Study of prevalence of psychoactive substance use among a sample of university students on Morocco

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Abstract

OBJECTIVE: The use of psychoactive substances is on the increase in Morocco and throughout the world, sometimes with serious somatic, psychological and social consequences, thus necessitating more in-depth studies. The aim of this study was to assess the extent, abuse and dependence of addictive behaviors linked to the consumption of nicotine, cannabis and alcohol among young Moroccan students in various universities.

METHODS: We intend to study these questions based on a sample of university students, and we will also be paying particular attention to factors influencing excessive or abusive consumption. The population of this study is 239 participants. The study protocol consists of three main tests: the Fagerström test, CAST, AUDIT and a socio-demographic questionnaire.

RESULTS: The results show that tobacco is the most commonly used substance, followed by cannabis and alcohol. In addition, among our substance-using university students, a positive correlation (r = + 0.27; $p < 0.000$) was found between the scores on the Fagerström and CAST scales. Certain factors such as family history of smoking and the environment frequented with friends were highlighted.

CONCLUSION: The results confirm that the majority of participants are users of psychoactive substances and that a good number of them are substance-dependent. Follow-up and awareness-raising in universities is necessary.

INTRODUCTION

The use of psychoactive substances is increasingly common among young people, and is a major public health problem worldwide. Addiction is defined as psychopathological behavior with certain biological, psychological and social characteristics that go beyond physical dependence. The main criteria contributing to its definition are: compulsive desire for the product, difficulty in controlling consumption, taking the product to avoid withdrawal syndrome, the need to increase the dose to achieve the same effects as before, and the central place taken by the product in the consumer's life.

The use of psychoactive substances is on the increase worldwide and is responsible for over 400,000 deaths a year.

The outcomes are a major public health concern, as substance use is associated with the frequent development of it abusive usage and dependencies, with negative consequences on their psychological and physical health and as well as sur their psychosocial adaptation.

As a result, more than 35 million people worldwide suffer from the negative effects of drug abuse, and only one in seven receives treatment.

The MedSPAD (Mediterranean School Survey Project on Alcohol and Other Drugs) surveys in Morocco have so far included four data collection periods. The first study was conducted in 2006 in the Rabat-Salé region. Subsequently, for greater representativeness, MedSPAD surveys were carried out at national level in 2009, 2013, 2017 and 2021. The data from the MedSPAD surveys provide valuable information for drawing up a portrait of Moroccan youth. They can also be used to identify trends in the use of psychoactive substances among adolescents.

The MedSPAD project is based on a common approach to collect information on substance use from Moroccan students (Fatima El Omari *et al.* 2018).

The aim of this study is to assess the use and abuse of psychoactive substances in the university environment, to identify the factors that encourage the use of these substances, to determine the age at which use begins, to get an idea of the opinions and behavior of these students and to identify certain factors that may be predictive of the use of psychoactive substances, and which may constitute elements of support for a policy which promote mental health in the education sector and to explore the socio-demographic determinants of these phenomena in the general Moroccan student population. What is the extent of psychoactive substance use in universities? Identify the impact of psychoactive substance use on student learning.

Tab. 1. Socio-demographic

Variables	Frequency	
	n = 239	n = %
Sex		
Men	65,3% (n = 156)	
Women	34,7% (n = 83)	
Sex-ratio	1,87	
Age (yr)		
Mean	22,61 ± 3,07	
Median		
Extremes	18 et 35	
Laterality		
right handed	227	94,9 %
Left	12	5,02 %
institution		
(ENCG) National School of Commerce and Management Kenitra	29	12,13 %
(ENSA) National School of Applied Sciences Kenitra	25	10,46 %
faculty of sciences of kenitra	78	32,63 %
Faculty of Economics and Management/Faculty of Legal and Political Sciences-Kénitra	57	23,85 %
Faculty of Letters and Human Sciences of Kennitra	30	12,55 %
Faculty of Medicine and Pharmacy Fez	20	8,37 %

MATERIALS AND METHODS

Study population
Type of study, inclusion and exclusion criteria and data collection tools
This is a cross-sectional, qualitative and quantified study. Students were selected from the Faculty of Science, the Faculty of Legal, Economic and Social Sciences, the Faculty of Arts and Humanities, ENSA, ENCG Kenitra and the Faculty of Medicine, Pharmacy and Dentistry in Fez during all semesters. Eligible participants are Moroccan men and women aged 18 and over. Students who did not wish to take part in the study, deaf mute and partially sighted were excluded.

Data was collected using an information sheet and scales to measure tobacco (nicotine or cigarettes), cannabis and alcohol consumption.

