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A Study on Prevalence and Socio-Demographic Determinants of Substance Abuse among Degree College Students of Meerut City

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Abstract: *Substance abuse disorders are among the world's leading public health problem as they cause enormous human sufferings in terms of morbidity, mortality and economic loss. The youth of the country are more vulnerable to substance abuse due to increased academic pressure, peer group influence and increased popularity and availability of substances. So, the following study was conducted to find out the prevalence and socio-demographic determinants of substance abuse among degree college students of Meerut city. Taking prevalence of substance abuse as 30%, sample size of 900 was calculated.300 students were selected from each college by simple random sampling method. Data was collected on a pre-designed questionnaire and statistically analyzed. The prevalence of ever user of any substance was found to be 43.0%,wheras,prevalence of current users were 31.3%.Tobacco(smoking)was the most common substance abused (62.0%).Mean age of initiation was 17.1±4.04years.Substance abuse was found to be statistically associated with age, sex, religion, caste, socio-economic status,etc . The present study indicates high prevalence of substance abuse among students (43.0%).As most of the students initiated substance abuse at early age, the prevention strategies should be focused on children and adolescent population.*

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I. Introduction

According to WHO, substance abuse is defined as , " **Harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs**." [(1)] Substance abuse disorders are among the world's leading public health problem as they cause enormous human sufferings , in terms of morbidity , mortality , economic loss and threatens the very fabric of almost all communities around the world. [(2)] The youth of the country are more vulnerable to substance abuse due to increased academic pressure, peer group influence and increased popularity and availability of substances.[(3)]

No study has been done on substance abuse among youth of degree colleges in Western Uttar Pradesh in recent years. So the present study is designed to keep in view the recent trends of substance abuse in the students of degree colleges in Meerut city with the following aims and objectives:

1. To find out the prevalence of substance abuse among degree colleges students of Meerut city
2. To find out the socio-demographic determinants of substance abuse among degree colleges students of Meerut city.

II. Material And Methods

This cross-sectional study was carried out on degree college students of Meerut city, Uttar Pradesh from June 2017 to June 2018. A total 900 students (both male and female) were selected in this study.

Study Design: An institutional based cross-sectional study.

Study Area: All the three co-educational degree colleges of Meerut city

Study Duration: June 2017 to June 2018

Sample size: 900 students

Sample size calculation: To calculate the sample size following formula was used: $n= (1.96)^2 p q / d^2$

Where, n= sample size ; d = relative precision ; p =prevalence ; q = (1-p)

Taking 30% prevalence (Bansal et al 1988) with relative precision of 10% at 95 % confidence interval, the sample size for the study is calculated as 896 which was rounded off to 900.

Study Population: The study was carried out among the under-graduate and post-graduate students of co-educational degree colleges in Meerut city

Sampling Method:

No.of students: 300(from each college)

Sampling method: Simple Random sampling

Streams: Science, Arts And Commerce
Category: Undergraduate and Post graduate

Inclusion criteria:
1. Students of Science , Arts and Commerce streams.
2. Students available at the time of study
3. Students volunteered to participate in the study.

Exclusion criteria:
1. Students not available at the time of study
2. Students who did not volunteered to participate in the study.

Study tool: Pre-designed and Pre-tested questionnaire

III. Methodology

All of the three co-educational degree colleges in Meerut city were included in the study to get the desired sample size. Enrolment list of all students was obtained from the college office and 300 students from each college were randomly selected using table of random numbers from science, arts and commerce streams from undergraduate and post graduate categories.

The Principal of these colleges were informed in writing about the purpose of the study and permission for the same was taken from them. Students were approached during their free time and were asked to participate in the study voluntarily after taking verbal consent from them. Students were explained about the instructions to fill up the questionnaire and were requested to provide authentic information. They were assured that all information would be kept confidential. Both Hindi and English questionnaire was provided to the students and they were asked to fill the questionnaire in whichever language they prefer. Any query of the student regarding questionnaire was resolved then and there only.

