EVALUATION OF TREATMENT OUTCOMES OF METHADONE PROGRAM AND KNOWLEDGE AWARENESS SURVEY ON DRUG ABUSE IN PENANG, MALAYSIA

By

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Dedication

This research work is dedicated to my father Syed Zamir Hussain Gillani, my mother Khalida Syeda, my brother Syed Muddassir Gillani, my sister Saima Syed, my brother in law Yameen Gillani, my beloved niece Ayesha Gillani and most of all my Grandfather Syed Nazir Hussain Gillani (late).

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LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome.
ANOVA	Analysis of Variance.
CDC	Centre of Disease Control and Prevention.
AADK	Anti-narcotics task force.
GPs	General Practitioners.
HIV	Human Immunodeficiency Virus.
SOP	Standard Operating Practices.
KAP	Knowledge, attitude and perception.
IVDU's	Intravenous Drug users.
HCV	Hepatitis C.
MOH	Ministry of Health.
MMT	Methadone maintenance treatment.
LAAM	Levo – alpha – acetylemethadol.
SPSS	Statistical Package for the Social Sciences.
CAS	Canadian Addiction survey.
SAMSA	Substance Abuse and Mental Health Services Administration.
UNAIDS	United Nations Programme on HIV/AIDS.
UNESCO	United Nations Educational, Scientific and Cultural Organization.
SML	Serum Methadone level.
W.H.O	World Health Organization.
MCBT	Medical complications before treatment

MCDT Medical complications during treatment

PENILAIAN HASILAN RAWATAN PROGRAM METHADONE DAN TINJAUAN KESEDARAN TENTANG PENYALAHGUNAAN DADAH DI PENANG, MALAYSIA

ABSTRAK

Ada yang berpendapat bahawa pengetahuan boleh mempengaruhi penyalahgunaan dadah disamping faktor kedua seperti sosioekonomi yang rendah. Terdapat penyelidikan yang melaporkan pengetahuan yang rendah tentang penagihan walaupun dikalangan masyarakat yang mempunyai penagih yang ramai. Satu kajian deskriptif secara bersilang telah di lakukan di Pulau Pinang, Malaysia, untuk mendapatkan maklumat tentang keberkesanan secara terapeutik terhadap rawatan penagihan di tiga klinik yang berdaftar untuk menjalankan rawatan dengan methadone. Satu lagi kajian dilakukan untuk menilai tahap pengetahuan di kawasan yang mempunyai kadar penagih yang ramai (Sg. Cheenam), dikalangan pelajar Universiti dan terhadap kumpulan penagih yang memerlukan rawatan secara pesakit luar (out-patients of Methadone Maintenance Treatment (MMT)). Soalan kajian telah dihasilkan untuk mengumpul maklumat terhadap tiga sampel populasi yang dikaji terhadap pengetahuan dan pengurusan praktis pengamal rawatan methadone di klinik tersebut. Teknik persampelan secara strafikasi telah digunakan untuk mengumpul data dari Kampung Sg.Cheenam, teknik persampelan secara mudah digunakan dikalangan pelajar universiti sementara kesemua data dari pesakit luar dalam program MMT telah digunapakai dalam kajian tersebut. Data yang diperolehi telah dianalisa secara statistik dengan menggunakan ujian stastitik yang sesuai. Sejumlah 175 penduduk dari kampong, 180 pelajar dan 283 Pesakit Luar di klinik MMT telah dikaji tentang pengetahuan tentang penyalahgunaan dadah dan ciri-cirinya. Tujuh perpuluhan tiga peratus(7.3%) di kampong , 20.7% dikalangan pelajar dan 35.1% dikalangan pesakit luar menyatakan mereka masih aktif mengambil dadah. Majoriti dari mereka ini mengalami pengalaman pertama mengambil dadah pada usia 19-25 tahun. Heroin merupakan dadah yang paling kerap digunakan serta kaedah suntikan merupakan

kaedah yang sering digunakan. Purata nilai untuk pengetahuan ialah 21.3 untuk penduduk kampong, 28.1 dikalangan pelajar universiti dan 21.9 dari klinik MMT. Tidak terdapat sebarang perbezaan statistic diantara pesakit di klinik MMT dengan penduduk kampong namun terdapat perbezaan yang signifikan diantara pelajar universiti dengan dua kumpulan yang lain. Sebanyak tiga klinik rawatan methadone di Pulau Pinang telah dinilai dalam kajian ini. Didapati lebih dari 70% dos yang diberikan adalah tidak konsisten dengan protokol rawatan yang telah disarankan di peringkat nasional. Tujuh puluh lapan peratus(78%) dari pesakit luar ini mengalami jangkitan secara kronik. Sembilan puluh lapan peratus (98%) dari mereka mengalami virus Hepatitis C. Tidak terdapat seorang pun di antara mereka yang mendapat sebarang rawatan terhadap penyakit berjangkit tersebut. Kajian ini juga menunjukkan hanya 3.7% dari jumlah pesakit luar ini merasakan peningkatan kualiti kehidupan setelah mendapat rawatan dengan methadone. Sejumlah 23.7% kes enggan mendapatkan rawatan dilaporkan dari Jan 2007- Mei 2008. Sebagai rumusan terdapat jurang perbezaan pengetahuan yang besar dikalangan penduduk kampong dan pesakit luar dalam program MMT. Program pendidikan adalah diperlukan untuk meningkatkan kesedaran tentang penagihan dan penyalahgunaan dadah. Pengurusan dan rawatan di dapati tidak konsisten dengan protokol yang telah diberikan. Oleh yang demikian latihan untuk mereka yang mempreskripkan rawatan methadone ini adalah diperlukan. Adalah disarankan agar garispanduan diperingkat nasional dapat di perkemaskan berdasarkan pengurusan dan rawatan yang telah dibuktikan.

