The Pharma Innovation Journal 2023; SP-12(12): 1435-1440

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(12): 1435-1440

www.thepharmajournal.com
Received: 02-09-2023
Accepted: 05-10-2023

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Prevalence of substance abuse among youth of district Kangra of Himachal Pradesh, India

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Abstract
Substance abuse includes smoking, drinking or use of illicit drugs that often initiates during adolescent period and has a pernicious impact on an individual, family and society resulting in major public health challenges. Therefore,the present research conducted to study the prevalence differences of drug abuse on the basis of gender, govt. and private type of institute and among school and college students.The present study was conducted in five schools and five colleges in Kangra district of Himachal Pradesh. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)" and Self-Structured Questionnaire were administered to the sample size of 500 students from both the study institutes in the age group of 12-25 years to collect data.Nearly 48.8% of youth were using single or multiple drugs. Out of that tobacco was the highly consumable drug by youth (59.8%) whether use specifically or in combination with other drugs followed by alcohol (58.7%). Extremely significant gender difference at 1% level of significance was observed with respect to tobacco, inhalants and amphetamine wherein most of the substance users were found to be boys. Highly significant difference at 5% level of significance was seen between private and government schools regarding use of tobacco (p value .011) and alcohol (p value .023).It was concluded from results that substance abuse was seen higher in males from both school as well as in college as compared to females. The use of tobacco and alcohol was found to be higher in case of govt. school students as compared to private school students, whereas cocaine prevalence was found to be more in private school students.

Keywords: Gender difference, drug abuse, educational institutes, tobacco

1. Introduction
Drug abuse is a detrimental public health challenge we are facing these days. It has been showing a rising trend all over the world perhaps as a result of newer and greater stresses related to rapid changes in life styles. During adolescence period, students are more vulnerable towards substance abuse due to increased academic pressure, peer group influence and easy availability of substances [1]. According to World Health Organization [2] substance abuse is sporadic or hazardous use of certain psychoactive drugs that includes alcohol and other illicit drugs. The current use of these substances can lead to dependence syndrome that results in many behavioural, cognitive, and physiological occurrences, where the person develops a strong longing to take the drug and face struggle to control its use [3].
The functioning of the person concerned is effected at the expense of work, relationships, education, health or safety. Substance use disorders are marked as growing addiction or dependence on the substance and inability to restraint from it. It is recorded that 5% of adult population worldwide use drugs at least once during their life time. Whereas, 0.6% of adult population suffers from disorders associated with drug use [4]. The United Nations Office on Drugs and Crime (UNODC)'s World Drug Report [5] reported that around 284 million people globally use drugs. Use of various substances like alcohol, tobacco, inhalants, opioids, cocaine etc. has become a worldwide problem that affects adolescents and youth. Early initiation of substance use is usually associated with a poor prognosis and a lifelong pattern of deceit and irresponsible behaviour. Not only it is a public health challenge but also a loss in terms of human potential, wherein various factors like neglectful parenting, peer pressure, poor impulse control, mental health problems like depression or anxiety leads to substance use disorder.
Himachal Pradesh is becoming notorious with increasing number of drug abusers in the state. Cannabis is growing naturally near the roadsides and even illicit cultivation of opium and cannabis in higher reaches of Kangra, Kullu, Mandi districts has become a matter of concern. Few Pharmaceutical companies are illegally producing synthetic drugs like adulterated heroin (called Chitta). Youth are getting hooked to 'chitta' from second use only.

Drug peddlers are operating from small shops like ration or confectionery shops near educational institutions and chains are being formed by roping in new vulnerable targets especially young children. Increase in cases of drug addiction is posing big challenge to human life, dignity, and law and order situation in the State. The present research was conducted with the objectives to study the prevalence of drug abuse among young population of Himachal Pradesh a northern state of India and to find out the gender difference, difference of prevalence among school and college goers studying in private and government institutes.

2. Materials and Methods

2.1 Locale of the study

The northern state of India, Himachal Pradesh has 12 districts. Out of these, district Kangra was selected purposively for the study,as it is highly populated district of Himachal Pradesh and it also shares its borders with Punjab state where drug abuse has acquired the proportions of anepidemic that has shaken the entire society of the state and nowit has claws in Himachal where border areas are under the grip of this menace.

