

Epidemiologic study of Drug Abuse in Ilan County

Abstract

National information on drug abuse comes primarily from general household surveys, student surveys and telephone interviews. Studies often concentrate on students, information about the out-of-school boys and girls is relatively unavailable. They, however, are the main source of drug abuse. For the better understanding of drug abuse, household surveys are more reliable though more costly and not easy to conduct. In the recent years, telephone interview has been accepted as a most effective method of collecting information on national prevalence. This study aimed at understanding the prevalence of drug abuse in Ilan County and the adequacy of telephone interview in the collection of epidemiologic information on drug abuse.

Ilan County was selected for the present study. Information was collected through either face-to-face or telephone interviews. 1,500 persons each were selected for study by stratified random sampling from four age groups: 13-15, 16-18, 19-22 and 23-35. Some of them were visited by public health nurses for face-to-face interview with a structured questionnaire. In some cases, members of 13-35 years of age in a household randomly selected were interviewed through telephone. Information was processed by Epi-info and SPSS, and analyzed by X^2 -test. The prevalence of drug abuse in Dan was 1.1%. The rate increased with age. Most of the abusers were of junior high and senior high school education. Most of them were laborers, farmers, in service industry and unemployed. Drugs more often used were amphetamine, sedatives and hypnotics. Individuals having drug abuse friends, smoking and betel-nut chewing were more likely to be abusers. Drug abuse is no longer a social problem of the urban area; in the quiet rural areas, drug abuse is increasing its impact. Providing better living environment, improving parent-children relations and promoting recreational activities are some of the important strategies to the prevention and control of drug abuse.

Key words: drug abuse, telephone interview, household survey

Introduction

In the recent years, drug abuse has become a concern of the society. For better control, policy-makers need accurate, timely, national and local information for the formation of policies against drug abuse. The use of epidemiologic approach in the study of drug abuse has been developed in the last 20 years. Though there still are some doubts as to the validity of such approach to the study of drug abuse, many researchers are positive of this technique. The epidemiologic study of drug abuse is similar to the epidemiologic studies of other diseases in that it also studies behavioral modes, establishes prevalence and epidemiologic curves, investigates risk factors and promotes preventive measures⁽¹⁾. The Drug Abuse Warning Network (DAWN) established by the US National Institute of Drug Abuse is for the surveillance of drug abuse and its impacts on health problems⁽²⁾. National information on drug abuse comes primarily from general household surveys, student surveys⁽³⁾, and telephone interviews⁽⁴⁾. Most studies concentrate on students, information about the out-of-school boys and girls is relatively unavailable⁽⁵⁾. For the better understanding of drug abuse, household surveys are more reliable though more costly and not easy to conduct. In the recent years, telephone interview has been accepted as a most effective method of collecting national information on prevalence⁽⁶⁾. The present study aimed at developing a community-based epidemiologic approach in the study of drug abuse and also at understanding the difference in the data collected either through face-to-face or telephone interviews.

Materials and Methods

Study Area

Ilan County was selected for study for reasons of urbanization and administrative support. Ilan County has a land area of 2,137 square kilometers with a population of 458,000 (238,000 males and 220,000 females) in 125,000 households. The population in the 13-35 age groups is about 250,000.

Subjects for Study and Interview Questionnaire

Data were collected through either face-to-face or telephone interviews. Study subjects were in four age groups: 13-15, 16-18, 19-22 and 23-35. A sample size of 1,500 from each age group was decided by Epi-info at a projected prevalence of 1%. Stratified random sampling method was used to select neighborhoods at the rate of 4:1. Names of all residents in the 13-35 age groups in these selected neighborhoods were then collected from the local household registration offices. From these names, 3,000 were randomly selected from each age group, totaling 12,000. A half of them were visited for face-to-face interview by public health nurses with a structured questionnaire; the other half

were interviewed by telephone. Interviewers were trained in advance. The questionnaire was adopted with modification from Chou⁽⁹⁾ and the household survey questionnaire of the US National Institute of Drug Abuse⁽⁷⁾. Contents of the questionnaire included: social and demographic background (date of birth, sex, place of birth, education), health behavior and risk factors for drug use. The questionnaire was tested before use for both validity and reliability by experts, and again in Ilan County by 20 individuals. Data were processed and analyzed with Epi-infor and SPSS. Descriptive analysis of the background characteristics of the subjects studied, and X²-test and multi-logistic regression analysis to compare the differences between drug use and non-drug use and the risk factors involved were conducted.

