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RESEARCH ARTICLE

STUDY OF CANNABIS USE AMONG MOROCCAN MEDICAL STUDENT AND ANXIO-DEPRESSIVE COMORBIDITY

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Abstract

Introduction: Cannabis is the drug which use is the most widespread in the world, and particularly among young people. Medical students are not the exception. Exposure to a variety of factors, including stress, burnout, and relatively easy access to medications make them vulnerable to substance use.

Objective: to study the prevalence of cannabis use among medical students and to assess its repercussions in terms of anxiety and depression.

Methods: It is a descriptive and analytical cross-sectional study of medical students of different medical schools in Morocco. Data collection was through an anonymous online self-administered survey. The measuring instruments used were surveys evaluating the main socio-demographic data, the CAST for identifying problematic cannabis use, and the HAD scale which evaluates anxiety and depression in the group. The data is grouped and analysed by statistical software.

Results: In this sample of 183 students (44.8% boys, 55.2% girls), the average age was 23.31 years. 21% had a psychiatric history. 32.2% consumed cannabis, half occasionally versus a third on a daily basis. Men had higher consumption rates than women with a significant difference. For the CAST results, 40% of cannabis users had a high risk of addiction. Anxiety score averaged 7.66 cannabis users and 5.52 for non-users, depression score averaged 5.88 users and 4.43 for non-users; with significantly higher averages among users.

Conclusion: Medical students seem particularly affected by addictions. They must benefit from an assistance in order to improve their health, so they can exercise their role and be able to provide care to patients.

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Introduction:-

Cannabis is the most widely used illicit drug in the world, 3.8% of the world's population had used cannabis in the past year (Gobbi et al., 2019). It is the most commonly used illicit drug on university campuses (Teeters et al., 2020), particularly by medical students (Papazisis et al., 2018). Exposure to various factors such as stress, exhaustion and relatively easy access to drugs makes doctors and medical students vulnerable to this type of consumption.

Although cannabis use and its consequences in adults has been widely studied around the world, the number of related studies is limited and their results are not systematically reviewed (Papazisis et al., 2018), particularly in Morocco which is, according to the Office United Nations Office on Drugs and Crime (UNODC), the world's largest producer and exporter of hashish (Chouvy, 2008).

In the same sense, it is also important to understand the comorbidity between cannabis consumption and psychiatric pathology, in particular anxiety and depression in order to unravel the etiological relationship between the two and also to design more efficient treatment and prevention strategies.

The objective of our work is to study the prevalence of cannabis use among medical students, as well as its repercussions, particularly in terms of addiction and the occurrence of anxiety and depressive disorders.

Material And Method:-

A descriptive and analytical cross-sectional study was carried out on general medical students and residents of the various medical schools in Morocco. Data was collected through an anonymous self-administered survey completed online. The latter included questions relating to age and sex, the main socio-demographic data, psychiatric history, level of study (1st cycle: 1st and 2nd year; 2nd cycle: 3rd, 4th and 5th year; 3rd cycle: 6th and 7th year and interns; and residents) as well as standardized questions relating to the consumption of cannabis, alcohol, benzodiazepines, cocaine and their state of anxiety and depression comorbidities. The measuring instruments used were:

- *The Cannabis Abuse Screening Test (CAST)*: A scale for identifying problematic cannabis use in 6 items, users without risk were defined when they have a score below 3, users with a low risk for a score equal to 3 and less than 7 and finally those with a high risk of dependence for a score equal to or greater than 7. The score is calculated among those who have completed the entire test;
- *The Hospital Anxiety and Depression Scale (HAD)*; an instrument that can screen for anxiety and depressive disorders in the group. A score on the HAD questionnaire between 8 and 10 questions relating to anxiety raised the suspicion of an anxiety disorder and a score greater than or equal to 11 a proven anxiety disorder. The same thresholds were used for depressive disorders from the issues related to depression.

All of the completed questionnaires were retained for analysis, taking into account non-respondents to certain questions. The relationships between the different variables were tested using Pearson's test, Chi² test or Fisher's exact test for qualitative variables, the Student test or Mann-Whitney test for quantitative variables after checking the conditions of use. Simple linear regression to assess associations between quantitative variables and multivariate logistic regression were used to assess associations between cannabis use and state of anxiety and depression and other explanatory variables.

