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Drug Abuse in The Taiwan Area — A Preliminary Investigation

1. Introduction

With drastic changes in the living environment and the increasing tempo of life in an economically expanding society, not surprisingly people's beliefs, habits and value concepts require adjustment. Many addicts use drugs to escape from what they perceive as life's unmanageable frustrations; they seek to reduce their anxiety, stress and unhappiness, or to temporarily satisfy their unmet needs[1-4]. Furthermore, the people of this newly affluent society now find the cost of drugs to be affordable. These are some of the factors which unfortunately favor the spread of drug abuse. "The Manual on the Prevention and Control of Amphetamines" prepared by the Department of Health[5] Republic of China (ROC) points out that many truck drivers, sports-people and students resort to drug abuse because they believe that amphetamines can reduce or remove fatigue, act as exciting stimulants and generally refresh the spirit. Also, some people use amphetamines as a means of reducing weight and managing depression. In any of these instances, those people who use drugs run a risk of soon becoming addicted. As part of their social interaction, young people often mistakenly believe that it is fashionable, even "cool", to use drugs. They think they will be more easily accepted by their peers if they are knowledgeable about drugs and, if they use them, they can even assume leadership roles among, or additional respect from, their peers.

Ministry of Justice statistics[7] show that in 1992 a total of 474.96 kg of narcotics (including heroin, morphine and marijuana) and 3,357.24 kg of amphetamines were confiscated. These quantities rose to 1,113.91 kg of narcotics and 3,357.24 kg of amphetamines in 1993, an increase of 134.53% and 136.20%, respectively. The number of individuals prosecuted for drug use went from 45,636 in 1992 to 56,357 in 1993, an increase of 23.49%. These figures illustrate the present seriousness of drug abuse on Taiwan. To examine drug abuse trends, to study the prevalence of drug abuse by region and to assess the seriousness of the problem here in the ROC, the Drug Abuse Warning Network (DAWN)[8] model of the United States (US) National Institute on Drug Abuse was applied locally to collect drug abuse information including the social, economic and educational backgrounds of addicts; the kinds of drugs used; methods of use and dosage.

Epidemiological investigation of drug abuse was based on information from various medical care institutions in the Taiwan Area to provide the Government with information for realistic formulation of anti-drug policies.

2. Materials and Methods

First, the Taiwan Area was divided into Northern, Central, Southern, and Eastern Survey Regions. From each Region, 20 institutions were selected (Table 1) to collect data concerning drug abuse. In the period between January 1993 and March 1994, each medical care institution was requested to assign a "registrar" to collect information about all patients under treatment for drug abuse; a structured questionnaire was provided for this specific purpose. The completed questionnaires were then to be forwarded on the tenth of each month to the Field Epidemiology Training Program (FETP), National Institute of Preventive Medicine of the Department of Health. There, results were analysed with EPI-INFO and SAS. Data were statistically analyzed and cross-tabulated, then the X^2-test was applied to describe and understand the status of drug abuse.

For purposes of this investigation, drug abusers were defined as those who, for non-medical reasons or without a doctor's prescription, habitually use narcotics or other substances which affect the central nervous system.

3. Results

During the period of study, information was collected from 2,294 drug addicts, as shown in Table 1 by source and month. Of these, 85.9% were male and 14.1%, female, or a ratio of 6 to 1. The average age of the male addicts was 29 years; that of the female addicts, 25 years. Statistically, the males were significantly older than the females ($p < 0.01$).

Data from the questionnaires are summarized in Table 2. In terms of marital status, it can be noted from Table 2 that many addicts (59.5% of the males and 57.3% of the females) were unmarried; some (34.2% of the males and 33.7% of the females) were either married or living together; only a few (6.3% of the males and 9.0% of the females) were either divorced or separated. If family support is instrumental in discouraging drug abuse, the result shows that indeed these addicts had very little family support. The difference between the males and the females in this regard is not statistically significant ($p > 0.05$).