Results

Characteristics of the Subjects

54% and 51 % of the samples selected were successfully interviewed either face-to-face or by telephone respectively. The male-female sex ratio in both groups was 1.02:1. No statistical differences were noted between the two groups in their social and demographic characteristics such as education, place of birth and age distribution. The self reporting rates of drug use were 1.1% in the face-to-face group (37/3294) and 1.0% in the telephone group (30/3034). The prevalences collected by the two different methods were very close. The rate in the face-to-face group though was slightly higher, the difference was not statistically significant ($p>0.05$). As the differences in the data collected through two different methods were not statistically significant, the two sets of data were combined together for further analysis. Most of the subjects interviewed were of junior high and senior high school education (78.9%); of Fukien (87.7%) and aboriginal origin (6.5%). 23.8% of them drank; 11.2% smoked; 8.5% chewed betel-nuts; and 11.2% reported friends ever used drugs (Table 1).

Knowledge of and Attitude and Behavior toward Drugs

98% of those interviewed had heard of drugs; 71% of them knew that drug abuse could induce complications (Table 2). Most of them learned about drugs through mass media (90%), school teachers (28.3%), and friends (15.6%). They learned about anti-drug education through mass media (87%), radio (36%), and pamphlets (33%). Many of them (8 1%) had seen the pamphlets, "Say No to Drugs", produced by the Department of Health, and "War Against Drugs", produced by the Ministry of Justice (70%); and the media campaigns sponsored by the Government Information Office (52%). 33.2% of them knew that services for drug cessation were available at provincial hospitals; 22.4% of them knew that services for drug cessation could be requested through the Master Chang Line. 50.4% of them, however, did not know where to go for the services.

Characteristics of Drug Abusers

The demographic characteristics of drug abusers are shown in Table 3. The youngest drug abusers were in the 13-15 age group, accounting for 9.0% of all abusers. The ratio of abusers increased by age and reached the highest 47.8% at the 23-35 age group (linear trend $p < 0.05$). 1.8 times more males abused drugs ($p < 0.05$). Many abusers were of junior high (58.2%), and senior high education (25.4%). By occupation, they were laborers and farmers (26.9%), in service industry (22.4%), unemployed (19.4%), in military and civil service (11.9%), and students (10.4%). The drugs often used were: amphetamine (55.9%), sedatives and hypnotics (14.7%), heroine and cocaine (4.4% each). The reasons at first use were: out of curiosity (46.5%), to help sleeping (28.3%), at the lure of friends (26.9%), for stress relief (16.4%) and for refreshing (8.9%). The places at first use were: home (35.8%), and friend's home (32.8%). The people they wished to consult were: friends (40.3%), counsellors (17.9%), mother (11.9%), father (7.5%) and brothers (6.0%).

Risk Factors for Drug Abuse

Table 4 gives the single variate analysis of risk factors for drug abuse. Individuals having drug abuse friends, drinking, smoking and chewing betel-nut were more likely to be drug abusers ($p < 0.01$). Though more aborigines were drug abusers, the difference was not statistically significant ($p < 0.05$).

By logical regressive analysis of all risk factors at $p 0.05$ and age and sex, when interfering factors were controlled, Table 5 shows that friends in drug abuse, smoking and betel-nut chewing were the independently predictive factors of drug abuse.

Discussion

Telephone interview has been accepted in the recent years as a most effective way of collecting information on national prevalence⁽⁶⁾. Previous studies indicated that there were differences between families with and without telephones. Families without telephones tended to be lower in social status and educational levels, and higher in unemployment and divorce rates⁽⁴⁾. Some studies found that for less sensitive issues such as health-related information and social demographic information, the differences in the data collected through either face-to-face or telephone interviews were small. There were, however, few comparative studies as to the differences in the data on sensitive issues collected by different methods⁽⁴⁾. Aquilino and Loscin⁽⁷⁾ in their study in New Jersey found little differences in the data on sensitive issues such as sex life and drug abuse collected either by telephone or face-to-face interviews from the white population. The black population, however, responded differently to different methods of data collection. Prevalences of marijuana and alcohol use collected by telephone were lower than

