IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING

(ISSN: 2814-2098) RANDRIAMALALA NCR[1]*

https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

DETERMINANTS OF PSYCHOACTIVE SUBSTANCE USE AMONG STUDENTS IN THE URBAN COMMUNE OF TOLIARA

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SUMMARY

Introduction: The use of psychoactive substances is steadily increasing worldwide. Among adolescents, this behavior exposes them to risks, dependence and health hazards.

The aim of this study is to determine the prevalence of psychoactive substances and the profiles of high school students who use them.

Method: This was a prospective descriptive and analytical study carried out in public high schools in the urban commune of Toliara. Students who had used psychoactive substances in the previous 12 months were considered users. The Hospital Anxiety Depression Scale (HADS) was used to assess students' psychological distress.

Results: 150 high school students were surveyed, 85.33% of whom had already used psychoactive substances, 70% of whom had consumed alcohol, 4% tobacco and 7.33% cannabis ; 88% of the students were in the 16-18 age group, and 50% were male. Males are associated with the use of psychoactive substances. Consumption by parents or friends, as well as peer influence, played a significant role in substance use. The presence of anxiety and depressive disorders was correlated with the use of psychoactive substances.

Conclusion: the use of psychoactive substances is increasingly attractive to teenagers. Reducing adolescent consumption requires psychological support and parental education.

Key words: Adolescent, Epidemiology, Associated factors, Madagascar, Psychoactive substances.

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INTRODUCTION

The use of psychoactive substances represents a major public health challenge on a global scale, with prevalence rising steadily. Developing countries are currently considered to be the hub of drug networks, and are not spared from the major current problem of combating drug addiction [1]. In Madagascar, as in other low-income countries, this problem is exacerbated by complex socio-economic factors and limited access to prevention programs. Adolescents and young adults are most exposed to the use of psychoactive substances. And it is often during adolescence that people are first introduced to the use of psychoactive substances, whether licit or illicit.The initiation of psychoactive substance use at an early age often leads to harmful use or even dependence [2]. The use of APS exposes adolescents to specific risks, such as difficulties in academic success or social and professional integration at a key period in the construction of their adult lives [3,4].

Several factors can influence this consumption, such as intergenerational transmission and peer influence [5]. Academic stress can also lead students to adopt risky behaviours, particularly the use of psychoactive substances, as can the psychological status of adolescents. Negative emotional states such as anxiety and depression are common among substance users. Adolescents use psychoactive substances to alleviate their emotional distress [6]. In Toliara, an urban commune in south-west Madagascar, no recent data have documented the extent of this phenomenon among high-school students, a key population for targeted interventions. This study aims to measure the prevalence of SPA consumption (alcohol, tobacco, cannabis); identify associated profiles and factors (gender, family environment, mental health).

II MATERIAL AND METHOD

This was a descriptive and analytical cross-sectional study conducted between January and March 2024 in the public high schools of the urban commune of Toliara, Madagascar.

The study population consisted of students aged 12 to 18 enrolled in classes from seconde to terminale. The schools were selected by stratified random sampling to represent the different districts of Toliara. Pupils were randomly selected by class, with a balanced boy/girl ratio.

Male and female students aged 12 to 18, present in the school during the survey period, were included in the study after informed consent had been obtained (oral for minors, with written

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https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

parental consent). Incomplete questionnaires (greter than 20% of missing data), students absent during the survey and who refused to participate in the study were excluded.

Sample size was calculated using Cochran's formula for a finite population (margin of error 5%, confidence interval 95%), resulting in 150 participants.

Data were collected using an anonymous questionnaire. The questionnaire consists of three parts.

The first part concerns the independent variables, grouping together variables relating to individual, family and socio-environmental factors.

The second part evaluates the dependent variable, concerning the use of psychoactive substances (alcohol, tobacco, cannabis) in the last 12 months (binary answers: yes/no).

The third part uses the Hospital, Anxiety and Depression Scale (HADS) to assess anxiety (7 items) and depression (7 items).

Data collected, coded, entered on Word/Excel 2010 software, analysis via SPSS v.20.0. Statistical tests were considered significant at $p<0.05$.

The study was carried out after obtaining permission from the head of each school and the consent of parents and respondents. Before the questionnaires were handed out, the purpose of the survey was explained, insisting on total respect for confidentiality in order to encourage adolescents to answer the questionnaire frankly. All information gathered on each individual was kept confidential. Respect for anonymity was enforced by using codes for each file.

III RESULTS

During the study period, 150 students were surveyed; of these, 88% were in the 16-18 age group; 11% in the 14-16 age group; 50% were male; 76.5% were involved in an extracurricular activity (sport). Hostility was found in 19% of the students surveyed. Concerning the results of the HADS scale, 35% presented an anxiety disorder, 9% a depressive symptom and 7% an anxiety-depressive disorder.