In terms of educational levels, 9.6% of the males and 13.4% of the females had had only a primary school education; 48.8% of the males and 49.4% of the females had had a junior high school education; 39.1% of the males and 35.5% of the females had had senior high school education, and only 2.1% of the males and 1.7% of the females had a college or university education. The difference in this regard between the males and the females is not statistically significant ($p > 0.05$)

Table 1. Number of Drug Abuse Cases Reported by Month (January 1993 to March 1994)

Institution	1993 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1994 Jan	Feb	Mar	Total
Taiepi Municipal Narcotics Center	40	35	61	37	48	0	0	0	0	0	0	0	0	0	0	221
Taipei Veterans' General Hospital	0	6	7	3	1	4	7	4	0	2	1	1	1	0	0	37
Taipei Municipal Psychiatric Center	0	0	0	0	0	0	0	0	3	49	43	45	52	33	95	320
Provincial Taipei Hospital	1	1	0	4	5	4	3	4	0	0	0	1	0	0	0	23
Provincial Taoyuan Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taichung Veterans General Hospital	3	4	4	0	0	0	2	0	0	0	0	0	0	0	0	13
Tsaotun Psychiatric Center	41	35	10	10	219	192	232	29	0	130	49	98	0	0	0	1035
Chengkung University Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaohsiung Kaihsiuan Psychiatric Center	15	42	40	34	64	87	50	36	38	49	29	30	20	30	36	600
Hualien Tsu-chi Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mackay Taitung Hospital	1	2	1	2	2	0	0	0	0	0	0	0	0	0	0	8
Lotung St. Maria Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaohsiung Medical College Hospital	0	3	5	0	2	0	0	0	0	0	0	0	0	0	0	10
National Taiwan University Hospital	4	0	1	4	4	0	0	0	0	0	0	0	0	0	0	13
Mackay Memorial Hospital	1	3	2	3	3	0	0	0	0	0	0	0	0	0	0	12
Tri-service General Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Provincial Taoyuan Psychiatric Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taichung Cheng-ching Hospital	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Chungshan Medical College Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaohsiung Yuan's Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	106	132	132	97	348	287	294	63	41	230	122	175	73	63	101	2294

Table 2. Summarized Findings from the Questionnaires

	Male		Female	
	No.	%	No.	%
Marital status*				
Unmarried	1106	59.5	197	57.3
Married or living together	635	34.2	116	33.7
Divorced or separated	118	6.3	31	9.0
Educational level*				
Primary school	181	9.6	46	13.4
Junior high	919	48.8	170	49.4
Senior high	736	39.1	122	35.5
College and above	48	2.5	6	1.7
Occupational background**				
White collar	270	14.8	22	6.7
Blue collar	471	25.8	59	18.0
Students	52	2.8	5	1.5
Unemployed	659	36.1	168	51.4
Others	374	20.5	23	22.4
Kinds of drugs used				
Heroin	1068	56.7	189	56.3
Amphetamine	679	36.1	124	36.8
Morphine	106	5.6	21	6.3
Glue	30	1.6	2	0.6
Methods of use				
Inhalation	1730	72.7	234	68.0
Injection	464	24.6	88	37.6
By mouth	45	2.4	20	5.8
Sniffing	6	0.3	2	0.6
Sources of supply				
Peers	953	50.3	180	51.9
Friends	849	44.8	128	36.9
Relatives	24	1.4	20	5.8
Others	67	3.5	19	5.4
Frequency of use per week				
More than 7 times	987	62.5	186	66.4
6-7 times	151	9.6	20	7.1
4-5 times	122	7.8	21	7.5
2-3 times	221	14.0	36	12.9
once and less	96	6.1	17	6.1

*x^2-test, $p < 0.05$, **x^2-test, $p < 0\ 01$

In terms of their occupations, 36.1% of the males and 51.4% of the females were not employed; 25.8% of the males and 18.0% of the females were laborers; 14.8% of the males and 6.7% of the females were white collar workers; and 2.8% of the males and 1.5% of the females were students. The employment status of some 20% of the addicts is not known. Occupation did make a significant difference among these addicts ($p < 0.01$).

