Can Cannabis abuse lead to Anxiety and Depression?

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ABSTRACT

Objective: To determine the association of cannabis abuse with depression, anxiety and mixed anxiety depression as well as to establish the psychometric properties of the scale used in the study i.e. Hospital anxiety and depression (HAD) scale.

Design: A Retrospective study.

Setting and duration of study: Different localities of Rawalpindi and Islamabad.

Methods: 40 cannabis patients suffering from cannabis dependence and 40 normal persons were selected from different localities of Rawalpindi and Islamabad. The Urdu modified version of Hospital anxiety and depression scale (HADS) was used to assess the severity of anxiety and depression in both groups.

Results: The mean age of cannabis dependent patients was 29.60 and that of non-addicts 29.33. It shows more depression in cannabis abusers as compared to non cannabis addicts. Addicts have more anxiety as compared to non-addicts. Cannabis addicts have more mixed anxiety depression as compared to non-addicts. The other objective of the study was to establish the Alpha reliability coefficient and item-total correlation of the scale, the findings of which suggest that all the items of the scale are highly consistent.

Conclusions: The findings of the study suggest that the cannabis abusers have more depression, anxiety and mixed anxiety depression as compared to non- addicts. Anxiety, depression and mixed anxiety depression in addicts can be due to biological, psychosocial, genetic and neurochemical factors which need to be investigated in future studies.

INTRODUCTION

The contemporary breakdown of traditional system, the rapid change in social and economic conditions, the increased availability and the mobility of the population have made the abuse of psychoactive substances more prevalent all over the world. In Pakistan the traditional drugs of abuse are cannabis (bhang and charas), opium and alcohol. Despite the high prevalence of cannabis use, uncertainty persists about its physical and psychological consequences.[1] Among the most prominent concerns have been putative links between use of cannabis and mental disorders. A large intake of cannabis seems able to trigger acute psychotic episodes and may worsen outcomes in established psychosis.[2, 3] Associations with non-psychotic disorders have received less attention. Yet evidence, for an association between cannabis use, depression and anxiety has grown.[4] Chronic daily users report high levels of anxiety, depression and fatigue, with low motivation.[5] Cross sectional associations between cannabis use, depression and anxiety has now been reported in surveys in both adolescents and adults.[6] Questions remain about the level of association between cannabis use and depression and anxiety and about the mechanism reinforcing the link. Pre-existing symptoms might raise the likelihood of cannabis use through a mechanism of self medication.[7] Alternatively, cannabis use may be more likely in people with a background of social adversity or particular characteristics, factors that might also raise risks for mental disorders.[8] Cannabis may also carry a direct risk for depression and anxiety.

In Pakistan many studies have been carried out on the risk factors of substance abuse but there are limited studies on the co-morbidity of drugs especially (cannabis) with depression and anxiety. We examined the risks for depression and anxiety associated with cannabis use in individuals of all ages. Specifically, we tested the hypothesis that there is an association of cannabis abuse and depression, anxiety, and mixed anxiety depression. We also aimed to establish the psychometric properties of the HAD scale

SUBJECTS AND METHODS

Sample: In 2002 data was collected from the different localities of Rawalpindi and Islamabad. Eighty male subjects, including forty cannabis addicts and forty non-addicts, who were permanent residents of the twin cities of Rawalpindi and Islamabad, were selected as a sample. The addicts and non-addicts were matching in age, education, and income levels. A semi-structured questionnaire was prepared to collect socio-demographic information with regards to their age, residential area, education, marital status, occupation, monthly income and other information related to drug addiction like, duration of addiction of first drug of abuse and mode of intake.

Measures: In order to measure the anxiety and depression of the cannabis addicts and non-addicts an Urdu modified Version of "Hospital Anxiety and Depression scale" was used. Mumford et al translated the scale into Urdu in 1990. The HAD Scale was designed to provide a screening device for anxiety and depression in a general hospital setting. Despite the 'Hospital' in the term, subsequent work has shown the Scale to be valid as well in primary care and community settings. It is also useful in general psychiatric and clinical psychological work. In 2003 HADS was used to find out the mental health of socially isolated refuges.[9] The scale consists of total 14 items, 7 items of anxiety and

7 items of depression. The scoring of the scale is from 0,1,2,3 and 3,2,1,0. The cut off point is 7 for both depression and anxiety indicating that a person who scores above 7 has depression and anxiety. While those who score below 7 are generally free of depression and anxiety. Informed consent was obtained.

