Medicine

The Psychiatric Disorders and Cannabis Use

K.El Ouazzani[1*], S.Karroumi[1], A.Elattar[1], I.Adali[1], F.Manoudi[1]

[1]Mental Health Clinical Research Team at Mohammed VI Marrakech University Hospital Center

*Corresponding author: K. El Ouazzani
Mental Health Clinical Research Team at Mohammed VI Marrakech University Hospital Center

Abstract	Original Research Article

***Introduction*:** Cannabis is the most widely used of illicit substances. It is a public health problem for the most vulnerable populations, and in particular; adolescents. Cannabis is the subject of much debate in its links with psychiatric disorders where it appears to be a risk factor and a worsening factor, as all psychoactive substances. ***Objective*:** Determine the hospital prevalence of psychiatric disorders among patients who use cannabis and establish a correlation between cannabis use and psychiatric disorders. ***Method*:** This is a prospective study of 100 patients, consuming or having consumed cannabis, hospitalized at Ibn NAFISS hospital over a 6-month period from February 24, 2021 to August 24, 2021. The statistical study was carried out with the SPSS software version 25.0 and in bivariate analysis, and the comparison of the qualitative variables appealed to the statistical test of Chi2. ***Results*:** The average age of our patients is 32 years old, a clear predominance of men (95%), 73% of patients are single, 85% of patients have a low socio-economic level and 40% have a secondary education level. Psychiatric evaluation of our patients revealed that psychotic disorders (schizophrenia, acute psychotic attack, etc.) are found with a rate of 85% followed by bipolar (34%) and anxiety disorders (34%) and lastly depressive disorders (13%). The correlation between psychiatric disorders and the cannabis behaviour of our patients has objected that an early age of onset of use, heavy use, regular use and an unfavourable socio-economic level are all risk factors for psychiatric disorders in patients of cannabis users, especially psychotic disorders (schizophrenia, acute psychotic attack, etc...) ***Conclusion*:** The association between cannabis and psychiatric disorders is reported in numerous studies. These results found that cannabis-dependent subjects more frequently presented with psychiatric disorders and personality disorders than in the general population. This high prevalence of psychiatric disorders among cannabis users therefore justifies their systematic screening to guarantee better and more efficient care which must integrate the addictological and psychiatric dimensions.
Keywords: Cannabis, public health, psychiatric disorders.

I-INTRODUCTION

Cannabis is the most widely consumed illicit substance. For many years, it has been considered a mild drug with low toxicity. Subject to numerous controversies, it poses a public health problem for the most vulnerable populations, especially adolescents.

Approximately 166 million people have consumed it at least once in the past year, accounting for 3.9% of the global population. In Morocco, 5.8% of the general population has a substance-related disorder [1]. In a study conducted in Casablanca, 3.9% of participants had used cannabis, of which 1.8% exhibited dependence [2].

Cannabis is the subject of extensive debate regarding its association with psychiatric disorders, where it appears to be a particularly significant risk factor, especially with heavy consumption and onset before the age of 15.

Like all psychoactive substances, it serves as an exacerbating factor. Comorbidity between substance use and certain psychiatric disorders is common, especially the comorbidity between cannabis use and psychotic disorders (schizophrenia, acute psychotic episodes, etc.), accounting for one-third to half of psychiatric emergency admissions in some studies.

However, in practical terms, diagnosis remains challenging. Faced with a patient who has consumed cannabis and presents to the emergency department with a psychiatric manifestation, particularly acute psychosis, the following questions arise: Is cannabis use the cause or consequence of the psychiatric disorder? What is the impact of cannabis on psychiatric pathology? What is the relationship between cannabis and mental illness? What

are the therapeutic considerations for a cannabis-induced psychiatric disorder? Thus, we are confronted with a diagnostic duality: addiction and psychiatric disorder.

