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RESEARCH PAPER

The Prevalence of Schizophrenia and Depression among Male Cannabis Users: A Cross-Sectional Analytical Study

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ABSTRACT

This study examines the prevalence of depression and schizophrenia among male cannabis users in Islamabad, Pakistan. Cannabis use has been linked to various psychiatric disorders. This study hypothesized that longer cannabis use, younger age, and ethnic differences (Punjabi vs. Pashto speakers) are associated with higher rates of depression and schizophrenia. A cross-sectional survey was conducted with 50 male cannabis users aged 18-60. Demographic data were collected, and psychological assessments were done using the Beck Depression Inventory (BDI) and the Positive and Negative Syndrome Scale (PANSS). Data were analyzed using SPSS (v13), employing descriptive statistics, correlation analysis, and independent sample t-tests. Long-term cannabis use and younger age were associated with higher depression and schizophrenia scores. Significant differences in usage patterns were found between Punjabi and Pashto speakers. Policymakers should develop targeted prevention and treatment programs for cannabis users, focusing on young adults and addressing ethnic variations to reduce psychiatric comorbidities.

KEYWORDS Schizophrenia, Depression, Cannabis, Prevalence

Introduction

Cannabis is perhaps the world's most consumed psychoactive drug, with laws about the use of cannabis having been liberalized in the past 20 years (Compton et al., 2016). Aside from inducing cannabis-related disorders, its usage is also accompanied with dependence and abuse. Short term psychological effects of the consumption of cannabis, including anxiety, delirium, as well as psychosis, have already been documented in vulnerable populations (Ramstrom, 2004).

Cannabis use in experimental studies has been found to produce short-term psychotic symptoms (Carvalho& Vieira-Coelho, 2022), supporting an assumed cause-and-effect in relation between use of cannabis and psychosis. Adolescents' use of cannabis is associated with later psychosis risk (Malone et al., 2010), postulated as being caused through interference in normal development. The majority of users of cannabis do not go on to develop psychosis. The risk is found increased in individuals with genetic (i.e., family risk of psychosis) or clinical (e.g., for attenuated psychotic symptoms, Radhakrishnan et al., 2014) susceptibility.

As more studies reference synchronization of the use of cannabis with depression, Degenhardt et al. (2003) in earlier work referenced the concept wherein "there is increasing evidence that regular cannabis use and depression co-occur together more frequently than would be predicted by chance" (p. 1497). The United States National Comorbidity Survey asserted that most of those with MDD highlighted lifetime use of cannabis (Chen et al. 2002).

Literature Review

Cannabis is the second highest used psychoactive drug after tobacco as well as alcohol with estimated global prevalence of 3-4.5% (Degenhardt et al. 2011; United Nations Office on Drugs and Crime 2012). The prevalence of marijuana users worldwide is increasing and estimated as 16% in 2006-2016 as well as about 190 million worldwide now.

As per the results of the National Epidemiological Survey on Alcohol and related conditions (NESARC), for adults with dysthymia or MDD in the previous year, 10% of such adults used cannabis in the previous year. The prevalence of use of cannabis in such adults was almost the same in active users (use once per week or above, 4.5%) as in those with use of below once a week (5.4%) (Aspis et al., 2015). The adolescent depression sample of use of cannabis had much larger prevalence compared with the sample of adults in the previous year, as estimated from the National Survey on drug use and health as 25%, whereas in non-depressed ones 12% (SAMHSA 2007).

Degenhardt et al. (2003) have concluded from an initial review that "there is increasing evidence that regular use of cannabis and depression co-occur more frequently than would be expected by chance" (p. 1497) in the light of burgeoning numbers of studies reported on co-occurrence of depression and use of cannabis. The majority of individuals with MDD had used cannabis in their lifetime, as proposed on the grounds of results of the US National Comorbidity Survey (Chen et al. 2002). Results from the NESARC national epidemiological alcohol and related conditions survey of adults with past-year dysthymia or MDD, indicated that past-year use rates for cannabis were 10.0% for such latter adults, with approximately equal percentages divided between frequent (i.e., once or more per week; 4.5%) versus occasional (less than once per week.3%) drug users (Aspis et al. 2015).

Hypotheses

H_1 Individuals who have been using cannabis for a longer period are more likely to experience psychiatric conditions, such as depression and schizophrenia, compared to those with shorter durations of use.

H_2 Young Adults are more into Cannabis use and are more likely to experience psychiatric conditions, such as depression and schizophrenia, compared to those with other age groups.

H_3 There is a significant difference in cannabis use between Punjabi-speaking and Pashto-speaking individuals.

