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Short Communication

# Association between schizotypal and borderline personality disorder traits, and cannabis use in young adults

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## HIGHLIGHTS

- No study focused on cannabis use, borderline and schizotypal traits.
- These relationships were explored in a sample of college students.
- Cannabis use, borderline and schizotypal traits were significantly correlated.
- Only borderline traits were uniquely associated to cannabis use versus non-use.
- Only schizotypal traits were uniquely associated to problematic cannabis use.

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## ABSTRACT

The aim of the study was to examine the association of schizotypal and borderline personality traits to cannabis use. Participants were 476 college students (95 males; 381 females; mean age of males = 21; mean age of females = 20.7) who completed self-report questionnaires assessing cannabis use, schizotypal and borderline personality traits. Problematic cannabis use, depressive symptoms, borderline and schizotypal traits were significantly inter-correlated. A logistic regression analysis showed that only borderline traits contributed significantly to cannabis use in the total sample. A multiple regression analysis showed that only schizotypal traits were positively and uniquely associated to problematic cannabis use symptoms among users. These results may imply that schizotypal traits are not a risk factor for initiating use, but may facilitate the development of problematic use symptoms among users. This study showed the necessity of taking into account schizotypal traits when exploring the relationships between depressive symptoms, borderline traits and cannabis use.



## 1. Introduction

Cannabis use has been found to be associated to schizotypal personality traits in young adults (Dumas et al., 2002; Skosnik, Spatz-Glenn, & Park, 2001). Young adults with high scores on schizotypal traits reported much greater frequencies of cannabis use and cannabis-related problems (Cohen, Buckner, Najolia, & Stewart, 2011). The importance of this association is linked to the finding that both cannabis use and schizotypal traits are risks factors for the development of schizophrenia in young people (e.g., McGrath et al., 2010). Prospective researches displayed conflicting results on the relationships between schizotypal traits and cannabis use: Schiffman, Nakamura, Earleywine, and LaBrie (2005) found that the onset of schizotypal traits precedes the onset of cannabis use whereas Anglin et al.'s study (2012) supported a strong association of early cannabis use with the development of schizotypal symptoms. The examination of the relationships between schizotypal traits and cannabis use may be obscured by the association of borderline personality disorder (BPD) traits to both schizotypal traits (e.g., Fonseca-Pedrero, Lemos-Giráldez, Paino, Sierra-Baigrie, & Muñiz, 2012) and cannabis use (e.g., Chabrol, Ducongé, Casas, Roura, & Carey, 2005). Borderline traits are the personality disorder traits having the greatest effects on the development of substance use disorder in adolescents (Cohen, Chen, Crawford, Brook, & Gordon, 2007).

Few studies have investigated the association between schizotypal traits, borderline traits and cannabis use. Williams, Wellman, and Rawlins (1996) observed that cannabis users showed higher scores on schizotypal and borderline traits than non-users. In a small sample of high-school students, Chabrol, Melioli, and Goutaudier (2015) examined the relationships between cannabis use and the personality disorders traits identified as associated to adolescent substance use by previous studies, that is, borderline, antisocial, narcissistic, schizotypal, schizoid, avoidant and passive-aggressive personality disorder traits:

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only schizotypal and borderline traits were positively and independently associated to problematic cannabis use symptoms after adjustment for anxious and depressive symptoms.

Depressive symptoms have been found to be associated to cannabis use, borderline and schizotypal traits (e.g., Chabrol et al., 2005, 2015; Schwinn, Schinke, & Trent, 2010).

Some studies reported gender differences in the relationships between mental health and cannabis use, and more specifically between depressive and borderline traits, and cannabis use or problematic use (e.g., Chabrol et al., 2005) but other studies did not find evidence of the influence of gender (e.g., Schwinn et al., 2010). No study explored the influence of gender on the association between schizotypal traits and cannabis use.

Consequently, the aim of this study was to examine the relationships between depressive symptoms, borderline and schizotypal traits, and cannabis use and the influence of gender on these relationships.

## 2. Method

### 2.1. Participants and procedure

The sample consisted of 476 college students (95 males; 381 females; mean age of males = 21 ± 2.3; mean age of females = 20.7 ± 1.9; $p = 0.32$). Participants were recruited through student groups active in social networks and affiliated to universities in France. The sample was composed of individuals aged between 18 and 25 and who answered >95% of the items. The study procedures were approved by the ethics committee of the research ward. The study followed the ethical guidelines of the Helsinki Declaration. Participants provided their willingness to participate through a consent form and no compensation was offered. The questionnaires were anonymous.

### 2.2. Measures

Cannabis use was assessed using the French version of the Cannabis Use Disorders Identification Test (CUDIT) (Annaheim, Rehm, & Gmel, 2008; Guillem et al., 2011) which is a self-reported questionnaire that evaluates the cannabis consumption over the previous 6 months and identifies problematic or harmful cannabis use. Guillem et al. found a cut-off score of 10 for the CUDIT when screening for problematic use.

