

# PERCEIVED STRESS AND SUBSTANCE USE AMONG ALBANIAN ADOLESCENT GIRLS

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## Abstract

Background: Increasing rates of substance use among Albanian youth, particularly among female users, has become an important public health concern, but no studies so far have examined the potential relationships of this behavior with stress levels. Aim: The present study aimed to evaluate support for the self-medication model by assessing stress levels and substance use in a sample of Albanian adolescent girls. Methods: The study sample comprised 112 adolescent girls, 15-18 years old,  $M_{age} = 16.1$  years old,  $SD = 1.52$ . The study used a self-report questionnaire containing the Perceived Stress Scale and items assessing smoking behavior, alcohol drinking, and marijuana use. Results: Results showed that low-stress levels were reported by 27.7% of the sample, moderate stress by 66%, and high stress by 6.3% of the sample. Regular alcohol drinking was reported by 8.9% of the sample, regular marijuana use by 2.5%, and regular smoking by 1.8% of the sample. When occasional users were considered, figures went up to 25% for current smokers, 16% for current alcohol drinking, and 7.1% for marijuana use. Linear regression analysis resulted in a statistically significant model  $F(4, 108) = 3.14, p = .017$  explaining 10.8% of the variance in stress levels. The only two significant predictors were alcohol drinking,  $\beta = -.23, p < .05$ , and marijuana use,  $\beta = .22, p < .05$ . Conclusions: The self-medication model was supported for alcohol drinking but not marijuana use or smoking behavior. Findings have implications for future research with adolescent girls, as well as prevention and intervention programs in schools and communities.

**Keywords:** stress, substance use, Albanian adolescent girls

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## 1. Introduction

Adolescence is a critical developmental stage in terms of the multitude of physical and psychosocial changes that it comprises. Although the classical 'storm and stress' theory of adolescence has been criticized and abandoned at large, studies show that this developmental stage is indeed characterized by high-stress levels as well as risky behaviors such as substance use (Arnett et al., 1999; Casey et al. 2010). Most important, there seem to be cross-cultural similarities regarding the stress experience in adolescence, mostly as regards influencing factors and management strategies (e.g., Seiffge-Krenke, 2011). For instance, a study with representative samples from 20 countries reported great similarities in stress levels across the several domains assessed (Persike & Seiffge-Krenke, 2012).

Research has found significant associations between stress, anxiety, or depression symptoms and alcohol drinking among adolescents (Bolton et al., 2006; Carrigan and Randall, 2003; Hawn et al. 2021; Tomlinson & Brown, 2012). Similar results have been replicated for smoking and marijuana use, as associations between stress levels and negative affect have been reported in all cases (Chaiton et al., 2010; King, Mrug, & Windle, 2020; Valdez et al., 2021; Wilkinson, Halpern, Herring, Shanahan, et al., 2016). These findings have been replicated across different countries and have been mainly explained through social influence or self-medication models. While social influence models focus on peer pressure, modeling, or impression management, the self-medication model considers substance use as a coping behavior of individuals who are struggling to manage stress, negative emotions, anxiety, depression, etc. (Khantzian, 1985; Tanford & Penrod, 1984).

Although the self-medication model posits a clear direction of the relationship, where substance use behavior is the outcome, several studies seem to suggest a bi-directional relationship between stress and substance use is closer to reality. The correlation (co-occurrence) between substance use and mental health outcomes has received strong support from research now, for studies assessing the use of legal as well as illegal substances among youth (Smith et al., 2017). However, longitudinal studies also suggest the existence of this bidirectional relationship; for instance, Wilkinson, Alper, and Herring (2016) concluded that marijuana uses both precedes and follows the development of depressive symptoms. Authors also reported a bidirectional relationship between negative affect and smoking behavior; therefore, smoking is used to manage negative affect, but in turn, it seems to also produce negative affect. Paradoxically, although substance use serves as a coping strategy (self-medication model), it seems to be associated with an increase rather than a decrease in stress levels.

The self-medication model of substance use has found support for both genders, although research shows a higher prevalence of substance use among men, as indicated by findings across different countries and cultures (Halladay et al., 2020; Wilkinson et al., 2018). However, during adolescence, important gender differences in stress levels have been reported as adolescent girls tend to have lower life satisfaction, lower self-esteem, higher rates of mental health problems, and stronger negative effects of stress overall (e.g., Craig et al., 2023; Moksnes et al., 2012; Wills et al., 2001). The authors have explained the findings in terms of gender-specific stressors and the poorer coping strategies of girls as compared to boys. Moreover, several studies have reported that the prevalence of substance use among girls has been increasing in recent years and gender roles might be involved in the process as well (Wilkinson et al., 2018). Therefore, it is important to assess the role of substance use patterns particularly as related to stress levels among adolescent girls.