The objective of this study is to investigate the link between cannabis and psychiatric disorders. With this goal in mind, we conducted a prospective study among the clinical population affected by this scourge. The aims of our study are to determine the hospital prevalence of psychiatric disorders among cannabis-using patients and to examine the correlation between cannabis consumption and psychiatric disorders.

II- MATERIALS AND METHODS

This is a prospective descriptive and analytical study conducted over a 6-month period from February 24, 2021, to August 24, 2021, involving 100 patients.

The target population consists of patients hospitalized at Ibn Nafiss Psychiatric Hospital at the Mohammed VI University Hospital of Marrakech.

The main inclusion criteria were patients admitted for hospitalization during the study period and a history of recent or past cannabis consumption.

Data collection was performed using patients' medical records organized into six sections:
1. Circumstances of patient hospitalization.
2. Diagnosis established at admission.
3. Sociodemographic data: age, gender, marital status, occupational status, and educational level.
4. Clinical aspects of the psychiatric disorder and family and personal histories, including psychiatric history and toxic habits. Emphasis is placed on cannabis use, followed by associated substances.
5. Patient management and evolving modalities (therapeutic adherence, relapse, etc.).

To address our objectives, an exploitation form was developed to study key elements of our research, divided into seven parts:
1. Sociodemographic data of the patient.
2. Clinical presentation of the psychiatric disorder and patient personal and family histories.
3. Cannabis use pattern of the patient.
4. Nosographic status according to DSM-V criteria.
5. Chronological relationship between cannabis use and psychiatric disorders.
6. Therapeutic management of psychiatric disorders and cannabis use.

Participants' consent was obtained before administering the questionnaire, following information about the survey's objectives. Anonymity and confidentiality of data were ensured throughout the study.

Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 23.0. For qualitative variables, the Chi-square test was employed, with a significance level set at $p < 0.05$.

III- RESULTS

1. **Sociodemographic and Professional Characteristics of the Studied Population:**
The average age of the study population was 32 years, ranging from 19 to 61 years. Males constituted 95% of the participants. Two-thirds of the participants were single, accounting for 73%.

A majority of the participants had a low socioeconomic status, with 40% having a secondary level of education. Regarding personal history, 73% of respondents had a history of psychiatric disorders, with psychotic disorders being the most prevalent. Additionally, 6% of patients had first-degree relatives with a psychiatric disorder.

2. **Clinical Findings**
In terms of hospitalization reasons, a significant number of patients were admitted for hetero-aggressivity (81 patients) and psychomotor agitation (73 patients). Other reasons included self-aggression, delusional ideas, and suicidal threats. The average duration of hospitalization was 1 month and 10 days.

Psychiatric evaluation revealed the following findings in descending order: Psychotic disorders (schizophrenia, acute psychotic episodes) in 85 patients, accounting for 85%. Bipolar disorders in 34 patients, representing 34%. Anxiety disorders in 34 patients, also at 34% and depressive disorders in 13 patients, comprising 13%.

3. **Cannabis Use:**
A. **Usage Form:** Cannabis was predominantly smoked by 98% of patients, with only 2 patients using it orally (Maajoun).

B. **Type of Usage:** 6% reported being former users, 60% reported occasional use, and 34% were regular users (on average, 10 times per month).

C. **Age of Onset:** In the study, the onset of cannabis use was primarily between 15 and 20 years for over 80% of patients.

D. **Quantity Consumed:**
The daily quantity of cannabis consumed was assessed by the number of joints smoked per day, with 50% consuming between 5 and 10 joints, and 30% consuming between 10 and 15 joints.

E. **CAST Score:**
The Cannabis Abuse Screening Test (CAST) is a questionnaire evaluating cannabis consumption. Scores

were categorized as follows: <3 (no risk of dependence), 3 to 6 (low risk), and ≥7 (high risk). In the study, 92% of patients had a score ≥7, indicating a high risk of dependence.

F. **Associated Substances:**

Various substances were associated with cannabis use, including tobacco, alcohol, and others (cocaine, benzodiazepines, synthetic glues). The majority of patients (61%) in our series combined tobacco and alcohol.

