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ORIGINAL ARTICLE

Comorbid psychiatric disorders and stages of change in cannabis-dependent, treatment-seeking patients

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Objectives: To determine whether and to what extent cannabis dependence is associated with comorbid psychiatric disorders and specific stages of change in treatment-seeking patients.
Methods: We evaluated 80 cannabis-dependent, treatment-seeking patients residing in an urban area. Data on cannabis dependence, psychiatric disorders, and motivation were obtained using the Schedules for Clinical Assessment in Neuropsychiatry and the University of Rhode Island Change Assessment (URICA).
Results: A diagnosis of schizophrenia was found to correlate with lower motivation scores ($p = 0.038$), which could have a negative effect on adherence to treatment.
Conclusion: The high prevalence of concurrent psychiatric disorders in cannabis-dependent patients should serve as a stimulus for early screening and treatment of such disorders. Health care professionals should be aware of the magnitude of this association to increase the level of motivation in cannabis-dependent patients with severe concurrent psychiatric disorders.

Keywords: Psychoactive substance use disorder; psychosocial aspects of drug treatment; outpatient psychiatry; mood disorders/unipolar; psychosis

Introduction

Cannabis is the most widely used illicit drug in the world. Between 1993 and 2005, the number of treatment admissions for cannabis-related disorders in the U.S. nearly doubled.[1] In Brazil, approximately 1.2% of the population is dependent on cannabis.[2] Treating this condition is a major challenge, because there are no approved medications currently available and because cannabis use is often accompanied by psychiatric disorders, which makes it even more complex and difficult to plan treatment strategies.

Among the variables that might play a role in the treatment of cannabis dependence, motivation has been one of the most widely considered. According to the transtheoretical model of stages of change, drug-addicted patients can move through four different stages during the recovery process: precontemplation, contemplation, action, and maintenance. At the precontemplation stage, individuals are less motivated to change their drug consumption habits. Motivational interventions encourage patients to reach the action stage in order to achieve and maintain abstinence (maintenance stage).[3]

Cannabis-dependent individuals are considered to have low motivation to change their patterns of cannabis use. This assumption has led researchers to study the variables involved in the process of decision-making and motivation for change in this population. Determinant factors for intention to change include having more drug-related problems, greater concerns about consequences of drug use, and paranoid symptomatology.[4]

However, there are few data on the relationship between cannabis dependence and motivation in treatment-seeking patients. This lack of research might be attributable to the fact that cannabis dependence is rarely considered a primary problem; it is often described in the presence of concurrent conditions, such as dependence on alcohol or cocaine.[5] Most studies assessing motivation for seeking treatment in cannabis users excluded patients with comorbid psychiatric disorders, a group that might present different motivational profiles and probably move through the stages of change in a distinct way,[6] as the experience of problems may increase their readiness for behavior change.[7]

Drug users who seek treatment exhibit various profiles regarding motivation for change. The assessment of this profile could be an important element in helping professionals develop individualized treatment plans. Besides, the assessment of motivation in cannabis-dependent patients with comorbid psychiatric disorders could shed light on the complex variables associated with treatment-seeking and the efficacy of such treatment. This study has two different objectives: 1) to examine comorbid psychiatric disorders in a sample of cannabis-dependent, treatment-seeking patients at an outpatient drug treatment clinic; and 2) to establish associations between comorbid disorders and motivation for change. We hypothesize that: 1) these patients will exhibit a high frequency of comorbid disorders, specifically psychotic disorders; and that 2) patients with comorbid disorders

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may have specific profiles regarding motivation for treatment.

Methods

Subjects

We evaluated patients who sought treatment for cannabis-related problems at a specialized outpatient clinic of the Universidade de São Paulo (USP) School of Medicine Institute of Psychiatry, in São Paulo, Brazil, between 2007 and 2010. The study was advertised through local media, including newspapers, radio, and television. The inclusion criteria were being over 18 years of age and being dependent on cannabis. Patients who were dependent on alcohol, cocaine, or other substances (excluding nicotine) were excluded. Over the 3-year study period, 169 patients sought treatment at the facility. Of those 169 patients, 80 met the study criteria and gave written informed consent. A total of 89 patients were excluded: 62 were dependent on other drugs (alcohol and cocaine) and 27 did not meet criteria for cannabis dependence. All 80 participants were evaluated at enrollment. The study was approved by the Research Ethics Committee of the USP School of Medicine.

