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Country Profile - India

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India is a vast country of 634 million people. It has twenty-two states and nine union territories. Health is primarily a state subject and therefore states are the main implementing agency for the execution of various health programmes and policies.

India has recently launched a major project for strengthening of primary health care by introducing a scheme of community health workers and, together with its multipurpose health workers it will provide primary health care to its vast rural population.

Although drug abuse does not form a major health problem in the country, India has taken many major decisions to deal with the problem.

In 1976 the Government of India appointed a special Committee on Drug Abuse. Its major findings and recommendations are as under.

1. Dependence-producing drugs

The focus of this report is on the following dependence-producing drugs and other substances that are commonly misused in India:

i) Cannabis and its products (e.g. Bhang, Ganja and Charas)

ii) Hallucinogens (e.g. L.S.D.)

iii) Tranquilizers, hypnotics and sedatives (e.g. meprobamate, diazepam, methaqualone and chloral hydrate)

iv) Barbiturates (e.g. phenobarbital and secobarbital)

v) Amphetamines (e.g. dextro-amphetamine and methyl amphetamine)

vi) Tobacco

vii) Other narcotic drugs (e.g. opium, pethidine, morphine, heroin and cocaine)

viii) Alcohol.

These drugs have been classified in three categories to ensure better control

a) Prohibited drugs: This category will include drugs which are very harmful and which have little or no medical use:

i) Hallucinogens like L.S.D.

ii) Heroin

iii) Hashish oil

iv) Charas

b) Controlled drugs (Category A)· This category will include drugs which have a medical use but also a high potential for abuse·

v) Opium and its alkaloids such as morphine

vi) Synthetic narcotic drugs (e.g. pethidine)

vii) Cocaine

viii)Amphetamines

ix) Methaqualone

c) Controlled drugs (Category B): This category includes drugs which are extensively used in medical practice and have a comparatively less potential for abuse. This category would also include Ganja which however has no medical use:

x) Minor tranquilizers

xi) Barbiturates, hypnotics and sedatives

xii) Chloral hydrate

xiii)Ganja

This list is merely illustrative. Obviously, such lists will also have to be reviewed from time to time.

The report, however, does not deal explicitly either with tobacco or alcohol.

2. Current prevalence of drug abuse

The existing studies on the subject do not cover all the different regions of the country. Even the few studies available, whether on the general population or on students, are mostly cross-sectional and not representative of the population, they have several methodological flaws and the investigators have used definitions and parameters which are not strictly comparable.

3. General population

The drug problem exists in the population as a whole. The drugs most frequently misused are alcohol, tobacco, opium and cannabis, while the psychotropic drugs are just making their entry. The proportion of non-users is very large, but it is admitted that there is a small hard core of addicts, many of whom become mentally ill and some of whom are treated in our psychiatric units and mental hospitals or by private practitioners. Within this hard core, the alcohol addicts are obviously the most numerous and psychotropic addicts, the smallest group. Addiction is also more common among men than among women.

The prevalence of drug abuse among students is limited, although it constitutes a complex and difficult issue that cannot be ignored.

All things considered, it appears that the extent of the drug problem is limited at present, except for alcohol and tobacco. However, in the opinion of the Committee, there are disturbing signs which show that the situation in our country is likely to worsen and get out of hand if adequate measures are not adopted to curb the evil. We, therefore, recommend that planned, comprehensive and sustained measures should be taken without delay to prevent and control drug abuse in the total population in general, and among the students in particular.

4. Research and statistics

It is necessary to organize systematic studies on the prevalence of drug abuse for all regions of the country, separately for students and general population, and to repeat these studies to get longitudinal data. It is also essential to organize systematic research on different aspects of the problem on a continuing basis. The secondary data available on the subject can be improved to give a better picture of the situation.

5. Theoretical framework for prevention and control

While adopting measures for the prevention and control of drug abuse, the following points will have to be kept in view·

i) drugs cannot be eliminated, but their abuse can be controlled and minimized,

ii) preventive and control measures should be directed at all strategic points and not concentrated on any one point, however significant,

iii) drug abuse cannot be treated in isolation from other forms of deviant behaviour,

iv) instead of creating new, isolated and large structures for prevention and control of drug abuse, it would be more economical and efficient to develop the programme as an integral part of the existing administrative machinery,

v) all drugs form a continuum and the drug problem must therefore be treated in its entirety.

6. Against the background of the complex drug-individual-society relationship indicated, the framework for prevention and control of drug abuse will be as follows:

i) legal and penal measures which try to keep the drug away from man,

ii) educational measures which try to keep man away from the drug,

iii) social action which tries to remove conditions which necessitate drug use or to develop alternatives for drug use.

7. Legal and penal measures policy

We should create, at the central level, an integrated machinery for the formulation of a comprehensive and balanced national drug control policy. From this point of view, we recommend that a National Advisory Board on Drug Control should be established immediately. The Ministry of Health and Family Welfare should be its Chairman and senior officers of the Ministry of Finance, Ministry of Education, Ministry of Information and Broadcasting, the State Governments, the Department of Social Welfare, the Central Bureau of Investigation, the Indian Council of Medical Research, the Indian Psychiatric Association, the Indian Council of Social Science Research, the Indian Association of Chemists and Druggists, the Association of Drug Manufacturers, the Health Secretary, the Chairman, Central Board of Excise and Customs, the Narcotics Commissioner of India, and the Drug Controller (India), should be ex-officio members. It should also include a few eminent non-officials (psychiatrists, educationists, journalists, politicians, etc.) interested in the probelm. The Board as a whole should meet once a year. But there should be a small Standing Committee which should meet more frequently, say, once a quarter.

8. The National Advisory Board on Drug Control shall:

a) review periodically the situation of drug abuse in the country,

b) sponsor research, on a continuing basis, on different aspects of the drug problem,

c) call for, compile, and publish all the relevant statistics on the drug problem,

d) submit an annual report to the Government of India on the status of the drug problem in the country,

e) advise the Government of India and the State Governments on all aspects of the national drug control policy and its implementation.

i) There should be a special unit in the Ministry of Health and Family Welfare to function as the Secretariat of the Board and the necessary funds for the Board, its programmes and staff should be provided on a priority basis.

ii) The National Advisory Board on Drug Control should be established immediately so that it is able to take action on several of the important recommendations.

Legal and penal measures legislation: We are of the view that it would be an advantage to have a single law which would deal with the prevention and control of abuse of drugs whether narcotic or psychotropic. This is already in the offing.

Legal and penal measures implementation. Legislation will not have its desired effect unless the implementation is satisfactory, i.e. unless the average law breaker realizes that he does not have an adequate chance to escape. From this point of view, we recommend:

a) that the existing loop be plugged and remedied in the proposed legislation,

b) that the implementing machinery should be strengthened to the extent possible, especially by creation of special squads at crucial points and in important areas,

c) that every effort should be made to secure better coordination between the central officials and the state police.

9. From abstinence to addiction

An individual passes from the stage of abstinence to addiction, generally through the interim stages of experimentation, casual or occasional use, and regular use without any serious adverse effects. The reasons why some persons become addicts and others stop at various earlier points are not clearly known. But two action points are indicated: a) we have a strong tradition of abstinence which must be preserved and strengthened, and b) educational and social measures along with medical treatment can be of use at every earlier stage to prevent addiction.

i) Educational measures: We attache great importance to the education of all social groups, especially the elite, regarding continuous awareness of the drug problem. Drug education should be a part of health education activity at all levels of the society.

ii) Carefully designed, factually correct and scientifically evaluative programmes should be designed for specific target groups which impart information of drug abuse. Such groups may, for example, be students, persons engaged in operation of machinery or vehicles, rural labour, non-student youth and adults.

iii) The Departments of Social Welfare, Education and Mass Communication, in consultation with the Department of Health, should develop such programmes and set up a machinery to evaluate and advise other voluntary agencies who wish to participate in such programmes.

iv) Social action: The basic assumption underlying this approach is that the misuse of drugs is not a disease in itself, but the symptom of some social mal-functioning and the emphasis is placed not so much on treating the symptom, as on removing the causes of drug abuse through programmes of social reform. These are not quick or easy solutions. But in the long run, they alone can provide the genuine and lasting remedies, not only to the drug problem, but to several other illnesses that the society suffers from.

v) This social action will include·

- measures to create an enlightened and rational social opinion on the subject,
- helping the adolescent and youth to grow smoothly to adulthood and maturity,
- strengthening of peer groups and using them meaningfully for individual and social development,

- involving youth in meaningful and challenging programmes of adventure, risk-taking, physical education, games and sports, social service, and literary and recreational activities,
- eliminating vested interests in drug abuse,
- transforming society on egalitarian lines and abolishing poverty.

10. Treatment of drug addicts

At present, there are no specially organized facilities for the treatment of drug addicts in the country. Most of the drug dependent individuals are treated at psychiatry departments, wherever they exist, if they are referred to these departments. As these facilities are obviously limited, it is presumed that some drug addicts would be treated by general physicians and other health professionals, while quite a large number of them may not be receiving any treatment at all. Mental hospitals and in-patient units of psychiatry departments do provide admission facilities for such patients. Some of the teaching and training institutions are also in the process of developing small addiction units. In the context of inadequate facilities for dealing with health problems, it is not desirable to provide specific and separate treatment facilities for drug addicts.