4. **Correlation Between Cannabis Use and Psychiatric Disorders:**
A. **Correlation between Type of Use and Psychiatric Disorders:**

For psychotic disorders, among the 56 cases of schizophrenia, 26 were occasional smokers, 26 were regular users, and only 4 claimed to have quit cannabis, a statistically significant result (P<0.05).

No statistically significant results were found for depressive disorders.

In bipolar disorder, a statistically significant association was found between type I bipolar disorder and occasional cannabis use (P<0.05). Significant correlations were found for panic disorder and social phobia among anxiety disorders, while no correlation was found for suicidal behaviors.

B. **Correlation between Age of Onset and Psychiatric Disorders:**

The age of cannabis consumption onset was between 15 and 20 years for all disorders, except for depressive disorders, where it ranged from 20 to 25 years, a statistically significant result (p=0.003).

C. **Correlation between Quantity Consumed and Psychiatric Disorders:**

For all psychiatric disorders studied, the quantity consumed ranged between 5-10 joints, except for psychotic disorders, where the quantity was higher, estimated between 10-15 joints, a statistically significant result (p=0.023).

IV- DISCUSSION

The dramatic increase in cannabis consumption among adolescents in Western countries over the past decades is well-established, affecting both the prevalence of experimenters and regular users. Approximately 166 million people globally, or 3.9% of the world's population, have consumed cannabis at least once in the past year, contrasting with 0.2% for cocaine and opioids [3]. Cannabis consumption is rising across European countries [4], and the USA [5], emerging as the most widely used illegal psychoactive substance in Western countries [6-8]. Presently, cannabis consumption poses a growing concern for public health organizations in most Western countries, particularly in Europe.

The prevalence of dependence in the general population varies between 17% and 35% among consumers, as noted in studies utilizing DSM-III or DSM-IV criteria [9]. Behrendt *et al.*, reported a prevalence of 15–20% for cannabis abuse and 6–12% for dependence among consumers (10). The frequency of use is a significant predictive factor for the progression toward addictive behavior [11]. Adolescents, even at equal consumption levels, are more prone to developing cannabis dependence than adults [12].

In Morocco, several epidemiological studies indicate a rise in cannabis consumption across all social strata. Cannabis is the most consumed illicit substance. A survey conducted among high school students in Rabat-Salé in February 2006 revealed increasing addiction among young adolescents, particularly boys, although the number of girls seems to be on the rise in recent years [13]. The prevalence of cannabis use among boys is 12.5%. Factors such as school absenteeism, leaving home without permission, and dissatisfaction with parental relationships are significantly associated with drug use. Another study involving 418 university students (276 males and 142 females) at Caddi Ayyad University in Marrakech reported that 24.6% were tobacco users, 9.8% used cannabis, and 17.5% consumed alcohol. The prevalence was higher among males, with 86.4% using tobacco, 97.6% using hashish, and 86.3% using alcohol [14]. A survey conducted in a university setting in Rabat, involving 1,208 students (744 females and 464 males), showed that 36.2% of males and 6.59% of females were substance users. Abuse was identified in 15.5% of male users compared to 2% of female users, and dependence affected 10.8% of males and 1.5% of females [15].

For psychiatric patients, the rate of substance abuse is higher in psychiatric populations than in the general population [16]. This comorbidity, according to numerous studies, worsens the prognosis of Axis I or II pathologies. The association involves anxiety disorders, mood disorders, personality disorders, and notably, schizophrenic disorders [17]. The co-occurrence of substance use disorders and the first psychotic episode is frequent, ranging from 30% to 50% of admissions in some studies [18-20].