Schizotypal traits were assessed with the Schizotypal Personality Questionnaire Brief Form (SPQ-B; Fonseca-Pedrero, Paino-Pineiro, Lemos-Giraldez, Villazon-Garcia, & Muniz, 2009). The SPQ-B is a 22-item (true/false) self-report for assessment of schizotypal personality disorder. Borderline traits were measured using the French version of the BPD scale of the Personality Diagnostic Questionnaire, Fourth Edition (PDQ-4+; Hyler, 1994; Bouvard, 2002). The borderline scale is composed of 9 items corresponding to the DSM-IV criteria for BPD. Depressive symptoms were assessed using the short version of the Center for Epidemiologic Studies-Depression scale (CES-D-10; Andresen, Malmgren, Carter, & Patrick, 1994). Cronbach alphas and potential ranges are presented in Table 1.

### 2.3. Statistical analyses

Student's *t*-tests were used to compare cannabis users and non-users, and problematic users and non-problematic users. Bivariate relationships between variables were assessed with Pearson's *r*. The association of personality traits with cannabis use was examined in a logistic regression analysis predicting cannabis use versus non-use, entering gender, depressive symptoms, borderline and schizotypal traits. Results were reported with standardized regression coefficients of the explanatory variables (B) and *p* values. Predictors were standardized to get standardized regression coefficients. The association of personality traits to the CUDIT scores was tested with a hierarchical multiple regression analysis including all independent variables. The proportion of variance explained at each step was evaluated by the incremental F ratio. The unique association of each independent variable was reported with standardized regression coefficient (β) and *p* value. To determine whether gender moderated the relationship between psychopathological variables and problematic cannabis use, interaction terms (gender × depressive symptoms, gender × borderline traits, gender × schizotypal traits) were included in the last step of the multiple regression analysis. All variables mean centered with the exception of gender which was coded as −1 for females, and 1 for males. All statistical analyses were performed using STATISTICA, Version 10.

## 3. Results

### 3.1. Descriptive statistics

In the total sample, 32% of males (n = 30, age = 21.5 ± 2.5) and 30% of females (n = 112, age = 20.6 ± 1.3) reported having used cannabis at least once during the last 6 months ($p = 0.91$). Among cannabis users, CUDIT total score did not differ between males and females (7.6 ± 7.1 vs 7.1 ± 7.3, $t = 0.16$, $p < 0.87$). Similarly, the proportion of users with problematic cannabis use (CUDIT scores ≥10) did not differ between males and females (27% versus 29%, $p = 0.84$). Users had higher scores on borderline traits than non-users. Problematic users had higher scores on schizotypal and borderline traits than non-problematic users (Table 1).

### 3.2. Correlations between variables in the total sample

The CUDIT score was weakly associated to depressive symptoms ($r = 0.11$, $p < 0.05$), moderately associated to borderline traits ($r = 0.28$, $p < 0.05$) and more weakly to schizotypal traits ($r = 0.18$, $p < 0.05$). The relationship between schizotypal traits and borderline traits was moderate ($r = 0.58$, $p < 0.05$). Depressive symptoms were moderately associated to borderline traits ($r = 0.61$, $p < 0.05$) and schizotypal traits ($r = 0.51$, $p < 0.05$).

### 3.3. Logistic regression analysis predicting cannabis use versus non-use in the total sample

The predictors reliably distinguished between users and non-users, $\chi^2$ (4) = 28.5, $p < 0.0001$. Borderline traits were the only significant independent predictor of cannabis use (B = 0.70, $p < 0.0001$). Gender

**Table 1**
Comparisons between cannabis users and non-users and between cannabis users with and without problematic use.

| Variable | α | Range | Non-users (n = 332) *M* (*SD*) | Users (n = 142) *M* (*SD*) | *t* (472) | *p* | Non-problematic users (n = 102) *M* (*SD*) | Problematic users (n = 40) *M* (*SD*) | *t* (140) | *p* |
|---|---|---|---|---|---|---|---|---|---|---|
| CUDIT | 0.87 | 0–40 | 0.15 (0.87) | 7.18 (7.26) | −17.37 | <0.001 | 3.27 (1.71) | 17.13 (6.45) | −20.07 | <0.001 |
| Depressive symptoms | 0.81 | 0–30 | 12.58 (4.02) | 13.16 (4.21) | −1.44 | 0.15 | 12.82 (4.05) | 14.03 (4.53) | −1.54 | 0.13 |
| Schizotypal traits | 0.78 | 0–22 | 8.24 (4.44) | 8.95 (4.36) | −1.60 | 0.11 | 8.14 (3.89) | 11.03 (4.85) | −3.70 | <0.001 |
| Borderline traits | 0.84 | 0–54 | 20.70 (10.82) | 26.34 (12.15) | −5.01 | <0.001 | 24.14 (11.05) | 31.95 (13.13) | −3.59 | <0.001 |

Note: CUDIT = Cannabis Use Disorders Identification Test; problematic users scored ≥10 on CUDIT; non-problematic users scored <10.