2.2 Study Design

An exploratory cum descriptive research design was used for the study

2.3 Sample size

The sample size comprised of 500 respondents in the age range of 12-25 years.

2.4 Procedure for selection of subjects

Kangra district has a total of 15 blocks. Therefore, out of these 15 blocks, five blocks namely Nurpur, Shahpur, Bhawarna, Dharmashala and Dehra were selected randomly. Education portal of Himachal Pradesh has been sought to procure the list of Senior Secondary schools and colleges. 5 schools and 5 colleges were randomly selected i.e. one school and one college each from selected blocks for sample selection. Further, from each school50 students in the age range of 12-18 years and similarly 50 students from each college in the age range of 19-25 years under the respective block were selected for collecting the data. Therefore, 250 students from schools and 250 from colleges were selected, thus making a total of 500 sample size. The Principals/Deans of these schools and colleges were contacted through phone and prior permission was sought for data collection.

2.5 Tools used for the study

2.5.1 Background information Proforma

This is a self-structured proforma that comprises variables like name, age, gender, Name of school/college, Parental educational and occupational status, religion, caste, type of family, No. of family members and family income of the respondent.

2.5.2 The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)

It was developed under the auspices of the World Health Organization (WHO) [6] by an international group of researchers and clinicians who work in the field of substance abuse and addiction. This scale was generated in lieu of the overwhelming public health concern associated with drug abuse globally. This questionnaire comprises of 8 item designed to be administered to a client using paper and pencil. This scale is culturally neutral and useable across a variety of cultures to screen for use of the following substances: tobacco products, alcohol, cannabis, cocaine, amphetamine-type stimulants (ATS), sedatives and sleeping pills (benzodiazepines), hallucinogens, inhalants and opioids.

2.6 Method of Data Collection

Questionnaire method was used to collect primary data. Questionnaires were distributed in a group setting of 10-15 students. A brief introduction was given about the project and purpose of data collection was explained to the respondents. Consent was taken and they were assured about the anonymity and confidentiality of their names along with data privacy. This study followed the Guidelines for Ethical Considerations in Social Research & Evaluation in India.

2.7 Data Analysis

After the responses were generated, the information was tabulated and computed. The tables were quantified using frequency and percentages were calculated. Data were further subjected to Mann Whitney statistical analysis to study the differences of prevalence with regard to gender and type of educational institutes.

2.8 Statistical Framework

2.8.1 Mann-Whitney U-test

This test was developed by Mann and Whitney (1974) and is non-parametric that can be used in place of an unpaired t-test. To apply this test, the two samples that are to be compared should be independent and the variable under consideration should have a continuous distribution. It is used to test the null hypothesis that two samples come from the same population or whether observations in one sample tend to be larger than observations in the other. Usually, the Mann-Whitney U test is used when the data is ordinal or when the assumptions of the t-test are not met.
Calculation of the Mann-Whitney U:

$$U = n_1\eta_2 + \frac{n_2(n_2+1)}{5} - \sum_{i=n_1+1}^{n_2} R_i$$

Where,
U=Mann-Whitney U test
n_1= Sample size one
n_2= Sample size two
R_i = Rank of the sample size

3. Results and Discussion

The percentage distribution of substance users and non-users among school, college and total sample has been given in figure 1. It has been seen that among school respondents (n=250), 42.8 percent were found to be substance users and remaining 57.2 percent were non-substance users. Whereas, among college students (n=250), more than half of the college sample i.e. 54.8 percent were substance users and remaining 45.2 percent were non-users. In a study, students who were enrolled at the university (62.7%) [7] were found to be substance users which were higher in number than our college substance users. Out of total sample (N=500), nearly half of the study subjects i.e. 48.8 percent had been using substances at least once in their lifetime. Similar results found by a study concluded that 46.9% students are recognized as a vulnerable

group to substance abuse [8].

Table 1 showed the frequency and percentage distribution of single drug and use of multiple drugs in combination by the users. The table revealed that 59.8% of subjects used tobacco, where 34.9% used this drug independently and 65.1% use it with other drugs. If we look further into the table 1, it can be observed that percentage of tobacco used in combination with other drugs was found to be more as compared to tobacco used as a single drug only for both school and college students. The results are supported by a study that observed that tobacco (52.87%) was the most common substance abused followed by alcohol [9]. It was assumed that the initiation of drugs usually starts with use of tobacco and alcohol. Once they start abusing these substances other drugs are also being used like cannabis, opioids etc. Similarly, among alcohol users it was observed that majority i.e. (70.2%) had multiple drug use of alcohol. It was seen that alcohol users generally take alcohol in combination with tobacco, cannabis and opioids in which 65.7% were college goers and 47.6% were school students.

