

## Original Research Article

# Substance abuse disorder: a cross-sectional study assessing status in rural economically productive population of field practice area of tertiary care hospital in central India

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## ABSTRACT

**Background:** The epidemic of substance abuse in young generation has assumed alarming dimensions in India. Changing cultural values, increasing economic stress and dwindling supportive bonds are leading to initiation into substance use. Cannabis, heroin, and Indian-produced pharmaceutical drugs are the most frequently abused drugs in India. Economically productive age group is (15-59 yrs) is a vulnerable group for usage of substance abuse leading to an interest of researcher for conducting the study. Present study aims preliminarily on the prevalence of usage of alcohol and other substances of abuse locally available like cannabis and its products, morphine and its products and pharmaceutical drugs of abuse without prescription in rural India. Secondly study aims to estimate the association of substance abuse disorder with various socio-demographic variables.

**Methods:** A cross-sectional study was conducted among 430 participants residing in six selected villages of rural field practice area of native tertiary care hospital. Statistical Analysis: Statistical methods which applied are: percentage and proportion, mean and standard deviation, chi-square test.

**Results:** Present study showed almost 11.4% participants had high possibility of getting diagnosed with substance abuse disorder while an association found with age, marital status, gender and occupation of participants.

**Conclusions:** The present study revealed that more than 10% study participants(11.4%) of had the probability of suffering from some kind of substance abuse disorder indicating it's a public health problem in rural India. Study results opens a door toward less discussed rural population in contexts of substance abuse.

**Keywords:** Substance abuse, Alcohol, Economically productive

## INTRODUCTION

The substance abuse and related consequences has converted into epidemic form in huge young population of India. Rapid advancements in societal values, economic stress and poor social support system are ultimately landing into initiation and further continuation of substance use and abuse. According to the top most international health agency the World Health Organization (WHO) substance abuse is defined as

persistent or sporadic drug use unacceptable to medical practice or without medical advise.<sup>1</sup> The real picture is much dangerous if the global statistical data on drug use and abuse is taken into consideration. The global market of substance is about \$500 billion, with a third rank in biggest global trades, next to petroleum and arms trade worldwide.<sup>2</sup> About 190 million people around the globe consume one or more than one form of drug.<sup>2</sup> In 2004, UNODC and the Ministry of Social Justice and Empowerment showed that the number of chronic

substance-dependent individuals were as: 10 million (alcohol), 2.3 million (cannabis) and 0.5 million (opiates).<sup>1</sup>

The survey points that India is having twice the global (and Asian) average prevalence of illicit opiate consumption, it also indicates that the treatment resources like medical and rehabilitative services are not comparable with the burden of dependent drug users requiring immediate treatment. Alcohol usage and related problems have been there in human societies since very beginning of human history.

Alcoholic beverages are associated social and health problems. Greece, Palestine or China or other ancient texts speak equally about such problems. Scientific research attention to problems related to alcohol consumption has increased during the past 30 years. Alcohol is having causal relationship to 60 or more medical conditions.<sup>3</sup> Overall, 3.5% of the global burden of all diseases is attributable to alcohol, which accounts for similar deaths and disabilities as that of tobacco and hypertension.<sup>4,5</sup>

Taking into consideration of both known and unknown consumption the highest amount of alcohol consumed per adult is in Europe, the minimum amount of alcohol consumed per individual is mostly in Islamic regions of the Eastern Mediterranean and in developing region of Southeast Asia, especially in India. Difference regarding the consumption of alcohol between the sub-region with the highest estimated consumption level (Europe C) and the sub-region with the lowest most (Eastern Mediterranean D) is more than 20-fold.<sup>5</sup> Although the on record alcohol consumption per capita has fallen since 1980 in most developed countries, In Indian scenario, it has risen terrifically in India.