11. We make the following recommendations for future development of services for the treatment of drug addicts:

i) it would be both economic and efficient if the treatment of drug addicts is developed as part of the general health services of the country;

ii) there is a paucity of beds in hospital services in all the areas, hence the creation of special residential treatment facilities for drug dependence would not be a feasible proposition as a general method of treatment. The international trend now is to move away from the residential to the out-patient department or ambulatory treatment. We should also adopt the same policy,

iii) it would be desirable to provide these services within the framework of psychiatry departments wherever they exist or develop. As an interim measure, these facilities could also be developed in medical specialities,

iv) in urban areas where the current prevalence of drug abuse is large and is expanding into the student body, we suggest that de-addiction centres should be established for the provision of comprehensive services. Such services should cover all dependence-producing drugs and should also have in-patient and out-patient services, with accent on the latter. They should also be free to experiment with various treatment modalities on a time-bound basis with built-in evaluations, so as to determine the best possible techniques for the Indian setting. These centres should also be charged with maintaining and evaluating the legal registration systems and act as foci for training other health professionals for similar work within the country.

v) between four to six such centres should be initially set up with central finance in the country. Subsequently, each state should set up at least one centre during the sixth plan period. At the state level, encouragement should be given to all medical colleges to set up such units in medical/psychiatric units.

12. Registration of drug addicts

We attach great significance to the programme of registering regular users and drug addicts and saving them from the clutches of unscrupulous peddlers by establishing approved centres where they can have their needed quota of drugs at standard prices on production of medical certificates issued by prescribed authorities. The scheme should be introduced for all dependence-producing drugs whose control has been advocated.

13. Rehabilitation

The rehabilitation of a drug dependent individual should continue to remain the main responsibility of his family and the social group and the de-addiction service should at best become a support and supplement. Efforts should, however, be made to involve the voluntary agencies in the programme.

W.H.O. WORKSHOP ON PREVENTION AND TREATMENT OF DRUG DEPENDENCE

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COUNTRY PROFILE - INDIA

1. Overview and National Strategies

1a. Brief description of the country's health care system:

India, a vast and diverse country of over 625 million people, has had a long and cherished history of systematic health sciences and organized health care. The present health care resources include approximately 15,000 hospitals with 300,000 beds, 106 medical colleges, 150,000 doctors in addition to non-medical and lesser professionals. Over 5,000 primary health centres (PHC) each catering to the needs of approximately 80,000 to 100,000 people, form the grassroot facility of health care with referral facilities to district hospitals and medical college hospitals. Each primary health centre is further divided into a number of sub-centres. Recently a'plant of action' for rural health has been adopted. This plan revolves most crucially around creation of bands of community level workers to be recruited from the community itself to provide simple promotive, preventive, and curative health services; and "health workers" and "health assistants" to act as link between the community level workers and primary health centres. To begin with, school teachers, post-masters and gramsevaks would be mobilised as community level workers to look after the health aspects of the community in addition to their normal occupation, i.e, on a self-employment and part-time basis. In the plan there will be eight sub-centres per PHC.

Any description of the health care system for India cannot ignore the indigenous systems like Ayurvedic, Siddha, Homoeopathic and Unani systems which have had a long history in the country. Although with the advent of "modern" medicine have gone down in popularity and more so in prestige, there is enough indication that they cater to a very large proportion of the Indian population with estimates running upto 80%.

1b. Availability of Drugs

From all available evidence it seems that the following dependence-producing drugs are largely available in the country:

i) Tobacco

ii) Alcohol

iii) Cannabis - Bhang, Ganja and Charas

iv) Stimulants - amphetamines, dexamphetamines, methamphetamines

v) Sedatives - barbiturates, methaqualone

vi) Opium, and morphine

vii) Opiates - preparations containing codeine, mepiridine

viii) Tranquillizers - Diazepam, chlordiazepoxide, phenothiazines.

About the other major drug categories, it does not appear that cocaine, hallucinogens, inhalents, or heroin are used, atleast to any large extent.

Legislation exists regarding the sale, possession and use of most of the above drugs. There is no restriction with regard to sale or use of tobacco although a statutory warning has now been included in all advertisements concerning cigarettes. With regard to alcohol, two states practise complete prohibition. Parts of one other State are completely dry and in the rest of

the country "dry days" are practised. Various types of licencing are available for operating a liquor shop.

All the other drugs are subject to legal control (described in detail in 1k). However, in spite of the legal restrictions, most of the drugs are procured and used in a clandestine fashion.

1c. Assessment of the problem

Wig and Verma (1977) have summarized the relevant data with regard to the extent of drug use in the country. Figures are available for the general population as well as for special groups like students and the psychiatric patients.

Relatively few studies which have scientifically ascertained prevalence of drug abuse have been reported. The following, however, give some idea of the size of the problem:

General population

1. Chopra (1940) deduced that 1% of the Indian population was addicted to cannabis.
2. Chopra (1971) estimated that there are over 3 million cannabis habitues in the country (Population in 1971, 548 million).
3. Chopra and Greval (1927) found that 0.1% of the population of central Punjab was addicted to opium. However, in 1964 only 1,511 opium smokers were registered in the entire country (Chopra and Chopra, 1965).
4. Deb (1977) found that out of the general population of Punjab studied 53.3% of the urban and 40.4% of the rural subjects used synthetic drugs such as methaqualone and LSD.
5. Deb and Jindal (1974) studied pattern of alcohol use in villages around Ludhiana district of Punjab and found a prevalence rate of 741/1000 among adult males.

6. Dube and Handa (1969) reported that of 28,767 normals, 0.77% habitually used alcohol and 0.47% other drugs. The same authors reported these rates as 1.38% and 0.83%, respectively in 1971.

7. Elnagar, Mitra and Rao (1971) reported that 18(1.3%) of 1,383 inhabitants of a village were addicted to alcohol or drugs.

8. Gurmeet Singh and Brij Lal (1977) found that 299.8/1000 persons of age 10 and above had ever used a drug and 287.7/1000 were current users in Sangrur District of Punjab. It was found that 40% used tobacco, 25.6% alcohol, 18.9% opium, 6.2% barbiturates and 2.2% cannabis.

9. Thacore, Saxena and Kumar (1971) found 50 cases (1.9%) of addiction among 2696 members of 497 families surveyed. Out of these 50, 48 were addicted only to alcohol, one to cannabis and one to both alcohol and cannabis.

10. Dig and Varma (1977) identified 90 and 49 longterm (over five years) heavy (1 gm or more of charas or equivalent per day) cannabis users in general population of Chandigarh and Jullundur (Punjab) respectively. (The population of the two cities are roughly 300,000 and 200,000 respectively). The total longterm, heavy users were estimated to be in the range of 500-1000 in each city.

Students

1. Banerjee (1963) in a study of 1,132 students of Calcutta University found a prevalence of abuse of tobacco in 26% and of amphetamines in 11.2%.

2. Chitnis (1974) found a prevalence of 19.7% among students of Bombay University.

3. Dube, Kumar and Gupta (1977) found that 73.88% males and 25.96% female students of Agra had drug experience at some time or another. Drug use was highest (80.66%) among male medical students. The substances commonly used by males were alcohol, barbiturates, mandrax, vesparax, equanil, librium, pain killers. The female students mainly used equanil and pain killers.

4. Mohan, Thomas and Prabhu (1978) found that out of 225 high school students studied, the most popular drugs used in order of preference were tobacco (31.1%), alcohol (26.1%), tranquillisers (8.9%), amphetamines (5.8%), sedatives (4.9%) and opium (1.3%).

5. Mohan and Arora (1976) found in a survey conducted in selected Delhi colleges that prevalence of drug use was 24.7%. Tobacco abuse was highest, followed by alcohol, tranquillisers, amphetamines, opium and barbiturates.

6. Sethi and Manchanda (1978) studied 1513 college students of Lucknow and found 11.5% of the students to be drug abusers. Alcohol was used by 51.1%, bhang by 40.8%, tranquillisers by 11.5% and non-barbiturate sedatives by 7.5% of the students.

7. Thacore, Saxena and Kumar (1971) found that 21% of medical students who sought psychiatric treatment had a history of drug abuse at some time. Students seeking psychiatric help in turn represented 1% of the medical student population.

8. Varma, Ghosh, Singh and Dig (1977) found that among college and university students in Chandigarh, 18.19% admitted to having taken one or more of the following drugs at some time -

barbiturates, amphetamines, cannabis, mandrax and LSD; 1.5% to 2% could be considered regular users.