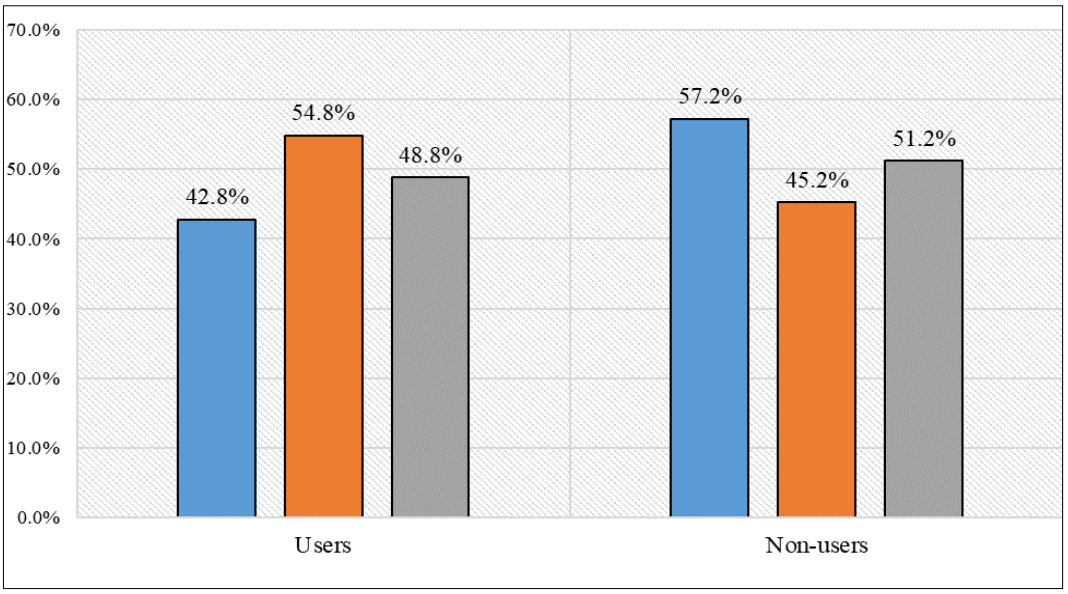

Fig 1: Percentage distribution of substance users and non-users among school, college and total sample

As we look into the table further cannabis and opioids were the substances that were not used as an individual drug. Among the sample cannabis was found to be used as in combination with other substances. Similarly, for cocaine it was found that majority of the users (84.9%) used this substance in combination with other drugs, with 100 per cent in college and 72.2% were in school. In case of amphetamine, inhalants and sedatives, these drugs were also used in combination by majority of respondents. 80% and 71.4% were school and college goers respectively used amphetamine with other drugs. In case of inhalants and sedatives, out of the total sample of 61 per cent used inhalants with multiple drugs and 69.2 per cent used sedatives with multiple drugs wherein 39 per cent used inhalants and 30.8 per cent used sedatives as single drug.

Table 2 depicts the gender difference among school, college and overall respondents with respect to drug use. Mann Whitney U-test was used to find out the gender difference with respect to drug use. As seen from the table-2 extremely significant gender difference was observed between tobacco uses among college goers. The mean value of boys (133.68) is higher as compared to girls (108.78) with regard to tobacco use. In case of overall prevalence, extremely significant gender difference at 1% level of significance was observed pertaining to tobacco use, in which boy's tobacco use/abuse was found to be higher as compared to girls. This may be due to societal stereotypes as in our social system male are more dominant than females. Our society accepts smoking done by males but not by the females.

In case of alcohol and cannabis use highly significant gender difference at 5% level of significance was observed among college goers. Similar results reported that the prevalence of use of substance (tobacco or alcohol) was significantly more among boys in comparison to girls (p<0.05) [10]. Both drug use i.e. cigarette smoking and alcohol consumption are associated more with males than with females [11]. The study findings reported alcohol consumption, binge drinking, marijuana use, and use of tobacco products (e.g., cigarettes, e-cigarettes, and smokeless tobacco) depicted higher rates of substance use among men compared with women within the general US population [12].