EVALUATION OF TREATMENT OUTCOMES OF METHADONE PROGRAM AND KNOWLEDGE AWARENESS SURVEY ON DRUG ABUSE IN PENANG, MALAYSIA

ABSTRACT

A cross-sectional descriptive survey was conducted in Pulau Pinang, Malaysia, to provide the information regarding to the therapeutic effectiveness in the management and treatment of Addiction in three registered methadone clinics of Pinang state. Subsequent study was carried out to determine the level of knowledge in high prevalence area (Sg. Cheenam), among university students (USM) and treatment seeking group of addicts (out-patients of Methadone Maintenance Treatment (MMT)). Self administered questionnaires were developed to collect the required information from above three sample population knowledge and management practices of practitioners in methadone clinics. Stratified random sampling technique was used to collect data from Sg.Cheenam village, convenience sampling technique was employed to collect university sample while all the active out-patients on MMT were included in the survey. Data was analyzed statistically by applying appropriate statistical tests. A total of 175 persons from village, 180 students and 283 out-patients of MMT were surveyed for their knowledge about drug abuse and characteristics. Seven percent (7.3%) participants from village, 20.7% of students and 35.1% out-patients claimed they were active in drug-taking activities. Majority of addicts in three groups, experienced first drug abuse at the age of 19-25 years. Heroin was still the drug of choice found in the survey, intravenous injection was the pronounced route of administration. The overall mean scores of knowledge was 21.3 for villagers, 28.1 for university students and 21.9 for MMT patients. There was no significant difference found between the MMT patients and villagers groups while the university student group was found to be significantly higher when compared with the other two groups. Three methadone management therapy clinics of Pinang state were surveyed in the study. It was found that more then 70% dose setting were inconsistent

with the national protocol. Seventy-eight percent (78%) of out-patients experienced chronic infection. Ninety-eight percent (98%) of them were confirmed to Hepatitis C virus. No single person was found on supportive therapy for chronic infection. Data showed that only 3.7% of total out-patients showed improvement in their quality of health after taking methadone treatment. A total of 23.7% drop-out cases were found during (Jan 2007- May 2008) survey. It is concluded that there is a sizable gap of lack of knowledge found among the village and out-patients of MMT. Educational programs are required for people, to increase their awareness about the addiction and drug abuse. Management and treatment practices are quiet inconsistent to protocol, so there is a need to increase the methadone prescribing trainings for practitioners. Strong recommendations are made for the update of national guideline on evidence – based management and treatment setting.

CHAPTER ONE

INTRODUCTION

1.1 Background

Drug is a word derived in the era of fourteenth-century by French word *drogue*, mean to recognize as a ‘dry substance’. Almost all pharmaceuticals at that era were involved in drug conversion from dried herbs (Palfai and Jankiewicz, 1991), even though, there is no satisfying way of delineating that, what is & what is not a drug – e.g., the difference between water, vitamin supplements and penicillin (Goode, 1998). Some of them feel that, it is appropriate to refer a “chemical or substance abuse”, indistinctness in the use of the term drug has lead some serious social consequences.

In the contemporary society the word drug has often two connotations – one is positive, that explains its crucial role in medicines, while other is negative, reflecting synthetic makeup of these chemicals & also the self-destruction and socially venomous pattern of misuse (Jones, Shainberg and Byer, 1979). A drug in further detailed discussion mostly refers as substances having mood-altering, psychotropic (or psychoactive) effects. This definition also includes caffeine, nicotine, alcohol and as well as illegal chemicals such as marijuana and heroin (Goode, 1989).

1.2 Definitions and Statements

1.2.1 Drug abuse

World Health Organization (1969) defines “Abuse” (drug, alcohol, chemical, substance, or psychoactive substance) as a group of terms in wide use but of variety of meanings. It may also define as persistent or sporadic excessive drug use contradictory with or unrelated to acceptable in medical practices. Narcotic is usually refers to opiates or opioids, which are often called as narcotic analgesic. It is used imprecisely to mean of illicit drugs. Abuse is mostly referred to non-medical or unsanctioned patterns of use, irrespective of consequences. WHO expert committee on drug dependence defines drug abuse as term of, a chemical agent that induces stupor, coma, or insensibility to pain.

Drug abuse may also be defined in a number of perspectives: The legal definition equates drug use with that of the meager act of using a proscribed drug or/and using a drug under proscribed conditions. The moral definition is similar, but more emphasis is given on the motivation or purpose for which the drug is used. The medical model opposes unusual précised usage but emphasize on the physical and mental consequences for the users, whilst the social definition stresses on social responsibility and adverse effect on others subjected in the community (Balter, 1974).

Drug abuse and related crime permeate into the every corner of society, afflicting the inner cities, prosperous borders & rural communities. Drug affects the rich and poor,

educated & uneducated, professional & proletarian workers also young & old (Office of National Drug Control Policy, 2001).

American Social Health Association (1972) defines drug abuse as use of mood altering chemicals outside of medical supervisions and in a manner which is harmful to the person and the community. Other definition, such as those are referred with World Health Organization and American Medical Association, includes the term of physical and/or psychological dependency (Zinberg, 1984).

Numerous definitions of drug abuse that reflect social values, not scientific insight: “One reason for the prevalence of definitions to drug abuse that are neither logical nor scientific is the strength of Pure Moralism in American culture which frowns on the pressure and recreation provided by intoxicants” (Zinberg, 1984).

The American Psychiatric Association (1994:182) refers to substance abuse as a “maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances, including repeated failure to fulfill major role obligations, repeated use in situation in which it is physically hazardous, multiple legal problems and recurrent social and interpersonal problems.

Drug abuse implies the misuse of certain substances – its a moral not a scientific. Sometimes term as: an unstandardized, value-laden and highly relative, generally implying to drugs use that are excessive, dangerous or undesirable to the individual or

community (Nelson *et al.*, 1982). Drug abuse implies willful, improper use due to an underlying disorder or a quest for riotous or immoral pleasure (N. Miller, 1995).

1.2.2 Addiction

Addiction is derived from the Latin verb that is *addicere*; means to bind a person with one thing or another.

Drug addiction is defined as to lost control over drug taking, even in the face of adverse physical, personal, or severe social consequences (Society for Neuroscience, 2002). Norman Miller (1995) avoids using the term of drug abuse and opts, instead to characterized addiction by:

1. Stage I: Preoccupation, the addicts are assigned to a high priority to acquiring drugs. Social relationships and employment are jeopardized in the quest for drugs and the consequences of use.
2. Stage II: Compulsion, the addicts are continued to use drugs despite serious adverse consequences. He or she will often deny the connection between the adverse consequences and the use of drugs.
3. Stage III: Relapse, In the face of adverse consequences, addicts are discontinuing drugs but subsequently return to the abnormal use.