9. In a multi-centered study conducted under the auspices of Indian Council of Medical Research (1977), it was found that alcohol, tobacco and pain killers were the most commonly abused substences. Alcohol use was highest in Bombay (12.3%), and lowest in Hyderabad (8.6%); prevalence of tobacco was highest in Madras (15.2%) and lowest in Hyderabad (5.3%); pain killers were highly used in Delhi (20.9%) while lowest in Madras (1.4%); the use of tranquilisers was highest in Delhi (2.9%) and lowest in Bombay (1.0%) while barbiturate use was lowest in Jaipur (0.4%), equal in Delhi, Bombay and Hyderabad (0.6%) and near equal in Madras and Varanasi (1.5-1.8%). Amphetamine use did not differ much between the centres but cannabis use was highest in Varanasi (10.9%) and ranged between 0.4% in Bombay to 1.5% in Madras. The use of LSD and cocaine was almost negligible in all the centres. The use of opiates was also very low and it ranged from 0.45% to 0.70% between the centres but at Varanasi it was 1.80%.

Non-student youth

Varma and Dang (1977) found that as compared to students, drug use amongst non-student youth was confined largely to tobacco, alcohol and cannabis, and in their case, the age at onset was also lower.

Patients

1. Chopra and Smith (1974) found that amongst the patients admitted with psychotic symptoms, 11% were cannabis users.

2. Dube and Handa (1971) found that drug use was decidedly more in manic depressive psychosis and schizophrenia than in any other diagnostic category and observed that mentally ill tended to abuse drugs indiscriminately while the healthy people abused specific drugs.
3. Dube et al. (1975) reported cannabis abuse in 23.7% of 556 consecutive hospital admissions.
4. Goyal and D'Netto (1975) found that 14.4% of the patients admitted to the Forward Military Psychiatric Centre had ever taken cannabis and of these, only three took it frequently and three regularly.
5. Sethi and Gupta (1972) analysed 2000 psychiatric patients and found that only 1% of private and 0.6% of hospital patients were dependent on alcohol.
6. Varma (1972) observed cannabis psychosis in 3.2% of a total of 39,000 patients admitted to mental hospital over a 10 year period.

Personality correlates of drug use

1. Gupta, Sethi and Gupta (1976) studied the personality of heavy smokers and non-smokers and found that smokers were significantly more neurotic and extravert on EPI as compared to the non-smokers. On 16 PF, they came out to be more neurotic, more extrovert, having poor emotional control and independent and rebellious nature.
2. Mohan et al. (1978) studied personality of drug abusers of Delhi University using Eysenck's Personality Investory and found drug users to fall in the normal introverted quadrent of EPI which was in keeping with the experimental nature of drug abuse.

3. Varma, Aggarwal and Bang, in a study, correlated anomie, alienation and authoritarianism with drug use and found that females, younger age group, Hindus, those from urban background and with high education of father gave negative correlation between drug use and the personality variables, whereas the other gave a small positive correlation.

Extent of drug use

On the basis of the above and other impressionistic information our estimate would be the following:

Opium: 2 - 3% of adult males in rural north India use it regularly. Codeine is also occasionally used. Heroin use is very uncommon.

Morphine and Pethidine (Demerol) injections: Use is confined to urban, education groups. Prevalence is perhaps 0.25 to 0.5 % of the general urban population. Dependence in medical profession (doctors, nurses, dentists) is higher, perhaps 1%.

Barbiturates; Use is rapidly increasing. Often used as a cheap substitute for alcohol. However, severe dependence is relatively rare.

Amphetamines: Fairly widely used among students for keeping awake for studies. In our study (Varma et al. 1977) amphetamine intake was considered to be the single largest drug problem among students.

Mandrax (methaqualone and diphenhydramine): Use has rapidly increased in the last ten years, particularly among urban youth.

Cannabis: Bhang drinking is a well established social (and often religious) custom in many parts of east India. In many religious cities, 5 to 15% of the adult male population use it regularly. Ganja smoking is widespread in Uttar Pradesh and Bihar among cultivators and unskilled workers. It is unusual for bhang and ganja users to seek treatment for dependence. Charas users are somewhat more liable to seek treatment.

1d. Impact of use (health, social, economic)

Information in this respect is almost nil. The author's own impression gained by a number of field surveys is that the impact on the psychosocial health may be limited. More specific knowledge is available with regard to long-term, heavy cannabis use. In two series although we did not come across cases of so-called cannabis psychosis, there was suggestive evidence of impairment of cognitive functions as compared to non-user controls. On the other hand, Bromberg (1939) and U.P. Varma (1972) have described the so-called cannabis psychosis. Unfortunately, the published literature is characterized by a great amount of vagueness about the clinical features of so-called cannabis psychosis so that it is not possible to tell if the patients were actually suffering from this or some other psychotic illness, e.g. schizophrenia.

With regard to long-term opium use, although the use is fairly widespread in the rural male population, controlled studies as to its effect are not well known. Some studies have found that opium commercially available contains sizable amount of arsenic which has been implicated as cause of cirrhosis (A.V. Dutta, personal communication).

The information with regard to other drugs is too scanty and unreliable to comment.

1e. India is a signatory to the Single Convention of Narcotic Drugs, 1961 as well as to the International Conventions/Protocols on Narcotic Drugs. Prohibition has been proclaimed as a national goal with regard to other drugs, no new policy approaches are planned.

A National Advisory Board on Drug Control is being planned to review situation of drug abuse, sponsor research, compile and publish relevant statistics and to advise the Govt. of India and the State Governments on all the aspects of National Drug Control policy and its implimentation.

1f. Role of voluntary organizations

The role of voluntary organisations has been limited. There exists a Bombay Council on Alcoholism and Drug Dependence which was founded in January 1967. Although at its inception ~~and~~ its activities were to cover only alcoholism, but now its scope has been extended to drug dependence as well. The Council has plans for establishment of a treatment centre for alcoholics for ambulatory patients and also for half-way houses. However, these plans have not yet been realized.

Guru Nanak Mission Trust which operates a charitable hospital at Jullundur (Punjab) is starting a 10 beded drug-dependence treatment centre.

1g. Integration of treatment facilities into health services and relation of drug dependence and other mental health programmes.

One notable development in the last two decades or so has been the rapid proliferation of general hospital psychiatric services. In this fashion, very considerable part of psychiatric

treatment is currently being administered through general hospitals rather than the traditional mental hospitals. Also, of the primary rural health centres in all parts of the country, a number have been adopted to provide psychiatric care to the rural population.

As regards treatment for drug dependence is concerned, there is not much evidence that special facilities have been integrated for such treatment through the existing health care facilites.

1h. Training activity

So far very little is available with regard to opportunities for training in treatment of drug dependence. A number of the present 20-30 centres for post-graduate training in psychiatry have incorporated training in drug dependence and its treatment as a part of the total training. The WHO Collaborating Centre for research and Training in Mental Health at Chandigarh has developed a training programme in drug dependence and its treatment which will also be made available to WHO Fellows from other countries desiring such exposure.

1i Research activities

Some of the earlier research was addressed to the problem of cannabis with the landmark publication of the work of Chopra and Chopra. Prohibition Committee commissioned by the Govt. of India have added to the available data on alcohol use and its psychosocial correlates in their reports in 1955 and 1964. In addition there have been impressionistic and indirect data published from sources including the Excise data as to the extent of the problem.

The centres which have contributed mostly to research in drug dependence lately have been Agra, Lucknow, New Delhi, Patiala

and Chandigarh. Agra under the leadership of Prof. K.C. Dube took a lead in epidemiological research on drug dependence as a part of their general psychiatric epidiomological research as a collaborating centre of the International Pilot Study of Schizophrenia. Prof. B.B. Sethi at Lucknow has combined such epidemiological research again with the rural and urban surveys of psychiatric disorders. In addition, he and his coworkers have drug abuse problems in the student community. New Delhi under the leadership of Dr. D. Mohan has carried out a number of studies in student drug abuse, drug abuse in rural population and has also presented personality correlates of drug abuse. Dr. Gurmeet Singh at Patiala has been most active in general population surveys in drug and alcohol abuse. Also there has been an innovative approach propounded by him for treatment of opium dependence. Chandigarh under the leadership of Dr.N.N. Wig showed great interest in the study of effects of longterm treatment of cannabis use. Subsequently, Chandigarh centre has been very much involved in studies in general rural and urban populations, and amongst student and non-student youth using a probability sample design. Also Dr. P.C. Deb at the Panjab Agricultural University has been involved in the sociological aspect of drug dependence.

1j. Funding policies

No separate funding policies for drug research have been formulated. The Indian Council of Medical Research remains the major funding organisation in the country for all biomedical research including drug research. In addition to supporting some individual projects they also helped carry out a multi-centred epidiomological research on the extent of drug

bure, the results of which were published in 1977.

Indian Council of Social Science Research is also available for financing drug research especially those with social science implications. Lately, the World Health Organisation also has supported a number of projects especially at the Chandigarh Centre.

1k. Criminal Justice vis-a-vis Drug Dependence

The present situation regarding legislation pertaining to Drug dependence is as follows:-

(1) The States manufacturing drug rules framed under the Dangerous Acts 1930 provides for the supervision over the activities of manufacturers, wholesalers and retailers. They are required to maintain accounts of drug manufactured and sold by them. The manufactured drugs are issued only on the prescription of registered Medical Practitioners.

(2) The cultivation of poppy for production of opium is permitted only under the licence issued by the Govt. of India. Such cultivation is permitted in three states, namely, Madya Pradesh, Rajasthan and Uttar Pradesh. Lincences are issued for cultivation of poppy by the National Opium Agency of the Narcotics Dept of Govt of India and are for a specific ploit or plots of land. The cultivators are required to deliver the entire produce of the opium to the National Agency of the Govt. immediately after the harvest. The National Agency has an exclusive right of import, export and wholesale trade in opium. India does not import opium from any other country.