In case of cocaine, inhalants and use of amphetamines highly significant gender difference was observed between school going boys and girls where mean value for girls was slightly higher as compared to boys. In case of overall use of Amphetamine extremely significant difference at 1% level of significance was observed. The mean of girls was found to be higher as compared to boys in case of Amphetamine. Some studies reported that men experimented more with alcohol, inhalants, anabolizers, crack, and cocaine than women did, both genders experimented equally with tobacco, marijuana, hallucinogens, amphetamines, anticholinergics, and illegal drugs in general. Moreover, women consume amphetamines and tranquilizers, i.e. prescribed medications, more than men do[13]. The results of our study are aligned with the studies of many researchers that stated, males have higher prevalence of substance use than their counter partners [14-17].

It was also reported in a study that males showed a significantly higher frequency of drug abuse, 35.8% as compared to 19.1% in females. (p<0.001 OR 2.36 (1.99 to 2.80). In all age groups males were more frequent abusers and were 1.61 (1.36 to 2.09) times more likely to be substance abusers than their female counterparts. Males had significantly higher odds of being substance abuser which

means significant difference existed between gender and prevalence of substance abuse [18]. As overall no significant gender difference was found regarding the use of drugs like cannabis, cocaine, opioids and sedatives.

One of the study results showed that about 61 (18.94%) high school students were using substances, in which 26 (8.07%) were male and 35 (10.87%) were female students. No significant relationship was found between gender and substance abuse among high school students with P value=0.769. In case of college students, 148 (24.14%) are drug abusers, out of them 85 (13.87%) were male and 63 (10.28%) were female students. A significant relationship was found between gender and substance abuser with P value= 0.014. Whereas among high school and college students, there are 45 (13.97%) & 155 (25.29%) male students who were tobacco smokers and 27 (8.39%) & 57 (9.30%) were female tobacco smokers. The prevalence of tobacco smoking was seen higher in males than females in both the educational institutes. A highly significant relationship was found between smoking and gender with (P value= 0) [19].

Table 3 depicts the difference among college and school students. As seen from the Table-3 extremely significant difference at 1% level of significance was seen between college going boys and school going boys with regard to tobacco, alcohol, cannabis, opioids and sedatives use with higher mean for college boys in all the categories. It was assumed from the results that collegiate have more accessibility for drugs as compared to school goers. It can be due to the fact that parental control or involvement decreases as children enter college or move to hostels and also their peer circle expands. The results are aligned with study which evaluated that most of the substance users were graduate as compared to non-users while the percentage of substance user was less common among the intermediate and high school students which means that higher the level of education of student, higher the percentage of substance use [20]. In another study, it was found that the history of ever as well as current use of drugs were more in males and college students (40.6% and 41.2% respectively) than female and school students [21]. In case of girl's significant difference was observed for alcohol use at 10% level of significance where college girls have higher mean (75.49) as compared to school going girls (66.04). If we look into the table-3 further extremely significant difference at 1% level of significance was observed in respect to drugs like tobacco, alcohol, cannabis between college and school going students, with mean value higher for college students. In case of use of opioids highly significant difference at 5% level of significance was reported between college and school going students.

Table 4 corroborated the difference on the basis of govt. and private educational institutes. As suggested from the table-4 highly significant difference at 5% level of significance was seen between private and government schools regarding use of tobacco (p value .011) and alcohol (p value .023). It was observed that mean score of government school students was higher (132.59) and (131.48) for tobacco and alcohol use respectively.

Table 1: Frequency and Percentage distribution of single and multiple substance users among school, college and total sample