Instruments

In evaluating the selected patients, we employed the following instruments: the Schedules for Clinical Assessment in Neuropsychiatry/Present State Examination (10th edition),[8] which is a semi-structured interview that allows screening and diagnosis of psychiatric disorders using the DSM-IV or ICD-10 criteria; a Portuguese-language version, validated for use in Brazil, of the University of Rhode Island Change Assessment (URICA),[9] which is a 32-item scale that assesses the stage of change (precontemplation, contemplation, action, or maintenance); the Addiction Severity Index (ASI),[10] which quantifies the severity of dependence through a subjective score (given by the interviewer) and an objective composite score; and a 41-item questionnaire designed to collect demographic data and evaluate cannabis use, which was assessed on the basis of the number of marijuana cigarettes smoked in the last week, the age at first cannabis use, and the amount of money spent on marijuana in the last week (those variables were selected because they are potentially associated with the development of comorbid psychiatric disorders).[11] All of the instruments were administered by trained interviewers.

Statistical analysis

Statistical analyses were performed using SPSS version 14.0 for Windows. The study variables were concurrent psychiatric disorders, stages of change, and severity of dependence, as well as demographic data. Associations among demographic variables, ASI scores, and concurrent psychiatric disorders were identified through multiple logistic regression. Analysis of variance (ANOVA) was used to compare patterns of drug use and stages of change. Associations among categorical variables were identified through the chi-square test and Fisher's exact test. P-values $\leqslant$ 0.05 were considered statistically significant.

Results

Demographic data

The demographic data and ASI scores of the 80 patients are presented in Table 1. The mean age was 30.1 years (SD = 9.4 years). Of the 80 patients selected, 65 (81.2%) were male, 53 (66.2%) were single, 50 (62.5%) were employed, and 64 (79.9%) had completed more than 8 years of schooling. Among patients with comorbid psychiatric disorders, 18 (22.5% of the sample) had major depression; 9 (11.2%) had generalized anxiety disorder; 7 (8.8%) had panic disorder; and 7 (8.8%) had schizophrenia. Table 1 also shows that, on multiple logistic regression, there were no significant differences between patients with and without comorbid psychiatric disorders regarding demographic variables or ASI scores, with the obvious exception of the ASI score for concurrent psychiatric disorders.

Cannabis use

The mean age at first cannabis use was 16.53 years (SD = 4.66 years). Among the patients who had smoked marijuana in the last week, the mean number of marijuana cigarettes smoked and the mean quantity of money spent on marijuana in that week were 5.69 (SD = 7.90) and US$16.94 (SD = US$20.77), respectively. Neither the stage of change nor the presence of a comorbid psychiatric disorder was found to be associated with age at first cannabis use, number of marijuana cigarettes smoked, or amount of money spent on marijuana.

Stages of change and comorbid psychiatric disorders

The associations between specific stages of change and the presence of a comorbid psychiatric disorder are shown in Table 2. On URICA, participants with major depression scored highest for the contemplation stage (23.4%), whereas those with schizophrenia scored highest for the precontemplation stage (30.0%). Patients with schizophrenia scored higher for the precontemplation stage than did the non-schizophrenic patients ($p = 0.038$).

Discussion

This study focused on a sample of cannabis-dependent patients who sought treatment via a specialized program. The demographic data show that the majority of the subjects were male, with a reasonably high level of education in comparison with the general population of Brazil. This finding is in agreement with those of previous studies, in which cannabis-dependent, treatment-seeking patients have been described as male, single, and highly

Table 1 Multiple logistic regression analysis, with presence of a comorbid psychiatric disorder as the dependent variable (n=80)