Opium smoking is banned except in case of opium smokers of more than 21 years of age registered on medical grounds on or before 30th Sept. 1953.

(3) Production and use of charas is prohibited in India. Cultivation of cannabis plants for production of ganja is undertaken at a limited scale under licence only in four States i.e. Bihar, Madhya Pradesh, Orissa and W. Bengal. The cultivators are required to deliver their entire produce of ganja to the state Govt. which has exclusive right to wholesale and retail trade in ganja. Non-medical consumption of ganja is permitted only in four states. Harvesting of cannabis growing wild is prohibited. Sale, possession etc of Bhang are regulated under the State Excise Act as an intoxicating drug. Further such leaves are covered by the definition of dangerous drugs under the Dangerous Drugs Act. Unauthorised transaction in Bhang is punishable under the Excise Act.

Being drunk in a public place causing roadyism and obstruction and rioting/quarrelling under the influence of alcohol are covered under Section 34 of Police Act and Section 160 of the Indian Penal Code. A person is supposed to be responsible for his acts committed under influence of drugs, including traffic violations and accidents.

1(1) Response to international treaties

India is a signatory to the Single Convension on Narcotic Drug, 1961, as well as to all other existing international treaties on Narcotic Drug.

2. Technical aspects of treatment

The present situation with regard to drug dependence treatment in India has been summarized by Ray and Verma (1977).

2a. Treatment facilities

There are perhaps 60-70 psychiatric centres in the country. These include psychiatric departments in medical colleges and teaching hospitals, mental hospitals and a large number of private nursing homes. Till recently there was no separate drug dependence unit, administratively, for treatment of drug abuse/dependence. By and large the treatment facilities and modalities in existence for other psychiatric patients in general have also been used by drug dependent persons. Lately, however, in-patient unit has been opened at the King George's Medical College, Lucknow. There are plans to open another in-patient drug dependence treatment unit at one of the charitable hopsitals in Julluncur (Punjab). An alcohol and drug dependence clinic was started in early 1978 at the post-graduate Institute of Medical Education and Research, Chandigarh.

2b. Treatment Methods used

The major types of treatment modalities provided for drug abuse patients includes detoxification facilities, individual and group, psychotherapy, relaxation therapy, behaviour therapy and rehabilitation programme. Very few centres practice methoddone therapy for opium dependence. Impatient hospitalisation is resorted to for detoxifications and forced abstinence.

2(c) Intake, referral and followup of patients receiving treatments.

Detailed information is not available on this point. It is assumed that the first contact is made at the general psychiatric clinics. Referrals by outside medical practitioners and agencies is very rare. At the centres for which information is available, most patients come on their own or on the basis of favourable reports by another patient.

The follow up of patients shows that in case of those with opium dependence, there is a high percentage of recurrence of opium intake. However, in case of a sizable proportion of them, the patients resume opium intake at considerably smaller doses than prior to treatment.

2(d) Community liaison

No such facilities exist except for some centres, like the Bombay Council of Alcoholism and Drug Dependence referred to earlier.

2(e) Patient characteristics

A survey conducted by Ajg and Verma (1977) showed that out of cases of drug dependence treated at selected centres in India in 1974, those seeking treatment for alcohol formed the single large group (479 patients). This was followed by those dependent to cannabis (224), opium (43), Barbiturates (37), Mandrax (44) and morphine/meperidine (28).

Practically all of the patients were males except in case of mandrax where 40% were females, and barbiturates and morphine/pethidine where in each case approximately 16% were females. Opium users were definitely older (over 40 yrs)

than those abusing other drugs (20 to 40 years of age).

Patients with opium abuse were reported almost exclusively from North India whereas those abusing cannabis were mostly reported from Southern and Eastern India. Alcohol abuse is fairly widespread but most of those seeking treatment for it were reported from the Western and Southern parts of the country.

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PATTERNS OF LONG-TERM HEAVY CANNABIS USE IN NORTH INDIA AND ITS EFFECTS ON COGNITIVE FUNCTIONS· A PRELIMINARY REPORT

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Summary

Out of 139 long-term heavy cannabis users, who had taken at least 1 g of charas or 5 g of bhang (equivalent to about 50 mg of Δ-9-tetrahydrocannabinol) per day for five years or more, 23 subjects and 11 non-users, matched in terms of age, occupation and marital status, were subjected to physical examination and investigations, and the following psychological tests (1) Raven's Coloured Progressive Matrices, (2) Malin's Intelligence Scale for Indian Children (an adaptation of the Wechsler Intelligence Scale for Children), (3) PGI Memory Scale (an Indian adaptation of the Wechsler Memory Scale), (4) Bender Visuomotor Gestalt Test (BVMG), (5) and (6) speed and "H" marking tests (from the General Aptitude Test Battery), (7) colour cancellation test, and (8) time perception test

None of the users or controls showed any abnormality on physical examination and investigations, except that five of the users had high blood uric acid levels (7 - 10 4 mg%, as opposed to the normal range of 2 - 6 mg%) Compared to non-users, users obtained significantly lower intelligence and memory quotients and higher Hain's scores on the BVMG Test The users also obtained significantly lower scores on the speed marking test and made greater errors in correctly perceiving time The differences in "H" marking and colour cancellation tests were not significant

Introduction

In the last decade very active debate, often emotionally charged, has been going on, mostly in North America and Western Europe, regarding the degree to which continued cannabis use is harmful to man However, the study of the effects of long-term heavy use on the psychosocial functioning of man has been fraught with difficulties, including that of locating an adequate number of chronic heavy users, and controls identical to the users

in all relevant aspects except for the drug use, and of differentiating the effects of cannabis use from those of other variables, including the adverse social and legal sanctions against its use We, in India, are in a somewhat more fortunate situation for such research, as there is supposedly quite a sizable number of people here with really long-term (several years) heavy use of various preparations of cannabis, and the social (as opposed to legal) sanctions against its use (which may be responsible for some of the adverse psychosocial effects reported earlier) are considerably less than in Western countries It may be that the strong emotion against cannabis use encountered in various areas in the West is not entirely based on known scientific facts, but is a function of a large number of sociocultural phenomena

The present paper is part of an on-going project to identify long-term heavy cannabis users so as to study the effects of such use on their psychosocial functioning Factual knowledge of the long-term effects should be of crucial importance in decisions about the future legislation and control of cannabis use This report deals with the demographic characteristics and patterns of use of a sizable sample of long-term heavy users, and the comparison between the intellectual, memory and other cognitive functions of a small sample of users and a sample of matched non-user controls

The present study had the following aims

(i) to identify a sufficient number of long-term heavy cannabis users, and to study their sociodemographic characteristics and the amount, frequency and duration of cannabis use by them,

(ii) to study certain cognitive functions of a small sample of the users and to compare them with those of a non-user control group matched with the users on essential sociodemographic characteristics

Material and method

The study was conducted in the cities of Chandigarh and Jullundur in northern India Several methods were attempted to identify the cannabis users Rickshaw pullers, scooter drivers, and lower-grade employees (usually referred to as Class IV employees), *e g* gardeners, sweepers, peons, *etc* , of governmental and other major organisations were individually contacted on the assumption that cannabis use may be more widespread amongst this class Certain users were recruited as paid motivators to contact other users Gathering places of users ("addas") in Chandigarh and Jullundur were visited and the users interviewed

Information on the users' sociodemographic background and the pattern, amount and duration of cannabis use included age, sex, education, occupation, religion, caste, income, marital status, mother-tongue, State of origin, age at starting cannabis use, duration of such use and the frequency and amount of intake per day

A user was defined as a person who had been taking, on average, 1 g or more of charas, or 5 g or more of bhang (or its equivalent), per day, regularly

for at least five years These quantities were assumed equivalent to 50 mg of Δ-9-tetrahydrocannabinol (THC)

Of the users identified, 23 (13 in Chandigarh and 10 in Jullundur) were selected for detailed physical and psychological evaluation Non-user controls were selected for 11 of these (7 in Chandigarh and 4 in Jullundur) by individual matching in terms of age (± 2 years), occupation and marital status

Users and controls in Chandigarh, subjected to detailed evaluation, were hospitalized for 24 - 48 hours at the Postgraduate Institute of Medical Education and Research, Chandigarh, whereas those in Jullundur were investigated on an out-patient basis

The following psychological and physical tests were administered to the users and controls

Psychological tests

(1) Coloured Progressive Matrices [1], (2) Malin's Intelligence Scale for Indian Children (MISIC) [2] (an Indian adaptation of the Wechsler Intelligence Scale for Children), (3) PGI Memory Scale [3], (4) Bender Visuomotor Gestalt Test (BVMG) [4], (5) and (6) speed and "H" marking tests (from the General Aptitude Test Battery, U S Employment Service), (7) colour cancellation test, and (8) time perception test In the last test the subjects were shown a lit torch for 30 seconds, right after which they were asked to light it for the same duration, the deviation from 30 seconds was recorded Care was taken to ensure that the subjects had abstained from cannabis for at least 12 hours prior to the tests

