPS Dimensions**

| Score               | Items | M     | SD   | Median | Range | M/item |
|---------------------|-------|-------|------|--------|-------|--------|
| SURPS total         | 23    | 53.52 | 8.28 | 54     | 32–73 | 2.33   |
| Hopelessness        | 7     | 12.51 | 3.92 | 12     | 7–25  | 1.79   |
| Anxiety sensitivity | 5     | 12.24 | 3.36 | 12     | 5–20  | 2.45   |
| Impulsivity         | 5     | 11.82 | 2.91 | 12     | 5–19  | 2.36   |
| Sensation seeking   | 6     | 16.95 | 3.52 | 17     | 8–24  | 2.83   |

*Note.* M = mean; SD = standard deviation; M/item = mean item score calculated to account for the different number of items across subscales.

### **3.3. Internal Consistency**

Cronbach's alpha for the total score was .70, which may be considered acceptable in an exploratory study. The hopelessness subscale showed the highest internal consistency ( $\alpha = .75$ ). Anxiety sensitivity reached a more modest level ( $\alpha = .64$ ), whereas the coefficients for impulsivity ( $\alpha = .55$ ) and sensation seeking ( $\alpha = .54$ ) were low to modest. These latter two dimensions should therefore be interpreted cautiously and are not sufficient, in this sample, to establish the definitive reliability of the Arabic version used.

**Table 3: Internal Consistency of the SURPS**

| Score        | Number of items | Cronbach's alpha | Cautious interpretation             |
|--------------|-----------------|------------------|-------------------------------------|
| SURPS total  | 23              | .70              | Acceptable for exploratory purposes |
| Hopelessness | 7               | .75              | Acceptable                          |

|                     |   |     |               |
|---------------------|---|-----|---------------|
| Anxiety sensitivity | 5 | .64 | Modest        |
| Impulsivity         | 5 | .55 | Low to modest |
| Sensation seeking   | 6 | .54 | Low to modest |

### 3.4. Comparisons by Sex

No statistically significant differences were observed between girls and boys for the total SURPS score, hopelessness, or sensation seeking. Girls had a higher anxiety sensitivity score than boys, with a nominally significant difference,  $t = 2.35$ ,  $p = .020$ ,  $d = 0.38$ . A similar trend was observed for impulsivity,  $t = 1.94$ ,  $p = .055$ ,  $d = 0.31$ . However, after Benjamini–Hochberg adjustment for the five comparisons, no difference remained statistically significant; the adjusted  $p$  value for anxiety sensitivity was .100. This finding should therefore be regarded as an exploratory signal rather than an established difference.

**Table 4: Comparison of SURPS Scores by Sex**

| Score               | Girls (n = 72),<br>M (SD) | Boys (n = 78),<br>M (SD) | Welch's t | p    | BH-adjusted p |
|---------------------|---------------------------|--------------------------|-----------|------|---------------|
| SURPS total         | 54.36 (8.57)              | 52.74 (7.99)             | 1.19      | .235 | .391          |
| Hopelessness        | 12.44 (3.87)              | 12.56 (3.99)             | −0.19     | .852 | .852          |
| Anxiety sensitivity | 12.90 (3.39)              | 11.63 (3.24)             | 2.35      | .020 | .100          |
| Impulsivity         | 12.29 (2.61)              | 11.38 (3.12)             | 1.94      | .055 | .137          |
| Sensation seeking   | 16.72 (3.43)              | 17.17 (3.61)             | −0.77     | .441 | .551          |

*Note.* BH = Benjamini–Hochberg procedure. Unadjusted  $p$  values are presented descriptively; the primary interpretation accounts for adjustment for multiple testing.

### 3.5. Parents' Marital Status and Age

The total score did not differ significantly between adolescents whose parents were married ( $M = 53.43$ ,  $SD = 8.38$ ) and those whose parents were divorced ( $M = 54.89$ ,  $SD = 6.88$ ),  $t = -0.61$ ,  $p = .558$ . No significant differences were observed for hopelessness, anxiety sensitivity, or sensation seeking. Impulsivity was higher in the small group of participants whose parents were divorced ( $M = 13.78$ ,  $SD = 2.82$ ) than in the group whose parents were married ( $M = 11.70$ ,  $SD = 2.88$ ), but this difference did not reach statistical significance,  $t = -2.15$ ,  $p = .060$ . Given the very small size of the divorced-parent group, this trend does not support a conclusion of a reliable association.