In terms of employment and marital status, most of the unemployed or laborers were unmarried. In all occupational groups, divorce and separation were represented in a small proportion. In all societies, the divorced are proportionately fewer than the married. Whether failure in marriage is related to drug abuse requires further study.

The most used narcotics were heroin (by 56.7% of the males and 56.3% of the females), amphetamines (by 36.1% of the males and 36.8% of the females) and morphine (by 5.6% of the males and 6.3% of the females). Very few of the addicts used glue (1.6% of the males and 0.6% of the females). However, among all the addicts, 70% used both heroin and amphetamines. Neither the addicts' sex nor their educational level was found to be significantly related to the kinds of drugs used ($p < 0.05$). However in terms of age, more young addicts used amphetamines, whereas the older preferred heroin. This may be because young people have less money to spend, allowing them to afford only the less expensive amphetamines, and not the more expensive heroin or morphine.

With regard to marital status, the unmarried used amphetamines and heroin with greater frequency, while those who were married used heroin more. By occupation, the white collar workers used heroin more and students, amphetamines more. It seems that economic factors play an important role in determining which drug is used. That is, the more affluent white collar workers use heroin more, while the poorer laborers and students use amphetamine more.

By method of use, inhalation (for 72.7% of the male and 68.0% of the female users) was the most popular method of drug use. Injection (24.6% of the male and 37.6% of the female), taking by mouth (2.4% of the males and 5.8% of the females) and sniffing (for 0.3% of the males and 0.6% of the females) were other methods used. The glue was inhaled; heroin, morphine and amphetamines were either inhaled or injected. Method of drug use did not differ by sex, marital status, educational level nor occupational backgrounds (p all larger than 0.05). On the other hand, younger addicts preferred to inhale drugs; the older made more use of injections.

In terms of sources of supply, 50.3% of the male, and 51.9% of the female, addicts had obtained supplies from either friends or peers; 44.8% of the males and 36.9% of the females had bought their supplies on the street; a few (1.4% of the males and 5.8% of the females) sourced their supplies to family members or relatives. It is worthy of note that eight addicts had obtained their supplies from doctors, a situation requiring further investigation.

In terms of frequency of use, at least 60% of the addicts, male and female, used

drugs more than seven times a week; 10% of the male, and 7% of the female, addicts used them six to seven times a week; 8% of the male and female addicts used drugs four to five times a week; 13% of them used drugs two to three times a week; and 6% of them used drugs less than twice a week. Heroin and amphetamine addicts used drugs more often than users of other drugs.

Lastly, 89% of the drug addicts had visited clinics for treatment of uncomfortable symptoms; 5% of them visited clinics in the company of their family members or relatives; 4% were caught trafficking.

4. Conclusion

There were about six times more male addicts than female addicts. Most addicts were between 20 and 40 years old, though the male addicts were on the average older than the female. Most were unmarried, unemployed and with only primary or junior high school education. Fewer white collar workers or individuals of higher education had become addicted to drugs.

Heroin, amphetamines and morphine were, in that order, the drugs of more frequent use. Age, marital status and occupational background were found to be related to the kinds of drugs used and method of use. For instance, younger or unmarried addicts used more amphetamine and heroin; the older or married addicts used heroin more; white collar workers used primarily heroin; the laborers and the unemployed used more amphetamines or heroin. These findings seem to indicate that income is related to drug abuse. In terms of the method of use, inhalation and injection were the two common methods. Younger addicts inhaled more; the older ones preferred injection. Sex and education were found not to be related to kinds of drugs used nor the method of use.

Addicts turned for their supplies primarily to friends or peers, or they bought in the street. Very few of them were supplied by family members or relatives. Frequency of use depended on the kinds of drugs used. Heroin and amphetamine addicts used drugs more frequently than those addicted to other drugs.

Most of the addicts were reluctant to try to terminate drug use. Some visited clinics only if they felt a need for treatment for uncomfortable symptoms. A few were taken to clinics by family members, relatives or the police.