Data collection tools
The data was collected with the help of a questionnaire (information sheet) and scales for measuring addiction to nicotine, cigarettes, cannabis. To measure or evaluate the consumption of these psychoactive substances we used scales such as the FAGERSTROM nicotine dependence test, CAST questionnaire test and AUDIT questionnaire test.

The Fagerström test
The Fagerström test is a tool for assessing and quantifying the level of tobacco dependence during smoking. It includes a few questions about the smoker's smoking habits. It can be used to adapt the management of smoking cessation. The Fagerstöm test was first described in 1978 (K. O. Fagerström 1978) by Karl Olov Fagerström as the tolerance questionnaire, and comprises of eight questions. It was subsequently modi-

fied (withdrawal of two questions and modification of two others) and renamed the nicotine dependence test in 1991 by Heatherton (Heatherton TF 1991). In 2012, it was renamed the cigarette dependence test by Fagerström without the questionnaire being modified (Fagerström K 2012).

Two questions seem particularly important and are sometimes grouped together in a simplified test: the number of cigarettes smoked during the day, and the time elapsed between waking up and the first cigarette. The score obtained varies from 0 to 6; depending on the result, the dependence is considered zero, moderate or strong.

The CAST questionnaire test
The CAST is a 6-item scale describing consumption behaviour. It was first carried out in 2002 as part of the ESCAPAD survey (Enquête Française de Santé et d'Usage à l'Appel et à la Préparation de la Journée de la Défense). The CAST questionnaire consists of 6 items covering the past 12 months (linked to the past year): 1. Have you smoked cannabis before midday? 2. Have you smoked cannabis when you were alone? 3. Have you had memory problems when smoking cannabis? 4. Have friends or family members told you that you should cut down or stop using cannabis? 5. Have you tried to cut down or stop using cannabis without success? 6. Have you had any problems because of your cannabis use (arguments, fights, accidents, poor school results, etc.)?

All items are answered on a 5-point scale (0 'never', 1 'rarely', 2 'sometimes', 3 'quite often' and 4 'very often'). In the original version (Legleye *et al.* 2007), the thresholds for positive responses vary according to the questions. The threshold was set at 'from time to time' for the first two questions because they do not filter prob-

Tab. 2. Fagerström test

Fagerström test		Frequency (n)	Score (2 à 5)	Score (6 à 10)	Mean
Total		239			
Sex	Men	65,27 % (156)	0	0	
	Women	34,72 % (83)	0	0	
Factors and family history influencing tobacco consumption	Yes	62,34 % 149	27,19 % (65)	35,14% (84)	4,64 ±1,63
	No	37,65% (90)	24,68% (59)	12,97% (31)	4,08 ± 1,62
Factors and environment influencing tobacco consumption	Your friends and environment	47,69% (114)	27,61% (66)	20,08% (48)	4,16 ±1,6
	Problems at school (academic failure)	12,55% (30)	5,02% (12)	7,53% (18)	4,1 ± 1,59
	Personal problems or curiosity	35,56% (85)	16,31 % (39)	19,24 % 46	4,45 ± 1,61

Tab. 3. CAST questionnaire test

CAST questionnaire test		Frequency (n)	Score 3 à 6	Score > 7	Mean
Frequency (n)		239			
Total cannabis consumer		142			7,32 ± 4,76
Sex	Men	74,64% (106)	32,39% (46)	42,25% (60)	7,858 ± 4.97
	Women	25,35% (36)	16,19% (23)	9,15% (13)	6,01 ± 3,79
Factors and family history influencing cannabis use	Yes	66,90% (95)	27,46% (39)	39,43% (56)	8,01 ± 4,50
	No	33,09% (47)	21,12% (30)	11,97% (17)	6,127 ± 5,13
Factors and environment influencing cannabis consumption	Your friends and environment	52,11% (74)	20,42% (29)	31,69% (45)	7,73 ± 4,69
	Problems at school (academic failure)	19,01% (27)	13,38% (19)	5,63% (8)	7,71 ± 3,02
	Personal problems or curiosity	42,25% (60)	29,57% (42)	12,67% (18)	7,75 ± 5,25

lems but frequencies of use in different contexts, and at 'rarely' for the second and third questions.

The Audit Questionnaire Test

The AUDIT is an assessment tool for identifying risky or problematic alcohol consumption (Raistrick D 2006). It was designed and validated by the World Health Organization for primary care physicians.