Dennis Donovan (1988) perceives addiction as a complex, progressive behavior pattern having biological, psychological, sociological components. What sets this behavior apart from others is the individual's devastatingly pathological involvement in/or attachment to it, subjective compulsion to use it & shows reduce ability to exert personal control over

it. The behavior pattern continues despite it leads to many negative impacts on the physical, psychological and social functioning of the individual.

In dominant view, addiction is predominately defined as; the preoccupation with the use of psychoactive substances, characterized by neurochemical and molecular changes in the brain.

1.2.3 Response Determining Definitions

It is found that varieties of lawful substances are addictive in nature and have been abused widely among "respectable community". Social expectations and definitions determine what kind of drug-taking is appropriate and the social situations that are approved or disapproved for drug use. It is acceptable concept that the use of drug is neither inherently bad nor inherently good – it is among the socially determined values (Goode, 1989). Thus Mormons and Christian considers that the use of tea and coffee is "abusive", while Muslims and some Protestant denominations have the same view of alcohol, although they permit tobacco for smoking (Goode, 1989).

The National Commission on Marijuana and Drug Abuse (1973) argued that the word *drug abuse* must be removed from official pronouncements and public policy dialogue because the term has no functional integrity and has become no more than an arbitrary codeword for that drug use which is now considered as wrong. Some literature showed that moderate use of a drug will be termed as "abuse" or it will be socially acceptable and lawful – if society term to determine so, regardless to the relative danger inherent in the

substance. In other words: How society defines drug abuse reflects how society responds to drug use.

1.2.4 Pattern pathway of drug abuse

The use of psychoactive chemicals, both licit and illicit, can be labeled as drug abuse only when the user becomes dysfunctional for a consequences; for example, unable to maintain employment; impaired social relationships; exhibits dangerous – reckless or aggressive behavior and/or significantly endangers his or her health. Thus drug use, as opposed to drug abuse can be viewed in continuum (Figure 1.1).

At the one end of the continuum there is the nonuser who has never used prohibited or abused lawful psychoactive drugs. Along the continuum is experimental use and culturally endorsed use, which includes the use of drugs – wines or peyotes, for example, in religious ceremonies. It is mean that regardless of the duration of use, such people tend not to escalate their use to uncontrollable amounts (for the story of recreational heroin user who was not dysfunctional) observed in Marlowe (1999).

In demonstrating the case, long term cocaine users have found that recreational pattern can be maintained for a decade or more without loss of control. Such use tends to occur in weekly or biweekly episodes and user perceives that the effects facilitate social functioning (Siegel, 1989).

At the far end of the continuum is the drug dependent or compulsive user whose life often revolves around obtaining, maintaining and using a supply of drugs. For the compulsive user, failure to ingest an adequate supply of the desired drug results in psychological stress and discomfort and there may also be physical withdrawal symptoms.

Naturally these data sources provide a highly selected sample of users: those who have encountered significant personal, medical, social, or legal problems in conjunction with their drug use, and thus represent the pathological end of the using spectrum (Zinberg *et al.*, 1978).

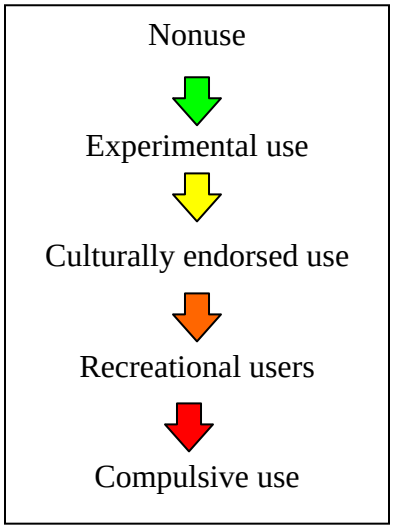

Figure 1.1 Drug continuum

1.3 Opiates

In the end of 18th century (Latimer and Goldberg, 1981) or in the early of 19th (Merlin, 1984; Nelson *et al.*, 1982), German pharmacist poured a liquid ammonia over opium and obtained an alkaloid, a white crystalline powder that he found to be many time more powerful than opium. Frederich W. Serturner named the alkaloid *morphium*, the Greek god of sleep and dreams. Ten parts of opium can be refined into one part of morphine (Bresler, 1980).

By the 1850's morphine tablet and different varieties of morphine was made available in the market without prescription (Latimer., Goldberg, 1981). In 1856 the hypodermic method of injecting morphine directly into the blood stream was introduced. The popularity of morphine markly increased during the civil war when the intravenous use of the drug to treat battlefield casualties, which later was found to be rather indiscriminate (Terry., Pellens, 1982). Anyone who visited nearly any physician for any complaint of toothache would be prescribed morphine as a treatment (Latimer., Goldberg, 1981), and thus the substance was widely abused by the physicians themselves. Morphine abused in the latter part of the 19th century was apparently widespread in rural America (Terry., Pellens, 1982).

In the start of 1870's, doctors injected women with morphine to numb the pain of "female troubles". By the 1890's, when the drug epidemic peaked, female medical addicts made up almost half of all addicts in United States. In the 20th century, the drug scene shifted to

underworld element of urban areas of America, the disreputable “sporting class”: prostitutes, pimps, thieves, gamblers, gangsters, entertainers, active homosexuals, and youth who admired the sporting men and women (Stearns, 1998).

In early 1987, a British chemist experimenting with morphine to synthesize the diacetylmorphine, and thus the most powerful of opiates came into being. In 1898 commercial promotion was done when the highly respected German pharmaceutical combine Bayer, in perfectly good faith but perhaps without sufficient prior care. They coined the trade name ‘heroin’ and which they marketed as a “sedative for coughs” (Bresler, 1980). Jack Nelson and his colleagues (1982) stated that the heroin was actually isolated in 1898 in Germany by Heinrich Dreser, who was searching for a non habit-forming pain reliever to take the place of morphine. Dresser named it after the German word *heroisch*, means large and powerful. Figure 1.2 shows the century distribution of the drugs / substance related to history of development and war against the anti drug social terminology.

s a y n o t o d r u g s !