Exploratory analyses by age showed no significant differences for the total score,  $F(2, 147) = 0.79$ ,  $p = .457$ , or for any of the four dimensions (all  $p$  values  $\geq .205$ ). Because the 14-year-old category included only four participants, these findings cannot be regarded as a robust comparison of age-related trajectories.

### 3.6. Relationships Among SURPS Dimensions

Correlations among the four dimensions were small to moderate, indicating that they shared a limited proportion of variance while retaining some specificity. Hopelessness was positively associated with impulsivity ( $r = .26$ ,  $p = .001$ ). Anxiety sensitivity was weakly associated with impulsivity ( $r = .20$ ,  $p = .014$ ), and impulsivity was also associated with sensation seeking ( $r = .29$ ,  $p < .001$ ). The remaining correlations were not statistically

significant. The absence of high correlations is consistent with a multidimensional interpretation of the SURPS, although it does not in itself demonstrate the scale's factor structure.

**Table 5: Pearson Correlations Among SURPS Dimensions**

| Dimension              | 1 | 2   | 3     | 4      |
|------------------------|---|-----|-------|--------|
| 1. Hopelessness        | — | .16 | .26** | .11    |
| 2. Anxiety sensitivity |   | —   | .20*  | -.08   |
| 3. Impulsivity         |   |     | —     | .29*** |
| 4. Sensation seeking   |   |     |       | —      |

*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Coefficients are presented without correction for multiplicity and should be interpreted within an exploratory framework.

## 4. Discussion

This study aimed to describe the four personality dimensions assessed by the SURPS among Moroccan middle school students aged 12 to 14 years, examine the internal consistency of the scale, and explore score variations according to selected sociodemographic characteristics. Four main findings emerged. First, sensation seeking had the highest mean item score. Second, associations among the dimensions were small to moderate, suggesting that they do not collapse into a single psychological factor. Third, internal consistency was acceptable for the total score and hopelessness but more modest for the other three subscales. Finally, no robust differences were observed by sex, age, or parents' marital status after accounting for multiple comparisons. These findings should be interpreted as an initial exploratory description of personality profiles rather than as a measure of substance use or of the effects sought during use.

### 4.1. Relative Prominence of Sensation Seeking

Sensation seeking was the clearest descriptive finding of this study. After each subscale was adjusted for its number of items, sensation seeking had a mean of 2.83 on a four-point scale, higher than the means for anxiety sensitivity, impulsivity, and hopelessness. This internal difference does not mean that most students displayed a clinically risky profile or that they were actually using substances. In the absence of validated cutoffs for this Arabic version and a direct measure of substance use behaviors, it indicates only that statements concerning a need for novelty, intensity, and stimulation received, on average, stronger endorsement than statements reflecting the other dimensions.

This observation is nevertheless consistent with developmental models of adolescence. Steinberg et al. (2008) showed that sensation seeking increases between late childhood and mid-adolescence, whereas capacities for control and anticipation follow a more gradual trajectory. This dissociation helps explain why exploration, attraction to novelty, and certain forms of risk-taking become particularly salient during early adolescence (Steinberg, 2010). Within the SURPS, sensation seeking specifically represents this orientation toward novel and stimulating experiences. The relatively high level observed in our sample may therefore reflect, at least in part, a developmental characteristic of the age group rather than a pathological vulnerability in itself.

The SURPS literature nevertheless highlights the preventive relevance of this dimension. In several longitudinal studies, sensation seeking and impulsivity have been associated with subsequent trajectories of substance use or externalizing behaviors, although the magnitude and specificity of these relationships vary across populations and substances (Krank et al., 2011; Newton et al., 2016). It would not, however, be justified to apply these associations directly to participants in the present study. The collected data do not establish that a high sensation-seeking score resulted in experimentation, frequency of use, or preference for a particular substance. The finding therefore identifies a potentially relevant dimension for future prevention research without demonstrating addictive behavior.

#### **4.2. Sex Differences: A Signal Requiring Cautious Interpretation**

Girls had a higher mean anxiety sensitivity score than boys. The unadjusted comparison reached the conventional significance threshold ( $p = .020$ ), but it was no longer significant after Benjamini–Hochberg correction (adjusted  $p = .100$ ). This distinction is important: the finding may be described as a descriptive trend or exploratory signal, but not as a firmly established difference. A similar trend was observed for impulsivity, which was also higher among girls in this sample without reaching the corrected threshold. Differences in the total score, hopelessness, and sensation seeking were small and nonsignificant.