Variable	n (%)	Mean (SD)	B	SE	p-value
Age, years	80 (100)	30.1 (9.4)	0.43	0.57	0.455
Gender					
Male	65 (81,2)		-1.088	0.966	0.260
Female	15 (18.8)				
Years of schooling					
< 8	24 (30.0)		17.464	40192.970	0.165
8-12	23 (28.7)				
> 12	33 (41.2)				
Occupational status					
Unemployed	30 (37.5)		-19.587	40192.961	0.256
Irregularly employed	28 (35)				
Regularly employed	22 (27.5)				
Marital status					
Single	53 (66.2)		-22.751	17543.584	0.999
Married	22 (27.5)				
Divorced	5 (6.2)				
ASI score, by problem area					
Medical status		4.0 (6.2)	0.121	0.242	0.618
Family/social status		6.2 (5.8)	0.460	0.292	0.118
Employment and support		5.7 (6.1)	0.229	0.201	0.254
Drug use		6.5 (5.3)	-0.207	0.359	0.564
Legal status		3.9 (6.5)	0.186	0.207	0.368
Psychiatric status		6.9 (6.0)	1.029	0.236	0.000

ASI = Addiction Severity Index; SD = standard deviation.

educated.[12] One possible explanation for this profile is that the health problems typically associated with cannabis use are less severe than are those associated with the use of other drugs; therefore, the perception of those problems and the consequent motivation to seek treatment might be linked to the level of education and knowledge.[13] We found no statistical differences between patients with and without concurrent psychiatric disorders in terms of demographic profile. As expected, multiple logistic regression revealed that the presence of a concurrent psychiatric disorder was significantly associated with higher ASI scores only in the psychiatric domain. In our sample, cannabis-dependent patients with concurrent psychiatric disorders did not present impairments other than the expected psychiatric symptoms.

Among the cannabis-dependent patients evaluated in the present study, the mean age at first cannabis use was 16.53 years, comparable to the 16.5 years reported in another study evaluating treatment-seeking cannabis users in Brazil.[14] The amount of cannabis consumed is an important measure, because high cannabis consumption is associated with anxious arousal symptoms, agoraphobic cognitions, and worry.[15] In the present study, the mean number of marijuana cigarettes consumed in the last week was 5.70. The range of the standard deviation suggests that the pattern of cannabis use varies widely among treatment-seeking patients. The way in which cannabis consumption is quantified varies across studies. Some authors have described it in terms of the number of marijuana cigarettes smoked, whereas others have quantified it by the amount of marijuana smoked by weight. Given that a typical marijuana cigarette contains between 0.5 and 1.5 g of cannabis, it is difficult to make comparisons among such studies. The mean number of marijuana cigarettes smoked in the last week was lower in the present study than in a previous

Table 2 Comorbid psychiatric disorders and stages of change among treatment-seeking, cannabis-dependent patients (n=80)

	Stages of change					
Psychiatric disorder	PC	C	A	M	Total	p-value*
Major depression	1 (10.0)	11 (23.4)	5 (23.8)	1 (50.0)	18 (22.5)	0.442
Anxiety disorders†	0 (0.0)	8 (17.0)	8 (38.1)	0 (0.0)	16 (20.0)	
Schizophrenia	3 (30.0)	2 (4.3)	1 (4.7)	1 (50.0)	7 (8.8)	0.038
Other disorder†	1 (10.0)	7 (14.9)	0 (0.0)	0 (0.0)	8 (10.0)	
None†	5 (50.0)	19 (40.4)	7 (33.4)	0 (0.0)	31 (38.7)	
Total	10 (100)	47 (100)	21 (100)	2 (100)	80 (100)	

A = action; C = contemplation; M = maintenance; PC = precontemplation.
Data presented as n (%), unless otherwise noted.
* Chi-square test and Fisher's exact test;
† p-value was not calculated since there are categories with frequency < 1.

study evaluating treatment-seeking cannabis users in Brazil.[14] This might be related to the fact that our study included patients with comorbid psychiatric disorders, which might influence cannabis use. Severe mental health disorders could result in a lack of peer relationships, which can also have an impact on cannabis use. In the present study, the patterns of cannabis consumption were not found to be associated with any specific stage of change. This suggests that cannabis-dependent patients have difficulty reducing or discontinuing their consumption despite their motivation to seek treatment, although it might also call into question the validity of the URICA.[16]