Century Era	History Distribution

1800's

1. German pharmacist discovers morphine.
2. First opium war takes place.
3. Anti-immigrant know-nothing party formed.
4. Cocaine isolated from coca leaf.
5. One-third of United States have prohibition laws.
6. Second opium war done.
7. Morphine is widely used in the civil war.
8. Heroin discovered.
9. Sigmund Freud begins using cocaine.
10. Late 18th, amphetamine was synthesized 1st time.
11. End 18th, anti-saloon league was organized & launches a political action campaign.

1900's

1. Drug regulation get started in Pure Food and Drug Act.
2. First international opium conference held in Shanghai.
3. Second international opium conference. The Hague; barbiturates are introduced & widespread use.
4. Passage of Harrison act bring narcotics under jurisdiction.
5. World War I; widespread use of alcohol & morphine.
6. Narcotics clinics opened in major cities of United States.
7. Prohibition 18th Amendment adopted in favor of physicians used morphine in the maintenance doses of the addicts.
8. Federal narcotic agents close down the narcotic clinics.
9. United States rule that physicians can prescribe small dose heroin for the treatment of addicts.
10. media campaign on marijuana use; amphetamine spread..
11. World War II; cause drug epidemic as soldier returned.
12. In Korean War; amphetamine is spread among soldiers.
13. Attitude towards recreational drug use change; LSD become popular; medical profession focus on treatment; including the use of methadone.
14. California established a civil commitment program.
15. Drug Enforcement Administration (DEA) established.
16. Cocaine popular; smokable form of amphetamine appear.
17. Office of national drug control strategy was established.

In the late 1990's a period was began that was notable for a lack of political interest in drug abuse.

21st century: club drugs as ecstasy become popular in dance clubs & the issue of medical marijuana pits states that permit it against the federal government, which does not; the problem of binge drinking among college youth gains widespread attention.

Fig 1.2 Descriptive history of substance abuse in the human civilization

1.3 Risk factors and Social theory

The social or behavioral sciences have to study the etiology of drug addiction in a more circuitous manner. Sociological theory is concerned with social structures and social behavior, so it examines drug use in its social context. A sociological perspective often views drug use as the product of social conditions and relationship that cause despair, frustration, hopelessness and general feelings of alienation in the most disadvantaged segments of the population (Biernacki, 1986).

The National Institute on Drug Abuse (Drug Abuse, 1987) outlined factors that are associated positively with adolescent substance abuse, factors found more frequently in deprived socioeconomic environments:

1. Families whose members have a history of alcohol abuse and/or histories of antisocial behavior or criminality.
2. Inconsistent parental supervision, with reactions that swing from permissiveness to severity.
3. Parental approval or use of dangerous substances.
4. Friends who abuse drugs.
5. Children who fail in school during late elementary years and who show a lack of interest in school during early adolescence.
6. Children who are alienated and rebellious.

7. Antisocial behavior during early adolescence, particularly aggressive behavior.

Many sociological studies have found that drug use among adolescents is motivated by intermittent feelings of boredom and depression, like wise other aspects of adolescence, it is typically upon reaching adulthood. Table 1.1 showed various factors that are influenced to drug abuse in the common society. Furthermore, contrary to conventional wisdom, research has found that drug use is typically a group activity of socially well-integrated youngsters (Glassner., *et al.*, 1989). That is, contrary to some psychological views, the adolescent drug user is socially competent (or ego sufficient). Sociological studies often challenge the conflicting views of the adolescent drug user as either a deviate isolate or peer-driven conformist. Sociology also cautions us to separate drug use that is situational and transitional from drug dependence or addiction, which is compulsive and dysfunctional.

In England, the much smaller number of those adolescents who use illicit drugs regularly, as opposed to those who have tried illicit drugs, reminds us that because a young person has tried an illicit drug does not mean that they will necessarily develop a pattern of long term misuse (Advisory council on the Misuse of Drugs, 1998).

Table 1.1 Risk factors result to Drug Abuse (Source: Newcomb (1995: 17)

1. Culture and society:
• Laws favorable to drug use • Social norms favorable to drug use • Availability of drugs in streets. • Extreme economic deprivations • Neighborhood disorganization
2. Interpersonal
• Parent and family drug use • Positive family attitude towards drug use • Poor/inconsistent family management practices • Family conflict and disruption • Peer rejection • Association with drug-using peers
3. Psycho behavioral
• Early/persistent problem behavior • Academic failure • Low commitment to school • Alienation • Rebelliousness • Favorable attitude towards drug use • Early onset of drug use
4. Biogenetic
• Inherited susceptible to drug abuse • Psycho physiological vulnerability to drug effects.