Statistical analysis:

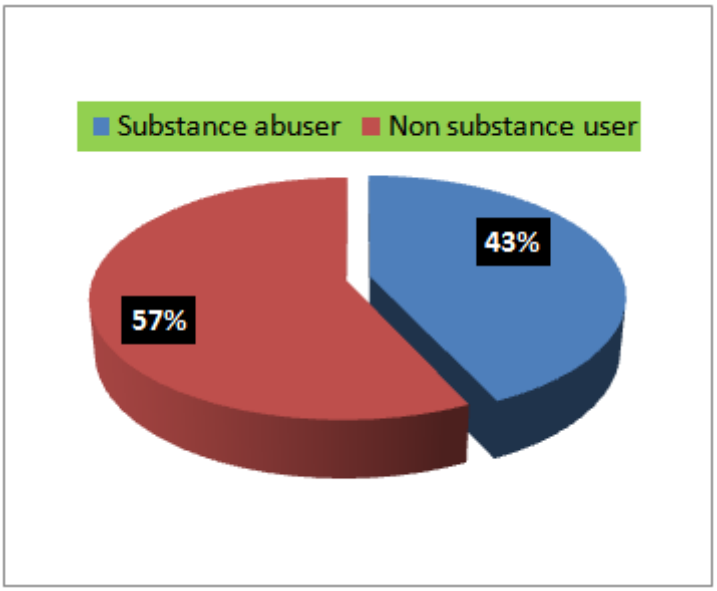
The detail information was collected on pre-designed and pre-tested oral questionnaire proforma. Data was entered in MS Excel sheet. Data was analyzed using appropriate Epi Info ^{TM} 3. 7.2. Pearson's Chi Square test was applied to find out significant association between the characteristics which are in the form of frequency. Appropriate graphs were used to show the results. All the statistical significances were evaluated at 95 % confidence interval level.

IV. Result

The present cross-sectional study was undertaken to study the epidemiology of substance abuse among degree college students of Meerut city A total of 900 students (300 from each college) were selected by simple random sampling method. Students of all the three academic years, i.e. first year, second year and third year were enrolled in the study. The students belonged to science stream, art stream and commerce stream.

The maximum number of students were of age group 21-22 years (25.8%). 65.8% of the study population was males and 34.2% females. Maximum number of the participants belonged to 3rd year (39.6%) followed by 1st year (31. 0%) and 2nd year (29.4%) . Majority of students belonged to Hindu religion (63.7%) next common being Muslims (28.2%), Sikhs(5.6%), Christians (1.7%) and others(0.8%). 57.8 % students belonged to General Category, 29.4 % to the O.B.C. category and rest 12.8% to the S.C./S.T .
Majority of the students were unmarried (90.3%) while rest 9.7% were married. Maximum number of students belonged to socio-economic class III (31.8%) followed by class II (27.7%), IV (23.6%) , I (10.2%) and V (6.2%) respectively, according to Modified B.G.Prasad classification.

Fig 1: Prevalence of substance abuse



In all out of 900 students , 387 students had abused a substance at least once in their life time , so, the prevalence of substance abuse was found to be 43.0% in the present study (Fig.1), while 282 students were current abusers, so the prevalence of current abuse was found to be 31.3%.

