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Impact of Cannabis Use on the Length of Hospitalization of Schizophrenic Patients

B. Bourote[1*], S. Rafi[1], H. El Majdoub[1], A. Ouanass[1]

[1]Ar-razi University Psychiatric Hospital in Salé, Morocco

*Corresponding author: B. Bourote
Ar-razi University Psychiatric Hospital in Salé, Morocco

Abstract	**Original Research Article**

Background: Cannabis is the most widely used illicit substance worldwide, with its prevalence increasing notably among individuals with schizophrenia. This population of patients often require multiple and prolonged hospitalizations for optimal symptom control. Previous studies have suggested an association between cannabis use and prolonged hospitalization, but this link has not been explored in the Moroccan population. **Objective**: This study aims to explore the association between cannabis use and the length of hospitalization in patients with schizophrenia. **Methods**: We conducted a descriptive and analytical cross-sectional study on a cohort of 135 schizophrenic patients hospitalized at Ar-razi Psychiatric Hospital in Salé between July 2023 and February 2024. The sample was divided into two groups: cannabis users (60%) and non-users (40%). The length of hospitalization was compared in univariate and multivariate analyses. **Results**: The mean hospitalization duration was significantly longer for cannabis users (56.4 ± 22.3 days) compared to non-users (33.5 ± 14.2 days) ($p < 0.001$). A univariate regression model revealed that cannabis use was associated with a 25-day prolongation in hospital stay (OR: 24.8, 95% CI: 17.5 – 32.2, $p < 0.001$). Other socio-demographic factors did not show a notable effect on hospitalization duration. **Conclusion**: Cannabis use may be a significant factor in prolonging hospitalization in patients with schizophrenia. Further studies with larger samples and objective assessments of cannabis use, are recommended.
Keywords: Cannabis use, Schizophrenia, Hospitalization duration, Morocco, Psychiatric hospital.

1. INTRODUCTION

Cannabis is the most widely used illicit substance in the world, with approximately 188 million users in 2017 according to the 2019 World Drug Report. This consumption increases even more among schizophrenic patients; indeed, about one in four schizophrenic individuals has been diagnosed with a cannabis use disorder [1]. In this complex population of patients, multiple and prolonged hospitalizations are often necessary for optimal control of disease symptoms. According to a study by Prince *et al.*, individuals with a cannabis use disorder are 3.1 times more likely to be hospitalized for psychiatric disorders than non-users [2]. Consistently, continued cannabis use after a psychotic episode predicted poor outcome, including risk of relapse, number of relapses, length of relapse, and care intensity at follow-up [3] which implies significant economic costs as well as a major impact on the social and professional life of the patient and their family.

The association between cannabis use and the duration of hospitalization of schizophrenic patients has been highlighted by several studies; however, to our knowledge, no study has explored this association in the Moroccan population, even though the strains and levels of active components of cannabis grown in our country differ from those grown in Western countries. The objective of this work is to explore the association between cannabis use and the prolongation of hospitalization duration in schizophrenic patients. Demonstrating this hypothesis will emphasize the importance of managing cannabis addiction as part of the comprehensive care of schizophrenic patients.

2. MATERIALS AND METHODS
2.1 Population

We conducted a descriptive and analytical cross-sectional study of a cohort of patients hospitalized at the Ar-razi Psychiatric Hospital in Salé between July 2023 and February 2024. Data collection was performed from patient records, with all subjects diagnosed with schizophrenia according to DSM-5 diagnostic criteria. The sample was divided into two groups based on cannabis use.

Inclusion Criteria:
- Group 1: Non-cannabis users
- Group 2: Cannabis users

Exclusion Criteria
- Patients hospitalized for a mental disorder other than schizophrenia
- Patients discharged against medical advice or hospitalized under judicial placement
- Patients who had ceased cannabis use were excluded from both groups.

2.2 Collection of Socio-Demographic and Diagnostic Data

The socio-demographic characteristics collected included age, sex, marital status (single, married, divorced), and occupation (employed or unemployed).

2.3 Data Analysis

Data were collected in Excel® and analyzed using Jamovi®. Socio-demographic characteristics were described with proportions for categorical variables and means ± standard deviations for quantitative variables. Comparisons between different categorical variables of the two groups were made using a Chi-square or Fisher test (depending on the conditions of each test), and a p-value ≤ 0.05 was considered statistically significant. The normality of our sample was examined using a Shapiro-Wilk test and QQ plot; following the violation of this condition (p-value < 0.001), the association between hospitalization duration and cannabis use was analyzed by two methods: Mann-Whitney U test and Student's t-test after logarithmic transformation (ln(hospitalization duration)).