The per capita consumption of alcohol by Indian adults increased by 107% between 1970–72 and 1994–96!<sup>6</sup> The drinking pattern in India has changed from occasional and ritual related usage to regular social use. Nowadays, the core purpose of consuming alcohol is to get drunk.<sup>7</sup> These recent progresses have raised concerns about the and the social sequels of unrestricted drinking.<sup>8</sup>

Alcoholism and related consequences are one of the major public health concerns in most parts of world, accountable for about more than 3 per cent of deaths and four per cent of the disability-adjusted life years lost.<sup>9,10</sup> Alcohol is still and always one of the most common drug used among college students 3.3 per cent and women 0.2 per cent in the age group of 15 yrs and above.<sup>11</sup> Early introduction of alcohol drinking in life has been associated with higher risk for alcohol related problems.<sup>12</sup> So many types of morbidity, health and social problems arise from alcohol use like more than 15% of absenteeism and 40% of accidents at work are due to alcohol.<sup>13</sup> The India's road research institute estimated that around 25% of road accidents were related to alcohol, more than 30%

of the drivers on the highway were under the influence of alcohol and 20% of head injury patients seen in emergency of hospitals have taken alcohol before the accident happened.<sup>14</sup> Alcohol consumption has been reported to be present in 15% to 20% of traumatic brain injuries at the time of injury.<sup>15</sup> Alcohol consumption and consequences made up to 18% of the case load of psychiatry related emergencies in an Indian general care Hospital.<sup>16</sup> The drug addiction with substance of abuse causes excessive human distress and furthermore the illegal production and distribution of drugs. Later this web of production, consumption and addiction ultimately lands up in crime and violence worldwide. Cannabis, heroin, and Indian-produced pharmaceutical drugs are the most commonly abused substance in India.<sup>17</sup> Economically productive age group is (15-59 yrs) is a vulnerable group for usage of substance abuse leading to an interest of researcher for conducting the study. There are hidden areas in psychiatric epidemiology especially the substance abuse disorders due to complexity related to defining a case under study, sampling techniques, under reporting, stigma, less availability of trained manpower and low priority and understanding of mental health in the health policy.<sup>18</sup>

Present study has taken the usage of alcohol and other substances of abuse locally available like cannabis and its products, morphine and its products and pharmaceutical drugs of abuse without prescription for study purpose. Concurrently the study was conducted to brighten our knowledge regarding the prevalence of substance abuse disorders in the Indian rural population, where the most of the young Indian population lives.

The study was conducted with aims to estimate the prevalence of substance abuse disorders in the selected area and study the association of substance abuse disorder with various socioeconomic variables.

## METHODS

Study was conducted at Demographic Surveillance Site of Palwa at District Ujjain, Madhya Pradesh, India which has been established in 2002 by native college involving three Talukas and sixty villages. Study was conducted in the time frame of April 2015 to November 2015. Two villages from each of these selected blocks were chosen for conducting the study. Selected individuals in 15-59 yr age group both male and female of 6 villages selected in DSS Palwa. All those whom are permanent resident of selected six villages and available at the time of data collection were included. Those individuals were excluded from the study that belonged to migratory population, were physically ill, or were on prolonged psychiatric medication.

Sample size was calculated using formula  $N = Z \cdot 1 - \alpha / 2 \cdot \sqrt{PQ/L^2}$  with presumed prevalence as 50% including probable errors came as 430. With the help of

Random number application to the excel sheet the 430 individuals were selected from total study population.

In the present study Global Appraisal of Individual Needs – Short Screener version 2.0.3 (GAIN-SS 2.0.3) was used which was developed by Chestnut foundation.<sup>19</sup> The GAIN Short Screener (GAIN-SS) is a brief 5 to 10-minute instrument designed to quickly and accurately screen general populations of both adults and adolescents for possible internalizing or externalizing psychiatric disorders, substance use disorders, or crime and violence problems. A result of moderate to high problem severity in any single area or overall suggests the need for further assessment or referral to some part of the behavioural health treatment system. This progressive approach enables agencies to direct time and resources to where they are needed most.

### **Reasons for choosing GAIN-SS**

GAIN-SS is a precise and comprehensible tool because of its easy language. Its translation in Indian national language was done by a research scholar in Hindi.