Considering the first hypothesis, there was a high prevalence (61.2%) of comorbid psychiatric disorders. This is in agreement with the findings of a similar study that evaluated 90 cannabis-dependent patients under treatment at a specialized outpatient clinic. That study found that 42% of the sample had a concurrent psychiatric disorders.[17] The prevalence of major depression, the most common DSM-IV Axis I diagnosis in our sample, has previously been shown to be high among treatment-seeking cannabis-dependent patients.[18,19] In addition, there is clear evidence of an association between cannabis consumption and anxiety disorders.[20] In the present study, the two most prevalent anxiety disorders were panic disorder and generalized anxiety disorder. There was a relatively high prevalence of schizophrenia in our sample. This finding might be explained by the fact that the study was performed at a tertiary care facility, to where patients with severe mental disorders are referred. In the literature, there is a consensus that cannabis use increases the risk of developing psychotic disorders and worsens the prognosis for individuals with a preexisting psychotic disorder.[21]

Considering the second hypothesis, there was a predominance of the contemplation and action stages of change. According to the transtheoretical model, drug users who are at the contemplation and action stages are more likely to change their addictive behaviors than those who are at the precontemplation stage. This underscores the fact that cannabis users who seek treatment are motivated to change their consumption patterns.

The diagnosis of schizophrenia was associated with lower motivation to change. This association is critical, because individuals with schizophrenia display low compliance with treatment programs. For cannabis-dependent individuals with psychotic disorders, the prognosis is poor and the risk of relapse (of either condition) is high.[22] In previous studies, cannabis users with comorbid schizophrenia have been described as less motivated to seek treatment.[23]

Patients with and without comorbid psychotic disorders may mention different reasons for drug use. Patients who are dependent on cannabis but have no concurrent psychotic disorder report that they use drugs for external reasons, such as problems at work, social pressure, or peer pressure, whereas those who have a psychotic disorder cite internal reasons, such as negative mood states, withdrawal symptoms, and extrapyramidal side effects of antipsychotic drugs.[24]

Some authors have developed specific approaches to treat cannabis-dependent patients with schizophrenia. The most common approach involves health care professionals taking an empathetic and nonjudgmental attitude, so as to develop insight regarding potential consequences of cannabis abuse through the exploration of its positive and negative aspects. Other authors recommend the treatment of comorbid mental health disorders with standard pharmacotherapy, involving longer or more intensive interventions, particularly among heavier users and those with chronic mental disorders.[25]

In conclusion, having a comorbid psychiatric disorder is a common characteristic of cannabis-dependent patients who seek treatment in a tertiary specialized service. Those with schizophrenia should receive special attention regarding their motivational profile.

Scientific significance and future directions

To the best of our knowledge, this is the first study on cannabis dependence, concurrent psychiatric disorders, and motivation for treatment in Brazil. Most studies on alcohol and other drugs frequently exclude patients with comorbid psychiatric disorders. This approach may reduce the applicability of findings, as comorbid disorders are common and are a key variable that influences both treatment and prognosis.

This study has some limitations. Its cross-sectional design means it can be used to study associations between variables, but it cannot assess potential causal relationships. Besides, as the finding of low motivation in participants with schizophrenia was based on few patients (n=7), larger studies are required to confirm this association. The present study evaluated patients in a condition close to clinical practice and, despite its limitations, the findings highlighted important clinical challenges. Further research should focus on cannabis-dependent patients with and without comorbid disorders, taking into consideration early screening, motivation for treatment, and specific treatment approaches based on different levels of motivation and severity of the comorbid disorders.

Disclosure

The authors report no conflicts of interest.

References

1 Department of Health and Human Services (NSDUH). Results from the 2005 national survey on drug use and health: national findings. Rockville: NSDUH; 2006.
2 Carlini EA, Galduróz JC, Noto AR, Carlini CM, Oliveira LG, Nappo SA, et al. II levantamento domiciliar sobre o uso de drogas psicotrópicas no Brasil: estudo envolvendo as 108 maiores cidades do país: 2005. São Paulo: Páginas & Letras; 2007.
3 Miller WR, Rollnick R. Motivational interviewing: preparing people to change addictive behaviors. New York: Guilford; 1991.
4 Fernández-Artamendi S, Fernández-Hermida JR, García-Fernández G, Secades-Villa R, García-Rodríguez O. Motivation for change and barriers to treatment among young cannabis users. Eur Addict Res. 2013;19:29-41.

