Prevalence of substance use among the students of Higher Secondary Schools (Class XI and XII) of Imphal Municipality, Imphal, Manipur, India, 2007

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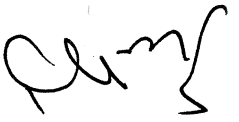
CERTIFICATION

This is to certify that this dissertation, entitled 'Prevalence of substance use among the students of Higher Secondary Schools (Class XI and XII) of Imphal Municipality, Imphal, Manipur, India, 2007' submitted by Somorjit Ningombam, in partial fulfillment of the requirements for the degree of Master of Applied Epidemiology, is the original work done by him and has not been submitted earlier, in part or whole for any other (Publication or Degree) purpose.



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Dissertation

ABSTRACT

Introduction: The initiation of substance use often begins in adolescence. Little is known about the prevalence and patterns of substance use among the students in Imphal. We conducted a study to estimate the prevalence and pattern of substance use among the students of higher secondary schools in Imphal municipality and identify the factors associated with substance use.

Methods: We defined substance use as use of any psychoactive substance e.g. tobacco, alcohol, illicit drugs etc., other than when medically indicated. All the recognized higher secondary schools in Imphal municipality were included from which we selected the students by simple random sampling. We followed WHO recommended methodology for student drug use surveys. We calculated the prevalence of substance use and the 95% confidence interval according to selected characteristics.

Results: We surveyed 1,020 students of which 551 reported having used any substance earlier in their lifetime with an overall prevalence of ever users as 54% (95% CI: 51-58). The prevalence of recent users was 35% (95% CI: 32-38) and current users 22% (95% CI: 19-25). Tobacco (46%) was the most common substance used followed by alcohol (29%), cannabis (14%), opiates (12%), solvents (9.1%) and spasmo-proxyvon (3%). None of them reported use of heroin. The prevalence of substance use was higher among students, who were older than 17 years of age, (prevalence ratio [PR]-1.2, 95% CI: 1.02-1.30), males (PR-1.7, 95% CI: 1.5-1.9), those with fathers using any substance (PR-1.5, 95% CI: 1.3-1.7) and those with siblings using any substance (PR-1.5, 95% CI: 1.3-1.6). Median age of first use was 15.5 years. Majority (81%) of the students reported that friends introduced them to substance use.

Conclusion: There is high prevalence of tobacco and alcohol use among the students of Imphal. Familial use of substances influences the behaviour of adolescents. Friends are a key proximal determinant. Onset of substance use is early. We recommend introducing a written policy on substance use to educate students about its adverse effects and impart refusal skills.

Key words: Imphal, substance use, ever use, prevalence.

Prevalence of substance use among the students of Higher Secondary Schools (Class XI and XII) of Imphal Municipality, Imphal, Manipur, India, 2007

Introduction

The World Health Organization (WHO) estimated that in 2000, globally, the extent of psychoactive substance use was 2 billion alcohol users, 1.3 billion tobacco smokers and 185 million other drug users[1]. The number of drug users has increased to 200 million in 2004, equivalent to about 5 per cent of the global population aged 15-64. After alcohol and tobacco, cannabis is the most widely used drug with an estimated 162 million users, followed by amphetamine-type stimulants (35 million), which include amphetamines (25 million) and ecstasy (10 million). The number of opiate abusers was 16 million, of which 11 million were heroin abusers and 13 million used cocaine[2]. WHO estimated that in 2000, tobacco caused 8.8% of global deaths (4.9 million) and 4.1% disability-adjusted life years (DALYs) (59.1 million), alcohol caused 3.2% deaths (1.8 million) and 4.0% DALYs (58 million) and overall illicit drug caused 0.4% deaths (0.2 million) and 0.8% DALYs (11 million)[3].

The initiation of drug use often begins in adolescence[4]. Adolescence is a time of experimentation, exploration, curiosity, a search for identity and risk taking. Such risk taking can include the use of alcohol, tobacco and other drugs. Adolescents may be at particular risk of developing health and other problems, including drug related problems. Studies conducted in this age group indicated that alcohol, tobacco and other drugs are commonly used in most countries of the world; the extent, pattern and consequences of use however differs from country to country and from time to time. The effective prevention of health problems and other consequences of substance use require information on the prevalence, characteristics and patterns of use, together with information on the problems associated with that use. Considering the

vulnerability of this age group, school students are often studied for assessing the prevalence for substance use[4].

The WHO developed a standard methodology for surveying student drug use on the basis of student drug use surveys conducted in seven countries including India. Such surveys provide useful information about extent and pattern of substance use among young people and often are useful for planning and coordination of intervention programmes by permitting national and international comparisons and exchange of information on epidemiology of drug dependence[5].

Studies across various Indian cities reported that the prevalence of substance use among school students ranged between 34% and 59%. A study in Delhi in 1981 among male senior high school students reported alcohol and tobacco were the most commonly used substances in their lifetime[6]. Other substances used were tranquillizers, cannabis, sedatives, narcotics and hallucinogens. A study in Shimla, Himachal Pradesh, reported mean prevalence of all time drug use as 43%[7]. Tobacco (29%), alcohol (26%) and cannabis (21%) were the most frequently used drugs. A study in Dehradun, Uttaranchal, among students of standard 9th to 12th, reported the overall prevalence of substance abuse to be 59% for lifetime users. This study reported urbanity, male and living away from parents to be significantly associated with substance abuse[8].