Qualitative data is presented as a percentage of respondents and in numbers, quantitative data with their means and standard deviation. The limit retained for statistical significance was a p less than or equal to 5%. Statistical analysis was performed with IBM SPSS-v25 software.

Results:-

Study population:

183 medical students and residents agreed to participate in this study. Women represented the majority (55.2%) of the study population. The average age was 23.31 years. Only 8.2% were married, 40% of whom had children. For the socio-economic level, 2.8% declared having a low level, 89.9% medium and 7.3% high. The dominant level of studies was the 2nd (41%) and the 3rd cycle (31.1%) of medical studies. 21% of participating students had a psychiatric history.

Consumption of psychoactive substances:

The consumption of psychoactive substances was dominated by cannabis and alcohol. Among the 183 participants, 59 students (32.2%) declared having used cannabis in their lifetime (39 men and 20 women). The number of

students who had consumed alcohol before was 56 (30.6%). 18 declared having already used benzodiazepines (9.8%) and 6 cocaine (3.3%). (Table 1)

Table 1:- Psychoactive substances consumed.

	Effective	%
Cannabis	59	32.2
Alcohol	56	30.6
Benzodiazepines	18	9.8
Cocaine	6	3.3

Cannabis use:

The number of students who reported smoking cannabis at least once was 59 (32.2%). Those who declared having consumed during the last 12 months were 50 (27.3%) of our population, among those 28.8% consumed daily, 8.5% weekly, 6.7% monthly; and 56% occasionally and only once in 17.5%. For consumption reasons, 70% of consumers answered that it was just for pleasure, 24.2% to overcome anxiety and study stress, and 4.8% for social reasons related to their acquaintance. 61% of cannabis users reported feelings of guilt after use and 80% thought about reducing their use.

50 students declared having used cannabis in the last 12 months, i.e. 27.32% of the sample). The CAST score could be calculated for those, with an average score of 5.66. 40% of them had a high risk of cannabis addiction, 22% low risk and 38% no risk.

A link between the consumption of cannabis and the male sex ($p < 0.002$) was found, as well as the consumption of other psychoactive substances, in particular alcohol ($p < 0.002$), benzodiazepines ($p = 0.002$) and cocaine ($p = 0.01$). Anxiety and depression scores were significantly correlated with cannabis use ($p = 0.011$ and 0.029 respectively). (Table 2)

In order to assess the relative impact of each factor, a logistic regression was performed using lifetime cannabis use as the dependent variable and each of the factors gender, psychiatric history, alcohol consumption, benzodiazepines and cocaine, as independent variables. Significant predictors were male gender ($p = 0.018$) and alcohol consumption ($p < 0.002$)

Table 2:- Relationships between cannabis consumption and other variables.

variable outcome	Cannabis user (%)	Non -user of cannabis (%)	p -value
Gender:			
Feminine	33.9	65.3	0.000
Male	66.1	34.7	
School year :			
1st cycle	5.1	14.5	0.107
2nd cycle	44.1	39.5	
3rd cycle/interns	39	27.4	
Residents	11.9	18.5	
Background psychiatric:			
Nope	72.9	81.8	0.119
Yes	27.1	18.2	
Alcohol			
Nope	16.9	94.4	0.000
Yes	83.1	5.6	
Benzodiazepine:			
Nope	79.7	95.2	0.002
Yes	28.5	4.8	
Cocaine:			0.01

	Nope	89.8	100	
	Yes	10.2	0	
		Cannabis user (average)	Non-cannabis user (average)	
Age:		23.14	23.4	0.600
HAD scale score :				
	Average Anxiety	7.66	5.52	0.011
	Middle Depression	5.88	4.43	0.029

Anxiety and depression:

HAD scores showed that 35% of the participants had anxiety symptoms and 26.22% depressive symptoms. The prevalence of anxious-depressive symptoms was higher among cannabis consumers compared to non-consumers.

The score for questions relating to anxiety averaged 7.66 for cannabis users and 5.52 for non-users. The score for questions relating to depression averaged 5.88 for cannabis users and 4.43 for non-users. Scoring scores for anxiety and depression were significantly higher among cannabis users. (Table 3)

Table 3:- Average HAD scale scores.

