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# Characteristics of Marijuana Users Compared to Multiple Drug Users

Swateja Nimkar  
Western Kentucky University

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CHARACTERISTICS OF MARIJUANA USERS COMPARED TO MULTIPLE DRUG  
USERS

A Thesis  
Presented to  
The Faculty of the Department of Public Health  
Western Kentucky University  
Bowling Green, Kentucky

In Partial Fulfillment  
Of the Requirements for the Degree  
Master of Public Health

By  
Swateja Nimkar

August 2006



CHARACTERISTICS OF MARIJUANA USERS COMPARED TO MULTIPLE DRUG  
USERS

Date Recommended 5/17/06

Thomas Nichols  
Director of Thesis

M. Christini Nagy

Edmund Gray 6/29/06  
Dean, Graduate Studies and Research Date

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## CHARACTERISTICS OF MARIJUANA USERS COMPARED TO MULTIPLE DRUG USERS

Swateja Nimkar

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Directed by: Thomas Nicholson, John White, Chris Nagy

Department of Public Health

Western Kentucky University

This study examines drug use behavior in a self-described sample of users. Comparisons are made between subjects whose only illicit drug use is marijuana and those who use both marijuana and other drugs. Data are from the DRUGNET study (1996, 1998, 1999), a multi-panel study conducted over the internet from 1996 – 1998. This sample was predominately white, male, young, and college educated. The majority of respondents were employed with incomes in the \$50,000 - \$60,000 (USD) range. A subset of respondents to the DRUGNET survey was selected for this analysis. Respondents had to be at least 18 years of age, a US citizen and report marijuana drug use (n = 283).

The major finding from this study is that there were no significant differences between the two groups on any variable measured other than gender, household income and the age of onset of marijuana use. Women are more likely to report using marijuana alone while males are more likely to report using marijuana and other drugs. The individuals having low and middle class household income were more likely to report the use of marijuana and other drugs compared to the upper middle class income groups who were more likely to report the use of marijuana alone. After Bonferroni's adjustment was done, it was

observed that the mean age of onset for the group who used marijuana alone was greater in comparison to the group who used marijuana along with other drugs. While this study is the first one to make this comparison and may have implications for drug education, policy, and treatment. The result obtained from this study may be an artifact of the study design and/or sample.

## Chapter I

### INTRODUCTION

“Congress should definitely consider decriminalizing possession of marijuana... We should concentrate on prosecuting the rapists and burglars who are a menace to society.” (Quayle, 1977)

This is one of the many reasons people have contemplated about the decriminalization of drugs such as marijuana. In an exhaustive study of ten years of mortality data for over 65,000 subjects performed at the Division of Research, Kaiser Permanente Medical Care Program at Oakland, U.S., it was found that there was no statistically significant association between marijuana smoking and death (Sidney et al, 1997). This study may help explain the fact that for the first 162 years of America's existence marijuana was totally legal. But during the 1930s, the United States government and the media began spreading outrageous stories about marijuana, which led to its prohibition (Gold and Duncan, 1982). Some headlines made about marijuana had a great impact on the attitude of common man towards this drug. It may have also prompted some of them to try it as a result of risk-taking behaviors as observed in adolescents. It has also been reported from various studies that the onset of marijuana use is as early as the teen years in many marijuana users (Babor et al, 2002).



In the 1930's media aggressively campaigned against the drug and captions similar to the following ones were being published all over the country: "Marijuana: The assassin of youth" and "Marijuana: The devil's weed with roots in hell" (Bouril, 1997). A 1996 U.S. government study claimed that heavy marijuana use may impair learning ability. The key words are heavy use and may (Bouril, 1997). The actual sample from the population of marijuana users, which is characterized by daily use of marijuana, is only about one percent of the total number of marijuana users (Bouril, 1997).

The first federal legal action taken against marijuana was during the late 1930's. It has been hypothesized that marijuana was outlawed in 1937 as a repressive measure against Mexican workers who crossed the border seeking jobs during the Depression. The specific reason given for the outlawing of the hemp plant was its supposed violent "effect on the degenerate races." (The Consumers Union Report On Licit and Illicit Drugs, by Edward M. Brecher and the Editors of Consumer Reports Magazine, 1972. Retrieved December 18, 2005 from <http://www.druglibrary.org/Schaffer/LIBRARY/basicfax.htm>)

Coffee contains 1,500 chemicals. Rat poison contains only 30 chemicals. Many vegetables contain cancer-causing chemicals. There is no correlation between the number of chemicals a substance contains and its toxicity. Prohibitionists often cite this misleading correlation to make marijuana appear dangerous (Bouril, 1997). In addition, the addictive properties possessed by a drug are not magical or sorcerous in ways that can enchant the user. This misconception can make people believe that the user is not in control of using the

drug and is incapable of adult responsible behavior. As with all drugs, marijuana does have its own drawbacks and adverse affects on the health of an individual like headache, anxiety, increased appetite and reduced blood flow to the brain (*American Family Physician*, December 1999). Some of these are as common as short-term memory loss and sleepiness that can be associated with the adverse effects of many other drugs of medicinal use or a person's general lifestyle.