Manipur is one of the hilly northeastern states of the Indian union bordering Myanmar. It is geographically close to the notorious drug producing 'Golden Triangle'. A survey conducted by Indian Medical Association, Manipur State Branch, in 1988, reported 10% of the general population as drug abusers, using the drug with some regularity[9]. Alcohol was the most abused substance with overall prevalence of 8.5%. Less than 1% of the population used opiates including heroin. Most of the heroin abusers used the intravenous route. Imphal district had the highest number of drug users in Manipur, accounting for 20% of all drug abusers[9]. With a high prevalence of intra-venous drug users (IDU) Manipur is one of the six high prevalence states of HIV/AIDS in India[10].

To respond to this problem, The Manipur State prohibition Act 1991 was enacted to reduce alcohol abuse. Besides this act, Manipur state AIDS control society conducts awareness programs against drug abuse. Effective school-based substance use prevention programmes do exist[11,12]. However, both the government and private school authorities in Manipur enforce no substance use prevention programmes in schools. Several social organizations, including the All Manipur Anti Drug Association (AMADA) and underground activists are involved in the enforcement of the ban on sale and consumption of both licit and illicit substances. Underground activists give punishment by shooting in the legs of substance abusers. *Meira paibis* (torch bearers); a group of ladies in every locality, come out every night and keep strict vigil to enforce ban on substance use and punish abusers in their respective localities. In October 2007, a prominent underground group banned the use and sale of *mitha mana* (betel leaf), which was used with *zarda* (tobacco), to have a more effective campaign against tobacco use[13].

In the absence of a clear picture of the prevalence of psychoactive substance use among the students and the patterns of drug use since the last general population survey in 1998 in Manipur, we conducted a student substance use survey. Such information would be useful in formulating effective prevention measures. The objectives were to estimate the prevalence and pattern of substance use among the students of higher secondary schools in Imphal municipality and identify the factors associated with substance use.

Methods

Study population: We conducted a cross-sectional survey among the students of higher secondary schools (Class XI and XII) of Imphal municipality, during August to October 2007.We included all the seven government schools and twelve private schools recognized by Government of Manipur that were located within Imphal Municipality. There were 2,892 government and 2,824 private school students (N= 5,716) enrolled in the schools.

Operational definitions: For the present study, we defined *substance* as any psychoactive substance or drug and *substance use* as the use of any psychoactive substance or drug other than when medically indicated[5].

Data collection: We used the WHO recommended methodology for student drug use surveys[5]. We used the self-administered questionnaire for collecting information about substance use. We included all the core questions regarding substance related variables including class of substance, standard prevalence measures like ever, recent and current use, route of administration, source of introduction, reason for taking and age of first use. We collected information regarding age, sex, religion, fathers' and siblings' substance use and used duration of parental education as a measure of socioeconomic status.

Sample size and sampling procedure: As per the WHO student drug use survey methodology, a minimum sample size of 1,000 is required for a target population of 5716 students[5]. Considering 15% absentees we inflated the number to 1,150. We selected 61 students from each school by simple random sampling.

Data collection procedure: We visited the schools and distributed the consent form to the selected students. We informed the students about the purpose of the study and requested them to get the consent form (Annexure-1) signed from their parents or guardians and submit to their respective principals the next day. We informed that the actual survey would be conducted on our next visit to their school in a few days time. On the next visit, we assembled the selected students from consenting parents in a

separate classroom with the help of the school authorities. We did not allow any teacher of the school to be present during the session. We distributed the anonymous self-administered questionnaires (Annexure-2) and collected them after they finished giving their responses. Each session took about 30 minutes.

Data analysis: We analyzed the data using Epi Info software[14]. We classified the substance users into three categories i.e. *ever use* – use at least once in their lifetime prior to survey, *recent use* – use within the last 12 months and *current use* – use within the last 30 days. We calculated the prevalence of substance use and the 95% confidence interval according to selected characteristics.

Quality assurance: We used the WHO recommended questionnaire with minor modification[5]. We pilot tested the questionnaire prior to the study.

Human subject protection: The study protocol was approved by the ethical committee of the National Institute of Epidemiology, Chennai. We obtained permission from the Director of School Education, Government of Manipur and the school authorities to conduct the study. We made the students fully aware that their participation was voluntary and they were free to withdraw at any time. We explained the benefits of the study and obtained informed consent from the parents or guardians of school students. We maintained confidentiality by not collecting information regarding the names of schools, students and roll numbers anywhere in the questionnaire. We delivered a short lecture on substance use and their adverse affects after completion of the session and doubts if any were clarified.

Results

We surveyed 1,020 students. Eight responses were rejected due to incompleteness. We analyzed the responses from 1,012 (88%) students. Of the total students surveyed, 368 (36%) students were from government schools and 525 (52%) were males. The median age of the students was 17 years (range 15-22).

Prevalence of substance use: Of the 1,012 students surveyed, 551 students reported having used any substance earlier in their lifetime with an overall prevalence of ever users as 54% (95% CI= 51-58). Three hundred and fifty-six (35%, 95% CI=32-38) had used the substance in the last year and 222 (22%, 95% CI=19-25) had used in last month (Table-1). The prevalence of ever, recent and current substance users was highest among students aged 19 years or older compared to younger students and males compared to females.

Pattern of substance use: Among the ever users, tobacco (46%) was the most common substance used by the students followed by alcohol (29%), cannabis (14%), opiates (12%) and solvents (9.1%) (Table-2). Spasmo-proxyvon (dextropropoxyphen) use was reported by 17 (3%) ever users. The pattern of drug use was similar among recent and current users. None of the students reported use of cocaine, amphetamine, sedatives or heroin. No students reported injection as a route for substance use. Median age at first use was 15.5 years.