Data Analyses: Analysis was done using SPSS. T-scores were calculated to compare the scores of cannabis addicts and non-addicts on hospital. Item-total correlation and Alpha reliability of hospital depression and anxiety scale was also calculated.

RESULTS

The mean age of the cannabis addicts is 29.60 and that of non-addicts is 29.33 and this was statistically significant. Table 1 shows the detailed breakdown of the different age groups. The mean monthly income of cannabis addicts is Rs 3625 and that of non-addicts is Rs 4350. Percentage of cannabis addicts who are married is 27.5 and 72.5% are unmarried, while 45% of non cannabis addicts are married and 22% are unmarried.

The mean duration of addiction of cannabis was 11.45 years.

Table 1. Frequencies and percentages of Cannabis Addicts and non-addicts age

Age	Cannabis Addicts Frequency	(N =40%)	Non-Addicts Frequency	(N=40%)
18-22	6	15%	7	17.60%
23-27	13	32.50%	14	35%
28-32	10	25%	9	22.50%
33-37	3	7.50%	2	5%
38-42	5	12.50%	4	10%
43-47	3	7.50%	3	7.50%
48-52	-	-	1	2.50%
Total	**40**	**100%**	**40**	**100%**

Findings in the Figure 2 show that the mean age of non addicts is 29.33

Table 2. Frequencies and percentages of educational level of Cannabis addicts and Non- addicts

Educational Level	Cannabis Addicts Frequency	(N= 40%)	Non-Addicts Frequency	(N= 40 %)
Primary	8	20%	3	7.50%
Middle	11	27.50%	5	12.55%
Matric	12	30%	10	25%
Intermediate	3	7.55%	4	10%
Graduate	4	10%	16	35%
Masters	2	5%	2	5%
Total	**40**	**100%**	**40**	**100%**

Table 2 shows the distribution educational status of the sample.It is obvious that the addicts are less educated as compared to non addicts Table 3 and 4 show the Alpha reliability coefficient of Hospital anxiety scale for its subscales. These tables shows that the items of the scale are highly consistent for both the addicts and non addicts in case of anxiety and depression. The table 6 shows the item total correlation for whole of the HAD sacle.It is obvious that all the items of the scale are highly correlated with each other.

Table 3. Alpha reliability coefficient of HADS for cannabis addicts and non-addicts (N = 40)

Scale	Items	Alpha reliability coefficient	P	Addicts
HAD	14	0.7582	0.0001****	Cannabis
HAD	14	0.7562	0.0001****	non-addicts

Table 4. Alpha Reliability coefficient of HAS for cannabis addicts and non-addicts (N=40)

Scale	Items	Alpha reliability coefficient	P	Addicts
HAS	7	0.7571	0.0001****	Cannabis
HAS	7	0.6357	0.0001****	non-addicts

Table 5. Item – total correlation for HADS (N = 80)

Item number	correlation
1	0.560**
2	0.598**
3	0.626**
4	0.617**
5	0.676**
6	0.559**
7	0.624**
8	0.658**
9	0.693**
10	0.515**
11	0.455**
12	0.537**
13	0.622**
14	0.477**

p < 0.001 ***

Table 6. Mean Difference, standard deviation and the value of cannabis addicts and non-addicts on anxiety(HAS), depression(HDS) and total scores for Hospital Anxiety and Depression Scale(HAD)

0)Groups	N	M	SD	t	P
HDS					
Addicts	40	9.12	3.86		
				6.37	.0001****
Non-addicts	40	4.1	314.00%		
HAS					
Cannabis Addicts	40	10.05	4.70		
				5.594	0.0001****
Non-addicts	40	5.10	3.03		
HAD					
Cannabis Addicts	40	19.30	7.10		
				7.159	0.0001****
Non-addicts	40	9.20	9.40		

*df=78, p<.0001*****

Table 6 shows the mean difference, standard deviation and the value of cannabis addicts and non-addicts on anxiety, depression and total scores for Hospital Anxiety and Depression Scale. The t-test was used to compare the mean scores of cannabis addicts and non-addicts on these variables, which indicated a significant difference of (t =5.594. p< .0001) between the two groups on all of these measures.