those collected by face-to-face interview. McQueen⁽⁸⁾ in his study of the sexual behaviors of AIDS patients, however, found that the rates collected by telephone were higher. The 1979 US National Health Survey⁽⁹⁾, on the other hand, found that data on smoking differed little by the methods of collection. Hochstim⁽¹⁰⁾ suggested that females were more willing to answer by mail or telephone questions concerning medical care or drinking. Groves and Kahn⁽⁶⁾, in their study in Michigan, maintained that questions on income, ethnic groups and occupation be better collected face-to-face. The 1988 US National Institute of Drug Abuse (US NIDA) study found that the response rates to either face-to-face or telephone interviews were almost similar⁽¹¹⁾. Geroerer et al.⁽¹²⁾ found that the drug abuse prevalences collected by telephone interview were under-estimated. The random digit dialing method has been widely used in market surveys and studies. This method has also been applied to epidemiologic studies. One merit of this method is that the unlisted persons can also have the chances of being interviewed. In the US, about 16-20% of the telephone owners are unlisted. They are younger, non-white, of lower income, educational level and occupational status⁽¹³⁾. The present study was a population-based survey. The findings were that the data on drug abuse collected either by face-to-face or telephone were not different statistically. For similar national surveys of drug abuse in the future, telephone interview is a feasible and economical method.

Drug abuse is a touchy issue. As drug abuse is illegal, more obstacles are confronted in the survey than other surveys. Repeated cross-sectional surveys can be used for the surveillance of trends, changes in group attitudes, and prevalences of drug abuse^(1,2). Though the response rate was only 53%, by comparison, the samples in the survey were not statistically different from the population of Ilan County, the findings of the survey should be representative of the Ilan population. However, since the present survey excluded jail inmates, men in active military service and migrants, the number of drug abusers could have been under-estimated, though it would still serve as an indicator. The self-reported prevalence of drug abuse in Ilan County was 1.1%; the self-reported prevalence of drug abuse among friends was 11.2%. Though the friends reported by different respondents could be the same persons, by putting all information together, it was estimated that the drug abuse population would be between 5,000 and 50,000. This is a serious social problem not to be ignored.

Drug abuse and drug dependence are different. Drug abuse refers to the use of drugs hazardous to physical or mental health and social harmony. The dosage far exceeds the amount required for treatment⁽¹⁴⁾. Drug dependence is a medical concept involving both physical and mental aspects. Physical dependence refers to the continuous demand of the body for certain drug, and the termination of drug use will induce withdrawal symptoms. Mental dependence is the perceived demand for certain drug⁽¹⁵⁾. Generally speaking, abused drugs come in four categories: 1) the

opium group such as codeine, morphine and heroine which inhibit the activities of the brain stem to have impacts on emotion and internal organs; 2) central nerve inhibitors such as alcohol, barbiturate, benzodiazepines and methaquadone that inhibit the activities of the brain to have impacts on thinking and behaviors; 3) central nerve stimulants such as amphetamine, cocaine and methamphetamine (ice) that stimulate the activities of the brain stem; and 4) hallucinogens such as cannabis, lysergic acid, diethylamide (LSD), phencyclidine and organic solvents that stimulate the brain. Different drugs have been used at different times. In the US for instance, marijuana was the main drug in the 1960's; in the 1970's, it was heroine; it was cocaine in the 1980's⁽¹⁾. In the present survey, the drugs more often used were found to be amphetamine and sedatives and hypnotics.

Many obstacles can be confronted in the study of drug abuse as drug abuse is illegal. Some scholars maintain that drug abuse is an illness, or a forerunner of certain diseases such as AIDS and subacute bacterial endocarditis. Some scholars consider drug abusers sick patients. There are, however, some differences between patients and drug abusers. Drug abusers use drugs at their own initiative; whereas patients become sick passively. Greene⁽¹⁾ suggested that heroine addiction was a communicable disease: in which, the drug was the agent, the user the host, and the peers the vector. The present survey found that chances of individuals having drug abuse friends becoming drug abusers were 18.6 times higher. Friends indeed are very important vectors in drug abuse.