Factors associated with substance use: Among the ever users, the prevalence of substance use was higher among students, who were 17 years of age and older, (prevalence ratio [PR]:1.2, 95% CI: 1.02-1.30), males (PR:1.7, 95% CI:1.5-1.9), fathers using any substance (PR-1.5, 95% CI:1.3-1.7) and siblings using any substance (PR-1.5, 95% CI:1.3-1.6). (Table-3) The prevalence was lower among students belonging to Hindu/Jainism religion, (PR: 0.73, 95% CI: 0.65-0.81) than those who came from Christian, Muslim, Meitei, other indigenous religions and atheists.

Source of introduction: A majority (81%) of the ever users reported that the substance was introduced to them by their friends. Other sources of introduction were family members (9.3%) and casual acquaintances (4.2%). (Table 4)

Reason for use

The most common reason given for first substance use was enjoyment (41%) and curiosity (24%). (Table 5) 15% of the ever users could not identify any specific reason for substance use..

Discussion

More than half of the school children studying in senior secondary schools in Imphal reported use of one or more substances. Tobacco and alcohol were the most common substances used. Substance use was higher among males and those students whose fathers or siblings used substances. The majority of the students reported that their friends introduced them to substance use.

Substance use surveys among students provide useful information about the extent and pattern of substance use among young people. Studies conducted among school students in different Indian cities reported that the prevalence of substance use ranged from 18% in Gorakhpur[15], 34% in Delhi[6], 43% in Shimla[7] and 59% in Dehradun[8].The prevalence of substance use in Imphal was higher than most of the studies in India. About a quarter of students were currently using one or more substance. A drug use survey conducted among the general population in Manipur reported that 15% of drug abusers - defined as those who use drugs with some regularity - were students[9]. These findings indicate that the substance use is high among the school students in Imphal.

The pattern of high tobacco and alcohol use was similar to that observed in other studies in India[7,8,16]. The drug use survey in general population in Manipur in 1988 reported that alcohol (54%), heroin (23%) and cannabis (13%) were the commonly used drugs among students[9]. Information about tobacco use was not collected during that survey. On the other hand, in our survey, none of school children reported use of heroin. This could be because of effective campaign by governmental and non-governmental organizations against heroin use. Substances such as solvents and spasmo-proxyvon that were not reported in 1988 survey are being used now. These findings indicate that the substance use pattern among young people in Manipur is changing with many students using new substances like solvents and spasmo-proxyvon.

There could be several reasons for high the prevalence of tobacco and alcohol use among youths. Both cigarettes and smokeless tobacco products are easily available to students. These tobacco products are socially accepted for their age[8]. On the other

hand, sale and consumption of Indian made foreign liquor (IMFL) is prohibited in Manipur since 1991[17]. Besides IMFL, tribal and scheduled caste people in the state produce local liquor. The sale of the locally prepared alcohol is also prohibited in the state. In spite of these prohibitions, both IMFL and local alcohol are easily available in the black market. Besides the availability, use of substances during festivals could be another reason for high prevalence. Offering betel nuts, cigarettes and locally prepared alcohol during ceremonies are traditional practices. Use of cannabis during festivals like *Shivaratri* is common.

The prevalence of substance use was higher among students whose family members, especially father and siblings, used substances. Similar findings have been reported by several other studies[7,8,18]. It is suggested that user family members in general and parents in particular serve as models for adolescents[6]. Students may also perceive it as a family tradition[19]. Intervention programmes involving parents in school health education programmes have been shown to be effective in reducing the substance use among the children[20,21].

Most of the substance users in Imphal took substance for the first time for enjoyment or out of curiosity and the students were introduced to these substances most commonly by their friends[7,8]. Friends may influence a person to start using drugs by making them available, providing an example or defining the nature of physiological experience[6]. Experimenting with drugs, however, is especially dangerous because recreational use may progress to more problematic use and dependence. Several school based education programmes that focused on developing refusal skills among children were successful in reducing the prevalence of substance use among children[11, 22].

Our study had several limitations. First, the survey was based on self-administered questionnaire and reliability and validity of the responses might influence the findings. To address this limitation, we used a questionnaire which was developed by WHO after consulting various organizations dealing with substance use in different countries and it has been tested in seven countries including, Chandigarh center, India. Reliability and validity test at three centers suggested high reliability and

validity[5]. Second, our survey only addressed the school going children. Current use and heroin use may be more common among children who do not go to school.

In conclusion, the findings of the study indicated high prevalence of tobacco and alcohol use among the higher secondary school students of Imphal municipality. Familial use of substances influences the behaviour of adolescents. Friends are a key proximal determinant. Onset of substance use is early. This information can be of use for the health planners and educationists of the state, so that corrective actions are taken in time.

Based on the findings of the present study we recommend the following measures to reduce substance use among students, (1) maintain the effective heroin prevention policy in the population, (2) start similar campaign to prevent tobacco and alcohol use in schools with a written school education policy; this policy need to include health education about substance use, its adverse effects, management of substance use incidents and provision for training and staff development, (3) involve parents and siblings in substance use school education programmes, (4) impart refusal skills early, before onset starts and (5) conduct periodic surveys every two years to evaluate the impact of preventive measures.