Its sensitivity to detect risky or problematic consumption varies from 51% to 97% and its specificity, from 78% to 96% (Fiellin DA 2001). The AUDIT also makes it possible to distinguish between abuse and dependence on alcohol. It has also proven useful for subjects, patients hospitalized in general services, in psychiatry or in emergency. Validated in clinical settings in different countries, the AUDIT retains its qualities and precision in men, women and the elderly, whatever their cultures (Babor TF 2001). It includes ten questions on the frequency and quantity of alcohol, alcohol-related problems and symptoms of dependence. The version of the AUDIT in the form of a self-questionnaire.

After explaining to your subject that alcohol can harm his health, you invite him to complete the self-questionnaire, insisting on the confidential treatment of his responses and his participation in the discussion of the results.

Statistical analysis

In the statistical analysis, the characteristics of the students are expressed as a percentage for qualitative variables and as a mean ± standard deviation for quantitative variables. Chi-square and Student t tests were used to compare the variables. *p* value < 0.05 is considered statistically significant. Data such as tables, graphs were performed and analyzed using Microsoft Word 2013 and Microsoft Excel 2013, Statistical Software for Social Sciences Windows version 21 (SPSS Inc., Armonk, New York, USA).

RESULTS AND DISCUSSION

Table II : Fagerström test

The sample included 239 Moroccan students who were consumers of psychoactive substances. Men represented 65.3% (n = 156) of the sample, while women represented 34.7% (n = 83). The mean age of the participants was 22.61 ± 3.07 years. Almost all participants consumed tobacco, with a mean score of 4.40 ± 1.68 on the Fagerström scale. The age of onset of consumption was more represented among students in the 15-18 age group, i.e. 52.30% with a mean of 18.42 ± 1.68. The analysis of the results shows that the majority of tobacco (nicotine) consumption, i.e. 62.34%, is due to the influence of parents who consume tobacco (family history), 47.69% due to the environment or frequented by friends and 35.56% due to personal problems that affect the person. Furthermore, the results are classified by score from 2 to 5 then 6 to 10.

Table III: CAST questionnaire test

Table 3 illustrates the results of the CAST questionnaire test, with 59.42% (n = 142) also reporting consuming cannabis, with a mean score of 7.30 ± 4.78 on the CAST scale. On the CAST scale, the analysis of the results shows that the majority of men consume cannabis with a score higher than 7, i.e. 42.25%. Furthermore, at the level of factor and family history, the frequented environment and personal problems are in the majority with a score of 3 to 6.

Tab. 4. The AUDIT questionnaire test

AUDIT questionnaire test		Frequency (n)	Mean
Average/ Mean	239	83	7,47 ± 4,67
Sex	Men	72,28% (60)	
	Women	27,71% (23)	
Factors and family history influencing alcohol consumption		16,86% (14)	7,88 ± 4,6
Factors and environment influencing alcohol consumption	Your friends and environment	68,67% (57)	7,464 ± 4,5
	During parties, night clubs, ceremonial occasions	50,60% (42)	8,214 ± 5,4

The statistical analysis of our results and the chi-square test, among students who consume substances, a positive correlation $p < 0.000$; r = +0.27 is highlighted between the scores of the Fagerström scale and the CAST scale.

Table IV: The AUDIT questionnaire test
Table 4 shows the analysis of the results of alcohol consumption, that is, 34.72% (n = 83) of students who consume alcohol, with an average score of 7.46 ± 5.70 on the AUDIT scale. Out of 239, it appears that 83 consume alcohol, low rate, with a predominance (majority) of the male sex that is 72.28%, moreover most have been influenced by the environment or environment frequented and during parties or ceremony, dance party.

DISCUSSION

Several measurement tools for the assessment of problematic use of psychoactive substances exist today in the world. In this section, we will discuss the main instruments retained in the results section. Indeed, we have retained 3 (kits) assessment tests and a socio-demographic information sheet.

The results of this study show that the majority of students (participants) are consumers of psychoactive substances and that tobacco (nicotine) remains the most consumed substance, followed by cannabis and then alcohol.

The results of our study show a male predominance, with men representing 65.3% (n = 156) of the sample, while women represent 34.7% (n = 83). Almost all the participants smoked, with an average score of 4.40 ± 1.68 on the Fagerström scale. The results show that the majority of tobacco consumption (nicotine), i.e. 62.34%, is due to the influences of parents who use tobacco (family background), 47.69% to the environment in which friends live and 35.56% to personal problems affecting the individual. These revealed that students who use tobacco (nicotine) are addicted to this substance.