DISCUSSION

It is estimated that about 200 to 300 million people use cannabis in some form thus it is not only one of the oldest but one of the most widely used mind altering drugs. In Pakistan it is one of the most commonly used drug by the working class. The aim of the present research was to find the association of cannabis abuse with depression, anxiety and mixed anxiety depression, as well as to establish the psychometric properties of the scale used in study i.e. Hospital Anxiety and Depression Scale.

The mean duration of cannabis abuse 11.45 years which highlights the fact that they probably had started abusing drug in adolescence. Hash is the only drug, which is used by all the addicts. No one is taking marijuana or hash oil. The mode of intake is through a cigarette.

The first hypothesis of the study was that cannabis addicts would have more depression as compared to non-addicts. The mean scores of cannabis addicts and non-addicts on Hospital depression scales showed significant difference (t = 6.37, p< .0001) between the two groups. It shows high degree of depression in cannabis addicts as compared to non-addicts. The results prove our hypothesis. Our second hypothesis was that cannabis addicts would have more anxiety as compared to non-addicts. The mean scores of cannabis addicts and non- addicts on Hospital anxiety scale also showed a significant difference (t = 5.594, p< .0001) between two groups. These findings prove our second hypothesis as well. Our third hypothesis is also supported as there

was a significant difference (t = 7.159, p< .0001) between the two groups on mean scores of cannabis addicts and non-addicts on Hospital anxiety and depression scale.

These results of the present study are consistent with the results of the previous studies. Severity of depression, anxiety and other symptoms increased progressively with the degree of involvement with cannabis. Chronic use was associated with a high prevalence of co-morbid psychiatric disorders.[10] Johns 2001 reported that 22% of cannabis addicts reported panic attacks or anxiety according to a cross sectional examination of cannabis users.

The relationship between cannabis and anxiety and depression may be mediated through both biological and social mechanisms. Cannabinoids effects begin immediately after the drug enters the brain and last from 1 to 3 hours. Smoking cannabinoids results in much higher THC concentration in the blood than does eating or drinking the drug. Within a few minutes after inhaling marijuana smoke, an individual's heart begins beating more rapidly and when THC enters the brain, it causes a user to feel euphoric or "high". The euphoria passes after awhile, and then the user may feel sleepy or depressed. Occasionally, the use produces anxiety, fear, distrust, or panic.

After many years of study, a cannabinoid receptor site in the brain was discovered in 1988. This implied that the brain has endogenous ligands that are substantially similar to the cannabinoids in marijuana. It is now considered likely that the neurotransmittcr that naturally triggers cannabinoid receptors is known as anandamide. Anandamide is a recently discovered neurotransmitter that plays a role in pain, depression, appetite, memory, and fertility. This suggests that THC produce its pleasurable effects by mimicking anandamide. The different regions of the brain in which cannabinoid receptors are abundant are cerebellum, hippocampus, cerebral cortex, basal ganglia, especially in frontal and parietal lobes. Brain regions in which cannabinoid receptors are moderately concentrated are hypothalamus, amygdala, spinal chord and brainstem. In case of depression and anxiety both biological research and symptoms of mood disorders support that it also involves pathology of the limbic system, the basal ganglia and the hypothalamus.

Social consequences of frequent cannabis use include educational failure, disturbed family relations, rejection of society and unemployment, which could increase the risk of depression and anxiety in cannabis abusers (Young, 2002).

Another objective of the research was to, find out the psychometric properties of the Hospital anxiety and depression scale (HADS), for this purpose we calculated the alpha reliability coefficient separately for cannabis addicts and non- addicts. The item total correlation of Hospital anxiety and depression scale was also calculated. The alpha reliability coefficient of HADS for cannabis addicts is 0.7582, p< .000l and for non-addicts is 0.7562 and p<. 0001 the items of Hospital anxiety scale(HAS) showed high consistency with an alpha value 0.7571 and p< .0001 for cannabis addicts and 0.6357 and p< .0001 for non-addicts. The alpha reliability coefficient of Hospital depression scale (HDS) for cannabis addicts is 0.6203, p<000l and for non-addicts is 0.6378 and p<. 0001 the total items of the HADS are highly significant.

The frequent cannabis use leads to depression and anxiety, with daily users carrying the highest risk. Given recent increasing levels of cannabis abuse, measures to reduce frequent and heavy recreational use seem warranted.

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