For variables relating to family factors: 68.67% of parents were married, 12.67% divorced; 77.33% of parents worked in the tertiary sector, 9.33% in the secondary sector and 8.67% unemployed. The students had a relationship of trust with their parents in 73% of cases, 21%

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said there was no exchange with their parents and 6% had a conflictual relationship; 78.67% of parents were authoritarian and 21.33% had a democratic educational practice. On the other hand, 46.7% said they had a family problem.

With regard to variables relating to the use of psychoactive substances : 85.33% of students had already used psychoactive substances. Of these, 70% had used alcohol, 2.67% tobacco and 7.33% cannabis (Fig 1). Parents were SPA users in 69% of cases ; and 55.

57% were influenced by bad company.

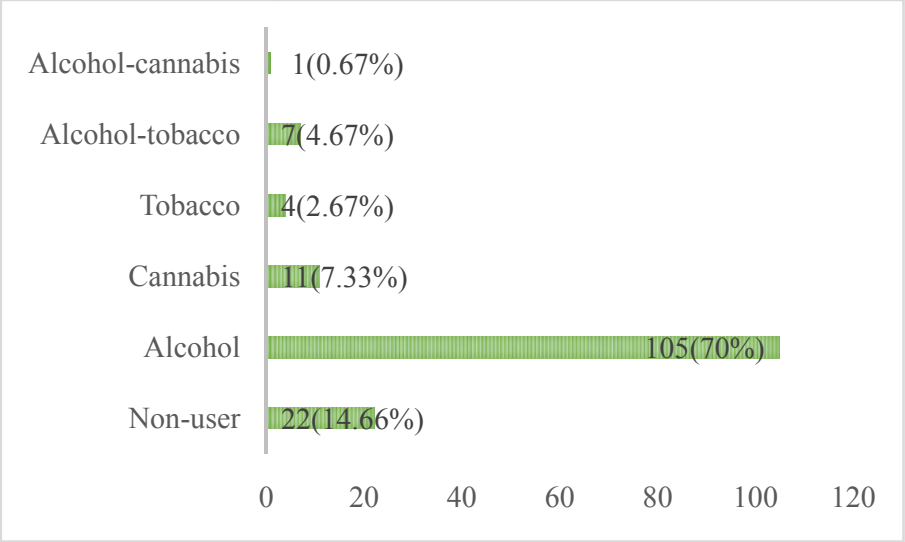

Figure 1 : Distribution of students according to substance use

The factors associated with the use of psychoactive substances are summarized in Table I

settings	Psychoactive substances						p-value
	Non-user n(%)	Alcohol n(%)	Cannabis n(%)	Tobacco n(%)	Alcohol-tobacco n(%)	Alcohol-cannabis n(%)	
Gender							
Masculine	5(22.7)	**56(53.3)**	0(0.0)	3(27.3)	**5(83.3)**	2(100.0)	0.002
Feminine	17(77.3)	49(46.7)	4(100.0)	8(72.7)	1(16.7)	0(0.0)	
Consumer parents							

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No	19(86.4)	51(48.5)	1(25.0)	6(54.5)	3(50.0)	1(50.0)	0.008
Yes	3(13.6)	**54(51.4)**	3(75.0)	**5(45.5)**	3(50.0)	1(50.0)	
Parent-child relationship							
Trust	17(77.3)	**76(72.4)**	**2(50.0)**	**11(100.0)**	**4(66.7)**	0(0.0)	0.003
Lack of exchange	1(4.5)	26(24.8)	1(25.0)	0(0.0)	1(16.7)	2(100.0)	
Conflictual	4(18.2)	3(2.9)	1(25.0)	0(0.0)	1(16.7)	0(0.0)	
Consumer friends							
No	17(77.3)	44(41.9)	1(25.0)	1(9.1)	2(33.3)	0(0.0)	0.001
Yes	5(22.7)	**61(58.1)**	**3(75.0)**	**10(90.9)**	**4(66.7)**	2(100.0)	
Peer influence							
Yes	1(4.5)	11(10.5)	**3(75.0)**	1(9.1)	**4(66.7)**	2(100.0)	0.001
No	21(95.5)	94(89.5)	1(25.0)	10(90.9)	2(33.3)	0(0.0)	
Hostility							
No	21(95.5)	85(81.0)	2(50.0)	9(81.8)	4(66.7)	0(0.0)	0.018
Yes	1(4.5)	20(19.0)	**2(50.0)**	2(18.2)	2(33.3)	**2(100.0)**	
HADS scores							
No disorder	7(31.8)	59(56.2)	2(50.0)	2(18.2))	3(50.0)	1(50.0)	
Anxiety	11(50.0)	32(30.5)	0(0.0)	**6(54.5)**	3(50.0)	1(50.0)	0.048
Depression	1(4.5)	8(7.6)	1(25.0)	**3(27.3)**	0(0.0)	0(0.0)	
Anxiety-depression	3(13.6)	6(5.7)	1(25.0)	0(0.0)	0(0.0)	0(0.0)	

IV DISCUSSION.