Clinical tests

(1) Urine sugar, albumen, acetone, microscopic
(2) Blood Hb, PCV, ESR, TLC, DLC, blood film
Electrolytes Na, K, Cl, HCO_3, urea, uric acid
Proteins albumin, globulin, A/G ratio
Bilirubin, creatinine, SGOT, SGPT, alkaline phosphatase
Bleeding time, clotting time, prothrombin index
(3) Chest X-ray
(4) Electrocardiogram
(5) Electroencephalogram
(6) Lipidogram

Results

A total of 51 charas users and 39 bhang users in Chandigarh and 49 charas users in Jullundur were identified Some assessment was also made of the possible number of users in Chandigarh and Jullundur on the basis of views and comments of the users, motivators and the group leaders of users Based on such information the number of long-term heavy users in

TABLE 1

Demographic variables of the users

	Charas (N = 100)	Bhang (N = 39)	Total (N = 139)
Age			
18 22	10	1	11
23 27	22	5	27
28 32	19	7	26
33 37	18	10	28
38 42	11	10	21
43 47	10	4	14
48 52	3	1	4
53 57	2	1	3
58 62	2	0	2
63 90	3	0	3
Sex			
Male	99	39	138
Female	1	0	1
Religion			
Hindus	92	38	130
Sikhs	7	1	8
Muslims	1	0	1
Caste			
Scheduled castes	32	23	55
Others	68	16	84
Mother tongue			
Hindi	13	35	48
Punjabi	86	4	90
Urdu	1	0	1
State of origin			
Uttar Pradesh	6	25	31
Punjab	81	4	85
Haryana	9	10	19
Others	4	0	4
Education			
Illiterate	36	24	60
Literate without educational level	30	12	42
Primary (completed)	10	1	11
Middle (completed)	18	2	20
High School (completed)	5	0	5
Graduate	1	0	1
Income (Rs per month)			
0 99	14	3	17
100 199	13	10	23
200 299	21	18	39
300 399	25	8	33
400 - 499	13	0	13
500 and above	14	0	14

TABLE 2

Amount and duration of cannabis use

Mean daily intake of charas and bhang

Amount (g)	Charas (N = 100)	Amount (g)	Bhang (N = 39)
10 19	22	50 59	2
20 29	19	60 69	6
30-39	26	70- 79	3
40-49	14	80 99	4
50 59	1	100 119	2
60 69	15	120 139	9
70-79	2	140 159	5
80 and above	1	16 and above	8

Total duration of use

Years	Charas (N = 100)	Bhang (N = 39)	Total (N = 139)
6 10	36	8	44
11 15	28	13	41
16 - 20	12	3	15
21 25	9	8	17
26 30	5	2	7
31 - 35	4	2	6
36 40	1	1	2
41 45	2	1	3
46 and above	3	1	4

Chandigarh and Jullundur is estimated to be at least 5 - 10 times the number studied

Tables 1 and 2 show the demographic variables of the users and the amount and duration of cannabis use The majority of users were in the age-range 18 - 37, were Hindus, were illiterate or had up to primary school education, and had a monthly income of up to 300 rupees All were males. The selection procedure was such that the lower socioeconomic strata were expected to be overrepresented in the sample Interestingly, it was found that whereas those having originated from Uttar Pradash more often used bhang, the native Punjabis showed a clear-cut preference for charas. This difference was found to be due to economic rather than ethnic factors, the native Punjabis being better off economically and able to afford charas

The total duration of use was up to 15 years in most cases

Users and controls matched very well with respect to sex, education and income, in addition to age, marital status and occupation, with regard to which they were precision-matched

The routine physical examination of the users and controls revealed no abnormalities All the clinical tests were also within normal limits, except

TABLE 3

Comparison of psychological test scores of users and controls

		Coloured Progressive Matrices (I Q)	MISIC (I Q)	PGI Memory Scale (M Q)	BVMG Hain's score	Speed marking score	"H" marking score	Colour cancelation score	Time perception test (Deviation in sec)
Controls	Mean	88 88	95 22	77 88	6 00	24 00	39 44	46 55	4 11
(N = 11)	S D	12 94	5 26	5 97	3 81	4 39	9 30	8 13	3 30
Matched users	Mean	77 88	86 22	63 00	10 33	17 22	33 55	38 22	18 00
(N = 11)	S D	8 90	7 94	11 09	4 47	4 81	12 97	11 79	17 76
Total users	Mean	76 55	83 45	59 60	10 75	17 15	33 15	37 50	15 95
(N = 23)	S D	7 23	8 63	14 61	4 20	6 01	12 91	10 60	12 84
Controls *vs* matched users	t (d f = 20)	2 32*	3 13**	4 45**	2 45*	3 45**	1 22	1 93	2 55*
Controls *vs* total users	t (d f = 32)	3 58**	4 15**	3 99**	3 17**	3 36**	1 44	2 50*	2 99**

*Significant at 0 05 level
**Significant at 0 01 level

that five of the users had uric acid blood levels of 7 - 10 4 mg% (normal range, 2 - 6 mg%)

There were important differences between the users and the controls on psychological tests (Table 3) The users obtained significantly lower mean intelligence and memory quotients, higher Hain's scores on the BVMG Test, lower mean scores on the speed marking test, and had defective time perception They also scored lower on "H" marking and colour cancellation tests, but the differences were not significant

Discussion

A considerable amount of research has been reported on the cognitive functions of cannabis users [5 - 23] However, possibly owing to the complexity of the task involved, no clear conclusion has emerged As the U S National Institute on Drug Abuse in their fourth report to the U S Congress [24] has summed up "Contradictions and ambiguities are widespread in the research to date Further study under controlled conditions is essential before any conclusion can be accepted as fact" Recent field studies in Jamaica, Greece and Costa Rica on chronic cannabis users have failed to find evidence of increased psychopathology stemming from the use of cannabis The Jamaican study found few physiological or psychological differences between the matched user and non-user samples [25] The Greek study found few neurological, psychological and physical changes attributable to cannabis [26, 27] Although the detailed results of the Costa Rica study have not yet been published, no evidence of psychological deterioration has been found in the cannabis-using group [28] Recently, Soueif [22], in an attempt to bring some light into the confusion created by contradictory reports, has found some support for his general hypothesis that "Other conditions being equal, the lower the non-drug level of proficiency on tests of cognitive and psychomotor performance, the smaller the sign of function deficit associated with drug taking" If this is so, then one should expect fewer or no significant differences between users and non-users of cannabis in a sample consisting mainly of low literates This, however, remains to be confirmed through replication and fieldwork in other countries

Our findings of lower intellectual, memory and concentration abilities of users as compared with those of controls is in agreement with the findings of Mendhiratta *et al* [6] and is quite suggestive, particularly in view of the low educational level of the subjects The following question may be raised - was the impairment in the users' abilities caused by drug use or were the intelligence, memory and concentration already low before the outset of drug use ? The present comparison is based on the premise that controls and users were alike in this respect It would be desirable to embark on a prospective study by measuring these functions prior to the beginning of cannabis intake and repeating the measurements after several years of intake, but, practically, such an undertaking would be rather difficult, considering

the long period of study required and the impossibility of regulating the drug intake over several years

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The Present Status of Drug Dependence Treatment in India

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Reliable data do not exist for the entire country regarding the number of patients in treatment who are drug abusers Specifically for this report, we have conducted a study in which we have obtained information on numbers of patients treated and the therapeutic facilities in existence at 13 psychiatric centers around the country Most of the centers surveyed in this study are psychiatric wards in teaching general hospitals Only one mental hospital has responded Hence, the figures cannot be said to represent mental hospital populations The following table gives the number and sex of patients treated in one year (usually the year 1974 has been used as the span of time) for drug dependence at these 13 psychiatric centers in the country (out of a total of perhaps 60 to 70) The figures for alcohol are given simply for comparison Ages were not clearly mentioned, but opium users seem to be definitely older (over 40 years) than those abusing other drugs (20 to 40 years of age) Males are the overwhelming majority except in the case of Mandrax (methaqualone

TABLE I
Cases of Drug Dependence Treated at Selected Centers in India, 1974

Centre	*Type of Hospital	Alcohol		Opium		Morphine Pethidine		Barbiturates		Amphetamines		Mandrax		Cannabis	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
NORTH															
Chandigarh	T H	0	0	5	0	0	0	1	0	0	0	0	0	0	0
New Delhi	T H	10	0	2	0	5	0	3	1	1	0	2	0	0	0
Patiala	T H	26	0	16	0	2	0	2	0	0	0	2	0	0	0
CENTRAL															
Agra	T H	0	0	0	0	4	0	2	0	0	0	1	0	15	0
Lucknow	P H	6	0	0	0	1	1	1	0	1	0	2	0	0	0
EAST															
Calcutta	T H	37	0	1	0	0	1	0	0	0	0	0	0	16	0
WEST															
Baroda	T H	3	0	2	0	0	0	15	2	2	0	7	16	3	0
Goa	T H	46	0	0	0	0	0	0	0	0	0	0	0	0	0
Bombay	P H	75	0	0	0	0	0	0	0	0	0	0	0	0	0

