

## Prevalence of Substance Use Among Students in The Faculty of Medicine and Pharmacy of Casablanca, Morocco

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### Abstract

### Original Research Article

**Introduction:** Substance use is a major public health problem. Medical students are an interesting population category to study, given the particularity of the stress factors to which they are exposed, predisposing them to the use of psychoactive substances. The objective of this study is to determine the prevalence of psychoactive substance use in this category, as well as the levels of dependence and risky use, and also to define the characteristics of use and the relationship between substance use and sociodemographic characteristics. **Methods:** Cross-sectional study with a descriptive aim, carried out in the form of a survey using a questionnaire, among 456 medical students in Casablanca, all levels combined. **Results:** The most widespread psychoactive substances are tobacco: 16.6%, chicha: 15.3%, cannabis: 14.9% and alcohol: 13.1%. The highest rate of risky use was noted with tobacco use: 30%, and cannabis use: 80%. More than half of the users had a family background of use, and one third of the users were repeaters. The age of initiation, for all substances, varied between 10 and 29 years. In our study, 18.6% of the students were poly-substance users. Psychiatric background was found in 42% of users vs 17% of non-users. **Conclusion:** The extent of psychoactive substance use among students is considerable, and the study has made it possible to identify certain socio-demographic risk factors.

**Keywords:** Addiction; medical students; psychoactive substances; tobacco; alcohol; cannabis; prevalence.

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## INTRODUCTION

The use of drugs and more globally the use of psychoactive substances is an important public health issue because it mainly affects young people [1, 2]. The use of these substances compromises health and leads to the death of millions of individuals every year [3, 4]. The access of students to the university environment is an essential step in their development, however it is delicate, given its association with health risk behaviors, including the use of psychoactive substances [5, 6]. This is related to the multifactorial stress that these students will experience [7, 8]. Although some risk factors for medical students are similar to those of the general population, medical students have their own stressors of predispositions to substance use [9]. Data on drug use in this population remains less known compared to the extensive data collected on the general population [9]. The practice of medicine requires commitment, enthusiasm, and altruism, and this means that medical students deserve special attention with respect to alcohol and other substance use. These students will be responsible for the health of society in the future. Therefore, it is important to understand the pattern of substance use in this population group.

The objective of this study is to determine the prevalence of psychoactive substance use among students at the Faculty of Medicine and Pharmacy of Casablanca (Morocco), to determine the levels of dependence and risky uses of psychoactive substances, and also to study the different associations that exist between the use and the socio-demographic characteristics of students, and that can constitute elements of support for a mental health policy in the university environment.

## METHODS

### Participants

This was a descriptive cross-sectional study conducted in the form of a survey using a questionnaire, among medical students in Casablanca, all levels combined. The study was conducted in the Faculty of Medicine and Pharmacy of Casablanca and at the CHU Ibn Rochd. The work was spread over a period of 4 months, from January 2018 to April 2018. All students meeting the following criteria were included: General medicine students in Casablanca from the first to the seventh year. Were excluded: Internal and resident physicians and laureates, students of the pharmacy

branch, students of other medical schools and students of other faculties.

### Assessment Tools

The Fagerström is the most widely used instrument for assessing the level of tobacco dependence. It was developed to help clinicians better diagnose the smoker who wants to quit.

The CAST "Cannabis Abuse Screening Test" is a tool for the identification of cannabis misuse, designed on the basis of the main criteria for determining abuse and harmful use from the DSM-IV and ICD 10 diagnoses.

For alcohol, we opted for the AUDIT-c, which is a screening instrument for problematic alcohol use. It is a shortened version containing only the first 3 questions of the initial test, thus allowing a correct estimation of risk, and even more precise than the AUDIT in case of heavy consumption [10].

## STATISTICAL ANALYSIS

Statistical analysis was performed in the medical informatics laboratory at the Faculty of Medicine and Pharmacy of Casablanca using SPSS version 16.0 software. The significance threshold was set at  $p < 0.05$ .

### Consent and ethical aspects

All students who participated gave their free and informed consent before completing the form.