Table 1: Substance abuse in relation to age of initiation

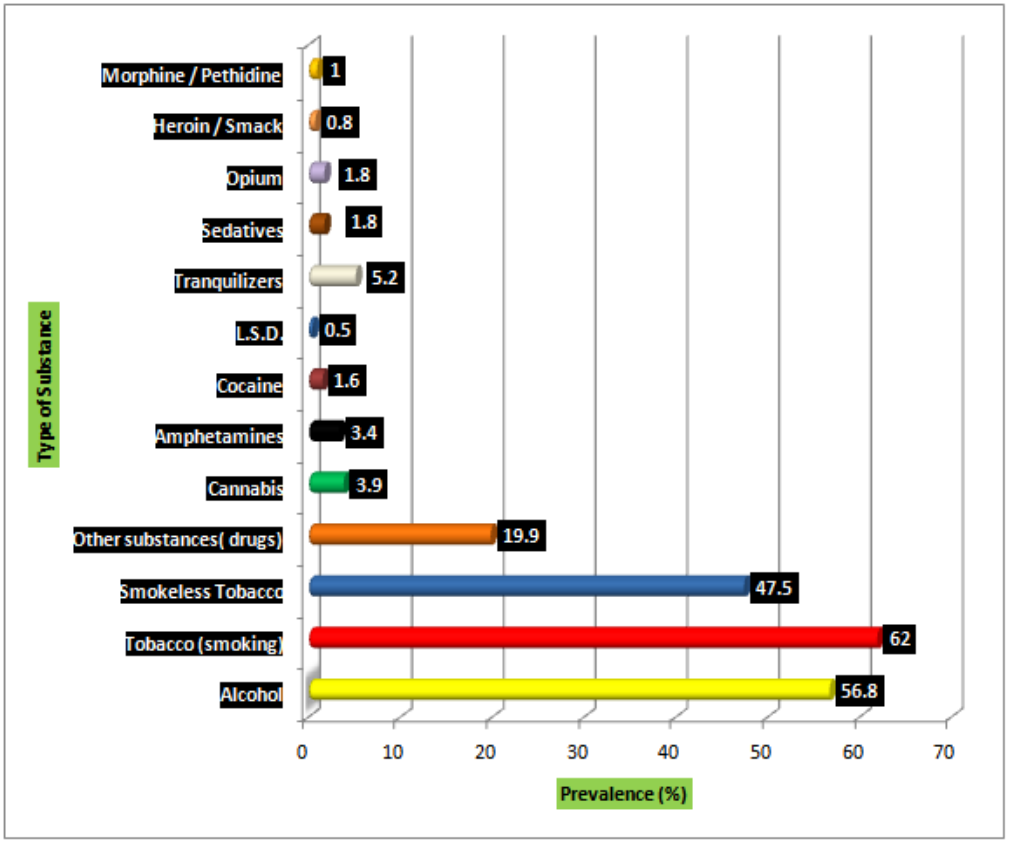
Age of Initiation (yrs)	Substance abuse	
	Number	Percentage (%)
<10	13	3.4
10-14	82	21.1
15-19	191	49.4
20+	101	26.1
Total	**387**	**100.0**

Mean age of initiation =17.1±4.04 years

The mean age of initiation of substance abuse among the students was found to be 17.1±4.04 years . Maximum number of students started initiation between the age of 15-19 years (49.4%) followed by 20 years and above (26.1%) . Very few students started substance abuse at less than 10 years of age (3.4%) followed by initiation between the age of 10-14 years (21.1 %). (Table 1)

Fig.2 shows that tobacco smoking (62.0 %) was found to be the most common substance used among the substance abusers followed by alcohol consumption (56.8 %) and smokeless tobacco use (47.5 %). Among the other substances used among abusers , most common was tranquilizers (5.2 %) followed by cannabis (3.9 %) , amphetamines (3.4%), opium(1.8 %), sedatives(1.8 %) and cocaine (1.6 %) , morphine/ pethidine (1.0%) , while , the least common substance use was found to be of L.S.D. (0.5%) .

Fig 2.Distribution of substance abusers according to type of substance abuse (Multiple response)



Tobacco smoking (62.0 %) was found to be the most common substance used among the substance abusers followed by alcohol consumption (56.8 %) and smokeless tobacco use (47.5 %). Among the other substances used among abusers , most common was tranquilizers (5.2 %) followed by cannabis (3.9 %) , amphetamines (3.4%), opium(1.8 %), sedatives(1.8 %) and cocaine (1.6 %) , morphine/ pethidine (1.0%) , while , the least common substance use was found to be of L.S.D. (0.5%) (Fig.2)

Table 2. Substance abuse in relation to age

Age- group (yrs)	Study population		Substance abuse	
	Number	Percentage (%)	Number	Prevalence (%)
17-18	96	10.7	20	20.8
19-20	138	15.3	53	38.4
21-22	232	25.8	107	46.1
23-24	205	22.8	84	40.9
25 and above	229	25.4	123	53.7
Total	**900**	**100.0**	**387**	**43.0**

$\chi 2$ = 32.4 ; df =4 ; P<0.05

Distribution of substance abusers according to their age can be observed from the Table-2 which depicts that the prevalence of substance abuse was maximum in the 25 years and above age group (53.7%) followed by 21-22 years (46.1%) , 23-24 years (40.9%), 19-20 years (38.4%) and 17-18 years (20.8%) The difference in prevalence of substance abuse in relation to age was found to be statistically significant (P<0.05).