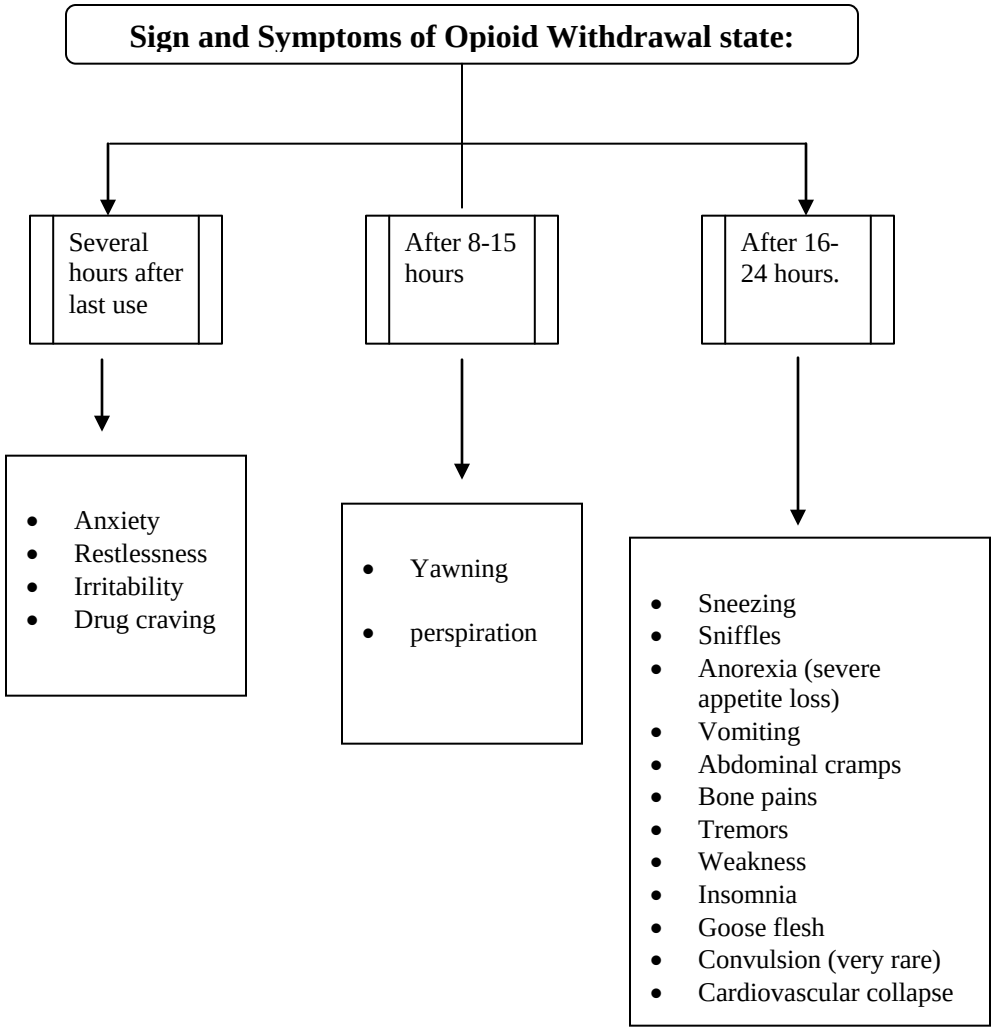

Chart 1.0 Clinical withdrawal sign & symptoms of opioid addiction
Source: Ginzburg, 1986

1.5 Epidemiological Conforming data on drug abuse

Both tobacco and alcohol share a role as 'gateway drugs' that presage use of other psychoactive drugs; in other words, alcohol and/or tobacco use precedes most subsequent use of marijuana and cocaine (Shiffman. Saul and Mark. Balabnis, 1995), thus "there is a fairly consistent progression of adolescent substance use beginning with the licit drug alcohol and/or cigarettes, moving on to illicit substances initiating with marijuana and

progressing to cocaine and 'harder', more problematic drugs" (Johnson. P., Boles., Kleber, 2000).

Each day, more than 3,000 young persons smoke their first cigarette and the likelihood of becoming addicted to nicotine is higher for these young smokers than for those who begin later in life (Zickler, 2002). Nearly one in four high school seniors' smoke every day and more than one in eight smokes a half-pack or more each day. Young people of age between twelve to seventeen years who smoke are about twelve times more likely to use illegal drugs and sixteen times more likely to drink heavily than youths who did not smoke. Alcohol use among the young adults strongly correlates with adult drug use latter in term of long dependence. For example, adults who started drinking at early ages are nearly eight times more likely to use cocaine than adults who did not drink as children (Office of National Drug Control policy, 2000).

1.5.1 Global informatory data on drug abuse

Next to traffic accidents, narcotic addiction today is the greatest single cause of death in the age group between 18-35 years (Birgitte Kringsholm, 1981).There is global increase in the production, transportation and consumption of opioid drugs. It is estimated that worldwide there are about 185 million drug abusers (UNDCP, 2002) Table: 1.2. Among them 13.5 million people take opioid, including 9.2 million are heroin users (those from Europe). In America, the non-medically use of narcotic drugs increased from 1.9 million to 3.1 million persons in between the year 2002 to 2004 (Office of Applied studies, 2005).

Table: 1.2 Global estimates for the drug abuse

No's	SUBSTANCE OF ABUSE	Figure	Source of the data
01	Illicit drugs	185 million illicit drug abusers	UNDCP, 2002
02	Alcohol	2 billion alcohol users	WHO, 2002
03	Tobacco	1.3 billion smokers	WHO, 2002

Table 1.3 describes the age and related ratio of drug in year 2003 (NSDUH, 2003). The percentage ratio of drug abuse between male and female in 2003 is 12.2% and 6.2%. It was seemed double in male as compared to females. However the drug abuse in 2002 by the age of 12 – 17 years was about 11.6% and there was no significant change in this figure in year 2003 that was about 11.2%.

But the cumulative drug abuse by male and female in between the age of 12 -17 years was 8.7% and 9.1%. The results showed that the prevalence of drug abuse was more in female teenagers as to that of male teenagers in America.

Table: 1.3 Statistical data correlates with the age

Statistical data of drug abuse in relation with age (2003)	
Age range	**Statistical percentage**
12 – 13 years	3.8%
14 – 15 years	10.9%
16 – 17 years	19.2%
18 – 20 years	23.3 % (maximum)
> 20 years	Decline in %

Vietnam is also on the highest risks of the global facts; according to the report Vietnam has high values on drug abuse cases (Figure 1.3). According to the official figures, the

numbers increased from 101,036 users to 170,400 users in between 2000 – 2004 (UNODC, 2004).