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Table 1: Prevalence of substance use among the higher secondary school students, Imphal Municipality, Manipur, India, 2007

Demographic characteristics		Total number of students	Patterns of substance use					
			Ever use*		Recent use†		Current use‡	
			#	%	#	%	#	%
Age	**15 years**	61	34	56	16	26	7	12
	16 years	311	165	53	105	34	60	19
	17 years	401	205	51	138	34	85	21
	18 years	188	104	55	66	35	49	26
	≥19 years	51	43	84	31	61	21	41
Sex	**Male**	525	354	67	233	44	153	29
	Female	487	197	41	123	25	69	14
Total		1012	551	54	356	35	222	22

* Use at least once in their lifetime
† Use within the last 12 months
‡ Use within the last 30 days

Table 2: Substance used among higher secondary school students, Imphal Municipality, Manipur, India, 2007

	Ever*		Recent†		Current‡	
	#	%	#	%	#	%
Tobacco	466	46	278	28	173	17
Alcohol	290	29	152	15	70	7
Cannabis	138	14	47	5	21	2
Opiates	122	12	71	7	33	3
Solvents	92	9	43	4	22	2
Opium	22	2	13	1	6	1
Tranquilizers	16	2	9	1	2	0

* Use at least once in their lifetime
† Use in the past year
‡ Use in the past 30 days

Table 3: Prevalence of substance use according to selected characteristics, Imphal municipality, Manipur, India, 2007

	Prevalence of substance use							
	Among exposed			Among unexposed			Prevalence ratio	
Exposures	#	Total	%	#	Total	%	Estimate	CI %*
Male	354	525	67	197	487	41	1.7	1.5-1.9
Father use	376	601	63	175	411	43	1.5	1.3-1.7
Sibling use	152	210	72	399	802	50	1.5	1.3-1.6
Age >17 years	147	239	62	404	773	52	1.2	1.1-1.3
Graduate father's education†	302	548	55	167	324	52	1.1	0.93-1.2
Graduate mother's education‡	377	696	54	78	153	51	1.1	0.89-1.3
Government Schools	222	384	58	329	628	60	1.1	0.98-1.2
Hindu/Jainism Religion	282	598	47	269	414	65	0.73	0.65-0.81

* 95% Confidence Interval
† Excluding don't know response
‡ Excluding don't know response

Table 4: Source of introduction of substance used, higher secondary school students, Imphal Municipality, Manipur, India, 2007

Source	#	(%)
Friends	445	81
Family	51	9
Casual acquaintance	23	4
Pharmacist	21	4
Drug dealer	7	1
Doctor/Prescription	3	1
Other health worker	1	0
Total	551	100

Table 5: Main reported reason for onset of substance, higher secondary school students, Imphal Municipality, Manipur, India, 2007

Reason	#	%
Enjoyment	223	41
Curiosity	132	24
Don't Know*	83	15
Treatment of health disorders	51	9
Religious custom	25	5
Desire of sociability	10	2
Desire of acceptability	8	2
Others†	8	2
Stress	6	1
Improvement of work	4	1
Relief of cold, hunger or fatigue	1	0
Total	551	100

* Can't identify a specific reason
† Heart break, shyness, experimentation, friend's desire

ANNEXURE 1

Consent form

Greetings! I am Dr Somorjit Ningombam, of Manipur health services. We are conducting a study along with officials of Manipur health services and National Institute of Epidemiology in Chennai in Tamil Nadu on substance/drug use among school students of Manipur. For this we collect some information by asking some questions in a questionnaire about your child and your family about substance use. This information is important to policy makers and us so that action can be taken about the problem in the future.

We would like your help on this project. The study is for research only. We are trying to find out the magnitude of the problem of substance use, including alcohol, tobacco and drugs, among students. The initiation of drug use often begins in adolescence. It is a time of experimentation, exploration, curiosity, a search for identity and risk taking. Such risk taking can include the use of alcohol, tobacco and other drugs. Experimenting with drugs, however, is especially dangerous because recreational use may progress to more problematic use and dependence. We selected your ward's school by chance from among the various schools and students of Imphal municipality. If that is OK with you we would be distributing a self administered questionnaire in the next few days regarding substance use. We would like your informed consent of your ward's participation in this project by signing this form and if you do not want your child to participate please let us know by not signing this consent form. The information your ward gives is strictly confidential and we are not going to ask even their names. The whole process should take about 45 minutes, the normal time period of a class. After your ward has completed the answers we will deliver a short lecture on substance use and all queries by the students will be addressed. There is no risk to the students as we are asking some questions about their knowledge and behavior only and anonymously. You have the right not to agree. You can refuse to let your child to take part without giving any reason or without loosing

any sort of benefit you receive. When this project is over, we will be able to discuss the results with district health authorities, with the state and central governments. This will help us understand the substance/ drug use problem. If you wish to know more about this project, I will be happy to answer any question you may have. You may contact me, Dr Somorjit Ningombam, MAE-FETP Scholar, principal investigator, of this project attached to the National Institute of Epidemiology, Chennai and at present posted at the Office/of chief medical officer Imphal, Ph: 9436036380.

"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any question I have asked have been answered to my satisfaction. I consent voluntarily to let my child to participate as a participant in this project and understand that I have the right to withdraw from the project at any time without in any way affecting my further medical care".

_____ Signature (Parent/Guardian)

_____ Witness Date_____

ANNEXURE 2

Individual questionnaire

YOUTH SURVEY QUESTIONNAIRE

The questions ask about drug use as well as your age, whether you are a male or female, and so on. Your answer will be looked at by people who are trying to learn more about drug use and will be compared with the answers made by young people in other parts of the world.

If this study is to be helpful, it is important that you should answer each question as carefully as possible. All your answers will be kept strictly confidential and we are not asking you your name. Most people enjoy filling in this questionnaire, and we hope that you will too. Be sure to read the instructions before you begin to answer.

INSTRUCTIONS

This is not a test: there are no right or wrong answers, but please answer carefully.

For each question pick the answer that fits you the best and circle the choice as shown below. Pick only one answer for each question. Look at the example below.