Material and Methods

Nature of the Study

The present study employed a cross-sectional research design to investigate the prevalence of depression and schizophrenia among male cannabis users. This design was selected as it allows for the simultaneous collection and analysis of data, providing a snapshot of the relationship between cannabis use and psychiatric disorders at a single point in time.

Population

The population targeted in this study comprised male cannabis users aged between 18 and 60 years, residing in urban and semi-urban areas of Islamabad, Pakistan.

Sample

A sample of 50 male cannabis users was recruited through purposive sampling. Participants were drawn from rehabilitation centers, psychiatric clinics, and community outreach services within Islamabad. Inclusion criteria specified male gender, cannabis use history, and the specified age range, while individuals with severe cognitive impairments were excluded.

Instrument

Data were collected using a structured demographic sheet and standardized psychological tools. Demographic data included age, education, family structure, socio-economic status, duration of cannabis use, family drug use history, and language (Punjabi or Pashto). Depression symptoms were measured using the Beck Depression Inventory (BDI), and schizophrenia symptoms were assessed with the Positive and Negative Syndrome Scale (PANSS), which covers positive symptoms, negative symptoms, and general psychopathology.

Pilot Testing

A pilot study was conducted on a small group of participants (not included in the main sample) to assess the clarity and appropriateness of the instruments and data collection procedures. Minor adjustments were made based on participant feedback and initial observations.

Validity and Reliability

Both the BDI and PANSS are well-established tools with proven validity and reliability in psychiatric research. The BDI has demonstrated high internal consistency in measuring depression, while the PANSS is recognized for its reliability in evaluating schizophrenia symptoms. In this study, standardized administration procedures were followed to maintain the reliability and validity of the instruments.

Data Analysis Technique

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 13. Descriptive statistics were employed to summarize demographic characteristics and drug use patterns. Correlation coefficients were calculated to determine the strength and direction of relationships between study variables. An independent sample t-test was conducted to examine the association between family history of cannabis use and the development of depression.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review board. Informed consent was obtained from all participants after explaining the purpose, procedures, and their right to withdraw at any time without penalty. Confidentiality and anonymity of participant information were strictly maintained throughout the study.

Results and Discussion

Table 1
Descriptive Statistics for Demographic Variables (a)

Variables	*F*	*%*
Age		

	20-30	3	12.0
	30-40	2	36.0
	31-40	16	32.0
	41-50	7	14.0
	51-60	3	6.0
Education			
	Under Matric	18	36.0
	Matric	18	36.0
	Intermediate	6	12.0
	Graduate	8	16.0
Economic Background			
	Lower Class	2	4,0
	Middle Class	41	82.0
	Upper Class	7	14.0
Family Structure			
	Nuclear	23	46.0
	Joint	27	54.0
Language			
	Pashto	27	54.0
	Punjabi	23	46.0
Drug Use			
	Cannabis	50	100.0
Duration of Use			
	Less than 5 Years	8	16.0
	More than 5 Years	42	84.0
Family Illness			
	Yes	16	32.0
	No	34	68.0
Family Drug Use			
	Yes	36	72.0
	No	14	28.0

The sample included young adults through middle-aged individuals with the majority (68%) of the sample being 21-40 years old. The majority of the research sample is of middle-class upbringing (82%) with low to moderate educational attainment, of which 72% have an educational qualification below Matric. The participant's family structure is evenly divided between nuclear (46%) and joint family (54%), with a little higher proportion speaking Pashto (54%) compared to Punjabi (46%). All participants mostly use cannabis, with the vast majority were long-term users (84% have used it for more than five years). 36% of participants reported family history of drug use, and 32% reported a family history of illness, suggesting a potential familial or environmental influences on their behavior. The drug use duration is noted as a strong predictor of comorbid psychiatric disorders.

Table 2
Descriptive Statistics for Demographic Variables (b) *(N=50).*

Variables	M	SD	Skewness	Kurtosis
Age	2.66	1.06	.414	-.256
Education	2.08	1.06	.678	-.736
Economic Background	2.10	.416	.706	2.576
Family Structure	1.54	.503	-.166	-2.057
Language	1.46	.503	.166	-2.057
Drug Use	1.00	.000		
Duration of Use	1.84	.370	-1.913	1.726
Family Illness	1.68	.471	-.796	-1.425
Family Drug Use History	1.28	.453	1.01	-1.021

Note: M= mean, SD = Standard Deviation

Table 2 descriptive statistics emphasized the results. Mean age is 2.66 with the standard deviation of 1.06 that depicts the majority of the respondents belong to 21-30 years of age group. Age is skewed with flat kurtosis distribution. Education is 2.08 with the

standard deviation of 1.06, economic background is 2.10 with the standard deviation of .416. The majority of the values in the economic background is concentrated in the middle socioeconomic status (leptokurtic distribution). The variables for family drug use in the family exhibit further correlation of drug use behaviour amongst the respondents with family drug use. The family structure of respondents exhibits mean of 1.46 with language 1.46 with small skewness with kurtosis. The majority of respondents were long term users with mean of 1.84 with standard deviation of .370, represented in negatively skewed data with leptokurtic distribution