Drugs	School (n=107)			College (n=137)			Total sample (N=244)		
	Particular use of single drug	Drug used in combination (multiple drug use)	Total substance Users*	Particular use of single drug	Drug used in combination (multiple drug use)	Total substance Users*	Particular use of single drug	Drug used in combination (multiple drug use)	Total substance Users*
Tobacco	25(41.7)	35(58.3)	60(56.07)	26(30.2)	60(69.8)	86(62.8)	51(34.9)	95(65.1)	146(59.8)
Alcohol	12(23.5)	39(76.5)	51(47.6)	30(33.3)	60(66.7)	90(65.7)	42(29.8)	99(70.2)	141(57.8)
Cannabis	0(0.0)	6(100.0)	6(5.6)	0(0.0)	27(100.0)	27(19.7)	0(0.0)	33(100.0)	33(13.5)
Cocaine	5(27.8)	13(72.2)	18(16.8)	0(0.0)	15(100.0)	15(10.9)	5(15.1)	28(84.9)	33(13.5)
Amphetamine	1(20.0)	4(80.0)	5(4.7)	2(28.6)	5(71.4)	7(5.1)	3(25.0)	9(75.0)	12(4.9)
Inhalants	14(43.8)	18(56.2)	32(29.9)	9(33.3)	18(66.7)	27(19.7)	23(39.0)	36(61.0)	59(24.1)
Opioids	0(0.0)	5(100.0)	5(4.7)	0(0.0)	14(100.0)	14(10.2)	0(0.0)	19(100.0)	19(7.8)
Sedatives	4(50.0)	4(50.0)	8(7.5)	4(22.2)	14(77.8)	18(13.1)	8(30.8)	18(69.2)	26(10.6)

* Multiple users, Values in parentheses represent the percentage of substance users

Table 2: Prevalence difference on the basis of gender among school, college and overall sample

Variables	Gender	School sample (n=250)				College sample (n=250)				Total sample (N=500)			
		Mean Rank	Mann Whitney	Z value	P value	Mean Rank	Mann Whitney	Z value	P value	Mean Rank	Mann Whitney	Z value	P value
Tobacco	Boys	127.44	5331.5	-1.008	.314	133.68	5517.0	-3.016	.003***	259.18	22311.0	-2.656	.008***
	Girls	119.36				108.78				228.62			
Alcohol	Boys	127.40	5338.5	-1.052	.293	131.60	5863.0	-2.224	.026**	256.81	23160.5	-1.953	.051*
	Girls	119.48				113.00				234.60			
Cannabis	Boys	126.45	5520.0	-1.390	.164	129.92	6146.0	-2.566	.010**	250.15	25292.0	-.178	.859
	Girls	122.50				116.45				251.39			
Cocaine	Boys	123.14	5251.0	-2.050	.040**	125.49	6887.0	-.005	.996	251.07	25215.0	-.356	.722
	Girls	132.98				125.51				249.07			
Amphetamine	Boys	123.65	5348.0	-2.973	.003***	124.99	6802.5	-.557	.577	239.98	21653.5	-6.485	.000***
	Girls	131.37				126.54				277.01			
Inhalants	Boys	122.71	5169.0	-1.873	.061*	124.12	6656.0	-.789	.430	256.36	23319.0	-3.063	.002***
	Girls	134.35				128.33				235.72			
Opioids	Boys	126.29	5550.0	-1.267	.205	126.67	6691.5	-.919	.358	248.69	24770.5	-1.155	.248
	Girls	123.00				123.10				255.06			
Sedatives	Boys	123.66	5350.5	-2.218	.027**	126.37	6742.0	-.592	.554	249.10	24916.0	-.865	.387
	Girls	131.33				123.72				254.04			
Significant level 99%*** 95%** 90%*													

Table 3: Prevalence difference on the basis of type of educational institute among boys, girls and total sample

Variables	Educational institutes	School boys (n=190), College boys (n=168)				School girls (n=60), College girls (n=82)				School (n=250), College (n=250)			
		Mean Rank	Mann Whitney	Z value	P value	Mean Rank	Mann Whitney	Z value	P value	Mean Rank	Mann Whitney	Z value	P value
Tobacco	College	197.30	12969.0	-3.693	.000***	73.85	2349.5	-.632	.528	267.31	27047.0	-3.240	.001***
	School	163.76				69.66				233.69			
Alcohol	College	199.08	12671.0	-4.145	.000***	75.49	2132.5	-1.828	.068*	272.45	25761.5	-4.282	.000***
	School	162.19				66.04				228.55			
Cannabis	College	190.05	14188.0	-3.774	.000***	72.60	2370.0	-1.492	.136	260.97	28631.5	-3.767	.000***
	School	170.17				70.00				240.03			
Cocaine	College	180.08	15862.0	-.252	.801	69.20	2271.0	-1.560	.119	249.30	30950.0	-.426	.670
	School	178.98				74.65				251.70			
Amphetamine	College	176.74	15497.0	-1.411	.158	70.58	2384.5	-.831	.406	251.52	30996.0	-.593	.553
	School	181.94				72.76				249.48			
Inhalants	College	188.65	14422.5	-4.155	.000***	69.45	2292.0	-1.082	.279	250.50	31250.0	.000	1.000
	School	171.41				74.30				250.50			
Opioids	College	175.54	15294.0	-1.397	.162	72.60	2370.0	-1.492	.136	254.96	30135.0	-2.084	.037**
	School	183.01				70.00				246.04			
Sedatives	College	185.39	14970.5	-.2.674	.007***	70.92	2412.5	-.442	.658	255.06	30111.0	-1.800	.072*
	School	174.29				72.29				245.94			
Significant level 99%*** 95%** 90%*													