SOUTH															
Madurai	TH	50	0	10	0	4	1	8	2	1	1	8	2	140	0
Hyderabad	PH	26	2	4	2	4	1	0	0	0	1	2	1	20	2
Vellore	TH	20	0	1	0	3	0	0	0	0	0	0	0	0	0
Madras	MH	177	1	0	0	1	0	0	0	0	0	1	0	28	0
TOTAL		476	3	41	2	24	4	32	5	5	2	25	19	222	2

Dependence to other drugs reported: Codeine and Tranquillizers - 11
LSD - 1
Datura Seed - 1

*TH Psychiatric unit teaching general hospital
PH Psychiatric hospital nursing home or community centre
MH Mental hospital

M - Males
F - Females

and diphenhydramine) where females are almost as frequently noted as males (19 25) Of the patients seeking treatment, alcohol abusers are higher in number than abusers of all other drugs combined Patients with opium abuse seem to be mostly limited to northern India (Delhi Punjab), whereas those abusing cannabis are mostly reported from southern and eastern India Alcohol abuse is fairly widespread, but most of those seeking treatment for it do so in the western and southern parts of the country

Dube and Handa (1969) found that of 701 mentally ill persons among the general population, 5 (0 7%) were habituated to alcohol and 21 (3 0%) to other drugs

Varma (1972) reported 1,248 (3 2%) cases of "cannabis psychosis" among 39,001 patients admitted to a large mental hospital during the period 1959 to 1969 (11 years)

Reliable data for prevalence do not exist Very few studies which scientifically measure prevalence of drug abuse have been reported The following reports, however, give some idea of the size of the problem

1 Chopra (1940) deduced that 1% of the Indian population was addicted to cannabis
2 Chopra (1971) estimated that there are over 3 million cannabis habituates in the country (population in 1971, 548 million)
3 Chopra and Grewal (1927) found that 0 1% of the population of central Punjab was addicted to opium However, in 1964, only 1,511 opium smokers were registered in the entire country (Chopra and Chopra, 1965)
4 Dube and Handa (1969) reported that of 28,767 normals 0 77% habitually used alcohol and 0 47% other drugs The same authors reported these rates as 1 38% and 0 83% respectively in 1971
5 Elnagar, Mitra and Rao (1971) reported that 18 (1 3%) of 1,383 inhabitants of a village were addicted to alcohol or drugs
6 Thacore, Saxena and Kumar (1971) found 50 cases (1 9%) of addiction among 2,696 members of 497 families surveyed Out of these 50 48 were addicted only to alcohol one to cannabis, and one to both alcohol and cannabis
7 Thacore Saxena and Kumar (1971) found that 21% of medical students who sought psychiatric treatment had a history of drug abuse at some time Students seeking psychiatric help in turn represented 1% of the total medical student population
8 In a survey conducted by our department among college and university students in Chandigarh (Varma, Ghosh, Singh and Wig,

1975), 18 9% of students admitted to having taken one or more of the following drugs at some time—barbiturates, amphetamines, cannabis, Mandrax and LSD, 1 5% to 2 0% could be considered regular users

9 In another survey conducted by our department (Wig and Varma, 1975) in the general population of Chandigarh and Jullundur (Punjab), we were able to identify, respectively, 90 and 49 long-term (over five years) heavy (1 gm or more of charas or equivalent per day) cannabis users The population of the two cities is approximately 300,000 and 200,000, respectively The long-term, heavy users were estimated to be in the range of 500 to 1,000 in each city

The prevalence rates in the above reports are not fully comparable due to differences in the drugs surveyed and whether use, abuse, habit, dependence or addiction (and the precise definition thereof) was the subject of study

EXTENT OF DRUG USE

On the basis of the above and other impressionistic information our estimate would be the following

Opium 2 to 3% of adult males in rural north India use it regularly Codeine is also occasionally used Heroin use is very uncommon

Morphine and Pethidine (Demerol) injections Use is confined to urban, educated groups Prevalence is perhaps 0 25 to 0 5% of the general urban population Dependence in medical profession (doctors, nurses dentists) is higher, perhaps 1%

Barbiturates Use is rapidly increasing Often used as a cheap substitute for alcohol However, severe dependence is relatively rare

Amphetamines Fairly widely used among students for keeping awake for studies In our study (Varma et al , 1975) amphetamine intake was considered to be the single largest drug problem among students

Mandrax (methaqualone and diphenhydramine) Use has rapidly increased in the last ten years, particularly among urban youth

Cannabis Bhang drinking is a well established social (and often religious) custom in many parts of east India In many religious cities, 5 to 10% of the adult male population use it regularly Ganja smoking is widespread in Uttar Pradesh and Bihar among cultivators and unskilled workers It is unusual for bhang and ganja users to seek treatment for dependence Charas users are somewhat more liable to seek treatment

PREPARATIONS AND METHODS OF USE

Opium Usually smoked in a Chillum or ingested as a pill It is usually crude, and varies in strength from sample to sample

Morphine, pethidine (meperidine) Usually injected

Barbiturates Usually consumed in the form of hypnotic pills Preparations are basically the same as in the West

Amphetamines Either dexamphetamine alone or in combination with barbiturates Taken orally in tablet form

Mandrax Tablet contains methaqualone 259 mg plus diphenhydramine 25 mg Taken orally

Cannabis The following three preparations are commonly used

Bhang A drinking preparation made with leaves and small stems

Ganja A smoking preparation made from dried flowers of the female plants

Charas A resinous material used for smoking Similar to hashish

Ganja and Bhang are not always distinctly different and are comparable to American marijuana

Other Drugs Dhatura seeds (*stramonium*) are fairly commonly used mixed with cannabis Cocaine use is rarely reported Use of hallucinogens, e g , LSD, is rare Varma et al , (1975) reported only three cases of very infrequent use of LSD amongst 408 college students

TREATMENT

There are perhaps 60 to 70 psychiatric centers in the country This includes psychiatric departments in medical colleges and teaching hospitals, mental hospitals and large private nursing homes There does not seem to be a separate drug dependence unit, administratively, for treatment of drug abuse or dependence among the 13 centers surveyed The treatment facilities and modalities in existence for psychiatric patients in general are also used by such patients

The major types of treatment modalities provided for drug abuse patients include detoxification facilities, individual and group psychotherapy, relaxation therapy, behavior therapy and rehabilitation program Methadone therapy is practiced at only three of the 13 centers surveyed

Lay persons and news media in India have a tendency to exaggerate the size of drug problems in the country, and this creates undue alarm Although drug abuse is probably increasing with regard to certain drugs (e g ,

amphetamines, barbiturates, and perhaps LSD) and in certain populations, (e g , students), the problem tends to be inflated out of all proportion Such impressionistic reports should be interpreted with caution

The social, as against legal, sanction against use of dependence-producing drugs in general is possibly less in India as compared to the West Hence the socioeconomic downward drift associated with drug use seen in the West is also less noticeable here

Existing treatment facilities are grossly inadequate and unsatisfactory Special units are required for enforcing abstinence and for providing specific therapies such as behavior therapy Rehabilitation programs are most rudimentary Many more programs and centers are urgently needed

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DRUG DEPENDENCE AN OVERVIEW

PRELIMINARY DRAFT.

PAPER PRESENTED AT WHO, NIDA WORKSHOP ON "THE PREVENTION AND TREATMENT OF DRUG DEPENDENCE" EMRO. ALEXANDRIA. EGYPT. OCT.16-21. 1973.

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INTRODUCTION AND HISTORICAL:

Health care and delivery in India, is a concurrent subject under the Constitution of India, with both Federal Government and state governments participating. [redacted], India has a fairly well developed infrastructure of health delivery system, which would now undergo with passage of time, improvement in quality of services rendered and build in appropriate additional inputs, depending upon the pace of development and needs. (My colleague Dr. Bisht would I am sure enlarge and dwell on this issue a little more in detail, being basically an health administrator.)

Historically, use of drugs and intoxicating substances in India has been known, since ancient times, The use is mentioned in Rig Veda, an ancient religious text. The use of opium, cannabis and alcohol has been mentioned during Mughal period, by the ruling

elite. Opium cultivation under state control, started in 1857, and series of enactments have followed since then. The basic purpose of these enactments was trade, revenue, and even today opium continues to be a subject under the Ministry of Finance ,and not health or social welfare.

One of the earliest enquiries into the effects of narcotics, was the study of Indian Hemp Commission in 1893. Studies on the problem of drug abuse, especially opium and cannabis were conducted over a period of 1928 - 1950 by Chopra and Chopra [1], who utilised secondary sources of data to arrive at their prevalence estimates and case study methods to describe the effects of drug use. They described the medicinal use of opium and its abuse, the use of cocaine, and the effects of cannabis. They also described the various combinations of these drugs with others such as Datura. (Atropine), Strychnine etc. which have also been referred to by others (Blackeslee [2] et al).