Most researchers agree that cannabis consumption typically begins during adolescence, often before the age of 15 [21, 22]. Various studies demonstrate that adolescents increasingly access cannabis consumption, and for some, this consumption becomes chronic or even dependent. Two significant questions arise from this observation: the reasons why some adolescents decide to try the substance and the factors involved in progressing from occasional to regular or dependent consumption. It is essential to

differentiate between factors associated with the onset of consumption and those associated with the progression to dependence [23]. Concerns exist that this consumption may serve as a gateway to other drugs and addictions. Notably, the occurrence of mental disorders is more frequent among dependent subjects compared to non-dependent regular users, as suggested by a study involving 521 regular cannabis users aged 18 to 30, of whom 252 met DSM-IV criteria for dependence [24].

DISCUSSION OF RESULTS

In our study, the average age of cannabis users is 32 years, with the most represented age group between 20 and 30 years. A study by Guillem *et al.*, in 2008 reported an average age of users at 27.5 years (±8.4). The youngest subject was 15 years old, and the oldest was 51 years old [25]. Another study by Guillem *et al.*, in 2014 found an average age of consumers at 29.3 ± 8.6 years, with age extremes between 15 and 51 years (26). In a study by Kazour *et al.*, in 2016 on the association between cannabis consumption and bipolar disorders, the average age of patients was 29.1 years [27].

The predominance of males over females in cannabis use is predictable in our sociocultural context. In our sample, 95% of patients are male, and only 5% are female. Similar results were reported by several studies. A Lebanese study in 2016 by Kazour *et al.*, noted a male predominance, with 77.8% of users being male and 22.2% female [27]. Guillem *et al.*, in 2008 also reported a male predominance (67%) compared to 33% female [25].

The study of personal and family histories is important as it allows the examination of the vulnerability of cannabis users to various psychiatric disorders. Among vulnerability criteria, personal or family histories of psychiatric disorders, particularly psychotic disorders (schizophrenia, acute psychotic episodes, etc.), play a significant role. Longitudinal studies show that cannabis consumption slightly increases the incidence of psychiatric disorders in users without prior psychiatric histories, while significantly escalating this incidence in consumers with preexisting psychiatric vulnerability.

A Moroccan study in 2008 on psychotic disorders and cannabis use, involving 36 cases, reported that 45% of cannabis users with psychotic disorders had personal histories of psychotic disorders, and 11% had family histories of psychotic disorders [28]. In our sample, 62% of patients have personal histories of psychotic disorders, 11% have personal histories of depression, and 6% have family histories of psychiatric disorders.

According to the National Epidemiologic Survey on Alcohol and Related Conditions study (NESARC), psychiatric disorders are markedly more frequent among subjects meeting DSM-IV criteria for cannabis abuse or dependence than in the general population. The most common psychiatric disorders include anxiety disorders, mood disorders, bipolar disorders, and personality disorders (Table 5) [29].

The analysis of the addictive behavior of our patients is crucial, as numerous studies have shown that the relative risk of developing a psychiatric disorder is linked to consumption frequency, quantity consumed, and type of use. In our study, the cannabis conduct of our patients is as follows:

Regarding the type of use: 6% of patients claim to have stopped cannabis, 60% are occasional consumers, and 34% are regular consumers. Concerning the age of onset: the most represented age group is between 15 and 20 years.

Concerning the quantity consumed per day: 50% of patients consume between 5-10 joints, and 30% of users consume between 10-15 joints. - 92 patients have a CAST score greater than 7, meaning 92% of patients in our study have a high risk of dependence.

In a Lebanese study conducted by Kazour in 2016, the characteristics of cannabis consumers were as follows: The average age of onset of consumption was 20.3 years. The average consumption frequency was 15.1 times per month, with an average of 4.2 joints smoked per consumption. Approximately 75% of cannabis users consumed at least one other substance, and 55.6% exhibited dependence on a substance other than cannabis. Among these substances, opioids (63%) and cocaine (51.9%) were most commonly found among cannabis users [27]. In another French study by Dorard in 2015, the majority of patients (80.8%) consumed cannabis daily for an average of over 40 months. Their current consumption averaged over 5 joints per day, and 69% reported consuming cannabis primarily when they were alone [30].

