

# Pattern of Tobacco and Cannabis Use in a Rural Population

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## **Abstract:**

**Introduction** - Various substances apart from alcohol has been using by the society since ancient times. Cannabis preparations like *Bhang*, *Charas*, *Ganja* and opioid preparations like *afeem* have been used as an aid in medication. It is one of the few studies which have included all age groups, door to door survey method, uniform diagnostic criteria and tools. **Methods** - This cross sectional descriptive study was conducted in 32 villages from all the four blocks of Indore district. It has covered 500 families (16 families per village) with total sample population of 2706 subjects. MINI-6 or MINI kid were administered as diagnostic tool, to all the subjects according to the age group. The study conducted during the period from December 2014 to August 2015. **Results** - Among 2706 people, Tobacco dependence was present as 12.7% and 1.4% in males and females respectively while tobacco use was present as 1.7% and 0.2% in males and females respectively. Cannabis dependence was present in 0.45% patients while cannabis abuse was present in 0.8% patients, all were males. **Conclusion** - The present study is the first study which was carried out to investigate the patterns of substance use in the given geographic settings of Madhya Pradesh. The prevalence is high among those who were low educated, those occupied in unskilled jobs like daily wage labourers, commonly in males, in the age group of 40-59 years and those who were married.

**Keywords:** *Substance use disorders; Prevalence; rural; epidemiological study; Indore*

## **Introduction**

Various substances are being used by society since beginning of human civilization. Certain preparations of cannabis like *Bhang*, *Charas*, and *Ganja* have been used by priests and other religious personages as an aid in medication.<sup>[1]</sup> In India, the first enquiry into the prevalence of drug addiction of opium and cannabis was made about 115 years ago when the Government of India appointed a royal commission in 1893 to go into the circumstances connected with production and sale of Indian opium.<sup>[2]</sup>

According to the national household survey-2, the current one- month period use for alcohol, cannabis and opiates were 21.4%, 3%, and 0.7%, respectively. Tobacco use prevalence was high at 55.8% among males, with maximum use in the age group 41-50 years.<sup>[3]</sup> Furthermore, all predictions indicate that the future will see a dramatic increase in mental health problems.<sup>[4]</sup>

The present study was undertaken to scale the extent of the problem and bring in attention from the health policy

makers and service providers. It is equally necessary to contribute to the scientific community by sharing the finding from relatively new setting for epidemiological research.

## **Methodology**

It was a cross-sectional study undertaken in 32 villages under 4 community health centres of Indore district in Madhya Pradesh state of India, carried out in 2706 people of 500 families. So, about 128 families per block or 16 families per village were taken. The survey was completed over a period of 9 months. The sample population taken was exclusively rural inhabitants (by residence and occupation) in Indore district. The study was conducted under the guidance of department of psychiatry, M.G.M. Medical College, Indore (M.P.). A total of 2706 subjects of all age groups who gave informed consent were included in the study. For subjects <16 years, informed consent was taken from their parents. There were neither a biological sample drained, nor a drug trial performed on the given study population. The current study is undertaken using first, the semi-structured data entry form for socio-demographic

profile of subjects. After that, General Health questionnaire-12 was used for screening of cases.<sup>[5,6]</sup> Then, as the present study was part of a larger study: “prevalence and pattern of psychiatric disorders in rural population” for which, MINI-6 was used as instruments for making diagnoses.<sup>[7]</sup> But, for specifically diagnosing the non-alcoholic substances (tobacco and cannabis), we also went through DSM-IV TR because firstly, MINI-6 does not diagnose non-alcoholic substances under their specific headings and secondly, MINI-6 is based on DSM-IV TR<sup>[8]</sup> so we didn't use DSM-5 or ICD-10. Details were obtained during structured interview about type, duration and daily pattern. They were advised for consultation to deaddiction centre in the study institute and no pharmacotherapy given at the time of interview. The whole data was collected and entered in the SPSS version 16 software and was analysed using appropriate statistical analysis.