ASSESSMENT OF THE PROBLEM AND AVAILABILITY OF DRUGS :

The subject was reviewed recently by an expert committee appointed by the Government of India, which submitted a report "Drug abuse in India" [3]; to the Ministry of Health and Family Welfare. In assessment, four kinds of data can be examined: the general population studies, selected group studies, clinical studies and secondary sources of data:

(i) Studies on general populations: The psychiatric epidemiological studies of the general population reported only alcohol dependence, except by Dube [3]; who found that 22.7/1000 were addicted to all drugs including alcohol, which accounted for 59.4 percent, while

Bhang (cannabis leaf) dependence was observed in 17.5 percent and the rest showed poly-drug use.

There are only two published studies so far in general populations [5,6], which focus on drug abuse, both conducted in different parts of the state of Punjab. Gurmeet Singh and Brij Lal [5], reported opium use in 18.9 percent, barbiturates in 6.2 percent and cannabis in 2.2 percent of their survey population (a district). Mohan [6] et al (Table I) observed that opium was being currently used by 6.3 percent, cannabis by 1.2 percent and psychotropics by 0.23 percent of the surveyed population. The differences between the two studies could be due to selection of areas, the first study was carried out in the rural areas near a medium sized urban centre, which is located in an endemic area of opium consumption, while the second study had completely rural areas as near the border as possible with minimal urban influence. The higher use of barbiturates could reflect easy availability and self medication because of urban proximity. Both the studies, however, have similar trends and suggest that the opium use is likely to be much higher than the official statistics; probably between 15-20 times. Both the studies also show a pattern of opium use which is sporadic and which does not form a part of the strict concepts of opiate dependence. It was observed that opium, was used by farm labour in harvesting season, when intense physical hard work was necessary and discontinued for the rest of the year. These type of users were 2.6 percent of the total users, (classified as Experimental users) as opposed to those who were regular users (3.7 percent). The rating on the basis of self assessed craving as addicts,

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Definitions:- Regular use: several times a week to daily.
Experimental : less than a month to about once a week.

showed a close concordance with frequency of use, being 98 per cent in regular users (Mohan[6] et al). Both the studies also showed a second common feature among opium users, the dose levels in most of them remained stable over years and there was no loss in productivity or social deterioration. This is related to legal system to which reference is made later in the paper. Lastly, Both the studies suggest that migrant rural labour is a high risk category for all drug use, a point of relevance for other developing countries. The last common feature in both the studies was a high prevalence of alcohol abuse. The low prevalence of Psychotropic abuse in the border districts also throws up the possibility that in a developing country, if the psychotropic substances are not better regulated, their abuse can quietly spread. The reduction of psychotropics availability is an area of priority action for primary prevention, at least in those countries where modern systems of medicine have not yet spread out to cover total populations adequately.

Summarising, in rural areas opium and cannabis use is likely to be much higher than what the official statistics suggest, while the use of psychotropics and derivatives like morphine, pethidine, heroin is likely to be very low or virtually non-existent. The use is mostly confined to males, and to those who are involved in hard physical labour. In keeping with the Indian tradition the proportion of those who never used a drug is very large.

(ii) Clinical studies:

Dube and Handa [7,8] observed that indiscriminate drug use was more in those who were mentally ill, more in psychoses than neuroses. Mohan [9], et al observed that self medication with psychotropics was fairly high in those who were referred to psychiatric out patients. Verma [10], Dube [11], described cannabis abuse in patients seen in mental hospitals. This needs to be interpreted continuously, as both the mental hospitals are in areas which have fairly common use of cannabis in general population.

(111) Student populations:

The third set of studies have focussed more specifically on students populations. The most commonly cited study is a journalistic estimate of 5,000 students in Delhi University students, as being drug users and 200 being dependent which was carried out by Dayal [12]. Other studies have shown varying estimates Banerjee [13] found amphetamine abuse in 11.4 percent of students attending a university clinic, (this was before the legal control on its availability were imposed), Mohan and Arora [14] in Delhi University male students found tranquillisers abuse rate as 6.6 percent, amphetamine 4.3 percent, opiates 1.9 percent and barbiturates 1.2 percent, Chitnis,[15] in Bombay found a prevalence rate

of ever used as 19.7 percent, Cannabis 17 percent, amphetamines 7.1 percent, barbiturates 5.4 percent, LSD 3.8 percent, Opium 2.5 percent, heroin and cocaine 1.4 percent, morphine 0.6 percent. Other such studies have been carried out by Verma[16] et al, Mohan, Thomas and Prabhu[17], Mohan, Prabhakar and Sharma[18,19], Sethi and Manchanda[20], Dube[21], Deb[22].

The most recent studies in this area have been surveys in six university centres in India, which used a common sampling design, questionnaire and data analysis reporting procedures (Table 2,3). The following major points emerge from these studies. The abstainers ratio is fairly high, well above ninety percent for psychotropics, narcotics and LSD. The use of these drugs is more for the sake of experience (around 80 percent), and commonly used substances have been cannabis minor tranquillisers, barbiturates, amphetamines (latter mostly in situational contexts like examinations etc.). The regular use is confined to minor tranquillisers, and cannabis. The studies clearly demonstrated a difference in prevalence rates between boys and girls. They were 8-10 times higher in boys. All the studies also tended to converge in the observation that drug abuse was more common among students who came from affluent upper strata families and who had parents with high income, education and prestigious occupations. Among the socially favourable circumstances leading to drug abuse were nuclear family structure, public school education and hostel attached institutions.

Mohan[23] et al compared the patterns of drug use in non student and student youth and found that in both, alcohol and tobacco were common, the major differences being that in rural youth psychotropic abuse was non existent.

(iv) Secondary sources:

The secondary sources of data, within the country are few, such as the National Sample Survey, consumer expenditure studies, hospital statistics, the records of the Narcotics Commissioner and Drug production estimates. The non-medical use of narcotics (opium, ganja) has been banned since 1959, when existing dependents were officially registered, and new registration was made fairly difficult. Hence, the opium addicts on the registers have fallen from 432,609 in 1959 to about 80,000 in 1975.(Table 4). Obviously these are gross under estimates because, the field studies from Punjab itself suggest that these numbers might be accounted for by only Punjab. The drug production figures, including imports and exports show that over a three year period the psychotropics demand remained fairly stable except for phenobarbital and methaqualone. The increase in phenobarbital could be partly explained by its increasing use in various combinations for therapeutic purposes; but methaqualone rise was probably related to its abuse.

The last point in the assessment focusses on the abuse/ use of pain killers. The range of such substances, varies

considerably. Some contain pure acetyl salicylic acid, while others combine this with either minor tranquilliser (diazapem, meprobamate) or hypnotic sedatives (barbiturates), narcotic (codeine), stimulant such as caffeine, amphetamines. The prevalence rates of these have been fairly high in all the studies. It is an area which deserves closer scrutiny from two points of view:- firstly, the abuse/dependence potential and secondly, therapeutic effictiveness of combinations, especially since these drugs are also above the counter sale items of self medication.

In assessment, the question that needs careful answer is: why did India escape the heroin epidemic, which swept the other Asian countries. The reasons could be:-

(i) Geo-political - the land routes did not permit easy access. The currency policies, did not permit free conversion of rupees into other hard currencies hence profits (which would have been low in a poor country anyway) could not be exported, and therefore did not attract international smuggling.

(ii) Existence of an opium registration system and its imposition at a time when heroin was not a major factor.

(iii) The suspicion that inadvertantly, though India signed the Single Geneva Convention (1961), it did not enforce all the penal provisions very strictly within the country; hence, narcotics use continued in the community without neccessarily going underground.

(iv) In best of supervision systems, which India has for opium cultivation, there is bound to be leakage. This leakage continued to feed the existing unregistered opium users, and was enough to meet the demands without attracting smuggling or

spill over to the international trafficking.

(v) The increased availability and acceptance of alcohol, which provided a substitute drug of dependence.

Summarising, in a vast country with 600 million people, when prevalence rates are expressed as percentages, the problem appears to be small, but if converted into actual numbers would be fairly large. Recent trends suggest that with increasing severity of law enforcement, even illegal factories, producing morphine have been unearthed. The illegal cultivation of cannabis for ganja and charas continues in hill tracts of the country and that in urban areas abuse of psychotropics is on the increase.

The situation of India is, however, far better than some of the other asian countries, and perhaps hidden in this is the message that a slightly less strict legal enforcement approach might help in not aggravating the problem.

Impact of use: The studies in India, on long term effects of cannabis abuse show equivocal results, Chopra [1], came to the conclusion that no adverse health, social or economic adverse effects were associated with long term cannabis use except those which related to smoking. The results of other studies are equivocal [24,25,26,27]. Cannabis psychosis was described by Dhunjibhoy [28] and Thackore [29]. More recent studies have not shown any such specific psychosis [24,26,27,30,31].

The experience of studies in Punjab referred to earlier suggests that probably opium use also does not produce, marked adverse sequale and that its use is culturally integerated, wherever the activity remains primarily manual and agricultural.

This raises the basic question of approach towards such opium users in the rural areas, should they be classified as

addicts or criminals. The experience of countries like Iran or Thailand, which opted for either or combinations of both the approaches has not been very illuminating. The sudden arbitrary classification into either roles, only increased use of substitute drugs such as heroin. India, again perhaps not out of design, but more due to combination of circumstances (poor enforcement and leakage) managed to escape the problems experienced by other asian countries.