Table 3 . Substance abuse in relation to sex

Sex	Study population		Substance abuse	
	Number	Percentage (%)	Number	Prevalence (%)
Male	592	65.8	296	50.0
Female	308	34.2	91	29.5
Total	**900**	**100.0**	**387**	**43.0**

$\chi 2$ = 34.58 ; df =1 ; P<0.001

It is evident from the Table 3 that the prevalence of substance abuse was higher in males (50.0%) as compared to females (29.5%). The difference in substance abuse according to sex was found to be statistically significant (P<0.001).

Table 4. Substance abuse in relation to religion

Religion	Study population		Substance abuse	
	Number	Percentage (%)	Number	Prevalence (%)
Hindu	573	63.7	266	46.4
Muslim	254	28.2	98	38.6
Sikh	50	5.6	17	34.0
Christian	16	1.7	4	25.0
Others	7	0.8	2	28.6
Total	**900**	**100.0**	**387**	**43.0**

***χ2* = 9.12 ; df =4 ; P>0.05**

As shown in Table-4, the prevalence of substance abuse was maximum in Hindus (46.4%) followed by Muslims (38.6 %) , Sikhs (34.0%) and Christians (28.6 %). However, this difference in prevalence of substance abuse in relation to religion was not found to be statistically significant (P>0.05).

Table 5. Substance abuse in relation to caste

Caste	Study population		Substance abuse	
	Number	Percentage (%)	Number	Prevalence (%)
General	520	57.8	238	45.8
O.B.C.	265	29.4	90	34.0
S.C/S.T	115	12.8	59	51.3
Total	**900**	**100.0**	**387**	**43.0**

***χ2* =13.7; df =2 ; P<0.05**

It is evident from Table-5 above that the prevalence of substance abuse was maximum in students who belonged to S.C/S.T. category (51.3%) followed by General category (45.8%) and Other backward classes (34.0 %) category

Table 6. Substance abuse in relation to type of family

Type of Family	Study population		Substance abuse	
	Number	Percentage (%)	Number	Prevalence(%)
Nuclear	563	62.6	246	43.7
Joint	337	37.4	141	41.8
Total	**900**	**100.0**	**387**	**43.0**

***χ2 =0.3*; df =1 ; P>0.05**

It is evident from the Table-6 that the prevalence of substance abuse was 43.7% in students from nuclear family as compared to 41.8% in students from joint family and this difference in prevalence of substance abuse in relation to type of family was not found to be statistically significant (P>0.05)

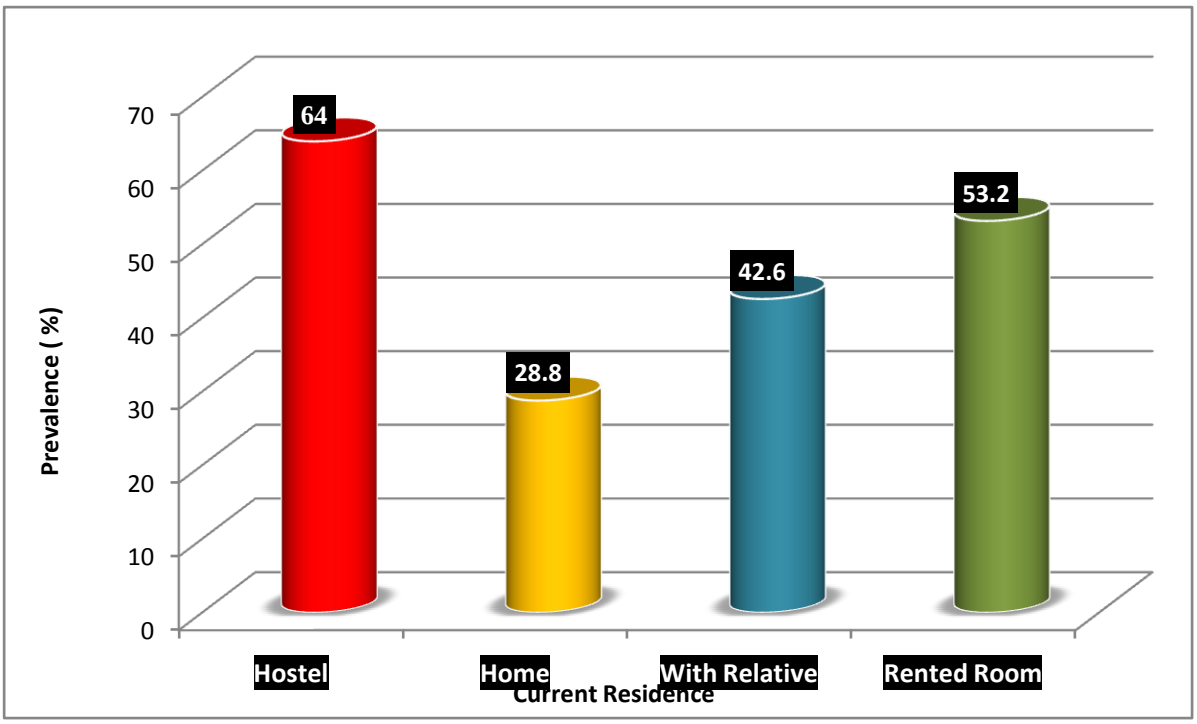
Table 7. Substance abuse in relation to socio- economic status