Comparisons between girls and boys also assume that the items have comparable psychometric meaning in both groups. A study of Canadian adolescents supported measurement invariance of the SURPS four-dimensional structure across sex, which in principle permits score comparisons in that version of the instrument (Memetovic et al., 2014). This property cannot, however, be automatically generalized to the Arabic translation used here. A future validation study should explicitly test measurement invariance across sex before concluding that observed score differences reflect only trait differences rather than variation in item comprehension or functioning.

#### **4.3. Related but Noninterchangeable Dimensions**

The correlations observed among the dimensions were small to moderate. The strongest relationship was between impulsivity and sensation seeking ( $r = .29$ ), followed by that between hopelessness and impulsivity ( $r = .26$ ). Anxiety sensitivity was weakly associated with hopelessness and impulsivity, whereas its relationship with sensation seeking was virtually zero. This pattern is consistent with the view that the SURPS assesses psychological dispositions that are related yet sufficiently distinct not to be reduced to a single general vulnerability. Foundational research and studies among adolescents have likewise supported the value of a four-dimensional organization (Krank et al., 2011; Woicik et al., 2009).

This conceptual consistency should not be confused with full empirical confirmation of the factor structure in our sample. Correlations among subscales and the overall alpha coefficient are insufficient to demonstrate that the translation faithfully reproduces the four-factor model. Validation studies among Mexican, Australian, and Turkish adolescents combined examination of factor structure with analyses of convergent, concurrent, or predictive validity (Newton et al., 2016; Robles-García et al., 2014; Uygun et al., 2021). A comparable approach in a larger and more diverse Moroccan sample remains necessary.

It is also important to recall that the theoretical model underlying the SURPS links these traits to differentiated motivational or reinforcement profiles. The present study, however,

assessed neither motives for use, perceived substance effects, nor substance use itself. The data therefore do not support the assertion that students higher in sensation seeking would be oriented toward positive reinforcement or that those higher in anxiety sensitivity would use a substance to reduce distress. The reinforcement model explains the construction of the instrument; it was not directly tested in this research.

#### **4.4. Internal Consistency and Psychometric Scope of the Version Used**

Cronbach's alpha was .70 for the total SURPS score and .75 for the hopelessness subscale. These values are acceptable for an exploratory study. Anxiety sensitivity showed more modest internal consistency (.64), and the coefficients for impulsivity (.55) and sensation seeking (.54) were low to modest. This heterogeneity calls for separate interpretation of the subscales rather than a global conclusion about instrument quality. Most importantly, it shows that certain dimensions require a more detailed examination of their items within the linguistic and cultural context studied.

Modest coefficients have also been reported in some adolescent adaptations of the SURPS, even when the four-factor structure and several validity indices remained broadly supported (Robles-García et al., 2014; Uygun et al., 2021). The small number of items per dimension may mechanically reduce alpha, but it cannot explain all shortcomings. Wording, comprehension, semantic equivalence, and response variability may also contribute. Consequently, the observed coefficients do not justify abandoning the Arabic version, but they prevent it from being described as fully validated.

The next step should include detailed item-functioning analyses, confirmatory factor analysis, calculation of complementary indices such as omega, and an assessment of test–retest stability. Convergent validity could be examined using established measures of related traits, whereas predictive validity would require longitudinal follow-up of initial experimentation and subsequent substance use behaviors. Such an approach would help distinguish limitations related to translation from those that may be specific to the structure of the scale in this population.

#### **4.5. Age and Parents' Marital Status**

No significant age differences were found for the total score or any of the four dimensions. This finding does not necessarily mean that the traits remain stable between 12 and 14 years. The sample distribution was highly unbalanced: only four participants were 14 years old, whereas 12-year-old students represented most of the group. This limited representation substantially reduces the ability to detect age-related change. The age range was also narrow, restricting the observable developmental variation.

Similarly, the absence of differences according to parents' marital status should be interpreted cautiously. Most participants had married parents, compared with only nine adolescents whose parents were divorced. Such imbalance results in low statistical power and does not support the conclusion that family context is unrelated to the personality dimensions examined. It indicates only that no sufficiently clear difference was detected in this sample. Future research should assess family functioning, parental support, conflict, supervision, and life events in greater detail rather than relying solely on marital status.