## Results

**Table 1: Sociodemographic characteristics**

|                       |      |       |
|-----------------------|------|-------|
| <b>Age</b>            |      |       |
| 1-16                  | 840  | 30.9% |
| 17-39                 | 982  | 36.4% |
| 40-59                 | 618  | 22.8% |
| >60 years             | 266  | 9.8%  |
| <b>Gender</b>         |      |       |
| Male                  | 1411 | 52.1% |
| Female                | 1295 | 47.9% |
| <b>marital status</b> |      |       |
| Unmarried             | 1041 | 38.5% |
| Married               | 1503 | 55.5% |
| Separated/Divorced    | 24   | 0.9%  |
| Widowed               | 138  | 5.1%  |
| <b>income group</b>   |      |       |
| Rs.1000 and below     | 35   | 1.3%  |
| Rs.1000-5000          | 356  | 13.2% |
| Rs.5000-10000         | 1235 | 45.6% |
| Above Rs.10000        | 1080 | 39.9% |
| <b>Education</b>      |      |       |
| Illiterate            | 841  | 31.1% |
| Up to primary         | 740  | 27.3% |
| 6-8 std.              | 541  | 20%   |
| 9-12 std.             | 500  | 18.5% |
| Graduate              | 84   | 3.1%  |
| <b>Occupation</b>     |      |       |
| Unemployed            | 425  | 15.7% |
| Self employed         | 483  | 17.8% |
| Unskilled             | 445  | 16.3% |
| Skilled               | 53   | 2%    |
| Student               | 703  | 26.1% |
| Housewife             | 597  | 22.1% |
| <b>Family type</b>    |      |       |
| Nuclear               | 837  | 30.9% |
| Extended              | 417  | 15.4% |
| Joint                 | 1445 | 53.4% |
| Living alone          | 7    | 0.3%  |

This cross sectional descriptive study from 32 villages under 4 community health centres in Indore district of Madhya Pradesh, carried out in 2706 people of 500 families. Mean age of study sample was found to be 33.4 years. Gender-wise, males (52%) > females (48%), among which 55.5% were married while 38.5% were unmarried and 5% were widowed. About 45% people were belonged to middle socio-economic status. 31% of study population was illiterate while about 27% were studied only up to primary level. Most of them (53.4%) were residing in joint families followed by nuclear families (31%). Occupation-wise, about 18% of study population was self-employed, 16% were unemployed and about 16% were labourers. There were 26% students and 22% housewives in the study sample (Table 1). A medical diagnosis was present in 12.7% of study population at the time of interview. The common medical illnesses found were hypertension, diabetes, asthma, CAD, rheumatoid arthritis.

**Table 2: cannabis and tobacco use according to age and sex distribution**

| Diagnosis           | Gender       | Age distribution |                    |                    |                   | Total             |
|---------------------|--------------|------------------|--------------------|--------------------|-------------------|-------------------|
|                     |              | 1-16             | 17-39              | 40-59              | >60               |                   |
| Tobacco dependence  | Male         | 4                | 135                | 127                | 78                | 344               |
|                     | Female       | 0                | 8                  | 19                 | 10                | 37                |
|                     | <b>Total</b> | <b>4 (1%)</b>    | <b>143 (37.6%)</b> | <b>146 (38.3%)</b> | <b>88 (23.1%)</b> | <b>381 (100%)</b> |
| Tobacco use         | Male         | <b>4</b>         | <b>23</b>          | <b>13</b>          | <b>6</b>          | <b>46</b>         |
|                     | Female       | <b>0</b>         | <b>1</b>           | <b>2</b>           | <b>2</b>          | <b>5</b>          |
|                     | <b>Total</b> | <b>4 (7.9%)</b>  | <b>24 (47%)</b>    | <b>15 (29.4%)</b>  | <b>8 (15.7%)</b>  | <b>51 (100%)</b>  |
| Cannabis dependence | Male         | 0                | 4                  | 6                  | 2                 | 12                |
|                     | Female       | 0                | 0                  | 0                  | 0                 | 0                 |
|                     | <b>Total</b> | <b>0</b>         | <b>4(33.3%)</b>    | <b>6 (50%)</b>     | <b>2 (16.6%)</b>  | <b>12 (100%)</b>  |
| Cannabis abuse      | Male         | 1                | 8                  | 6                  | 6                 | 21                |
|                     | Female       | 0                | 0                  | 0                  | 0                 | 0                 |
|                     | <b>Total</b> | <b>1(4.7%)</b>   | <b>8 (38.1%)</b>   | <b>6 (28.6%)</b>   | <b>6 (28.6%)</b>  | <b>21 (100%)</b>  |