Have you drunk any water during the last 30 days?

A No
B Yes, on 1-5 days
C Yes, on 6-9 days
(D) Yes, on 20 or more days

The answer chosen was "D", indicating that the person who answered the question had drunk water on 20 or more days during the previous 30 days.

If you do not know the answer to a question, or if you feel that you cannot answer honestly, leave the question blank. Complete as many question as possible.

SECTION A		
1. Are you a male or female	Male	Female
2. What was your age on last birthday?		Years
3. What is your religion?		
4. How much education did your father receive? A. No schooling B. Primary C. Secondary D. Graduate E. Don't know		
5. How much education did your mother receive? A. No schooling B. Primary C. Secondary D. Graduate E. Don't know		
6. Does your father take any substance (Alcohol/tobacco/drugs etc.)?	Yes	No
7. Do any of your siblings take any substance (Alcohol/tobacco/drugs etc.)?	Yes	No
SECTION B		
8. A. Have you ever smoked, chewed, or sniffed any tobacco products (e.g.cigarretes, zarda, khaini, panmasala)?	Yes	No
B. Have you smoked, chewed, or sniffed a Tobacco product in the past 12 months?	Yes	No
C. Have you smoked, chewed, or sniffed a Tobacco product during the past 30 days?	Yes	No
D. How old were you when you first smoked i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more		
9. A. Have you ever drunk any alcoholic beverage (e.g. beer, wine, spirits, yu)?	Yes	No
B. Have you drunk any alcoholic beverage in the past 12 months?	Yes	No
C. Have you drunk any alcoholic beverage during the past 30 days?	Yes	No

D. How old were you when you first had a drink of beer, wine or spirits more than just a sip? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more			
10. A. Have you ever taken any cannabis (e.g. ganja, grass, bhang, marijuana)?		Yes	No
B. Have you ever taken any cannabis in the past 12 months?		Yes	No
C. Have you ever taken any cannabis during the past 30 days?		Yes	No
D. How old were you when you first took cannabis i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more			
11. A. Have you ever taken any cocaine?		Yes	No
B. Have you ever taken any cocaine in the past 12 months?		Yes	No
C. Have you ever taken any cocaine during the past 30 days?		Yes	No
D. How old were you when you first took cocaine? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more			
12. A. Have you ever taken any amphetamines, met-amphetamine or other stimulants (e.g., speed, diet pills) without a doctor telling you to do so?		Yes	No
B. Have you ever taken any amphetamines, met-amphetamine or other stimulants in the past 12 months?		Yes	No
C. Have you ever taken any amphetamines, met-amphetamine or other stimulants during the past 30 days?		Yes	No

D. How old were you when you first took any amphetamines, met-amphetamine or other stimulants i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more			
E. If you have ever taken amphetamines or other stimulants, write in the name of the one you have taken most recently.....			
13. A. Have you ever sniffed or inhaled things (glue, dendrite, aerosol sprays, or other gases) to get high (Do not include smoke)?		Yes	No
B. Have you ever sniffed or inhaled things to get high in the past 12 months?		Yes	No
C. Have you ever sniffed or inhaled things to get high during the past 30 days?		Yes	No
D. How old were you when you first sniffed or inhaled things to get high? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more			
E. If you have ever sniffed or inhaled things, write in the name of the one you have taken most recently.....			
14. A. Have you ever taken any tranquilizers (eg Diazepam, N-10, Nitrosun, Valium) without a doctor telling you to take it?		Yes	No
B. Have you ever taken any tranquilizers in the past 12 months without a doctor telling you to take it?		Yes	No
C. Have you ever taken any tranquilizers during the past 30 days without a doctor telling you to take it?		Yes	No
D. How old were you when you first took any tranquilizers without a doctor telling you to take it? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more			
E. If you have ever taken any tranquilizers, write in the name of the one you have taken most recently.....			

15. A. Have you ever taken any sedatives (eg barbiturates, seconal, downers, goofball) without a doctor telling you to take it?	Yes	No
B. Have you ever taken any sedatives in the past 12 months without a doctor telling you to take it?	Yes	No
C. Have you ever taken any sedatives during the past 30 days without a doctor telling you to take it?	Yes	No
D. How old were you when you first took any sedatives without a doctor telling you to take it? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more		
E. If you have ever taken any sedatives, write in the name of the one you have taken most recently.....		
16. A. Have you ever smoked or eaten any opium (Kani) without a doctor telling you to do so?	Yes	No
B. Have you ever smoked or eaten any opium (Kani) in the past 12 months without a doctor telling you to do so?	Yes	No
C. Have you ever smoked or eaten any opium (Kani) during the past 30 days without a doctor telling you to do so?	Yes	No
D. How old were you when you first smoked or ate opium (Kani) without a doctor telling you to take it? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more		
17. A. Have you ever taken any heroin (No.4)?	Yes	No
B. Have you ever taken any heroin (No.4) in the past 12 months?	Yes	No
C. Have you ever taken any heroin (No.4) during the past 30 days?	Yes	No
D. How old were you when you first took heroin (No.4)? i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years v. 15-16 years vi. 17-18 years vii. 19 years or more		
18. A. Have you ever taken any opiate (codeine/phensydyle/corex, morphine) without a doctor telling you to do so?	Yes	No
B. Have you ever taken any of these opiates in the past 12 months without a doctor telling you to do so?	Yes	No

C. Have you ever taken any of these during the past 30 days without a doctor telling you to do so?	Yes	No

D. How old were you when you first took any of these opiates without a doctor telling you to take it?

i. Never taken ii. 10 years or less iii. 11-12 years iv. 13-14 years
v. 15-16 years vi. 17-18 years vii. 19 years or more

SECTION C

19. Are there any other drugs not mentioned that you have taken in the past year without a doctor telling you to do so? .....