Subsequently, we compared the mean length of stay between the two groups using univariate and multivariate linear regression models adjusted for age, sex, and marital status with 95% confidence intervals.

3. RESULTS

A total of 135 patients were included in our sample, with 60% cannabis users and 40% cannabis non-users. The mean age was 33.7 ± 10 years (t = 0.4, p = 0.6). Males were the predominant sex (83%) and were more likely to be cannabis users (OR: 4.4, 95% CI: 1.6 - 11.7). Although single individuals were predominant in all groups (cannabis -: 32%, cannabis +: 45%), and there was no significant association for marital status between the two groups (Fisher test p-value = 0.2). Additionally, subjects without professional activity represented 85.9% of our sample (cannabis -: 31.1%, cannabis + 54%) with a significant Chi-square test ($\chi^2 = 3.8$, p = 0.04), and employed subjects were less likely to be cannabis users (OR: 0.3, 95% CI: 1.2 – 2.5).

The mean lenght of hospitalization in our sample was 47.2 days $\pm$ 22.4, with a mean of 33.5 ± 14.2 days for the Cannabis - group and 56.4 ± 22.3 days for the Cannabis + group. The two statistical tests used revealed a statistically significant association between the Cannabis - and Cannabis + groups, with a significant Mann-Whitney test (p < 0.001) and a Student's t-test after logarithmic transformation (ln (hospitalization duration)) (p < 0.001). A univariate regression model indicated an OR of 24.8 (95% CI: 17.5 – 32.2, p < 0.001), suggesting that cannabis use is associated with a significant prolongation of stay of approximately 25 days compared to non-users; other studied variables did not have a notable effect on the duration prolongation.

Table 1: Comparison of demographic characteristics between patients who used cannabis and those who did not (N = 135)

	Total	Cannabis – n=54 (40%)	Cannabis + n=81(60%)	P value	OR
Sex *					
Male	112 (83%)	38 (28.1%)	74 (54%)	**0.003**	**4.4**
Female	23(17%)	16(11.9%)	7(5.2%)		
Age (years)**	33.7 ± 10	34 ± 11	33 ± 9	0.68	0.9
Marital status*					
single	105(78.4%)	44(32,8%)	61(45.5%)	**0.2**	
Married	17(12.7%)	8(6%)	9(6.7%)		
Divorced	12(9%)	2(1.5%)	10(7.5%)		
Professional Activity					
with profession	19 (14.1%)	12(8.9%)	7(5.2%)	**0.04**	0.3
without profession	116 (85.9%)	42(31.1%)	74(54.8%)		

*n(%),
**mean+/- standard deviations

Table 2: Effect of cannabis use at admission on length of stay (days hospitalized)

	Total (N= 135)		cannabis - group n=51		cannabis + group n=81		p value	OR
	Mean*	Median	Mean*	Median	Mean*	Median		
length of hospitalization (days)	47.2 ± 22.4	45	**33.5 ± 14.2**	29.5	**56.4 ± 22.3**	52	p<0.001	24.8

*mean +/- standard deviations

4. DISCUSSION

By comparing our study results with the literature, we observed that the mean hospitalization duration for non-cannabis users (33.5 ± 14.2 days) and cannabis users (56.4 ± 22.3 days) was comparable to results reported by Manrique *et al*., [4] (30 days for non-users vs. 59 days for users) in a study of 357 patients. These results highlight a significant association between cannabis use and prolonged hospitalization duration. However, it is important to note that the literature on this link is controversial. For instance, S. S. Williams *et al*., [5] suggested that cannabis is not a significant factor in prolonging hospitalization duration due to the lack of significant association observed in their studies.

Nevertheless, other research supports the existence of this association. A review by Hassan *et al*., [6], as well as studies by Soler *et al*., [7] and Manrique *et al*., report a prolongation of hospitalization duration among cannabis users, which is consistent with our own results. These discrepancies in the literature could be attributed to methodological differences, variation in studied populations, or other uncontrolled confounding factors. Thus, although our study reinforces the hypothesis of an association between cannabis use and prolonged hospitalization, further research is essential to clarify these links and better understand the underlying mechanisms.

5. CONCLUSION

The results of our study suggest that cannabis use may be a factor in prolonging the duration of hospitalization for schizophrenic patients. Further studies on larger samples with objective analyses of cannabis use (possibly including urine drug screening) are suggested to address the limitations of the present study.

Declaration of Interest: Nothing to declare

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