Total prevalence of tobacco and cannabis use was 17.2% in the given population. Tobacco dependence was present as 12.7% and 1.4% in males and females respectively (Total Tobacco dependence 14.1%) while tobacco use was present

as 1.7% and 0.2% in males and females respectively (Total Tobacco use 1.9%). Cannabis dependence was present in 12 patients (0.45%) while cannabis abuse was present in 21 patients (0.8%), all were males (Table 2).

**Table 3: Pattern of tobacco and cannabis use**

|                  | Tobacco           | No. (%)           | Cannabis          | No. (%)          |
|------------------|-------------------|-------------------|-------------------|------------------|
| <b>Type</b>      | Chewers           | 174 (40.3%)       | Bhang/sanan       | 12 (36.4%)       |
|                  | Smokers           | 136 (31.5%)       | Ganja             | 18 (54.5%)       |
|                  | Both              | 122 (28.2%)       | both              | 3 (9.1%)         |
|                  |                   | <b>432 (100%)</b> |                   | <b>33 (100%)</b> |
| <b>Duration</b>  | < 1 year          | 20 (4.6%)         | < 1 year          | 2 (6%)           |
|                  | 1-5 Years         | 79 (18.3%)        | 1-5 Years         | 8 (24.3%)        |
|                  | 5-10 Years        | 124 (28.7%)       | 5-10 Years        | 14 (42.4%)       |
|                  | >10 Years         | 209 (48.4%)       | >10 Years         | 9 (27.3%)        |
|                  |                   | <b>432 (100%)</b> |                   | <b>33 (100%)</b> |
| <b>Frequency</b> | Everyday          | 366 (84.7%)       | Everyday          | 10 (30.3%)       |
|                  | 3-4 Times a week  | 41 (9.5%)         | 3-4 Times a week  | 13 (39.4%)       |
|                  | 1-2 times a week  | 18 (4.1%)         | 1-2 times a week  | 7 (21.2%)        |
|                  | 1-2 times a month | 7 (1.6%)          | 1-2 times a month | 3 (9.1%)         |
|                  |                   | <b>432 (100%)</b> |                   | <b>33 (100%)</b> |

**Type:** About 40% of tobacco consumers were chewers and 31.5% were smokers while 28.2% people were chewers and smokers both. Tobacco chewing was more common among young population. In Cannabis users, 36.4% were using it in the form of bhang/sanan tablets while 54.5% were Ganja smokers. Only about 9% were consuming both varieties (Table 3).

**Frequency of use:** About 85% of tobacco users were consuming it every day and 9.5% and 4.1% were consuming 3-4 times a week and 1-2 times a week respectively. 30.3% of cannabis users were taking it on daily basis while a

majority (39.4%) of this group were using it 3-4 times a week (Table 3).

**Duration:** About half (48.4%) of the tobacco users were long term users (more than 10 years) while 28.7% people consuming tobacco since 5-10 years. 18.3% tobacco users were using tobacco since 1-5 years and only 4.6% of tobacco users consuming since less than one year. Most of the cannabis users (42.4%) were consuming since 5-10 years while 27.3% consuming it since a long duration (>10 years). About a quarter of cannabis users are recent users (1-5 years) (Table 3).