20. Do you know of any other drugs that people are now taking to make the feel good or intoxicated?	Yes	No

21. If yes. What are these drugs called .....

22. If you had ever used any cannabis (ganja), would you have admitted it in this questionnaire?	Yes	No	Not sure
23. If you had ever used any opium (kani), would you have admitted it in this questionnaire?	Yes	No	Not sure

24. What methods have you used for taking heroin? (If you had taken) (Mark all that apply)

i. Snorting ii. Smoking iii. Injection iv. By mouth v. Other.....

25. Who introduced you to substance/non medical drug use? (Please check one option only)

i. Family ii Casual acquaintance iii. Friends iv. Drug dealer
v. Doctor vi. Other health worker vii. Pharmacist

26. What was the reason for your first substance/non medical drug use?

i. Religious custom ii. To be acceptable iii. To be sociable
iv. Enjoyment v. Enhancement of sex vi. Curiosity
vii. Treatment of health disorder viii. Relief of stress
ix. Relief of cold, hunger or fatigue x. Improvement of work
xi. Don't know xii. Others.....

Section 2

Review of Literature

Introduction

Psychoactive substance use poses a significant threat to the health, social and economic fabric of families, communities and nations[1]. Substances include both licit substances like alcohol and tobacco and illicit drugs like heroin and cocaine. Illicit drugs are those substances whose production, sale or use is regulated or prohibited[2]. Whilst alcohol, tobacco and other drugs are used in most countries of the world, the extent, patterns and consequences of use differ from country to country and from time to time. The effective prevention of health problems and other consequences of substance use require information on the prevalence, characteristics and patterns of use, together with information on the problems associated with that use[3].

Adolescents are known for their tendency to engage in risky behavior. Experimenting with drugs, however, is especially dangerous because recreational use may progress to more problematic use and dependence. Further, drug use by teens is associated with early sexual activity, school failure, delinquency, motor vehicle accidents, homicides and suicides[4].

What is a Substance[5]?

Substance is a synonym for drug. It is described as an intoxicating or narcotic drug. Drug is a medicine or other substance which has a marked physiological effect when taken into the body or a substance with narcotic or stimulant effects[5].

It is also described as any psychoactive substance with the potential for creating dependency and can cause very significant public health problems and widespread social harm[3].

Substance use: The use of any psychoactive substance or drug other than when medically indicated[6].

Categories of substances[7]: There are three broad categories of substances-

1. Those that generally are **legal** to sell and use and are not controlled by international convention (e.g. cigarettes, other tobacco products, alcohol, and inhalants)

2. Those that are generally **illegal** and for which international trafficking is prevented by convention (e.g. cannabis, some hallucinogens, cocaine, heroin)

3. Those for which both national and international sale is somewhat **controlled** because, although they have legitimate medical uses, their considerable potential for abuse has been recognized (e.g. tranquillizers, sedatives, some amphetamines, and many of the "other opiates" used in cough and diarrhoea medicines, for example).

Effects of substance use

Substance abuse[7] - It refers to harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs. Repeated and prolonged or heavy use of such substances can lead to *dependence*, which is characterized by continued use of the substance despite physical and mental problems, difficulty in controlling use, strong desire to take the substance, neglect of other activities and interests, increased tolerance, and sometimes a withdrawal syndrome if use is ceased or reduced.

Harmful use[7] – It is a pattern of psychoactive substance use that is causing damage to health. The damage may be physical (as in cases of hepatitis from the self-administration of injected psychoactive substances) or mental (e.g. episodes of depressive disorder secondary to heavy consumption of alcohol).

Dependence syndrome[7] - cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other

activities and obligations, increased tolerance, and sometimes a physical withdrawal state.

The dependence syndrome may be present for a specific psychoactive substance (e.g. tobacco, alcohol, or diazepam), for a class of substances (e.g. opioid drugs), or for a wider range of pharmacologically different psychoactive substances.

Withdrawal state[7] - It is a group of symptoms of variable clustering and severity occurring on absolute or relative withdrawal of a psychoactive substance after persistent use of that substance. The onset and course of the withdrawal state are time-limited and are related to the type of psychoactive substance and dose being used immediately before cessation or reduction of use. The withdrawal state may be complicated by convulsions.

Studies report that early age of onset of initial substance use is associated with engaging in multiple health risk behaviors among young adolescents[8]. However, research shows that early intervention can prevent many adolescent risk behaviors[9]. Substance use is a major risk to health. Adverse outcomes of exposure to alcohol, tobacco and other drugs include cancers, non-communicable diseases, motor accidents, poisonings, HIV/AIDS, suicide and trauma[10]. Excessive use of alcohol by adolescents has been associated with long-term ill health, as well as behaviours that can produce immediate harms such as driving under the influence of alcohol, accidental injuries, violent behaviours and risky sexual behaviour[11]. The use of tobacco causes an increased risk of oral cancer, periodontal disease, oral mucosal lesions and other deleterious oral conditions and it adversely affects the outcome of oral health care including esthetics[12].