5. Limitations of Investigation and Recommendations

Information for the present investigation came primarily from the Taipei Municipal Psychiatric Center, the Provincial Tsaotun Psychiatric Center and the Kaohsiung Kai-hsiuan Psychiatric Center. These centers are required by law to accept drug addicts for attempted termination of drug use , but they also have self-paying patients who voluntarily seek to terminate drug use. Their information was easier to collect and more complete. Patients at other institutions tend to be the unwilling, whose complaints

had to do with overdose. The current law stipulates that illegal users of narcotics or opium are subject to prison sentences of three to seven years, while illegal users of marijuana or "addictive substances" are subject to a sentence of one to three years. Illegal users of chemically-synthesized narcotics are subject to a sentence of under three years, custody or a fine of NT$5,000 or less.[9,10]. Addicts, for fear of being punished, were often very cautious and self-defensive; they leave behind no records, and sometimes use false names and give false information. When a doctor or a nurse asked them sensitive questions, they may even have reacted violently. This posed difficulties for information collection, and resulted in information of somewhat impaired reliability.

The investigation could not impose on medical personnel the task of filling out a report each time a drug addict was encountered, and of course the number of addicts reported can be expected to be smaller if medical professionals are reluctant to cooperate.

Questionnaires were filled out anonymously, so there is some danger that information thus collected could be repetitive. That is, the number of addicts in fact was the person-time of addicts instead of the actual number of additcts. To solicit cooperation of medical personnel and to compensate for difficulty in information collection, it is suggested that the "per questionnaire fee" be raised. Hospitals which fail to submit reports in response to request should be visited to check their practice in keeping medical records in general. Such lack of cooperation can be used as part of future accreditation procedures for those hospitals.

The department charged with collection of drug information varies from hospital to hospital, as do the methods in use for such collection. Responsibility lies with the Department of Psychiatry in some, but with the Pharmacy or the General Affairs Department in others. To standardize procedures, the Office of the Director of each hospital should be made responsible for coordination of information collection. Those hospital staff members who would be expected to be primarily involved, particularly doctors and nurses in the Psychiatric and Emergency Departments, should be educated by public health officials to awareness of both the meaning and the importance of an accurate drug abuse reporting system.

To assess the reporting rate of drug abuse from each hospital and thus to establish a sound reporting system in the future, it is further suggested that Medical Record Departments be required to report monthly to the Department of Health the number of drug addicts encountered, thus allowing comparison with the number collected throughout the total reporting system.

Medical care of drug addicts is not reimbursable under National Health Insurance, and therefore information about drug abuse may well be under-estimated.

Finally, note that opportunities for re-education and vocational training should be made available to younger users — students, for example; to unemployed laborers to assist them either to stay in school or to be able to obtain employment. Efforts should also be made to increase drug abusers' awareness of the hazards of addictive drugs, and to help them become less drug-dependent. The parents and other family members should be told of the hazards of drugs and warned against their abuse.

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References:

1. Chou PS, Lai MY, Wu PY. A study of the prevalence of drug use of the youths and the risk factors (1), Department of Health Research Project, 1992

2. Yeh CC, Huang JH, Chiang TL (eds). Public Health (II), KP Chen Preventive Medicine Foundation, 2nd ed., March 1982.

3. Chang C, Huang WH, Cheng MK. A survey of drug abuse among young people. Public Health Journal, 1989; 15(4):388-402.

4. National Institute on Drug Abuse. Drug abuse prevention intervention research: methodological issues. US Department of Health and Human Service, 1991.

5. Department of Health. Manual on the Prevention and Control of Amphetamine Abuse, September 1993.

6. Chou PS, Lai MY, Wu PY. A study of the prevalence of drug use of the youths and the risk factors (2), Department of Health Research Project, 1993.

7. Ministry of Justice, Ministry of Education and Department of Health. Report on Anti-Drug Use: May 1993 - April 1994, May 1995.

8. National Institute on Drug Abuse. Annual Emergency Room Data 1990, Data from the Drug Abuse Warning Network (DAWN). US Department of Health and Human Service, 1991.

9. Regulations Governing the Control of Narcotics

10. Regulations Governing the Eradication of Narcotics Use