### **Sensitivity and specificity**

The overall sensitivity among adult 92.6% and specificity is 88.6%.<sup>19</sup>

### **Subscales**

Internalizing disorders (somatic disorders, depression, suicidal tendency, anxiety disorders).

Externalising disorders (attention-deficit/hyperactivity disorder, conduct disorder).

Substance abuse disorders (abuse, dependence).

In the present study only substance abuse disorder segment of GAIN\_ss was used.

### **Scoring and interpretation**

It is recommended that the past-year total and three sub screeners be triaged into three groups based on the number of symptoms endorsed in the past year:

Zero score- suggests no substance abuse disorder.

While a score 1+ on the substance disorder screener (moderate/high scores) suggests suggest the need for substance abuse, dependence, and substance use disorder treatment.

Data was entered and analysed by using percentage and proportion, association between substance abuse disorders and demographic factor was estimated by Odds ratio, confidence interval, Z<sup>2</sup> values and significance level by using software SPSS Version 20.0

Ethical clearance was taken from ethical committee of R. D. Gardi Medical College, Ujjain, MP before starting the study.

## **RESULTS**

In the present study the economically productive population age group was taken as 15 to 59 yrs as per the Report on Fourth Annual Employment – Unemployment Survey (2013-14).<sup>20</sup>

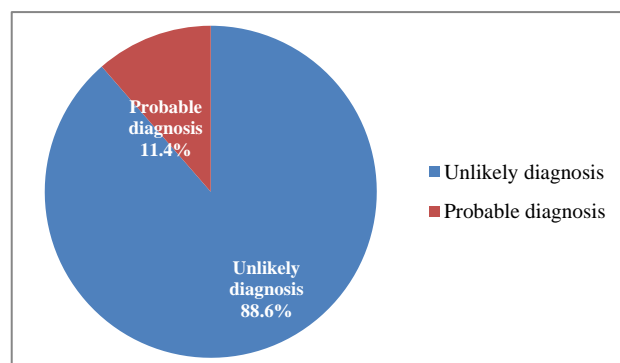
Maximum numbers of participants were in the age group 30-39 yrs (27.4%) while minimum numbers of participants were in the age group 15-20 yrs (16.3%).

Study includes 81% participants as male while almost 19% participants were female.

Overall 24% study participants were illiterate while 76% participants were literate with different levels of education. Overall only 4.2% study participants were unemployed while rest of the participants were employed. Commonest occupation in the study population with 54.1% participants was farming.

Socio economic class distribution was done with the help of modified B. G. Prasad classification according to which maximum numbers of study participants were in class-V SES of B.G Prasad classification.<sup>21</sup>

Maximum number of participants i.e. 62.5% was living in a joint family.



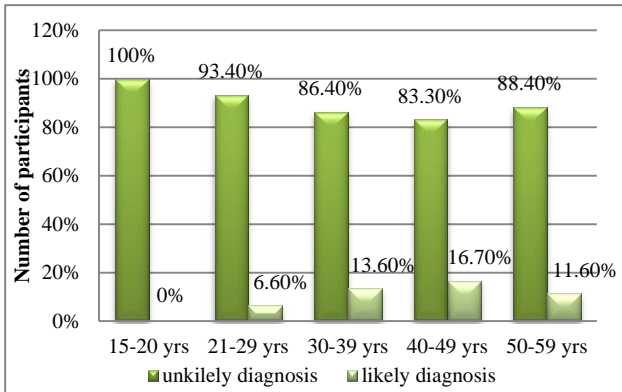
**Figure 1: Percentage of participants according to probability of getting diagnosed with SDScR.**

Out of the total 430 participants 11.4% showed probability of diagnosis as positive if further screening will be done while 88.6% participants scored negative (Figure 1).