Disease burden

The extent of worldwide psychoactive substance use is estimated at 2 billion alcohol users, 1.3 billion smokers and 185 million other drug users in 2000[1]. The total number of other drug users has increased in 2004. It is estimated to be some 200 million people, equivalent to about 5 per cent of the global population age 15-64. Cannabis remains by far the most widely used drug (some 162 million people), followed by

amphetamine-type stimulants (some 35 million people), which include amphetamines (used by 25 million people) and ecstasy (almost 10 million people). The number of opiate abusers is estimated at some 16 million people, of which 11 million are heroin abusers. Some 13 million people are cocaine users[13]. Worldwide, it is estimated that tobacco causes about 8.8% of deaths (4.9 million) and 4.1% of DALYs (59.1 million). Alcohol causes 3.2% of deaths (1.8 million) and 4.0% of DALYs (58.3 million). Globally, 0.4% of deaths (0.2 million) and 0.8% of DALYs (11.2 million) are attributed to overall illicit drug use[14].

In India the prevalence of current tobacco smoking among adults (15 years and older) was 42% for males and 8.5% for females in 2003. The per capita recorded alcohol consumption (litres of pure alcohol) among adults (≥15 years) was 0.3 in the same period[15].

Substance use prevalence

Among Indian studies, the prevalence rate varies across regions. A survey conducted by Indian Medical Association, Manipur State Branch, in the state, in 1988, found 10% of the general population as drug abusers and 4.1% among students[16]. A study in 1997–1998 in Meghalaya and upper Assam region among general found that the prevalence of alcohol use was 12.5%[17]. A study in Dehradun, Uttaranchal, among students of standard 9 to 12th, found the overall prevalence of substance abuse for ever-users was 58.7%[18]. A study in Shimla in 2004, Himachal Pradesh, among class XI and XII students, found mean prevalence of all time drug use as 43.1%[19]. A survey of high-school students in Delhi, carried out in 1975, revealed that 34.2 per cent of respondents used psychoactive drugs in the preceding year. The survey was replicated in the same classes of students in 1976 and found the prevalence declined a little to 32.2%[20]. Another study in Delhi in 2003 among students aged 10 -18 years studying in middle and senior secondary schools in the National Capital Territory of Delhi, reported the overall prevalence of consumption of alcohol, tobacco and betel leaf to be 13.4%[21].

Among international studies, a web based study in Detroit in 2005, among secondary school students in grades seven through twelve, the lifetime prevalence of nonmedical substance use for any category of the four studied (pain, sleeping, sedative/anxiety and stimulant medication) was reported to be 21%[22]. A Study in UK among second year university students reported alcohol use by 89% and use of any illicit drug to be 59%[23]. A study in Turkey in 2004, among tenth graders whose mean age was 16 (range 15-20) years reported lifetime prevalence of 57% for tobacco and 54% for alcohol[24]. Another study in Uganda in 2001 among high school students reported lifetime tobacco prevalence of 33% and current prevalence of 22%[25]. A study in Jamaica in 1995, among students aged 16-17 years, reported the current prevalence of illicit drug use to be 10% for marijuana, 2.2% for cocaine, 1.5% for heroin and 1.2% for opium[26]. A study in Croatia in 2004 among students reported, abuse of psychoactive substance at least once in lifetime prevalence was 90% for alcohol, 80% for tobacco and 39% for marijuana[27].

Patterns of substance use

Among Indian studies the pattern of substance use varied between various regions. In Manipur, alcohol was the most abused substance with prevalence of 8.5%. The number of cannabis abusers was found to be 7.4% of all abusers and prevalence of 0.75%. Opiate abusers formed 82% of all abusers and prevalence of 0.61% of the population[16]. A study in Delhi in 1981 among male senior high school students found alcohol and tobacco ever users (33.5%) were the most commonly used drugs. Other drugs used were tranquillizers, cannabis, sedatives, narcotics and hallucinogens [28]. In Shimla, Tobacco (29.3%), alcohol (25.5%) and cannabis (20.8%) were the most frequently used drugs[19]. In Delhi studies of 1975 and 1976 the common substances used were tobacco (35.1), alcohol (26.2), cannabis (12.0) in 1975 and tobacco (28), alcohol (24.4) and cannabis (10.3) in 1976[20].

Among international studies, the Texas school survey in 2006 among students of grades seven through twelve found alcohol continues to be the most widely used substance with 66% reporting they had used alcohol at some point in their lives. Tobacco was next in common with 35% reporting in 2006[29]. A study among grades

10 and 12 students in Pinellas County, Florida, USA, in 2006, reported alcohol ever users to be 62.5% and tobacco 41.1% to be common substances[30]. Another study in Australia among secondary school students aged 16- 17 years in 2005 found lifetime users of alcohol to be 95%[31]. A Canadian study among Ontario public school students, of grades 7,9,11 and 13 in 1997, reported the prevalence of substance use in the previous 12 months or recent use, to be alcohol 59.6%, cigarettes 27.6% and cannabis 24.9%[32].

Factors associated with substance use

There are various factors associated with substance use among students. The study in Dehradun found male sex, living away from parents and urbanity were found to be significantly associated with substance abuse[18]. Another study in Delhi found that variables contributing significantly to drug use were age, heterosexual dating, drug abuse among family members and drug abuse among friends. However, drug use was not found to be significantly associated with family income, father's occupation, family structure and place of residence[20].

In the Texas school study, older students, getting poor grades and students who don't live with both parents were associated with higher prevalence[29]. In the Australian study in 2002, nearly 40% of students who had consumed alcohol in the week before the survey indicated that their parents had given them their last alcoholic drink. Parents who take alcohol find it acceptable to give their children alcohol so they can "learn" how to drink alcohol, as well as to join in celebrations[31]. Epidemiologic studies have indicated that religiosity is inversely related to adult mortality rates, and lower rates of substance use among individuals with an involvement in religion have been suggested as contributing to this mortality differential. Among adolescents too, religiosity reduce the impact of life stress on initial level of substance use and on the rate of growth of substance over time[33]. A study in England among school students reported that deliberate self harm, which is an act with a non fatal outcome, are also associated with substance use[34].