## RESULTS

### Sociodemographic data

We collected 489 responses to our questionnaire only 456 of them were usable, i.e. a response rate of 93.2%. The average age was 21.9 years with a standard deviation of 2.8 years and extreme ages ranging from 17 to 35 years. Most participants were female (66.9%). The distribution of students surveyed from 1st to 7th grade was 12.9%, 20.2%, 10.1%, 9.2%, 11%, 12.9%, and 23.7% respectively. The number of repeating students who participated in our study was 80 or 17.5%.

In our survey, 79.4% of the students live with their families, while 10.7% live alone. The majority of students were single (94.1%).

Most of the students (80.5%) do not have a scholarship. Only 30 students (7%) have an activity outside of their studies.

Of the participants, 21.5% stated that they were taking long-term medication. 24% of them take medication because of psychiatric problems (anxiety disorder in 3.2% and depression in 1.7% of the students).

In our study, 29.6% of the students had a father who smoked, 15.1% had a father who drank alcohol, and 1.5% had a father who used cannabis. The majority of students (452 students) had a mother who did not use any substance, only 2 students (0.4%) had a mother who smoked and 2 students (0.4%) had a mother who used alcohol.

In our sample, 77.7% of the students have siblings who do not use any substances, 14.3% have a brother or sister who smokes and 6.8% have a brother or sister who uses alcohol.

### Prevalence of psychoactive substance use

In our sample, the most frequently used psychoactive substances are tobacco with a prevalence of 16.6%, followed by shisha 15.3%, cannabis 14.9% and alcohol 13.1%. Crack and heroin remain the least used with prevalences of 0.4% and 0.2% respectively (Figure 1).

### Evaluation of the risk of consumption

In order to evaluate the level of dependence of our 76 smokers we used the Fagerström test, 25% of these smokers have a low dependence while 5% have a high dependence.

For alcohol users we used the AUDIT-c test, only 42 students completed the test. 7%, or 3 users, had a high risk of use, while 2%, or only one student, had a possible dependence.

For cannabis use, 41% or 28 students were at low risk, while 40% or 27 students were at high risk of addiction according to the CAST score.

### Study of the association between the characteristics of the study population and substance use:

Concerning tobacco consumption we found a statistically significant association ( $p < 0.001$ ) with gender, grade repetition and father's tobacco consumption. This association was also significant ( $p < 0.05$ ) with the year of study, the parents' profession, the father's alcohol consumption and the siblings' tobacco, alcohol and cannabis consumption.

Sex, year of study, grade and father's alcoholism had a strong statistical association with shisha use ( $p < 0.001$ ).

Concerning cannabis, the association is statistically very significant with gender, year ( $p < 0.001$ ) and is also significant ( $p < 0.05$ ) with the background of use in the father and siblings.

For alcohol, the association is statistically very significant ( $p < 0.001$ ) with the background of tobacco and alcohol use in the father and siblings.

### Study of the association between tobacco consumption and the consumption of other substances:

The study of the association between tobacco use and the use of other substances revealed a highly statistically significant association ( $p < 0.001$ ) with 6 substances (shisha, cannabis, alcohol, cocaine, psychotropic drugs, and ecstasy), while that with crack, heroin, and volatile substances was not significant.

### Study of the association between age of smoking initiation and other substance use

The association between age of smoking initiation and other substance use was statistically insignificant for all substances.

### Study of the association between age of smoking initiation and level of dependence on tobacco, cannabis and alcohol:

The association between age of smoking initiation and dependence test score was non-significant.