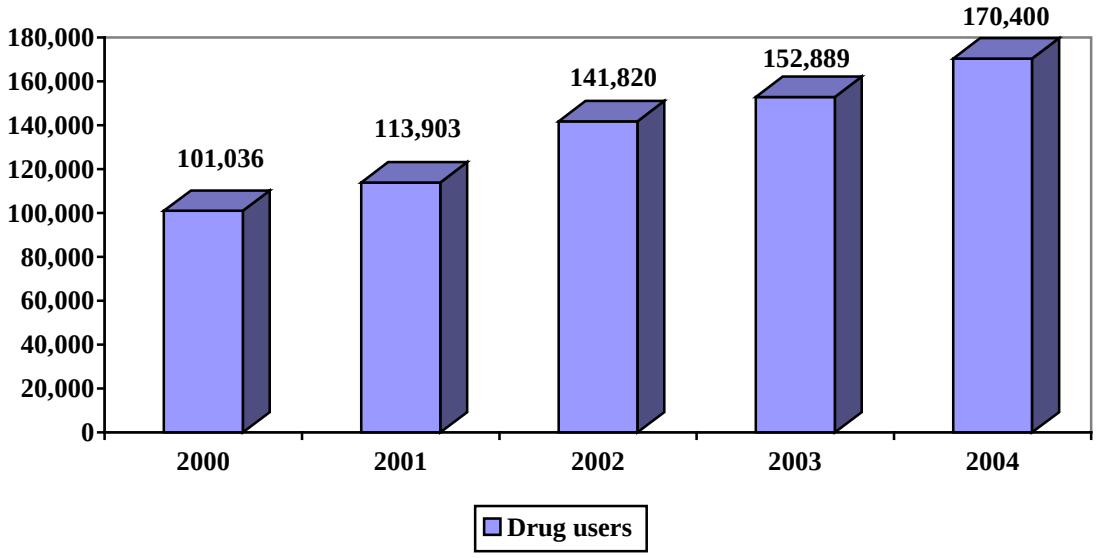

Figure 1.3: Official figures on Drug users (2000-2004)

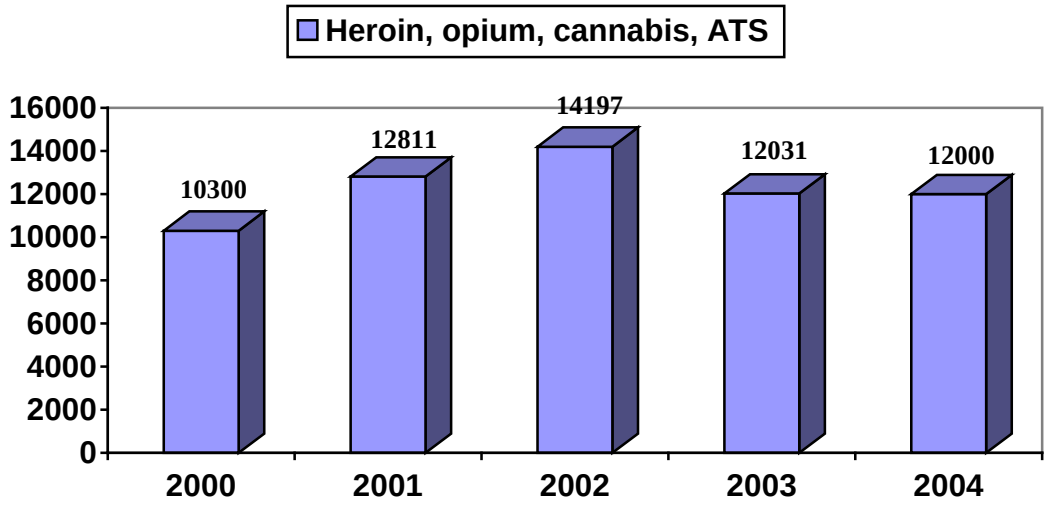

Figure 1.4: Number of cases discovered in Vietnam

Lifetime prevalence of heroin was seemed to be increasing in Canada. It was about 2.8% among the Ontario school students in 1999 as compared to that of 1.9 % in 1998, Canada

reported that there is some increase in heroin abuse in 2000 questioners (E. M. Adlaf, 2000). Prevalence of heroin smoking being particularly high among students in Latvia and Romania (7-8 per cent) and Croatia, Italy, Lithuania, Poland and the Russian Federation (4-5 per cent). Injecting heroin use was far less commonly reported (Hibell. B., 2000).

In India, the Islamic Republic of Iran and Pakistan, large opiate-abusing populations exist. Estimates vary considerably for the size of the total heroin abusing populations in those countries, with some figures suggesting extremely high male prevalence rates. A 1996 survey in India estimated that there were between 0.5 and 0.6 million drug-dependent individuals and that the drug-abusing population could be in the order of 3 million. A recent assessment exercise in Pakistan highlighted a serious heroin problem and estimated the number of chronic male addicts at around half a million (World Drug Report, 2006). That study also suggested that drug injection had now become a serious problem in the country, with around 15 per cent of heroin addicts regularly using that mode of administration. This contrasts with the situation in the mid-1990s where this mode of use was negligible. Good prevalence data are not available for Bangladesh, but rapid assessment studies carried out in 1996 suggested that the country had a significant heroin problem. In China, situation showed that out of 450 million drug and alcohol users about 25 million were close to opium users. The estimated number of opiate users in Asia is about 8.5 million (World Drug Report, 2006).

Globally about 71% of the world drug abusers are opiate abusers and among them 16 million are heroin abusers. Annual prevalence of opiate abuse in Asia is highest among all the data regional resources (Figure 1.5 and Table 1.4) (UNODC, 2006). Studies showed that 65% of opium abusers are in Asia (World Drug Report, 2006) (Figure 1.6).

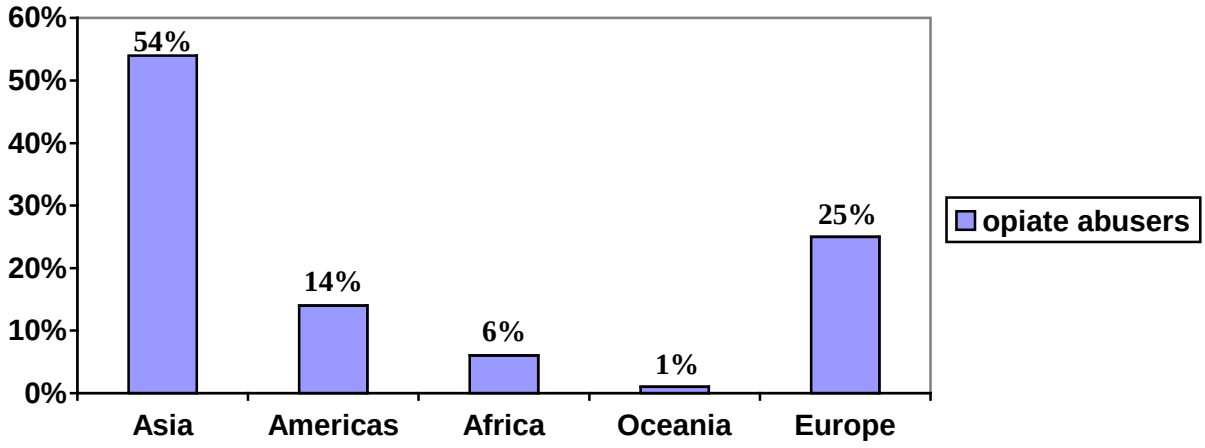

Figure 1.5: Regional breakdown of opiates abusers (UNODC, 2006)