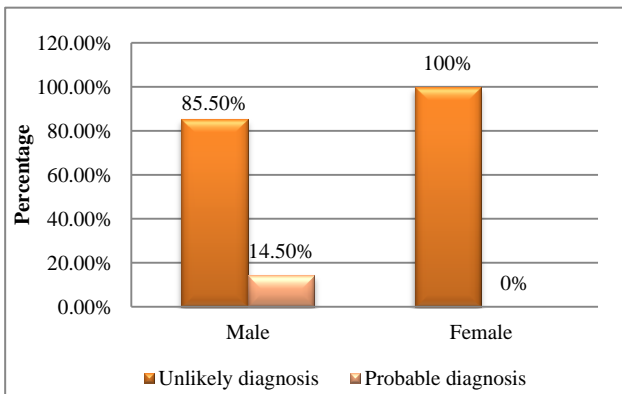
Mean ( $\pm$ SD) of the scores obtained was 0.42 $\pm$ 1.43 with a range of 0-10.

Out of the total 430 participants maximum number of participants (within the age category) having probability of diagnosis of substance disorder was found to be in age

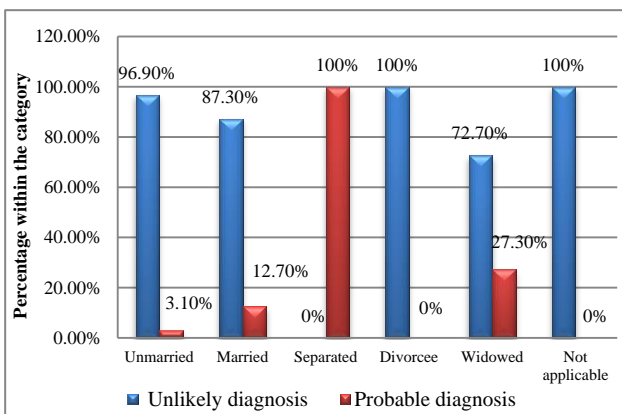
group 50-59 yrs (19.4%) while minimum number of participants with such probability were found in age group 15-20 yrs (0%) (Figure 2).



**Figure 2: Age wise distribution of participants with probability of getting diagnosed with SDSr.**



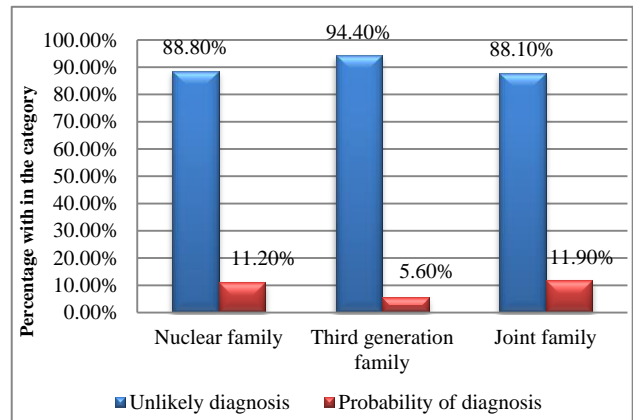
**Figure 3: Gender wise distribution of probability of getting diagnosed with SDSr.**



**Figure 4: Marital status wise distribution of participants with probability of getting diagnosed with SDSr.**

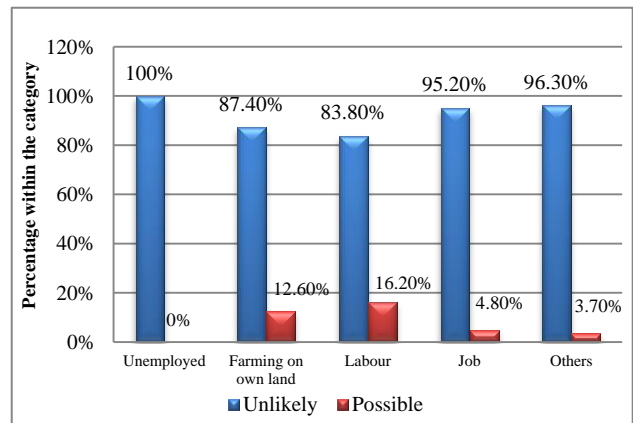
More number of male participants (14.5%) was found to be prone toward probabilities of having substance disorders as compared to female participants (0%) (Figure 3).