**Table 4: Various socio-demographic indicators and tobacco/cannabis use**

|                                  | Tobacco dependence | Tobacco use      | Cannabis dependence | Cannabis use     |
|----------------------------------|--------------------|------------------|---------------------|------------------|
| <b>Income</b>                    |                    |                  |                     |                  |
| 1000 and below                   | 9(2.3%)            | 2(3.9%)          | 0(0%)               | 2(9.6%)          |
| 1000-5000                        | 75(19.7%)          | 12(23.5%)        | 4(33.3%)            | 6(28.5%)         |
| 5000-10000                       | 184(48.3%)         | 26(50.9%)        | 6(50%)              | 9(42.8%)         |
| Above 10000                      | 113(29.6%)         | 11(21.5%)        | 2(16.6%)            | 4(19.1%)         |
| <b>Total</b>                     | <b>381 (100%)</b>  | <b>51 (100%)</b> | <b>11 (100%)</b>    | <b>21 (100%)</b> |
| <b>Education</b>                 |                    |                  |                     |                  |
| Illiterate                       | 124(32.5%)         | 16(31.4%)        | 3(27.2%)            | 7(33.3%)         |
| Up-to primary                    | 101(26.5%)         | 18(35.3%)        | 6(54.4%)            | 11(52.4%)        |
| 5-8 std.                         | 86(22.6%)          | 8(15.7%)         | 2(18.1%)            | 3(14.3%)         |
| 9-12                             | 65(17%)            | 7(13.7%)         | 0(0%)               | 0(0%)            |
| Graduate                         | 5(1.3%)            | 2(3.9%)          | 0(0%)               | 0(0%)            |
| <b>Total</b>                     | <b>381 (100%)</b>  | <b>51 (100%)</b> | <b>11 (100%)</b>    | <b>21 (100%)</b> |
| <b>Occupation</b>                |                    |                  |                     |                  |
| Unemployed                       | 33 (8.6%)          | 10 (19.6%)       | 2 (18.2%)           | 5 (23.8%)        |
| Self-employed                    | 143 (37.5%)        | 7 (13.8%)        | 3 (27.3%)           | 4 (19%)          |
| Unskilled                        | 117 (30.7%)        | 18 (35.3%)       | 5 (45.4%)           | 10 (47.6%)       |
| Skilled                          | 45 (11.9%)         | 6 (11.7%)        | 1 (9.1%)            | 2 (9.5%)         |
| Student                          | 31 (8.1%)          | 9 (17.7%)        | 0 (0%)              | 0 (0%)           |
| Housewife                        | 12 (3.2%)          | 1 (1.9%)         | 0 (0%)              | 0 (0%)           |
| <b>Total</b>                     | <b>381 (100%)</b>  | <b>51 (100%)</b> | <b>11 (100%)</b>    | <b>21 (100%)</b> |
| <b>Marital status</b>            |                    |                  |                     |                  |
| Unmarried                        | 134 (35.2%)        | 26 (51%)         | 5 (45.5%)           | 8 (38.1%)        |
| Married                          | 223 (58.5%)        | 18 (35.3%)       | 6 (54.5%)           | 12 (57.1%)       |
| Widowed                          | 21 (5.5%)          | 5 (9.8%)         | 0 (0%)              | 1 (4.8%)         |
| Divorced                         | 3 (0.8%)           | 2 (3.9%)         | 0 (0%)              | 0 (0%)           |
| <b>Total</b>                     | <b>381 (100%)</b>  | <b>51 (100%)</b> | <b>11 (100%)</b>    | <b>21 (100%)</b> |
| <b>Current medical diagnosis</b> |                    |                  |                     |                  |
| Absent                           | 295 (77.4%)        | 43 (84.3%)       | 9 (81.8%)           | 17 (81%)         |
| Present                          | 86 (22.6%)         | 8 (15.7%)        | 2 (18.2%)           | 4 (19%)          |
| <b>Total</b>                     | <b>381 (100%)</b>  | <b>51 (100%)</b> | <b>11 (100%)</b>    | <b>21 (100%)</b> |