#### **4.6. Strengths and Limitations**

This research has several contributions. It provides novel data on the use of the SURPS among younger Moroccan middle school students, at an age when prevention strategies may be implemented before or during initial experimentation. It analyzes the four dimensions separately, compares their means while accounting for different numbers of items, and applies correction for multiple comparisons. It also transparently describes the linguistic adaptation process and distinguishes this preliminary adaptation from full psychometric validation.

Several limitations nevertheless constrain the scope of the findings. The cross-sectional design precludes conclusions regarding trait development or the capacity of the dimensions to predict future behaviors. The convenience sample was local, limited in size, and recruited from only two private middle schools in urban Salé, with very low representation of 14-year-old adolescents and family configurations other than married parents. Responses relied exclusively on self-report and may have been influenced by item comprehension or social desirability. Most importantly, no information was collected on tobacco, alcohol, cannabis, or other substance use; intentions to use; effects sought; or motives for use. The present study therefore cannot evaluate the criterion validity of the SURPS or establish a relationship between the observed profiles and actual behaviors. Finally, the absence of factor analysis and measurement invariance testing limits conclusions regarding the structural validity of the Arabic translation.

## 5. Implications for Prevention and Research

The findings support the value of examining individual differences in prevention initiatives, but they do not yet justify using this Arabic version as a stand-alone screening or clinical decision-making tool. Because no prevention intervention was tested in the present study, the implications proposed here should be regarded as directions for future research rather than evidence-based recommendations derived from this sample. The relatively high mean for sensation seeking may nevertheless justify examining, in future intervention studies, whether activities involving stimulation, active participation, decision-making, and appropriately structured challenges within a safe framework are relevant for Moroccan middle school students. This possibility is consistent with the broader literature on personality-targeted prevention but requires direct empirical evaluation in the Moroccan context. Such an orientation should not lead to labeling students or treating sensation seeking as pathological.

Personality-targeted interventions have shown, in trials involving adolescents selected using the SURPS, the capacity to delay or reduce some forms of alcohol use (Conrod et al., 2011). These international findings provide a scientific rationale for exploring personalized approaches. Their transfer to the Moroccan context nevertheless requires cultural adaptation, prior validation of the selection instrument, and experimental evaluation. The present study represents a preparatory step: it describes the distribution of traits but tests neither a prevention program nor its effectiveness.

Future research should therefore recruit larger samples from multiple regions and different types of schools and combine the SURPS with direct measures of substance use, intentions, substance availability, peer pressure, and motives for use. Longitudinal follow-up would make it possible to examine whether the dimensions actually predict initial experimentation and whether their associations vary by sex, age, or social context. Only after these steps could screening thresholds or targeted interventions be proposed on a sufficiently strong empirical basis.

## 6. Conclusion

This study provides an initial description of the personality dimensions measured by the SURPS among Moroccan middle school students aged 12 to 14 years. Sensation seeking had the greatest relative prominence, whereas the four dimensions remained only weakly to moderately associated. Reliability of the total score and hopelessness was acceptable from an exploratory perspective, but the lower internal consistency of some subscales indicates the need for further psychometric work. Comparisons by sex, age, and parents' marital status did not reveal robust differences.

These findings describe neither substance use nor the effects sought by adolescents. They concern only traits theoretically associated with differentiated vulnerabilities. The main contribution of this study therefore lies in opening a field of research that remains underdeveloped in Morocco: the early and culturally contextualized study of personality profiles relevant to prevention. Multicenter and longitudinal validation of the Arabic SURPS is now needed before it can be used as a screening instrument or to target preventive interventions.

## Declarations

### Ethics Approval and Consent to Participate

The study was conducted after administrative authorization had been obtained from the relevant educational authorities and participating schools. Students received age-appropriate information, participation was voluntary, and questionnaires were anonymous. No formal ethics committee approval was obtained, and written parental consent was not collected. These limitations are acknowledged transparently and should be considered when evaluating the study.

### Consent for Publication

Not applicable.

### Availability of Data and Materials

The dataset analyzed during the current study is available from the corresponding author upon reasonable request.

### Competing Interests

The authors declare no competing interests.

### Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### Author Contributions

Sawcen Bouchaara conceived the study, coordinated data collection, conducted the statistical analyses, interpreted the findings, and drafted and revised the manuscript. Ahmed Maad provided scientific supervision and academic guidance/mentoring throughout the research process.

### Acknowledgements

The author thanks the participating students, school administrators, and educational authorities who facilitated data collection.

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