High percentage of getting diagnosed with SDSr within the different marital status category found to be in the order as follows separated>widowed>married>unmarried>divorcee and not applicable (Figure 4).



**Figure 5: Family type wise percentage distributions of participants with probability of getting diagnosed with SDSr.**

Within the category highest percentage of participants with probability of getting diagnosed with SDSr found in joint type of family. While lowest percentage within the category was found in third generation family.



**Figure 6: Employment wise percentage distributions of participants with probability of getting diagnosed with SDSr.**

Maximum percentage within the category with possibility of SDSr was found in labour category (16.20%) while lowest percentage of such diagnosis was found in unemployed participants (Figure 6).

On testing association between gender and SDSr with the help of Chi square test, association was found to be statistically significant (Table 1).

In the present study marital status and diagnosis of SDSr is found to be statistically significantly associated (Table 1).

**Table 1: Association of various socio-demographic factors with substance abuse disorder.**

	Unlikely diagnosis n (%)	Probable diagnosis n (%)	Total	df	Chi square	P value
<b>Association of SDSCr with participant's age category(in years)</b>						
15-20	71 (100)	0 (0)	71	4	18.35	0.001*
21-29	85 (93.4)	6 (6.6)	91			
30-39	102 (86.4)	16 (13.6)	118			
40-49	65 (83.3)	13 (16.7)	78			
50-59	58 (80.6)	14 (19.4)	72			
Total	380 (88.4)	50 (11.6)	430			
<b>Association of SDSCr with gender</b>						
Fischer exact test						
Male	296 (85.5)	50 (14.5)	346	1	13.84	0.000*
Female	84 (100)	0 (0)	84			
<b>Association of SDSCr with participant's marital status</b>						
Fischer exact test						
Unmarried	63 (96.9)	2 (3.1)	65	5	22.74	0.000*
Married	296 (87.3)	43 (12.7)	339			
Separated	0 (0)	2 (100)	2			
Divorcee	1 (100)	0 (0)	1			
Widowed	8 (72.7)	3 (27.3)	11			
Not applicable	12 (100)	0 (0)	12			
Total	380 (88.4)	50 (11.6)	430			
<b>Association of SDSCr with participant's family type</b>						
Chi square $\chi^2$						
Nuclear	127 (88.8)	16 (11.2)	143	2	6.398	0.09
Three generation	17 (94.4)	1 (5.6)	18			
Joint	237 (88.1)	32 (11.9)	269			
Total	381	49	430			
<b>Association of SDSCr with participant's occupation</b>						
Fischer exact test						
Unemployed	19 (100)	0 (0)	19	4	9.22	0.05*
Farming on own land	202 (87.4)	29 (12.6)	231			
Labour	88 (83.8)	17 (16.2)	105			
Job	20 (95.2)	1 (4.8)	21			
Others <sup>^</sup>	51 (96.3)	3 (3.7)	54			
Total	380	50	430			

Figures in the parenthesis indicates the percentage of row total; P<0.05 (sig)\* Results was statistically significant by chi square analysis

Employment and diagnosis of SDSCr also associated and the association is found to be statistically significant (Table 1).

On summarising results out of the total almost 11.4% study participants have possibility of getting diagnosed with SDSCr on using GAIN-ss questionnaire.

More participants belonging to categories male, separated, labour and age group 50-59 yrs had possibility of getting diagnosed with SDSCr.

While the association of possibility of getting diagnosed with SDSCr was found to be statistically significant with age, gender, marital status and employment.