5 Roffman RA, Barnhart R. Assessing need for marijuana dependence treatment through an anonymous telephone interview. Int J Addictions. 1987;22:639-51.
6 DiClemente CC, Nidecker M, Bellack AS. Motivation and the stages of change among individuals with severe mental illness and substance abuse disorders. J Subst Abuse Treat. 2008;34:25-35.
7 Annaheim B, Rehm J, Neuenschwander M, Gmel G. [Quitting hash. The readiness for behaviour change among cannabis users in Switzerland]. Int J Public Health. 2007;52:233-41.
8 World Health Organization (WHO). Schedules for clinical assessment in neuropsychiatry. Geneva: WHO; 1994.
9 McConnaughy EA, Prochaska JO, Velicer WF. Stages of change in psychotherapy: measurement and sample profiles. Psychother Ther Res Pract. 1983;20:368-75.
10 McLellan AT, Kushner H, Metzger D, Peters R, Smith I, Grissom G, et al. The Fifth Edition of the Addiction Severity Index. J Subst Abuse Treat. 1992;9:199-213.
11 Luzi S, Morrison PD, Powell J, di Forti M, Murray RM. What is the mechanism whereby cannabis use increases risk of psychosis? Neurotox Res. 2008;14:105-12.
12 Strike CJ, Urbanoski KA, Rush BR. Who seeks treatment for cannabis-related problems? Can J Public Health. 2003;94:351-4.
13 Agosti V, Levin FR. Predictors of treatment contact among individuals with cannabis dependence. Am J Drug Alcohol Abuse. 2004;30:121-7.
14 Jungerman FS, Laranjeira R. Characteristics of cannabis users seeking treatment in São Paulo, Brazil. Rev Panam Salud Publica. 2008;23:384-93.
15 Bonn-Miller MO, Zvolensky MJ, Bernstein A, Stickle TR. Marijuana coping motives interact with marijuana use frequency to predict anxious arousal, panic related catastrophic thinking, and worry among current marijuana users. Depress Anxiety. 2008;25: 862-73.
16 Field CA, Adinoff B, Harris TR, Ball SA, Carroll KM. Construct, concurrent and predictive validity of the URICA: data from two multi-site clinical trials. Drug Alcohol Depend. 2009;101:115-23.
17 Hölscher F, Bonnet U, Scherbaum N. [Use of an outpatient treatment center for cannabis abuse]. Nervenarzt. 2008;79:571-6.
18 Bovasso GB. Cannabis abuse as a risk factor for depressive symptoms. Am J Psychiatry. 2001;158:2033-7.
19 Gilder DA, Ehlers CL. Depression symptoms associated with cannabis dependence in an adolescent American Indian community sample. Am J Addict. 2012;21:536-43.
20 Patton GC, Coffey C, Carlin JB, Degenhardt L, Lynskey M, Hall W. Cannabis use and mental health in young people: cohort study. BMJ. 2002;325:1195-8.
21 Foti DJ, Kotov R, Guey LT, Bromet EJ. Cannabis use and the course of schizophrenia: 10-year follow-up after first hospitalization. Am J Psychiatry. 2010;167:987-93.
22 van Os J, Bak M, Hanssen M, Bijl RV, de Graaf R, Verdoux H. Cannabis use and psychosis: a longitudinal population-based study. Am J Epidemiol. 2002;156:319-27.
23 Bonsack C, Montagrin Y, Favrod J, Gibellini S, Conus P. [Motivational interviewing for cannabis users with psychotic disorders]. Encephale. 2007;33:819-26.
24 Saddichha S, Prakash R, Sinha BN, Khess CR. Perceived reasons for and consequences of substance abuse among patients with psychosis. Prim Care Companion J Clin Psychiatry. 2010;12.
25 Baker AL, Hides L, Lubman DI. Treatment of cannabis use among people with psychotic or depressive disorders: a systematic review. J Clin Psychiatry. 2010;71:247-54.