Major policy approaches and response to international treaties:

The existing policies in the field have primarily stemmed from international conventions and have been primarily penal legal. The Expert Committee [3] recommendation has expanded the approach to include measures directed at all the three major factors, the host, agent and the environment. Included in this are concepts of reduced availability of the agent (drug), treatment rehabilitation (host); education and other measures to alter the environment. One of the major recommendation of the Committee- the creation of a single updated law to deal with drugs is already on draft/comment stage.

Integeration of treatment facilities, training and research activities: No specialised treatment facilities exist at the moment in the country. It has been visualised that 4-6 regional centres for models of treatment/evaluation and research training would be created in the sixth five year plan. The principle enunciated has been to develop these within the existing health delivery systems. Research, cross sectional and longitudinal to monitor baseline data and changing trends has been given

high priority; in a way that nation wide (not national representative samples) picture can be obtained. The second priority in research has been assigned to the role of socio-cultural factors, the third to issues related to cannabis and lastly to modalities of culture specific treatment. The principle underlying that has been stressed in the concept of continuum of drug abuse from socially tolerated to socially banned drugs such as LSD. The requisite funding would be obtained from the national sources.

Criminal justice system:

The legal system in India on narcotics, till recently had the lightest penalties for trafficking. It has now been recommended and is being incorporated in the revised draft legislation that penalties would be enhanced so as to make trafficking with India as a transit point fairly unattractive; including compulsory prison sentence.

The legal system takes note of the fact, that the individual user need not be penalised and has prescribed crieteria based on quantity where the narcotic offences are classified as consumer and trafficking.(Opium less than 10 tolas, Ganja less than 10 seers(4 kgm)and Charas less than 20 tolas are consumer offences). Here judicial admonition and referral to either registration or treatment facility is recommended.

Technical aspects of treatment:

At present, there are no specially organised facilities for the treatment of drug addicts in the country. Most of the drug dependent individuals are treated at Psychiatry Departments, wherever they exist, if they are referred to these departments.

As these facilities are obviously limited, it is presumed that some drug addicts would be treated by general physicians and other health professional, while quite a large number of them may not be receiving any treatment at all. Mental hospitals and in-patients units of Psychiatry Departments do provide admission facilities for such patients. Some of the teaching and training institutions are also in the process of developing small addiction units. In the context of inadequate facilities for dealing with health problems, it is not desirable to provide specific and separate treatment facilities for drug addicts.

The following recommendations for future development of services for the treatment of drug addicts were made:

(1) It would be both economic and efficient if the treatment of drug addicts is developed as a part of the general health services of the country.

(2) There is a paucity of beds in hospital services in all the areas; hence the creation of special residential treatment facilities for drug dependence would not be a feasible proposition as a general method of treatment. The international trend now is to move away from the residential to the out-patient department of ambulatory treatment. We should also adopt the same policy.

(3) It would be desirable to provide these services within the framework of Psychiatry Departments wherever they exist or develop. As in interim measure, these facilities could also be developed in medical specialities.

(4) In urban areas where the current prevalence of drug abuse is large and is expanding in the student body we suggest that de-addiction centres should be established for the provision of comprehensive services. Such services should cover all dependence producing drugs and should also have in-patients and out-patient

services, with accent on the latter. They should also be free to experiment with various treatment modalities on a time-bound basis with built-in evaluations, so as to determine the best possible techniques for the Indian setting. These centres should also be charged with maintaining and evaluating the legal registration systems and act as foci for training other health professionals for similar work within the country.

(5) Between four to six such centres should be initially set up with central finance in the country. Subsequently, each state should set up at least one centre during the sixth plan period. At the state level, encouragement should be given to all medical colleges to set up such units in medical/psychiatric units.

Registration of Drug Addicts: A great significance to the programme of registering regular users and drug addicts and saving them from the clutches of unscrupulous peddlers by establishing approved centres where they can have their needed quota of drugs at standard prices on production of medical certificates issued by prescribed authorities. The scheme should be introduced for all dependence producing drugs whose control has been advocated.

Rehabilitation: The rehabilitation of a drug dependent individual should continue to remain the main responsibility of his family and the social group and the de-addiction service should at best become a support and supplement. Efforts should, however, be made to involve the voluntary agencies in the programme.

Wig and Verma reviewed the existing services in India and observed that "There are perhaps 60 to 70 psychiatric centres

in the country. This includes psychiatric departments in medical colleges and other teaching hospitals, mental hospitals and large private nursing homes. There does not seem to be a separate drug dependence treatment unit at any of these.

Out of the 13 centres surveyed, none has a separate treatment unit, administratively, for treatment of drug abuse or dependence. The treatment facilities and modalities in existence for psychiatric patients in general are also used by such patients.

The major types of treatment modalities provided to drug abuse patients include, detoxification facility, individual and group psychotherapy, relaxation therapy, behaviour therapy and rehabilitation programme. Methadone therapy is practised at only 3 of the 13 centres surveyed.

Treatment facilities, existing, are grossaly inadequate and unsatisfactory. Special units are required for ~~xx~~ enforcing abstinence and for providing specific therapies like behaviour therapy. Rehabilitation programmes are most redumentary. Many more programmes and centres are urgently needed".

TABLE - I DISTRIBUTION OF PERSONS ACCORDING TO DRUG USAGE IN RURAL AREAS OF PUNJAB (MALES N-2064)

	Non users	Past users	Experimental users	Regular users
Alcohol	692 (33.5)	163 (8.1)	1089 (52.7)	115 (5.6)
Tobacco	1633 (79.1)	33 (1.6)	18 (0.9)	380 (18.4)
Opium	1865 (90.3)	71 (3.4)	54 (2.6)	74 (3.7)
Cannabis	1999 (98.8)	40 (2.0)	20 (1.0)	5 (0.2)
Painkillers	2049 (99.3)	2 (0.1)	11 (0.5)	2 (0.1)
Amphetamines	2064 (100)	-	-	-
Barbiturates	2058 (99.7)	3 (0.15)	2 (0.10)	1 (0.06)
L.S.D.	2062 (99.9)	-	2 (0.1)	-
Tranquillisers	2060 (99.8)	1 (0.06)	1 (0.06)	2 (0.01)

Experimental user - for less than a month to about once a week
Regular user - several times a week and daily.
Figures in parentheses indicate the percentage.

TABLE-II PERCENTAGE PREVALENCE RATE OF DIFFERENT DRUGS AT VARIOUS CENTRES (1976)

Drug	Bombay	Madras	Delhi	Jaipur	Hyderabad*	Varanasi
Alcohol	15.1	9.5	12.?	9.3	3.0	10.4
Tobacco	3.1	15.2	10.5	9.2	6.3	15.1
Painkillers	12.6	1.2	20.9	2.3	5.9	13.8
Tranquillisers	1.0	1.0	2.9	1.?	1.6	2.5
Amphetamines	0.?	0.4	0.3	0.5	0.6	1.3
Barbiturates	0.6	1.4	0.6	0.4	0.4	1.8
Cannabis	0.4	1.5	1.3	0.9	0.7	10.9
LSD	0.07	0.4	0.2	0.2	0.1	0.9
Cocaine	0.05	-	0.03	0.09	0.?	0.06
Pethidine	0.05	0.03	0.2	0.2	0.1	0.9
Opium	0.4	0.03	0.5	0.?	0.2	0.9
Total (N)	4151	3580	3991	4081	1097	3852

*The data analysis was not complete.

TABLE-III PERCENTAGE PREVALENCE ACCORDING TO THE TYPE OF DRUG GROUPS IN DIFFERENT COMBINATIONS- TOTAL POPULATION(1976)

Type of Drug usage	Bombay	Madras	Delhi	Jaipur	Hyderabad	Varanasi
Never tried	57.8	76.8	52.6	77.8	77.9	54.6
Tried earlier but discontinued	6.7	3.7	13.0	4.0	5.0	11.8
Tobacco/Alcohol or both	14.8	14.3	8.1	11.6	8.13	9.5
Tobacco/Alcohol or both+drug	6.8	4.4	8.1	3.5	3.0	9.5
More than one drug	0.5	0.3	1.0	0.3	0.4	1.6
No response	2.2	-	1.7	0.2	1.3	0.7
Only one drug	10.7	0.5	15	2.8	4.1	12.1
Total (N)	4151	3580	3991	4081	1097	3652

TABLE-IV NUMBER OF NEW OPIUM ADDICTS, NUMBER DROPPED, TOTAL NUMBER ON THE REGISTER AND ESTIMATED TOTAL OPIUM ADDICTS DURING 1970 - 75 FROM NARCOTIC COMMISSIONER REPORT*.

Type of information	Year				
	1970	1971	1972	1973	1975
Number of addicts added during the year	25	13	17	36	-
Number of addicts dropped during the year	258	1876	3,144	314	-
Total number of known addicts	87,945	86,078	82,951	82,873	80,809
Estimated total number of addicts	99,000	98,000	94,510	94,200	-
Source licit	87,945	86,078	82,951	82,873	-
Illicit	11,055	-	11,549	11,527	-

*Report for 1974 is not available.

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