### ***1.1. Context of the study and study objectives***

Substance use among youth has been considered a growing public health concern in recent years in Albania, particularly because of the increasing prevalence of female users and the constant narrowing of the gender gap present 2-3 decades earlier (Albanian Institute of Statistics, 2018). Moreover, exposure to the global stressors deriving from the Covid-19 pandemic, or the economic crisis due to the Ukrainian war, has put to considerable strain the already fragile socio-economic situation in the country, further increasing the probability of engaging in high-risk behaviors. In this context, Albanian adolescent girls represent an important target group, which has not received much research attention in terms of addressing stress levels or substance use behaviors.

The objectives of the present study included:

1. The assessment of stress levels among Albanian adolescent girls
2. The estimation of the prevalence of substance use behaviors including smoking, drinking, and marijuana use
3. The evaluation of smoking behavior, alcohol drinking, and marijuana use, as predictors of perceived stress

## **2. Methodology**

### ***2.1. Participants and Procedures***

The study was conducted in two private Albanian high schools in Tirana. Data collection was conducted after getting appropriate permission from school authorities, and parents advising the school board. The researcher provided information on the purpose of the study and assured participants of the anonymity and confidentiality of the data they would provide. Moreover, the researcher provided contact details for participants who might be interested in the results of the study. Questionnaires were distributed in the classrooms with the help of

teachers. Overall, 150 questionnaires were distributed, but the final analysis was conducted on 112 questionnaires. Hence the response rate was at 75% (38 questionnaires were excluded due to missing data i.e., more than half of the questionnaire was left blank). Therefore, the final study sample comprised 112 adolescent girls, 15-18 years old,  $M_{\text{age}} = 16.1$  years old,  $SD = 1.52$ . As regards sample distribution by age, 15-year-olds comprised 29 percent, 16-year-olds 21.6 percent, 17-year-olds 17.3 percent, and 18-year-olds 32.1 percent of the sample.

## 2.2. Measuring Instruments

The study used the Perceived Stress Scale, the revised version comprising ten items (Cohen, Kamarch, & Mermelstein, 1983; Cohen & Williamson, 1988). Research evidence has provided support for this version as regards its psychometric properties; for instance, a review by Lee (2012) reported better psychometric properties for the 10-item version as compared to the 14-item version. The scale is a widely used instrument across several cultures and languages and aims to assess a general perception of stress deriving from overload or uncontrollable events. Scores range from a minimum of 0 to a maximum of 40. Items are stated simply, and participants are asked to respond how often they experienced the thoughts or feelings during the last month. Response options range from 0 (never) to 4 (very often). Items are summarized after reversely scoring items, 4, 5, 7, and 8. Total scores are classified as follows: low stress (0 to 13), moderate stress (14-26), and high stress (27-40). The scale was translated into Albanian and back-translated to English to ensure the correctness of the translation.

Substance use was measured with 3 questions assessing smoking behavior, alcohol drinking, and marijuana use. Questions assessed the frequency of use, with options ranging from everyday/most times a week (Regular users), Rarely/Sometimes (Occasional users), and Never (non-users).

## 3. Analyses and results

The mean perceived stress reported in the present sample was 16.8 ( $SD = 6.75$ ), with a minimum value of 0 and a maximum value of 40. In terms of distribution across different stress levels, 27.7% of the sample (31 participants) reported low stress (scores 0 to 13), 66% (74 participants) reported moderate stress (scores 14-26) and 6.3% (6 participants) reported high stress levels (scores 27-40). As regards substance use, data overall indicated the highest rates for regular alcohol drinking, as reported by 8.9% of the sample, followed by regular marijuana use at 2.5% (every day) and regular smoking at the rate of 1.8%. However, if occasional/experimental users were also considered, the highest rates were reported for smoking, as current smokers comprised 25% of the sample followed by current alcohol drinking going up to 16% and current marijuana users at the rate of 7.1%.

Crosstabs analyses indicated significant relationships between all substance use categories (Pearson  $Chi^2 = 33.477$ ,  $p < .001$ ). Therefore, current smokers were more likely to be marijuana users or alcohol drinkers, and vice versa for all three substances.

Linear regression analysis was conducted, with perceived stress as the dependent variable and age, current alcohol use, current marijuana use, and current smoking as independent variables. The analysis resulted in a statistically significant model  $F(4, 108) = 3.14$ ,  $p = .017$ . The amount of variance of perceived stress explained by the model was 10.8% ( $R^2 = .108$ ), while the only two significant predictors were alcohol drinking,  $\beta = -.23$ ,  $p < .05$ , and marijuana use,  $\beta = .22$ ,  $p < .05$ . Therefore, current drinking was associated with lower stress levels, while current marijuana use, with higher stress levels. The mean value for perceived stress for non-users of marijuana was  $M = 17.31$ ,  $SD = 6.73$ , while for users  $M = 23.57$ ,  $SD = 1.51$ . The mean value for perceived stress for non-drinkers was  $M = 18.10$ ,  $SD = 7.05$ , while the mean value for drinkers was  $M = 15.78$ ,  $SD = 4.15$ . Current smoking was not a significant predictor of stress levels.