Reasons for drug abuse are complicate. Pressure from peers, curiosity, depression, efficiency improvement and resistance are some of the reasons to make someone use stimulants⁽¹⁾. In the present survey, similar reasons for drug abuse, curiosity, insomnia, lure of friends, and stress relief, were also noted.

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Table 1. Characteristics of Subjects (N=6,318)

Variables	(%)
Education:	
less than primary school	3.6
junior high school	41.9
senior high school	37.0
college and above	17.5
Place of birth:	
aboriginal	6.5
Fukien	87.7
Hakka	1.4
Others	4.3
Smoking	23.8
Drinking	11.2
Chewing betel-nut	8.5
Using drug	1.1
Having drug abuse friends	11.2

Table 2. Knowledge of, Attitude and Behavior Toward Dnigs

Variables	(%)
Heard of drugs	98.0
Knowing drugs could induce complications	71.0
Heard of drug abuse control (multiple choices):	
through mass media	90.0
teachers	28.3
friends	15.6
classmates	12.6
parents	7.3
siblings	5.1
others	2.5
Learned of anti-drug information (multiple choices):	
through TV	87.0
radio	36.0
pamphlets	33.0
teachers	24.0

anti-drug musical performances	17.3
text books	11.0
anti-drug workshops	8.6
friends	7.6
classmates	6.4
others	2.2
Heard of these anti-drug activities (multiple choices):	
"Say No to Drugs" (DOH)	81.0
"War Against Drugs" (Ministry of Justice)	70.0
Anti-Drug Campaigns (Government Information Office)	52.0
Spring-Sunshine Project (Ministry of Education)	35.0
Never heard of	7.6
Heard of but didn't know the sources	0.6
Where drug cessation services can be obtained (multiple choices):	
provincial hospitals	33.2
Master Chang Line	22.4
provincial psychiatric hospitals	19.0
psychiatric hospitals	12.2
Jen-ai homes	10.3
private hospitals and clinics	8.9
don't know	50.4

Table 3. Demographic Characteristics of Drug Abusers (N=67)

Variables	(%)
Age (years):	
13-15	9.0
16-18	13.4
19-22	16.4
23-35	47.8
Male	64.2
Education:	
Primary school	4.5
Junior high	58.2
Senior high	25.4
College	11.9
Occupation:	
labor and farming	26.9
service	22.4
military and civil service	11.9
students	10.4
commercial	9.0

unemployed	19.4
Whom to consult with:	
friends	40.3
counsellors	17.9
mother	11.9
father	7.5
siblings	6.0
classmates	4.5
Reasons at first use (multiple choices):	
curiosity	46.3
help to sleeping	28.3
lure of friends	26.9
stress relief	16.4
for refreshing	8.9
like the after effect of drug use	4.2
resistant to authority	4.2
weight control	2.1
Place at first use (multiple choices):	
home	35.1
friend's home	32.3
electronic game parlors	8.1
on campus	5.4
at dancing halls	5.4
at pubs	2.7
Drugs used (multiple choices):	
amphetamine	55.9
sedatives and hypnotics	14.7
FM2	7.3
marijuana	5.9
heroine	4.4
cocaine	4.4
glue	2.9
	1.5
hallucinogens	1.5
cough syrups	1.5

Table 4. Single Variate Analysis of Risk Factors

Variables	% Using Drugs (N=67)	% Not Using Drugs (N=6,251)	OR (95% CI)
Having drug abuse friends	68.7	10.5	18.6(10.7-32.4)**
Drinking	46.3	10.8	7.1(4.3-11.9)**
Smoking	77.6	23.2	12.0(6.3-21.4)**
Betel-nut chewing	49.3	8.0	11.1(6.6-18.6)**
Aboriginal	11.1	6.4	2.0(0.9-4.3)

X²-test *p<0.05, **p<0.01

Table 5. Multiple Logistic Regression Analysis of Risk Factors

Variables	Age-Sex Adjusted OR (95% Confidence Interval)
Having drug abuse friends	14.1(8.13-24.44)**
Drinking	1.8(0.96-3.28)
Smoking	6.7(3.04-14.28)**
Betel-nut chewing	3.6(1.89-6.93)**

dependent variable is "drug abuse" vs "non-drug abuse"; variables put in are age, sex, having (or not having) drug abuse friends, drinking (yes/no), smoking (yes/no) betel-nut chewing (yes/no).

*p<0.05, **p<0.01