Introduction to substance use

The study in Shimla found friends (66.6%) and family members (11.5%) were the common source of introduction to substance use. About 14.5% of the students did not disclose the source of introduction[19]. The replicated study in Delhi in 1976 also found school friends, off-school friends and family members were the first to introduce to substance use[20]. Family plays a very important role in initiation of tobacco use by a young child or adolescent. Tobacco use by parents or an elder sibling increases the likelihood that a child begins smoking. A child growing in such a family watching his elder brother, father, uncles or grandfather using tobacco may perceive it as a family tradition that is to be followed. Peer pressure is an important determining factor for initiation of tobacco use among children and adolescents. Here, modeling and social approval play an important role. When one is distressed due to any reason, an offered cigarette or **beedi** by a friend initiates the conforming process with a tobacco-using peer-group network[35].

Reason for use

The study in Shimla study found enjoyment (41.8%) and curiosity (21%) and religious custom (15.6%) to be common reasons for initiation of substance use[19]. The study in Delhi found the most common reasons for using drugs seemed to be curiosity, recreation and the facilitation of social interaction. Tranquillizers seemed to be used mainly by individuals with personal problems. Use of drug to "deepen self-understanding" ranked relatively high for opium and sedatives[28].

Prevention and control measures

There are various laws to prevent substance use and trafficking in the country. Some of the relevant ones are The Narcotic Drugs and Psychotropic Substances act, 1984 and Prevention of Smoking in Public Places Act, 2003. The Cable Television Networks Amendment Act of 2000 prohibited the transmission of tobacco commercials on cable television across the country. The Government of Manipur has The Manipur State prohibition Act, 1991, to reduce alcohol abuse that came into force in the early nineties.

Schools are recognized as important sites for prevention efforts and school substance use policies are a key component of health promotion in schools. A review of the available research on the prevention of youth substance use through the use of school policy provide some evidence that well implemented school policies are an important component of school-based health promotion[36]. A study in Baltimore, USA, in 1999-2000 among youths aged 13-16 years from low-income urban sites reported a parental monitoring intervention (Informed Parents and Children Together [ImPACT]) with and without boosters can reduce substance abuse[37]. Physicians can play a major role in the prevention of alcohol problems among their patients and that medical schools should prepare physicians for this role by teaching three major subject areas: knowledge, attitudes and clinical skills[38]. Pediatricians are also in a unique position that can help prevent substance use among adolescents. Pediatricians hold valued, respected positions with their patients and their patients' families and within the community. Armed with the knowledge of normal adolescent development, the pediatrician has the unique ability to provide appropriate anticipatory guidance and counseling in substance-abuse prevention and to place tobacco, alcohol, and other drug use in the context of risk behavior in general, which may lead to the identification of other risk behaviors and the opportunity to intervene by encouraging protective behaviors[39]. Factors that contribute to the emergence of substance abuse in the pediatric population are multifactorial. Behavioral, emotional and environmental factors that place children at risk for the development of substance abuse mat be remediated through prevention and intervention programs that use research-based, comprehensive, culturally relevant, social resistance skills training and normative education in an active school-based learning format[40]. Drug Abuse Resistance Education (D.A.R.E.) is the most widely used drug use prevention program in the United States. The D.A.R.E. middle and junior high school 10-session curriculum provided skills in resisting influences to use drugs and in handling violent situations. It also focused on character building and citizenship skills. The Minnesota D.A.R.E. Plus Project was developed to evaluate whether the middle and junior high school D.A.R.E. curriculum and an expanded D.A.R.E. Plus at the middle and junior high school level would reduce tobacco, alcohol, and marijuana use and violent behavior among seventh- and eighth-grade students. The D.A.R.E. Plus Project demonstrated that a multi-component intervention significantly improved the D.A.R.E. middle and

junior high school D.A.R.E. curriculum and became an effective intervention for reducing increases in alcohol, tobacco, and multidrug use and victimization among adolescent boys[41].

Another school based prevention program is the Life Skills approach or intervention in school curricula. This program can prevent substance use by passing on to students' skills for conflict resolution, stress management, decision-making and drug refusal skills. Botvin Life Skills Training project has been widely evaluated with impressive results; this framework can serve as an excellent model for program planners. The design of the program incorporates the following principal goals: (1) to promote students' abilities to resist social pressure to smoke, (2) to diminish students' susceptibility to indirect pressure from society to use tobacco and other drugs by creating a greater sense of self-esteem, "self-mastery," and self-confidence,(3) to help students control anxiety produced by certain social situations, (4) to increase knowledge of the immediate consequences of tobacco and alcohol use and (5) to promote the development of negative attitudes and beliefs regarding tobacco and alcohol use[42]. Another type of intervention is the peer-led school health education. The term 'peer educators' generally refers to students delivering an educational programme who are of similar, or slightly older, age than the students receiving the programme. A review of published studies which compare peer-led and adult-led delivery of the same school based health education programme under experimental conditions reported that in the majority of trials that reported any behavioral effects of the intervention, peer-led interventions were at least as, or more, effective than adult-led education[43]. Theatre has been used in British health education to provide drug education. 'THE' is one such programme and has been employed in various forms. In some, professional actors deliver performances, whereas others encourage pupils to develop their own plays, which they perform to audiences comprising other pupils and parents. Performances are followed by discussions, led by teachers, actors or a mixture.

'THE' contains cognitive, affective and skills component. Participative approaches, using techniques such as THE, are more effective at reducing drug use than non-participative ones[44].

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