Regarding use of cocaine among private and government schools extremely significant difference at 1% level of significance was found, with mean score found to be higher in case of private schools (136.47) as compared to government schools (118.19). Our study results are supported by the study that showed the prevalence of tobacco was found to be 1.3 times more among boys from the government schools in comparison to private school (p<0.05), whereas alcohol use was 1.5 times more among girls from government schools in comparison to girls from private schools (p<0.05). More number of boys from government schools was found to initiate substance use in the age group of 12-13 years in comparison to boys from private schools (p<0.05). The substance use was significantly more prevalent among male students from government schools (17%) in comparison to the private schools (13.6%) in their study [10].

Table 4: Prevalence difference on the basis of govt. and private type of educational institute among school and college

Variables	Type of institute	Private school (n-=100), Govt. school (n=150)				Private college (n=50) Govt. college (n=200)			
		Mean	Mann Whitney	Z value	P value	Mean	Mann Whitney	Z value	P value
Tobacco	Private	114.86	6436.0	-2.538	.011**	120.13	4731.5	-.693	.488
	Govt.	132.59				126.84			
Alcohol	Private	116.53	6603.0	-2.275	.023**	126.54	4948.0	-.132	.895
	Govt.	131.48				125.24			
Cannabis	Private	123.75	7324.5	-1.182	.237	121.70	4810.0	-.771	.441
	Govt.	128.67				126.45			
Cocaine	Private	136.47	6403.0	-4.370	.000***	122.47	4848.0	-.781	.435
	Govt.	118.19				126.26			
Amphetamine	Private	128.02	7248.0	-1.855	.064*	122.00	4825.0	-1.339	.181
	Govt.	123.82				126.38			
Inhalants	Private	129.40	7110.5	-1.198	.231	125.75	4987.5	-.049	.961
	Govt.	122.90				125.44			
Opioids	Private	123.00	7250.0	-1.841	.066*	128.52	4849.0	-.829	.407
	Govt.	127.17				124.75			
Sedatives	Private	128.46	7204.5	-1.635	.102	134.24	4563.0	-.2.132	.033**
	Govt.	123.53				123.32			
Significant level 99%*** 95%** 90%*									

In contradictory to our study results, a study performed in Himachal Pradesh reported that majority of the students (58.9%) were from government schools in rural background where the prevalence of various substances was found to be less in government school students as these schools were located in the villages where it was easy to spot the students abusing a substance [18]. No significant difference was found between students of private and government college students in regard to drugs like tobacco, alcohol, cannabis, cocaine, amphetamine or opioids. Only difference was seen at 5% level of significance among private and govt. colleges pertaining to sedatives use, where mean score of private college students (134.24) was found to be higher as compared to government college students (123.32). A study also reported that the drug abuse ratio in students of private sector is more as compared to Government sector [22].

4. Conclusion

Drug abuse seems to be a crucial problem existing especially in youth. Tobacco was most widely used drug and also acts as an initiation drug. Once they start abusing tobacco their dependence towards nicotine increases. It is important to be aware that tobacco use and alcohol consumption ultimately, increase the odds of using other illicit substances. It is an

alarming threat to our society. Strict measures are required in terms of prohibition of procurement of drugs; educational awareness regarding drugs shall be addressed through school curriculums since standard six. Community awareness programmes at regular interval for addressing of drug abuse in the society are required.

5. Acknowledgement

This work is supported by the Indian Council of Social Science Research (ICSSR), New Delhi for the year 2022-24.

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