Table 3
Correlation Coefficient between Cannabis Use, Depression and Schizophrenia

Variables	TDAST	TBDI	TPANSS
TDAST	-	.414**	.227
TBDI	.414**	-	.378**
TPANSS	.227	.378**	-

**. Correlation is significant at the 0.01 level (2-tailed).

The table emphasized the correlation coefficient of the total scores of DAST, BDI, and PANSS. To emphasize the weakness and strength between the variables of the study based on Hypothesis 2, Cannabis use is positively correlated with depression (r = 0.414, p = 0.003). The scores emphasized that with increased Drug use (Cannabis use), Depression is associated (since the scores of Depression increase with an increase in Drug use). The scores of PANSS increased with an increase in Depression scores (BDI- r= 0.378, p = 0007). The correlation coefficient of the total scores of DAST and PANSS emphasized positive but weak correlation (r= 0.227, p= 0.112). The results emphasized that Depression also plays an important role that contributes to Schizophrenia as well as an increase in Drug use.

Table 4
Independent Sample T-test and Age factor in determining Cannabis Use and later development of Depression and Schizophrenia *(N=50).*

Variables	F	T	Df	Sig	95% Confidence Interval	
					Lower	Upper
TDAST	2.835	.614	22	.546	-1.321	2.432
TBDI	.094	1.086	22	.289	-5.612	17.94
TPANSS	.049	-.676	22	.506	-35.70	18.150

Note: F= F-statistics, t= t-statistics, df= degree of freedom, Sig= Level of significance

The independent sample t-test result presented that none of the variables (TDAST, TBDI, or TPANSS) have statistically significant differences for the 18–20 vs. 21–30 age groups. The difference in the means found could be not an indication of the group difference, as the sample size is low, with score variability.

3.There is a significant difference in cannabis use between Punjabi-speaking and Pashto-speaking individuals.

Table 5
Independent Sample T-test and Language (cultural background), and Cannabis use

Variables	F	t	Df	Sig	95% CI	
					LL	UL
TDAST	6.986	-2.027	48	.048	-1.88	-.0074
TBDI	2.381	-5.133	48	.000	-16.79	-7.34
TPANSS	.891	-2.715	48	.009	-32.34	-4.81

Note: F= F-statistics,t= t-statistics, df= degree of freedom, Sig= Level of significance, CI= confidence Interval, LL= lower level, UL= upper level

The **Punjabi group** always receives higher scores on all three scales (TDAST, TBDI, and TPANSS) than the **Pashto group**, which implies the consumption of Cannabis is greater in Punjabi compared to Pashto.

Conclusion

The findings of this study highlight significant differences in mental health outcomes between individuals from Pashto and Punjabi language groups. Participants from the Punjabi group consistently demonstrated higher scores on TDAST, TBDI, and TPANSS, indicating greater attention-related symptoms, depressive symptoms, and overall symptom severity compared to the Pashto group. These results suggest a possible connection between cultural, linguistic, or environmental factors and mental health, which warrants further exploration. For instance, differences in stressors such as socioeconomic status, social support systems, and access to mental health resources may contribute to the observed disparities. The relationship between cannabis use and psychiatric outcomes could vary across cultural contexts, potentially influencing these mental health measures.

In line with our rationale, the study aimed to identify the core factors contributing to mental health challenges, particularly examining how cannabis use may intersect with psychiatric symptoms across linguistic groups. The significantly higher scores observed in the Punjabi group may imply a more prominent role of cannabis use or other associated factors in exacerbating mental health issues in this population. It is critical to further investigate the underlying mechanisms, such as patterns of substance use, cultural stigma around mental health, or differences in coping strategies, to better understand why certain groups are more vulnerable. These insights can guide culturally tailored interventions to address mental health disparities effectively.

Recommmendations

- These demographics can be replicated within other sociocultural settings in order to emphasize the complex interrelation between these variables.

- The gender differences can be investigated in order to exclude emotional disturbances in adult learning disability in both sexes.

- The psychological, emotional, as well as behavioral outcomes of the use of cannabis in various age ranges can be explored further in order to identify the shift in lifestyle of individuals with substance use within various life spans.

- Influence of diversity of strategies; i.e., various behavioral change methods, psychological treatments can be examined in enhancing co-occurring features like depression in cannabis use disorder.

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