## DISCUSSION

In a study conducted by Meena et al in urban Haryana shown prevalence as 19.8% and the results were similar to the current study though the locality of study is rural the difference of prevalence might be because of this difference.<sup>22</sup>

The prevalence of substance abuse was reported to be different in different states like in West Bengal 0.094% to 1.3% in Uttar Pradesh 1.9% to 2.2%.<sup>23</sup>

Emergence of new addictive substances and progressive increase of "drug abuse" has become a serious problem in many countries. In a study by Chaturvedi et al on drug use habits in Meghalaya and upper Assam prevalence of

substance use was 29.4% tobacco (20.5% chewers and 12.7% smokers), 12.5% alcohol, and 4.9% opium. In Meghalaya, prevalence of tobacco use was high (41.7%), which was mainly due to the large number of female chewers and male smokers. Wide differences were observed in the prevalence pattern of tobacco and alcohol use across location, sex, age, education, and occupation. An association of socio-demographic factors with substance use was documented. Mean ages for substance use initiation were 21.8 years for alcohol, and 25.8 years for opium.<sup>24</sup>

According to Hemraj et al, in their survey found that there were 61% subjects who had reported use of any drugs in any form in their lifetime. But, only 58.43% individuals reported about such use in the last 30 days. Further, the weighted prevalence forever drug use during life time was 63.7% and during last 30 days was 61.2%. These findings might be due to large sample size and different study setting. As obvious, prevalence of current drug use is found to be higher for higher age-groups.<sup>25</sup>

In a study by Ruma et al the mean age of the study participants was 37.20 years. The prevalence of alcoholism among the study participants was 35.7%.<sup>26</sup> In a study by Deswal et al the age range at initiation of drinking was 20-29 years as found in different studies, despite the wide differences among regions, populations, and years of studies.<sup>27-31</sup> Taheri et al studied factors affecting the tendency for drug abuse in 32 patients presenting to an addiction treatment centre in Iran. Four main themes were extracted through data analysis, including family factors (the presence of a drug user in the family, loneliness and separation from the family, and family problems and disputes), social factors (having a hard job, unemployment, the lack of access to recreational facilities and the easy access to drugs); environmental factors (friendly gatherings and socializing with drug users); and personal factors (wealth, illness, curiosity). The findings of the study showed that environmental factors had the greatest effect on the tendency for drug use (38%), followed by family factors (28.5%), personal factors (22.2%) and social factors (11.1%).<sup>32</sup> Literature on gender differences published over the past three decades has shown similar results as that of current study that women overall may be less likely than men to develop drug-use disorders and dependence.<sup>33</sup>

The latest available data, from 2004, estimates that 10.7 million Indians are drug users: 8.7 million consume cannabis and 2 million use opiates, according to a National Survey Report by the UN Office on Drugs and Crime and the Indian Ministry of Social Justice and Empowerment. Mizoram, Punjab and Manipur are among the states where people are most vulnerable to drug abuse. One reason could be their proximity to porous international borders and international drug-trafficking zones, such as the “Golden Triangle” (Myanmar,

Thailand and Laos) and “Golden Crescent” (Iran, Afghanistan and Pakistan). Shukla et al reported almost three times prevalence 38.3% of the rural population in Uttar Pradesh was habitual substance users.<sup>33</sup> In a study conducted in rural community in Bihar prevalence of alcohol/drug use was found to be 28.8% of the study population.<sup>35</sup> The prevalence estimates ranged from 0.94 per 1000 population in the earlier studies to 350 per 1000 population in more recent ones.<sup>36</sup>

The focus of these studies varied from tobacco to use of alcohol to use and dependence on the substances while the present study focuses on alcohol, substance of abuse and pharmaceutical drugs of abuse. There are a number of newer entrants in the substance abuse scenario: buprenorphine injection, codeine-containing cough syrups, dextropropoxyphene and other opioid oral preparations, inhalants, cocaine, and the latest being several “club and rave drugs” these results motivated the present studies topic to be broadened to involve pharmaceutical drug of abuse too.<sup>37</sup>

In the present study results are comparable to the studies done before. But various limitations like single investigator, tool translation, stigma related to substance abuse, direct interview method and societal barriers for acceptance of such any history made few results incomparable also. Hereby present study opens a topic for discussion to consider Indian rural scenario for hidden substance abuse disorders and suffering individuals for the same.

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