## Discussion

The present study was set in rural area of Indore district of Madhya Pradesh. This is the only community-based survey carried out on the rural population of Madhya Pradesh which has covered various major and minor psychiatric disorders including substance use. So, there were no study to compare our data directly. In the current study, the total prevalence for tobacco use was 235/1000 (males- 213/1000, females- 22/1000) in which tobacco dependence was 175/1000 for males and 20/1000 for females. According to NFHS-3 (2005-06), 570/1000 of males and 110/1000 of females were tobacco users, so, the national prevalence is higher than the current study.<sup>[9,10]</sup> The underreporting by the users may be the reason behind this. Cannabis use was present in 1% of population (27 out of 2706) and all of them were males. In the survey conducted by Chavan *et al.* (2007) no female reported use of any substance and similar findings had been documented by Lal and Singh (1979) also.<sup>[11,12]</sup>

Ghulam *et al.* (1996) highlighted that gender is an important factor in drug taking behaviour. Females constituted 10.9% of the total sample of users in the survey undertaken by Ghulam *et al.*<sup>[13]</sup> In the study population, 53 females (1.95%) were using at least one substance in which 42 (1.5%) were using the substance (mostly tobacco) at dependence level (Table 2).

The range of age distribution in our survey was all age groups (1 year and above) with mean age of 41.1 years. Majority of subjects were in age group of 17-39 years (36.4%) followed by 1-16 years age group (30.9%) (Table 1). Lal and Singh (1978) in their survey in village Chhajlion drug abuse found that married (36.77%) and widowed persons (45%) were found to be more vulnerable to drug abuse.<sup>[14]</sup> Majority of the subjects in the current study were married i.e. 55.5% followed by unmarried (38.4%). And, due to this, mostly married persons were engaged in non-alcoholic substance use i.e. about 56% of total non-alcohol substance users (Table 4). Gururaj *et al.* (2005) also reported

that contrary to western data, the Indian married population have a greater proportion of the mentally ill. Various reasons have been ascribed for this finding, a major one being the possibility of not differentiating but accommodating a mentally ill person in day-to-day activities.<sup>[15]</sup>

Lal and Singh (1978) noticed that 28.72% of the illiterate persons were ever users while only 11.11% of graduates had ever used any substance in his life.<sup>[14]</sup> Singh *et al.* (2006) in Ghaziabad interviewed 725 drug abusers were. Most of the drug abusers were educated up to primary and secondary level (40.13 and 41.10% respectively).<sup>[16]</sup> Meena *et al.* (2002) conducted a study in Rohtak, Haryana and revealed a prevalence rate of 19.78%. 42.41% of users were in the age group of 25-34 years. 44.1% were literate (up-to matric).<sup>[17]</sup> In the current study, out of total non- alcohol substance users, 32.3% were illiterates and 29.3% were educated up-to primary level only. As compared to them, only 1.5% graduates were involved in non-alcohol type substance use. Similarly, about 33% of non-alcoholic substance users in this study were unskilled workers. This clearly indicate the preventive role of education in substance using behaviour (Table 4).