Socio-economic status	Students		Substance abuse	
	Number	Percentage(%)	Number	Prevalence(%)
I (UPPER)	92	10.2	33	35.9
II(UPPER MIDDLE)	249	27.7	100	40.2
III (MIDDLE)	287	31.8	86	30.0
IV (LOWER MIDDLE)	212	23.6	127	59.9
V(LOWER)	60	6.7	41	68.3
Total	**900**	**100.0**	**387**	**43.0**

***χ2* = 63.1 ; df =4 ; P<0.001**

As shown in Table-7. , substance abuse was most prevalent in students belonging to socio-economic class V (68.3%) followed by IV (59.9%). Substance abuse was 40.2% and 35.9% in students belonging to socio-economic class II and I respectively . Least prevalence was found in students belonging to class III (30.0%) . This difference in prevalence of substance abuse in relation to socio-economic status was found to be statistically significant (P<0.001).

Fig.3. Substance abuse in relation to current residency status



From Fig.3 it may be noticed that the maximum prevalence of substance abuse was found in students who lived in hostel (64.0%) followed by students living in rented room (53.2%) , with relative (42.6%)and least substance abuse was found in students living at home (28.8%). This difference in prevalence of substance abuse in relation to current residence was found to be statistically significant (P<0.001).

V. Discussion

In the present study it was found that 43.0% of the students have abused at least one of the substance in their life which is higher than 31% at Sudan and 42.2% at Ethiopia as reported by Osman et al (2016) [(4)] and Bierga et al (2017) [(5)] respectively .The lower prevalence in above studies may be due to entirely different socio-cultural milieu of study universe. However among the Indian studies, it was found that the prevalence of substance abuse in the present study was higher than 29.0% as reported by Bansal et al (1988) [(3)] and 15.7% as reported by Bhojani et al (2009) [(6)] . The difference may be due to the fact that in both these studies all the substances were not included in the study.

Mean age of initiation of substance abuse in the present study was found to be 17.1±4.04 years. Maximum number of students initiated between the age of 15-19 years (49.4%) followed by 20 years and above (26.1%) . During this age most of the students have exposed to college environment which could attribute to freedom from parental control resulting in experimentation with drugs, enjoyment . The findings of present study were supported by finding of Saxena et al (2010) [(7)] showing maximum abusers(28.3%) initiating substance use between 15-19 years age and differed from the findings of Loyi (2010) [(8)] who stated the most common age of initiation of substance abuse as 11 years in Arunachal Pradesh. The lesser age of initiation of substance abuse in Arunachal Pradesh may be because of cultural differences and the ease of availability of these substance in the two states.

Tobacco smoking (62.0 %) was the most common substance abused followed by alcohol (56.8%) , smokeless tobacco (47.5%) and other substances (19.9%) in the present study. An almost similar pattern was reported by Bansal et al (1988) [(3)] and Dadwani et al (2015) [(9)] where tobacco smoking was being abused by maximum students (28.4% and 38.0% respectively) followed by alcohol (15.1% and 34.0% respectively) , whereas, Mir et al (2017) [(10)] reported alcohol as the most common abused substance (36.4 %) followed by tobacco smoking (24.2%) .