	Population		Non- consumers		consumer		p -value
	Mean	Gapkind	Mean	Gapkind	Mean	Gapkind	
Anxiety score	6.21	5,341	5.52	5,320	7.66	5.135	0.011
Depression score	4.90	4,539	4.43	4,778	5.88	3,842	0.29

Discussion:-

This is a first attempt to estimate the lifetime prevalence of cannabis use among medical students in Morocco. It is impressive that although cannabis use and its consequences for the adult population are extensively studied around the world and detailed analyses are published annually by the responsible offices of the United Nations and European Union, recent studies on the prevalence of cannabis use among medical students are lacking: only 8 studies have been published worldwide in the period between (2013-2018), while most studies (n = 14) are more than 20 years old (Papazisis et al., 2018).

We estimate the lifetime prevalence of cannabis use in our sample at 32.2% compared to 27.3% during the previous year, which is roughly in line with studies carried out in Europe, which suggest that the lifetime prevalence among medical students is 31.4% (Gignon et al., 2015). In America, the lifetime prevalence was 48.1%, meaning that one in two medical students in the United States had the experience (Papazisis et al., 2018). As for Africa, Nigeria has estimated the prevalence at 10.5% (James & Omoaregba, 2013). The lowest figures were recorded in Asia, with lifetime prevalence varying between 0.93% and 13.1% (Budhathoki et al., 2010; Papazisis et al., 2018). This high prevalence in Morocco, which is close to the figures recorded in developed countries, can be explained by the economic, cultural and religious difference of our population compared to other African countries.

The results indicate that cannabis was the most consumed drug, followed by alcohol and benzodiazepines, which does not agree with the literature, where we mainly find alcohol followed by cannabis and benzodiazepines (Candido et al., 2018), as well as that of the general population, which can be attributed to the easier access to cannabis in Morocco and its more affordable price for students.

According to our results, male students tend to use cannabis almost twice as often as female students. This is consistent with the findings of two previously published narrative reviews in which a 2:1 male to female usage ratio among medical students was reported (Papazisis et al., 2018; Roncero et al., 2015). It is known that the use of all

drugs is generally higher among men and the recent European report found that among 88 million adult users in Europe, cannabis use was more frequently reported by men (53.8 million) than by women (34.1 million). Additionally, an estimated 18.7 million young adults (ages 15–34) have used drugs in the past year, with twice as many men as women (European Monitoring Centre for Drugs and Drug Addiction, 2017)

It is also foreseeable that the population of cannabis consumers declares a more frequent consumption of licit and illicit drugs, as in our study, which highlighted a higher prevalence of alcohol, benzodiazepine and cocaine consumption, just like what has been reported in several studies carried out on young populations (DAVID BEST, s. d.; Dervaux & Laqueille, 2012)

Among cannabis users, anxiety symptoms were greater than in the general population of the same age, as shown in our study as well as literature (Dyrbye et al., 2006; Knight et al., 1983; Lloyd & Gartrell, 1984), on the other hand, the relationship with the cannabis use was proven in our sample, something that wasn't the case in similar studies (Vaysse et al., 2014)

The overall rate of depressive symptomatology reported (doubtful and definite) by our respondents was 26.22%, suggesting that medical students have higher rates than other graduate students and young adults in the general public (8% at 15%) (Center et al., 2003; Dyrbye et al., 2006; Goebert et al., 2009; Katz, 2006)

There appears to be a correlation between physicians' behaviors and habits regarding their own health and patients' education practices (Oberg & Frank, 2009; Zhu et al., 2011). Raising awareness among future healthcare professionals of the risks associated with these behaviors, seeking the reasons for them and providing appropriate solutions would be beneficial for their health, as well as for their future practice of health education and promotion. (Vaysse et al., 2014)

Conclusion:-

Doctors, and in particular medical students, are particularly at risk of addictive behavior, psychological disorders, and burnouts. They may engage in behaviors that are harmful to their health in order to cope, such as excessive consumption of alcohol, cannabis and other drugs. These behaviors are of particular concern and constitute a public health problem. The aim is to improve their health, but also to enable them to provide patients with appropriate care and prevention messages.

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