Table 1.4: Annual prevalence of opiate abuse, 2003-2005

Countries	Abuse of opiates		Abuse of heroin	
	No of abusers	In% of population 15-64 years	No of abusers	In % of population of 15-64 years
Europe	4,030,000	0.7%	3,340,000	0.6%
Americas	2,280,000	0.4%	1,540,000	0.3%
Asia	8,530,000	0.3%	5,430,000	0.2%
Africa	910,000	0.2%	910,000	0.2%

Source: UNODC, 2006

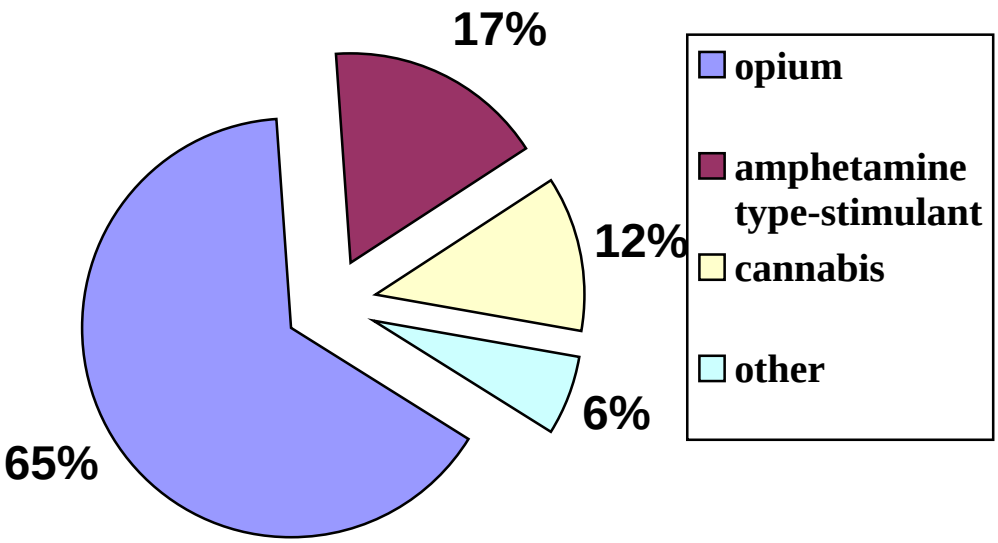

Figure: 1.6 Percentage of drug abuse in Asia

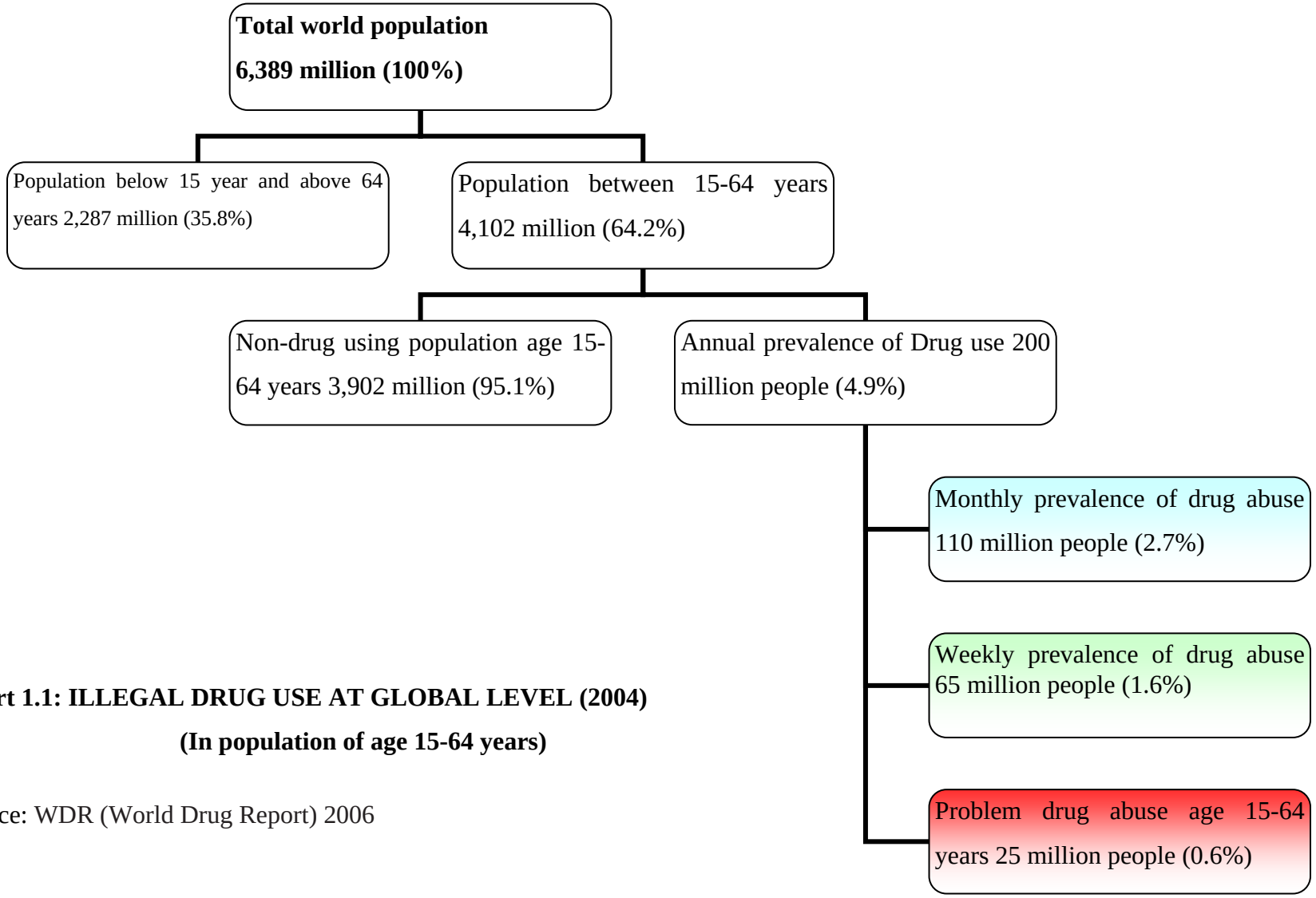

Chart 1.1: ILLEGAL DRUG USE AT GLOBAL LEVEL (2004)