Discussion of Correlations:
Correlation between Cannabis Use and Psychiatric Disorders:
1. Psychotic Disorders
1.1. Correlation between Psychotic Disorders and Sociodemographic Characteristics:
In this correlation between psychotic disorders and sociodemographic characteristics, it is observed that the young age of patients, male gender, low socioeconomic status, and secondary education are all factors favoring the comorbidity of psychotic disorders and cannabis use. This observation is reported in numerous studies [31, 32].

1.2. Correlation between Psychotic Disorders and Cannabis Use:
Numerous longitudinal studies suggest an association between cannabis consumption and psychotic disorders. Thus, nine longitudinal studies and

two meta-analyses have shown that subjects who have smoked cannabis have about twice the risk of subsequently developing psychotic disorders compared to non-consumers [31, 32]. In summary, the increased risk of psychotic disorders after cannabis consumption is influenced by several factors such as occasional use, consumption before the age of 15, and the effect is clearly dose-dependent; heavy consumption increases the risk of developing psychotic disorders.

2. Bipolar Disorders
2.1. Correlation between Bipolar Disorders and Sociodemographic Characteristics:
In this correlation between bipolar disorders and sociodemographic characteristics, it is noted that the young age of patients, male gender, low socioeconomic status, and secondary education could be risk factors for comorbidity of bipolar disorders and cannabis use. This observation is reported in some studies but contradicted by some authors.

2.2. Correlation between Bipolar Disorders and Cannabis Use:
According to these results, it is noted that almost all bipolar patients have daily consumption with a high estimated dose of between 5 and 10 joints. In the Lebanese study by Kazour, the consumption of bipolar patients was less significant than that noted in our series; thus, the frequency of consumption reported by Kazour was 15.1 times per month, and the average number of joints smoked per consumption was 4.2 joints [27]. Through this correlation, it can be noted that cannabis use may increase the risk of developing bipolar disorder, with the main risk factors for cannabis consumption being regular use, a young age of cannabis initiation, and the frequency and quantity consumed, with some studies showing a relationship between significant consumption and the onset of bipolar disorders.

3. Anxiety Disorders
3.1. Correlation between Anxiety Disorders and Sociodemographic Characteristics:
In our series, 34% of patients have anxiety disorders with an average age of 25 years and a gender ratio of 15. In a French study by Guillem in 2008 [25], the average age of cannabis users with anxiety disorders was 27.5 years with a gender ratio of 2. Like all the psychiatric disorders studied, single anxious patients are the most common. Similar results are found in many studies (31-29]. In our series, 88.24% of anxious patients have a low socioeconomic level. Some studies do not report the same results as our study. This can be explained, as previously mentioned, by the high economic level of the countries where these studies were conducted.

3.2. Correlation between Anxiety Disorders and Cannabis Use:
In our study, the type of cannabis use in patients with an anxiety disorder is as follows: 50% of patients

with a panic attack are regular users, and 50% are occasional users. Whereas all patients with a panic disorder are regular consumers. Regarding social phobia, 75% of patients have regular use, and 12% are occasional users. Thus, there is a predominance of regular use among anxious patients, unlike other aforementioned disorders where occasional use predominates. The same observation has been reported in the literature. In a French study conducted in 2016, Dorard noted that the majority of anxious patients consumed cannabis daily for an average of more than 40 months [30]. The same results have been reported by other studies [34]. Like all the aforementioned psychiatric disorders, the age group for the initiation of cannabis consumption is between 15 and 20 years. In the French study conducted in 2014, Guillem reported that the average age of initiation was 19.7 ± 5.7 years with an average duration of consumption of 40 years [35]. According to these results, it seems that the young age of cannabis initiation and the duration of consumption are associated with an increased risk of anxiety disorders. In our study, the quantity of cannabis consumed by the majority of anxious patients is estimated between 5 and 10 joints per day. In Dorard's study, the quantity consumed is between 1 and 20 joints per day with an average of 4.9 joints per day [187]. GUILLEN reported that the daily number of joints consumed by anxious patients is estimated at 6 +/- 4.3 [25]. From this analysis, it is observed that the quantity of cannabis consumed by patients with an anxiety disorder is less significant than that found in psychotic and bipolar patients. It seems that significant consumption is not a necessary condition for developing an anxiety disorder.