There has never been a legally recorded death due to marijuana overdose at any time in US history as compared to all the other legal and illegal drugs used in the country. All illegal drugs combined kill about 17,000 people per year, or about three percent of the number killed by alcohol and tobacco. Tobacco kills more people each year than all of the people killed by all of the illegal drugs in the last century (Source: NIDA Research Monographs, 1997). Table I shows the leading causes of drug use related deaths in Unites States between 1997 and 2000. This table also shows how marijuana overdose has not yet caused even a single death

“If the words "life, liberty and the pursuit of happiness" don't include the right to experiment with your own consciousness, then the Declaration of Independence isn't worth the hemp it was written on” (McKenna, as cited in *Rubrics and Tendrils of Richard Gehr*, 1994). This quote retrieved from the work of Terence McKenna is ironically framed in direct context with hemp. This thought process is applicable to all the illicit drugs including marijuana. The first American anti-drug ordinance was passed in 1875 in San Francisco, California. Since that time, the United States has continued its war on drugs, a zero-tolerance policy towards drug users and abusers alike.

Table I. Leading causes of drug use related deaths in Unites States between 1997 and 2000.

Type of Drug	Deaths attributable to the consumption of the corresponding drugs
Tobacco .....	435,000
Alcohol .....	85,000
All Legal Drugs .....	20,000
All Illegal Drugs .....	17,000
Caffeine .....	2,000
Aspirin And Other Non-Steroidal Anti-inflammatory Drugs.....	500
Marijuana .....	0

Sources:

Mokdad, A. H., James S. M., Donna F. S., Julie L. G., (2004). Actual Causes of Death in the United States, 2000, Journal of the American Medical Association, 291 (10) 1238-1241

Bouril, T.J. (1997). Marijuana And Hemp: The Untold Story, Retrieved on December 1, 2005 from <http://www.cannabis.com/untoldstory>.

National Institute on Drug Abuse (1997)

U.S. Government Bureau of Mortality Statistics, 1997

Many countries like the Netherlands and Canada recently have joined a group of nations where marijuana use is legally accepted as responsible adult behavior. It comes under the title 'soft drugs' when obtained in small quantities, though there is no fixed dosage mentioned in the pharmacopeias. Dr. Andrew Weil in his 1971 book *Natural Mind* has described a human need for altered states of consciousness. This drive could be a strong stimulus for recreational use of drugs as mentioned by Dr. Weil.

History tells us that marijuana was smoked and used as medicine for thousands of years. "In the year 400 B.C., pipes wrapped in hemp cloth containing cannabis residue were discovered in the Great Lakes and Mississippi Valley buried with Hopewell Mound Builders" (USA TODAY 10/7/98, 13A). Robert Randall, the co-founder of the Alliance for Cannabis Therapeutics (ACT) became the first person to obtain legal access to marijuana for medical purposes in the year 1976. Dr. Randall and another co-founder of ACT Alice O'Leary were accused of government betrayal when they promoted the medicinal uses of marijuana and proposed the benefits of using this drug.

Marijuana has been scientifically proven to help in the treatment of various physiological disorders like glaucoma, cancer and multiple sclerosis (Randall and O'Leary, 1999). Synthetic tetra hydro cannabinol (THC) called Marinol<sup>(R)</sup> (synthetic pill containing Delta 9- THC) is useful for patients who are receiving chemotherapy and are likely to succumb to malignant tumor growth. They are used as the substitutes for marijuana to treat the adverse effects caused by the drugs used in chemotherapy. Lyn Nofziger, the press secretary to Ronald

Reagan during the presidential campaign of 1980's has commented, "If doctors can prescribe morphine and other addictive medicines, it makes no sense to deny marijuana to sick and dying patients when it can be provided on a carefully controlled, prescription basis."