The age wise analysis shows , as the age increases from 17 to 25 years the abuse of substances also increases from 20.8% % to 53.7% , with a fall noticed in the age group of 23-24 years (40.9%). The increase of substance abuse with increase of age is probably due to increased number of peers , increased curiosity for experimentations and increase in psychosocial stress like responsibility of family especially to meet family

needs etc.. The prevalence increased with increasing age was found in WHO-Alcohol and Illicit drugs use report (2002) [(11)] and World Drug Report 2016 [(12).]

Sex-wise it was revealed that substance abuse was significantly more among male students as compared to their female counterparts. The reason could be due to the fact that in males level of exposure is more; friends/peer pressure is more whereas in females there is family and societal binding. The difference in the prevalence of substance abuse among male (50.0%) and female (29.5%) students was found to be significant in the present study which supports the observation of Qadri et al (2013) [(13)] showing 42.3% among males and 17.7% among females. Similar findings were also reported by Arora et al (2016) [(14)] showing 30.0% in males and 11.67% in female students.

Substance abuse in the present study was found to be more common among students belonging to Hindu religion (46.4%) followed by Muslim religion (38.6%) , Sikhs (34.0%) and Christians (25.0%), which may be due to the fact that students following Islam are bound due to religious taboo against alcohol consumption. The findings of the present study are supported by the findings of Bansal et al (1988) [(3)] that stated the prevalence of substance abuse maximum among students belonging to Hindu religion(30.3%) followed by Muslims (25.6%).

It was found in the present study that prevalence of substance abuse was maximum in students belonging to S.C./S.T. category (51.3%) followed by students belonging to general category (45.8%) and other backward classes (34.0%). This finding differs from the finding of Dube (1975) [(15)] who reported that among different caste groups there was hardly any difference between the abusers and non-abusers as also reported by Khan and Unnitan (1979)[(16)] .

Substance abuse was found to be 43.7 % among the users belonging to nuclear family and 41.8% among the users who belonged to joint family which are in accordance with report from the WHO –SEARO (2001) [(17)] and NFHS-4 [(18)] stating that "pattern of Substance abuse is more common in small family." On the contrary, findings reported by Sarangi et al (2008) [(19)] in a study done in Sambalpur and Saxena et al (2010) [(7)] in a study done in Dehradun, differs from the present study, being 47.3% and 48.8% respectively in nuclear family and 52.7% and 51.2% respectively in joint family.

The distribution of the students into various socio-economic classes showed that the substance abuse was most prevalent in students belonging to lower classes, i.e. 68.3% in class V and 59.9% in class IV respectively. A comparatively lower prevalence was shown by students belonging to higher classes (40.2% in class II and 35.9% in class I respectively). Least prevalence was found in students belonging to class III (30.0%).. The above findings were in contrary with those of Johns (2004) [(20)] , stating that in India, percentage of substance abusers is the highest among middle – income groups but supports the findings of Bansal et al (1988) [(3)] (26.0% in class II to 32.5% in Class V).

On the basis of current residency status, it was found that students who lived in hostels (64.0%) and rented room (53.2%) had higher prevalence of substance abuse .Students living with their relatives and at home showed comparatively lower prevalence (42.6% and 28.8% respectively). This can be very well explained on the basis of the fact that the students are within the supervision of their parents when living at homes while those living in hostels have got easy access to substances through friends which they meet in hostels. This was also the case in the study by Tumge et al (2009) [(8)] , Atwoli et al (2011) [(21)] and Mir et al (2017) [(10)] who reported prevalence of substance abuse as 55%, 68.3% and 62.6% respectively among hostellers.

VI. Conclusion and Recommendations

The study has brought about the influence of socio-cultural environment on the development of the problem of substance abuse among students. Hence it is recommended that the primary prevention should start at home where the socio-cultural environment begins to form. As most of the respondents initiated substance abuse at early age, the prevention strategies should be focussed on the children and adolescent population.

For the secondary and tertiary prevention of this problem among students, the school and colleges are the best places. For this purpose, school health services should include periodic assessment of the extent of substance abuse among the students and should have the provision of psychotherapy of those who are substance abusers only and have not yet developed dependence.

There should be provision for detoxication, medical rehabilitation, educational and vocational counselling, individual and group counselling, psychotherapy etc. at various peripheral centres where people can be treated and rehabilitated.Government should focus on developing and supporting social groups and NGO's working against substance abuse to help college going students. They should keep focus on working in colleges as going to de-addiction centre is still considered a social taboo.

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