This finding is consistent with the study conducted by Diakité O. at the FMOS (Faculty of Medicine and Odontostomatology) and FAPH (Faculty of Pharmacy) in Mali in 2015 on narcotics and found a similar predominance with 72.3% of men and 27.7% of women.

Similarly, the study by Diarra B S. at the Faculty of Letters, Languages, Arts and Human Sciences (FLASH) of the University of Bamako, in his study on the prevalence of smoking, found a male predominance with 77.3% and 22.7% of females.

These figures are similar to those of Ouane. I, among students at the Cheik Anta Diop University in Dakar, with 94% men and 5.4% women, and Issiaka TRAORE's study found a predominance of men (67.5%) and women (32.5%) among students at the Faculty of Medicine and Odontostomatology in Mali, who use psychoactive substances.

Moreover, our results differ from those found by Simmart. L in a Parisian university, with a predominance of 79% among women compared with 21% among men. This difference could be explained by socio-cultural factors. In Morocco, as in other African countries.

Most of the students in our study, i.e. 52.30% of users, began using psychoactive substances, especially tobacco (nicotine), between the ages of 15 and 18, with an average of 18.42 ± 1.68, well before starting university, i.e. at high school, similar to the study by F. Manoudi *et al.* 2010.

MEDSPAD's fourth national survey – Morocco 2021 – highlighted the attitudes and behaviour of students with regard to the use of psychoactive substances. Nicotine-based products, alcohol, cannabis and tranquillisers and sedatives without a medical prescription were the substances most commonly used by secondary school students. Of these, 43% were boys and 57% girls. Of the total population, 54% were aged between 15 and 17.

Analysis of the results shows that 59.42% (n = 142) also reported using cannabis, with an average score of 7.30 ± 4.78 on the CAST scale. The results show that

the majority of men (42.25%) use cannabis with a score above 7. In terms of family factors and antecedents, the family environment and personal problems were in the majority, with scores ranging from 3 to 6. This constant is similar to the study by F. Manoudi *et al.* 2010, where hashish use was regular in 51.2% of cases, and occasional in 48.8%. Oulaada. N, reported that regular consumption accounted for 34 versus 66% for occasional consumption (Oulaada N 2006). B. Zarrouqa *et al.* 2017, reported that the use of psychoactive substances among Moroccan students was associated with male gender, at an age exceeding 20 years, 55.8% of whom were male. The lifetime prevalence of smoking was 29.5%. In terms of psychoactive substances, alcohol was the most commonly used substance, with a lifetime prevalence of 17.4%, followed by cannabis (16.1%) and psychotropic over-the-counter drugs (5.1%).

The chi-square test yielded a $p = 0.000$, showing a statistically significant link between the Fagerström and CAST tests. A positive correlation ($r = +0.27$; $p < 0.000$) was found between the Fagerström and CAST scores.

Concerning alcohol, with 34.72% (n = 83) of students consuming alcohol, with an average score of 7.46 ± 5.70 on the AUDIT scale. (Alcohol consumption among our student population is slightly lower, i.e. this use is occasional at parties, dances with friends or away from parents), with the majority being male (72.28%). In addition, most of them were influenced by the environment they frequented during parties or dances. Similar to the study by F. Manoudi *et al.* 2010, who described in their results that alcohol consumption was occasional in 89% of cases. The behaviour of students who use psychoactive substances is strongly influenced by that of their friends.

The MedSPAD survey of young people aged 15 to 17 showed that 12.8% of young people had consumed alcohol at least once in their lives.

According to studies by certain authors (Manoudi F 2010; Refaat A 2004), the prevalence of alcohol consumption among students differs from one country to another. In Morocco and Egypt, two countries culturally close to Tunisia, alcohol consumption among students was 17.5% and 4.1% respectively.

Some studies, such as these by Akmatov MK *et al.* 2011, have shown that in other countries such as the United States, Sweden, China and Germany, prevalence is much higher, ranging from 49% to 90%. This could be explained by the fact that alcohol consumption is considered a socially acceptable behaviour accompanying many events.

CONCLUSION

At the end of this study, our results showed a high level of use of psychoactive substances among students. The main reasons given by the students for using substances were to improve their well-being (to relax), to compen-sate and escape (to forget their worries), to improve their attention span (to concentrate better), a family history and/or curiosity. The use of psychoactive substances was described as multifactorial (not linked to a particular factor). This study would benefit from further study to better assess the repercussions of psychoactive substance use on learning among these students, and additional research is needed to refine the results, particularly in terms of perceptions of psychoactive substance use among the student population, hence the need to set up a programme to combat the use of these substances, starting with prevention in schools.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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