Adolescence is a vulnerable period when the probability of experimenting with APS is high. In this study, 85.33% of students had already used psychoactive substances. This result highlights a significant level of consumption, comparable to that reported in the literature. A study by Andriamanjato HMH et al. among the general population in the urban commune of Toliara, in 2022, found a rate close to 89% [7]. In Toamasina, in 2023, Ratobimanankasina HH et al, in a study of secondary school pupils, reported a similar rate of 81.5% [8]. On the

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other hand, in France in 2022, Perrino J et al. found a high rate of SPA consumption among students, but lower than in this study (65.5%) [9].

In terms of the type of substances used, alcohol, tobacco and cannabis were the main psychoactive substances consumed by students. Alcohol topped the list of substances mentioned, with a rate of 70%. This result corroborates a study carried out in Benin by Kpozehouen A, who reported alcohol consumption among 74.66% of adolescents [10]. In Madagascar, Razanamihaja N et al. also reported high alcohol consumption among adolescents attending school in 2013, with a rate of 62% [11]. Authors have reported that the age of first alcohol consumption in schools is between 10-14 years for boys and 15-19 years for girls [12]. Young people seem to be attracted to alcohol for the sensations it provides. According to Beck F and Richard JB, drinking among young people is motivated by relaxation, the pleasure of partying, imitation of peers, and the search for intoxication [13], or even relief from an emotional disorder.

Two point sixty-seven percent (2.67%) of students have used tobacco. The prevalence of tobacco use among adolescents varies from one study to another. In Mahajanga, Randriamihangy NA et al. found a prevalence of 6.6% among high school students [14]. In Antananarivo, Rakotomahefa NML et al. found a rate of 5.5% [15]. In Algeria, Elotmanie et al. reported a rate of 8.5% [16]. This variability could be linked to the accessibility of the products.

Cannabis is in second place after alcohol, with a rate of 7.33%. In Mahajanga, Randrianarivo RF, reports a cannabis prevalence of 8% and 54.5% initiated their consumption between the ages of 11 and 15[17]. In Morocco, toxicological analysis of adolescents' urine revealed the presence of cannabis in 9.1% of cases [18].

Although cannabis is an illegal substance, teenagers are often attracted by its euphoric, relaxing and de-stressing effects. However, cannabis can disrupt cognitive development and is a major cause of school drop-out. Early use exposes adolescents to neurotoxins, increasing the risk of cognitive impairment in adulthood [19]. It is vital to implement preventive measures in the school environment to avoid the development of addiction or psychiatric complications.

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Several factors influence the use of psychoactive substances by adolescents. Boys consumed more psychoactive substances than girls, with a significant difference observed (p=0.002). This finding has also been reported in the literature (p<0.001) [20,21].

The family environment and the influence of peers play a decisive role in the initiation of drug use. The use of psychoactive substances within the family, and in particular by parents, is a risk factor for use and use disorders, due to the social, psychological and behavioural consequences their children may face [22]. A significant difference was observed between the use of psychoactive substances and consumption by parents (p=0.008). Rakotomahefa NL et al. also report that the presence of a parent (mother or father) who uses tobacco is a risk factor for use in children (p=0.005) [15]. Jamison et al, have also reported that having one or two parents who smoke is associated with cigarette use in young people [23]. Parents are the child's first social role model, so it's easy for children to be introduced to the use of psychoactive substances at an early age if one of their parents is a consumer.

Paradoxically, a trusting parent-child relationship does not appear to be a protective factor against use (p=0.003). On the other hand, in the literature, an association has been reported between psychoactive substance use among adolescents and poor parental supervision, parental permissiveness towards heavy alcohol consumption and low parent-child attachment [24]

Finally, poor company strongly influences drug abuse behavior. Adolescents are often motivated by the need for social integration, with a significant correlation between substance use and peer influence (p=0.001). Some authors have reported an association between APS use and having friends who use APS [10, 18, 25]. Authors have reported an association between smoking and the means of socialization and integration at school [14,26].

Anxiety, depression and hostility are also important risk factors. A Quebec study highlighted the association between hostility, the presence of anxiety and poly-drug use in girls [27]. This finding was replicated in this study. According to Wellman, RJ et al, the presence of depressive symptoms and impulsivity are associated with cannabis use [17]. In this study, 30.5% of students consuming alcohol showed an anxiety disorder and 54.5% cannabis. For depression, 27.3% used cannabis and 25% of tobacco smokers were concerned.

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V. CONCLUSION

The use of psychoactive substances among high-school students is reaching alarming levels, particularly where alcohol and cannabis are concerned. Several factors are influencing this use, namely adolescents' psychological suffering, such as anxiety-depressive disorders, the use of psychoactive substances in their environment, and the influence of peers. A thorough understanding of these factors is essential, as it enables the implementation of appropriate preventive actions, targeting individuals in vulnerable situations or specific contexts favoring such use, as well as the enforcement of existing laws. Laws prohibiting entry to places selling alcohol and the sale of products to minors.

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