Juyal *et al.* (2006) conducted a cross-sectional study among 1094 patients in a district of Uttarakhand. Most of the patients with substance abuse (23.12%) were using single substance. Among single substance users, alcohol was the most common substance used with 26.5% ever users and 19.0% current users.<sup>[18]</sup> Second most common substance was tobacco (6.52% ever users and 3.54% current users). In the current study, tobacco was most common substance used (15.9%) while alcohol was second most common substance used (9.8% current users). In the study by Mahi *et al.* (2011), 1/3<sup>rd</sup> of cannabis users were taking it from last >10 years, while majority of tobacco users (about 85%) were using tobacco from >10 years.<sup>[19]</sup> In the current study also, about half of tobacco users (48.4%) and 27.3% of cannabis users were using it for >10 years. About 20% of all users have at least one medical diagnosis (table 4) that may or may not be attributed to their chronic substance intake. In the same study by Mahi *et al.*, among lower socioeconomic status persons, alcohol and tobacco was the most common substance used while among higher socioeconomic status person's opioids especially raw opium and smack are most common type of dependence. 10.2% of total substance dependent persons were found in the middle class. Current study shows that about half of the non-alcohol substance users belong to Rs.5000-10000 income group and about 1/4<sup>th</sup> belong to >Rs. 10000 income group (Table 4). From this, we can conclude that enhanced paying capacity of rural population resulted in substances use.

Meena *et al* in her study observed that 16.81% were smokers also while 6.89% had the habit of taking Pan Masala/Zarda.<sup>[17]</sup> In the present study, 174 (6.4%) were

chewers and 136 (5%) were smokers while 122 people (4.5%) were fell in both category (Table 3).

Now days, drug abuse and drug dependence is showing an increasing trend. Drug abuse is a complex phenomenon, which has various social, cultural, biological, geographical, historical and economic aspects. The disintegration of the old joint family system, absence of parental love and care in modern families where both parents are working, decline of old religious and moral values etc. lead to a rise in the number of drug addicts who take drugs to escape hard realities of life. Drug use, misuse or abuse is also primarily due to the nature of the drug abused, the personality of the individual and the addict's immediate environment.

Drug abuse has led to a detrimental impact on the society. Addicts resort to crime to pay for their drugs. Drugs remove inhibition and impair judgment egging one on to commit offences. Incidence of eve-teasing, group clashes, assault and impulsive murders increase with drug abuse. Apart from affecting the financial stability, addiction increases conflicts and causes untold emotional pain for every member of the family. With most drug users being in the productive age group of 18-35 years, the loss in terms of human potential is incalculable. The damage to the physical, psychological, moral and intellectual growth of the youth is very high.

The picture is grim if the world statistics on the drugs scenario is considered. With a turnover of around \$500 billion, it is the third largest business in the world, next to petroleum and arms trade. About 190 million people all over the world consume one drug or the other. Drug addiction causes immense human distress and the illegal production and distribution of drugs have spawned crime and violence worldwide.<sup>[20]</sup>

In conclusion, the present study is the first study which was carried out to investigate the patterns of substance use in the given geographic settings of Madhya Pradesh. Many of the findings identified as harmful to health, both immediately and over a longer duration. This survey endorses the earlier findings that substances affect almost all areas of life including occupation, health, family, marital, social and finance. The present study indicates the need for differential strategies to prevent and control substance use problems particularly in transitional and under privileged areas. Providing data about the prevalence of various substances use in the rural community of Madhya Pradesh would help to justify the allocation of resources and planning of health services. For example, the information available from past Indian studies have made the possibility for the implementation of the NMHP and several community-based initiatives. There is a greater need of collaboration among mental health professionals, between psychiatrists and public health professionals, and also among researchers and policy makers and programme managers. It is also important to promote outreach programmes through extension

services, mental health camps, school mental health activities and greater interaction with NGOs.

Being a descriptive study, it is difficult to generalize how the above factors impact on the mental health of an individual. A prospective longitudinal study design could be helpful in observing the incidences of substance use disorders over a time span so the natural course of the disorders in the community could be studied. Hence, identification of the modifiable risk factors would be possible for making target interventions. Large-scale multi-centric studies on representative populations, by developing epidemiological databases in defined populations, is a crucial activity to be promoted in the years to come.

But, it is also true that our findings would alert for giving more attention and resources to the field of psychiatry in the central India because it is first attempt to find out prevalence of substance use in this region.

**Conflict of interest:** The authors report no conflicts of interest.

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