**Table 1.** Regression model for age, smoking, drinking, and marijuana use as predictors of stress levels

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.860	8.467		2.936	.004
	Age	-.468	.519	-.087	-.902	.369
	Smoking	3.171	1.672	.207	1.897	.061
	Drinking	-4.080	1.898	-.226	-2.149	.034
	Marijuana use	5.952	2.575	.218	2.312	.023

a. Dependent Variable: Perceived Stress

#### 4. Discussion

The present study aimed to assess stress levels and substance use among Albanian adolescent girls. Results indicated that almost 70% of the sample reported moderate to high-stress levels, suggesting the need to investigate further specific stressors as well as coping strategies within this specific target group. Findings are in line with studies from other countries reporting negative affect and stress levels as being particularly problematic among adolescent girls (e.g., Craig et al., 2023; Moksnes et al., 2012; Wills et al., 2001). These negative outcomes have been explained in terms of developmental-specific features such as low self-esteem and self-efficacy, or higher sensitivity to peer pressure (e.g., Craig et al., 2023; Moksnes et al., 2012; Wills et al., 2001). Nonetheless, further research is needed to clarify the dynamics involved in stress perception of Albanian adolescent girls. Particularly concerning were the rates of substance use, mostly as regards regular alcohol drinking (8.9%). In fact, as compared to the most recent data at the national level, reported by the Albanian Institute of Statistics (2018), only 3% of women 15-49 years old reported drinking alcohol 1-4 days per week and only 1% reported drinking for 5 or more days a week. Although the age gap of the national level study is quite large, and the sample of the present study is quite small, this gap in the reported prevalence of female alcohol drinking requires further investigation. This recommendation is further reinforced by the fact that if occasional drinkers are considered in the prevalence assessment, the rate almost doubles to 16%. A similar pattern of occasional substance use has been also identified in terms of smoking behavior and marijuana use.

Although rates of regular smoking and marijuana use were quite low (1.8% for tobacco and 2.5% for marijuana), the inclusion of occasional use in prevalence calculations increases the figure considerably (25% for smoking and 7.1% for marijuana use). Occasional use for experimental or leisure purposes has been long documented in research with adolescents and the phenomenon has been considered a risk factor for future regular use (Palmer et al. 2009; Soloski, 2018). As compared to national data from the Albanian Institute of Statistics (2018), smoking behavior appears at a lower rate (4%-5% reported at the national level). However particularly interesting is the fact that rates of regular marijuana use are higher as compared to smoking, a fact which suggests a shifting trend in terms of substance use among adolescent girls. This finding requires further research with larger representative samples of participants to produce more solid conclusions in terms of prevalence. Nonetheless, as compared to data from other countries, rates of substance use in the present study

were considerably lower; for instance, Craig et al. (2023) in their study with Canadian adolescents reported rates of substance use among girls as ranging between 20%-50%. Hence, there might be reason to expect that actual rates of substance use might be much higher if larger representative samples are considered. This claim is further supported by the lack of reinforcement of laws selling tobacco products or alcohol to minors as well as the increasing availability and ease of access to substances such as marijuana in different settings (bars, streets, school proximity, etc.). Therefore, prevalence data from the present study might serve just as indicators for further investigation in this direction.

As regards the self-medication model of substance use, results showed that the model was supported for alcohol drinking but not marijuana use and or smoking. Therefore, alcohol use was associated with reduced stress levels; conversely, marijuana use predicted increasing rather than decreasing stress levels. Moreover, smoking behavior revealed no significant relationship to stress levels. Many studies have supported the finding that alcohol serves an important social facilitating role by relieving stress particularly related to social situations (Bolton et al. 2006; Thomas, et al., 2003). Nonetheless, marijuana use might contribute to increasing stress deriving from factors such as finding or hiding the substance, lying, or stealing from parents, involvement (friendly or romantic) with regular users, etc. This finding is in line with results reported by Wilkinson, Alper, and Herring (2016), which associate substance use with increasing negative effects. Yet another factor is the social acceptability of use, which of course is greater for alcohol drinking as compared to marijuana use. Finally, the missing relationship with smoking behavior is in line with the prevalence data discussed above, which shows a shifting trend from smoking to alcohol and marijuana use. Taken together these findings suggest that some shifts in gender norms related to substance use might have happened, particularly as regards acceptable behavior for girls. In this context, there are studies suggesting that the involvement of gender norms adherence is closely related to substance use behaviors, particularly in adolescence (Wilkinson et al., 2018). Opening the Albanian society towards individualistic and feministic values has certainly contributed to changing perceptions of gender and gender-specific roles, including the acceptability or unacceptability of behaviors such as substance use. However further research is needed to determine whether there has been any actual effect on substance use rates. To conclude, the present study reported considerable stress levels among Albanian adolescent girls, and supportive evidence for the self-medication model as regards alcohol drinking. Hence despite its limitations, the present study suggests important directions for future research with adolescent girls, particularly regarding stress and its management through substance use. Finally, occasional substance use also represents an important direction for further investigation, with implications for prevention and intervention programs both within schools and communities.

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