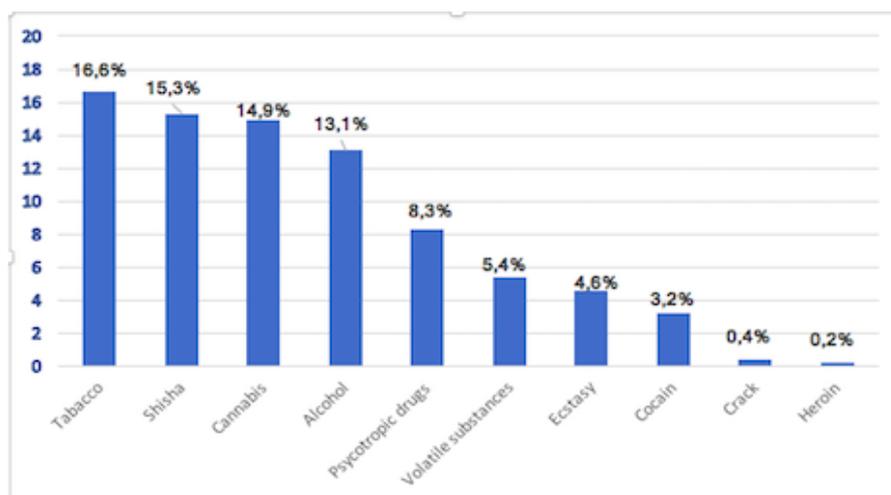


Fig-1: The prevalence of substance use among the students in our study

## DISCUSSION

Addictive behaviors in the world are neither unique nor similar drug, alcohol, tobacco consumption behaviors are dynamic, that is, there are emerging patterns varying according to several factors. Students at the Faculty of Medicine and Pharmacy in Casablanca use several psychoactive substances such as tobacco, cannabis, shisha, alcohol, psychotropic drugs and other drugs with different prevalence.

Several studies have suggested that smoking rates were high among health care professionals, even though they were informed about the harmful effects of tobacco use[11-12]. The results of our survey showed that 76 students or 16.6% used tobacco, of which 30.4% were men and 9.8% were women. Our results agree with the results of a study conducted in the Faculty of Medicine in Argentina in 2011 with a prevalence of 18.7%[13] and another study conducted in the Faculty of Medicine of Monastir in Tunisia in 2008 with a prevalence of 14.2%[14].

Moreover, our results were higher than those of a study conducted at the University of Karbala in Iraq in 2005 with a prevalence of 10.5% [15]. And they were lower than the results of a study conducted in the Faculty of Medicine Buenos Aires in 2011 objectifying a prevalence of 27.3% [13].

In our study 70 students or 15.3% consumed shisha, these results are close to the results obtained in a study conducted in South Africa at the University of Health Sciences of Cape Town in 2013 with a prevalence of 18% [16]. Moreover our results are lower than those obtained in a study conducted among medical students at the University of Science and Management of Shah Alam in Malaysia in 2012 with a prevalence of 20%[17], also lower than those obtained in a study at the Faculty of Medicine in Damascus in 2008 with a prevalence of 23.5%[18].

In order of frequency, cannabis comes in 3rd place after tobacco and chicha with a prevalence of 14.9% including 29.1% of men and 7.8% of women. These results are similar to those found in a study conducted in two Lebanese universities in 2012, which found a prevalence of 12.3%[19]. Our results are lower than those found in the study conducted at Olabisi Ola Banjo University in Nigeria in 2013 with a prevalence of 7.5%[20]. However, our results are superior to those of several studies in Morocco and Sudan with respective prevalences of 9.4%[21] 8.1% and 9.3%[22].

12.2% of students consume alcohol, including 26.4% of men and 6.2% of women. The rate of alcohol consumption in our study is 3 times higher than that found in a national survey conducted in northern Morocco in 2016 [23]. On the other hand, several

studies conducted in Nigeria, Lebanon and France have indicated very high consumption rates compared to ours, which are respectively 92% [24], 39.8% [19] and 95.27% [25], also affirming the male predominance in the profile of consumers. This difference between the results can be explained by our religious context that prohibits the consumption of this substance.

The prevalence of psychotropic drug use in our study was 8.3%, including 13.2% of men and 5.9% of women. The comparison with literature data showed that our results are lower than those found in a study conducted in Lebanon in 2012 with a prevalence of 11% [19]. However, they are higher than those of a study conducted in northern Morocco in 2017 with a prevalence of 5.1% [26].

### Dependency level

Regarding the level of tobacco dependence, we found that our results are close to the results of the study conducted in 2011, in a French medical school, the assessment of dependence in 53 student smokers revealed a high dependence in 12%, while 74% had declared very low dependence scores [27].

In our study, according to the CAST score, our results are lower than those found in a study conducted in the University of Picardie Jules Verne in 2014 objectifying a rate of high risk consumers of 51.7% [28]. On the other hand our results are higher than the results of a study conducted in two French universities in 2017 objectifying a rate of high risk consumption of 31.4% [29].

For alcohol dependence only 42 students who completed the AUDIT-c test, 55% have a low risk, 36% have a moderate risk, 7% have a high risk and 2% or only one student had a risk of dependence. Our results are inferior to those of a study conducted in France in 2012 among interns in Lyon and Angers objectifying respectively a moderate risk consumption in 55.01% and 35.91%, a high risk consumption in 5.86% and 3.3%, and a possible dependence in 7.56% and 9.11% [25].