3.3. Depressive Disorders
In our study, the average age of patients with a depressive disorder is 36 years, and like other studied disorders, there is a male predominance among anxious patients. Single status is the most common, with 76.96% of anxious patients being single. Regarding socioeconomic status, 76.93% of anxious patients belong to a low socioeconomic level. Concerning the level of education, and like all the aforementioned disorders, the secondary level is the most common. Concerning the cannabis use behavior of patients with depressive disorders, regular use is the most common among patients with major depressive episodes, while patients with dysthymia have occasional use. The age group for the initiation of cannabis consumption in patients with a depressive disorder is between 20 and 25 years. The daily quantity consumed is estimated between 5 and 10 joints. According to this analysis, a male predominance is noted in our study, and this predominance is reported by some studies, but many other studies spoke of a slight female predominance. Regarding marital status, socioeconomic status, and level of education, the same results are reported by many studies. Concerning cannabis use behavior, it is noted that, as seen in anxious patients, regular use is associated with an increased risk of depressive disorders. Regarding the quantity consumed,

we could not affirm a relationship between significant consumption and the onset of depressive disorders, the same observation is reported by many studies. In cannabis-dependent patients, depression during life is more frequent in women than in men, especially in two French clinical studies, respectively F: 62% versus M: 23%, and F: 49% and M: 21% [36]. For comparison, in the general population, the frequency of depression, according to the NESARC study, is about 17% over a lifetime for women and about 9% for men. In addition, female patients more frequently had a family history of depression than male patients. Other studies have also found an association between cannabis dependence, depression, and female sex [37].

The depression associated with cannabis consumption may be linked, at least in part, to issues related to education, university, profession, and legal matters stemming from consumption [38]. It is crucial to differentiate primary depressive disorders from mood depression related to withdrawal or lack. The latter occurs several hours after the last consumption, peaks between the 3rd and 7th days, and disappears within three to four weeks. It is accompanied by cravings for cannabis and sleep disturbances such as insomnia and unpleasant dreams, which diminish upon resuming consumption [40, 39].

V- CONCLUSION

The association between cannabis and psychiatric disorders is documented in numerous studies in the literature. These studies have found that individuals dependent on cannabis more frequently exhibit psychiatric disorders and personality disorders than the general population. Our study confirms this association, revealing a high frequency of psychotic disorders (schizophrenia, acute psychotic episode, schizophreniform disorder) among cannabis-dependent patients, with a clear male predominance. Similarly, depressive disorders, bipolar disorders, and suicidal behaviors are also very common among cannabis users. The correlation between psychotic disorders (schizophrenia, acute psychotic episode, schizophreniform disorder) and cannabis use indicates that the age of onset, quantity consumed, and frequency of use are risk factors for the onset and exacerbation of the majority of the aforementioned disorders. The high prevalence of psychiatric disorders among cannabis users justifies systematic screening in this population, and for more effective management, intervention should encompass both addiction and psychiatric dimensions. Our study adds valuable insights into the patterns of cannabis use and its association with psychiatric disorders in our population. The prevalence of cannabis use, particularly among young adults, underscores the need for targeted interventions and public health initiatives. The high rates of comorbidity with psychiatric disorders, especially psychotic disorders, emphasize the importance of integrated care for individuals struggling with both cannabis use and mental

health issues. As the landscape of cannabis legalization and use evolves globally, ongoing research is crucial to inform evidence-based strategies for prevention, intervention, and treatment in diverse populations.

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