(In population of age 15-64 years)

Source: WDR (World Drug Report) 2006

1.5.2 Malaysian Epidemiological data on drug abuse

The global epidemic of opiate use continue to spread and it causes an increasing burden to both developed and under developing countries (Ali, R., *et al.*, 2005). Inevitably Malaysia is just another country that has to deal with this global burden; a lot of studies have been carried out in Malaysia related to that of drug abuse and addiction. Simultaneously Malaysian anti narcotics taskforce is progressively working on the preventive and control measures of narcotics abuse (Deva, M.P, 1977).

Malaysia has the fastest growing economies in South East Asia with a population of approximately 26 million; experiencing extreme problems associated with the use of illicit drugs, there were 235495 registered drug users and offenders are registered in between 1988 to2002. Similarly, heroin accounts for 63% of drug abuse treatment admissions and 69% of drug related criminal offenses in Malaysia (National Drug Information (NADI), 2005).

The NADI showed that total number of addicts up to the March 2000 was about 36,350 persons, 17,373 were new respondents while the remaining 18,977 were the relapsed cases (NADI). Governmental anti- narcotic taskforce indicated that 275,499 heroin addicts were registered in 2004. WHO estimates that only one of four drug addicts are registered. Anti narcotic taskforce revealed that out of the 10,473 cases recorded from January to March 2005, 46.2% were new respondents and the remaining 53.8% were recidivist cases. Malaysian government is currently spending more than RM50mil per

year for drug rehabilitation centre alone. The most frequently abused drugs were heroin (36%), morphine (30%), cannabis (23%) and metamphetamine (7%).

In 1995, the total number of inmates in all prison institutions in Malaysia was 21,513. Out of this figure, 8,513 (39.57 %) were inmates allied with drug related offences furthermore, in 1996 Prison Statistics report illustrated that the total number of prisoners on remand and convicted as drug traffickers and abusers was high compared to that of the previous years. Out of 8,291 prisoners, 4,245 (50 %) were abusers of illegal drugs, and 1,204 (46 %) were drug traffickers (Malaysian Prison Statistics, 1996).

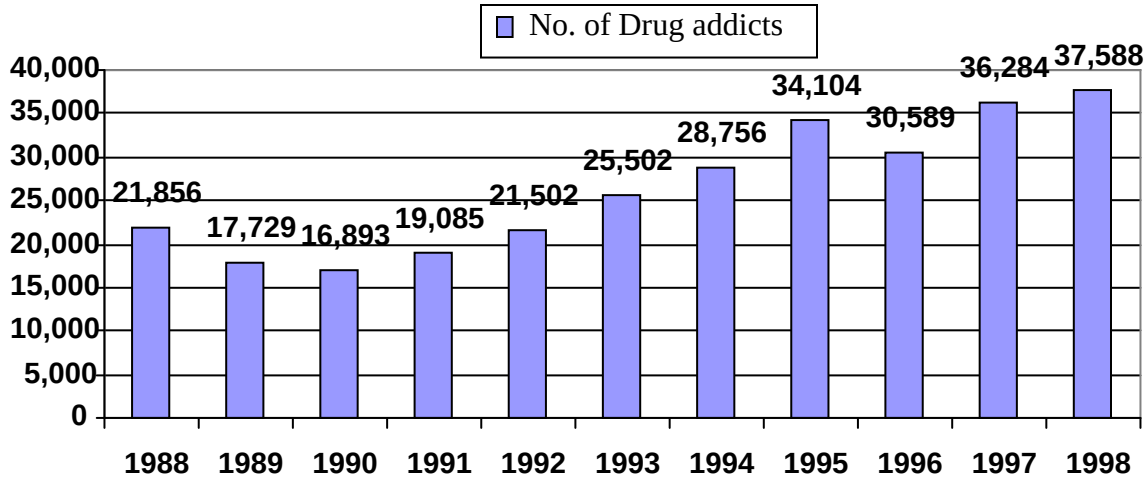

Figure 1.7: Total number of drug addicts in Malaysia (1988-1998)

Source: Anti-narcotic taskforce, time series Report (1988-1998)

1.5.2.1 Distribution

Retrospective study and typological characteristics of the different type of the addicts showed that there are different types of drug addiction, which are mainly categorized

accordingly to the involvement in drug addiction, starting from low involvement (Type I) to very high involvement (Type VI) (Table 1.5).

Table 1.5 Drug Addiction Classifications

No	Type of Addiction	Involvement and illustration
01	Type I	3 years Devoted to addiction.
02	Type II	4 years Devoted to addiction (largest time incarcerated)
03	Type III & IV	6 years Devoted to addiction
04	Type V	8 years Devoted to addiction
05	Type VI	9 years Devoted to addiction (shortest time incarcerated)

Source: Research Report No. 25, 1990

Drug abuse is a source of social ill like suicides, accidents, prostitution, school/work absenteeism, delinquency, family violence, overall loss of responsiveness and initiative, narcotic production and drug trafficking progressively lead to corruption, criminal activities, violence and intimidation (Anti Narcotic Task Force, 1990).

Teenagers knew the ways of abusing drugs by different way of administration. They obtained information about drugs via the mass media, social clubs, rehabilitation centers and school. Study by Low, W. Y., (1996) acknowledged that both the parents and teenagers are ignorant to the long term effects of abusing drugs.

The factors which influence drug-taking behavior are complex and multifaceted which include; Personal, social, economic, family, environmental and physiological (Deva, M.P, 1977).