### Associations with student characteristics

Regarding tobacco use, the search for associations revealed a highly significant association with sex (sex ratio M/F = 1.2) and this joins the data in the literature [6, 30, 31, 32]. The association was also highly significant with the level of study and repetition, joining the results of two studies conducted in Tunisia in 2014 and in Marrakech in 2010 [14, 33]. Moreover, the association with the background of use among fathers was significant ( $p=0.001$ ).

For cannabis, the analysis of our data revealed an association with several characteristics among students. The association with gender was found to be highly significant ( $p<0.001$ ), which is in line with the

data in the literature which have shown the predominance of male gender [20, 22, 34, 40]. The association is also statistically significant ( $p<0.001$ ) with the level of study, in line with the results of two studies carried out in Morocco and France where the prevalence of consumption increases with the progression of the level of study [33, 35], this fact implies that either the long duration of study increases the chances of exposure over time or it is the effect of cannabis that affects the student's abilities [35].

The association is also significant with repetition of a year, which is similar to the results of a study conducted in Marrakech where the rate of use increases with the number of years repeated [33]. Our study also revealed a very significant association with consumption in the family, especially among fathers and siblings, which is in line with the data in the literature [23, 36].

In our study the association between alcohol and gender was found to be highly significant ( $p=0.001$ ) and this fact is in line with the data in the literature [19, 33, 37]. Also in our study, the association with the level of study was significant ( $p=0.002$ ), contrary to the results of other studies which found highly significant associations with repetition and not level [22, 33].

### The association between tobacco use and other substances

In our study, we found a statistically highly significant association ( $p<0.001$ ) between tobacco use and the use of other substances, including chicha, cannabis, alcohol, cocaine, psychotropic drugs and ecstasy, this fact agrees with the results of other studies [1, 38, 39].

### The association between age of onset of tobacco use and use of other substances

The study of this association in our work was found to be non-significant. However, Mark *et al.* state that early tobacco use is a risk marker for initiation of alcohol use and access to alcohol-related problems or even binge drinking, and that early tobacco use may increase the probability of later cannabis use [39].

### Use of at least one substance

In our sample 141 students or 31% use at least one psychoactive substance during their lives, this is in line with the results of the Medspad Morocco 2013 study which revealed a consumption rate of 31.4% [21] and the results of a study conducted in Khartoum in 2016 objectifying a rate of 31% [22]. Other studies carried out in Ethiopia and Rwanda have shown higher rates, respectively 53.6% [40] and 52.5% [41].

### Multiple use of psychoactive substances

85 students or 18.6% of students use two or more psychoactive substances. Our results are in line with the results of the Medspad 2013 study with a rate

of 18.5%[21]. Moreover, our results are higher than those of a study conducted in Rouen in 2015 with a rate of 10.8%[42]. On the other hand our rate of poly consumption is lower than that found in several studies, a study conducted in Ethiopia in 2014 revealed a poly consumption rate of 24.2%[40], another study conducted in Sudan in 2016 objectified a rate of 54.3%[22].

### Limitations of our study

This study had some limitations; First, the study used a descriptive cross-sectional design that does not allow for causal relationships to be established. Secondly, the questionnaire of our study was published on the internet, which prevented us from ensuring the integrity of the information collected, even the number of questionnaires completed by each student. Thirdly, our study concerns only medical students, thus limiting the possibility of generalizing our results to other students.

### CONCLUSION

Our study revealed that the extent of psychoactive substance use among students in our faculty is considerable, although not very high, but more important compared to other studies.

The analytical approach of the data has allowed us to individualize some risk factors, which are mainly socio-demographic.

Our work is part of the fight against the use of psychoactive substances, a perspective that must be projected on a national scale, and this thanks to a well thought-out strategy having as an initial objective to carry out several studies in similar populations, in order to constitute a database capable of describing the profiles of vulnerable individuals and likely to be users in the future. From a preventive point of view, this strategy will allow us to define the different levels of actions where it is necessary to intervene.

### Declaration of interest

The authors declare that they have no ties of interest.

### Author Contributions

All authors contributed to the achievement of this work. All authors also declare that they have read and approved the final version of the manuscript.

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