### *Need for the Study*

The percentage of youth aged 12–17 indicating a great risk of smoking marijuana once a month remained unchanged between 1999 and 2000 (37.2% in 1999 and 37.7% in 2000). (Source: U.S. Dept. of Health & Human Services). According to the 2001 National Household Survey on Drug Abuse, an estimated 5.6 million Americans age 12 or older reported problems with illicit drug use in the past year. North America is one of the leading countries in the world as far as marijuana consumption, amongst 15 and 16 year olds, is concerned (United Nations International Drug Control Program, 2001). Two thirds of cannabis consumed in the U.S. is domestically produced (United Nations Office on Drugs and Crime, 2005). These numbers indicate how common and popular the use of marijuana is in the United States. Along with production and consumption, seizures, which are also an estimate of demand, are more for cannabis than any other drug in the world. Based on the reports on cannabis use, it is difficult to distinguish between the drug use and abuse. The 1998 NHSDA revealed 6.5% of nonaddicted persons employed full time reported using an illicit drug in the past months (White, Nicholson, Minors, and Duncan, 2001). This kind of drug consumption is also termed as recreational drug use.

The United States maintains a very strict anti-drug policy against all kinds of drug usage. Unlike many of the other more developed countries, it adopts the policy of criminalization of marijuana and other illicit drugs irrespective of the way they are used. The underlying rationale for this policy is to curb the availability and accessibility of these drugs and the crime related to it. The current study helps us discover the differences in the drug use behaviors, if any, between the recreational marijuana users versus marijuana and other drug users. These differences can provide an explanation for the reasons behind high demand for a particular illicit drug. It can also account for the societal impact of recreational use of marijuana when taken in combination with other illicit drugs or otherwise and its implications on the personal and professional lives of these healthy and successful individuals. It has been conducted at the time when many countries excluding U.S. have taken a step forward on considering an alteration in their drug policies due to the issues of decriminalization and legalization of drugs.

#### *Research Issue*

This study examines drug use behavior in a self-described sample of adult recreational users. Comparisons were made between subjects whose only illicit drug use was marijuana and those who used both marijuana and other drugs.

#### *Hypotheses*

There are two hypotheses involved in this study:

1. Null Hypothesis: There are no differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on demographic variables.

Alternate Hypothesis: There are differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on demographic variables.

2. Null Hypothesis: There are no differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on lifestyle variables.

Alternate Hypothesis: There are differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on lifestyle variables.

#### *Delimitations of the Study*

This study was delimited to the adult population of U.S citizens with access to the internet from February 1996 through October 1998. The findings of this study can be generalized to those self-selected individuals who responded to the DRUGNET survey administered online from 1996 through 1998.

#### *Limitations of the Study*

1. The sample from which the data was collected was not a randomly selected sample but a self-selected one; hence it was characterized by representation bias because only those individuals who had access to the internet could participate i.e., the selected sample was not representative of the total marijuana using population;
2. The sample was largely male-dominated, hence the results are more attributable to the male population than the female population;

3. The behavioral patterns or differences in the drug use behaviors of marijuana users and multiple drug users are not necessarily true with all the drug users of the United States;
4. Since this segment is from a computer-literate population, there is a high probability that this sample is more exposed to varying media and has different lifestyle than other drug users who could not use the internet.

#### *Assumptions*

1. It is assumed that only one respondent took each survey and completed the entire survey by him/herself without input or influence from others.;
2. It is assumed that all the respondents were able to understand the survey questions and answered truthfully;
3. It is also assumed that the individuals were able to follow the instructions for taking the survey and complete all sections of the survey.

#### *Definitions*

1. Drug: A “Drug” is any substance that, by virtue of its chemical nature, alters the structure or functioning of any of the tissues of a living organism. (Duncan & Gold, 1982);
2. Drug Use: Drug Use is taking a drug in such a manner that sought-for effects are attained with minimal hazard. (Irwin in 1973);
3. Drug Abuse: Drug Abuse is taking a drug to such an extent that it greatly increases the danger or impairs the ability of the individual to adequately function or cope with his/her circumstances (Irwin, 1973);



4. The term "marihuana" means all parts of the plant *Cannabis sativa*, whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds or resin. Such term does not include the mature stalks of such plant, fiber produced from such stalks, oil or cake made from the seeds of such plant, any other compound, manufacture, salt, derivative, mixture, or preparation of such mature stalks (except the resin extracted there from), fiber, oil, or cake, or the sterilized seed of such plant which is incapable of germination (U.S. Code, Title 21, Chapter 13, Subchapter 1, Part A, Sec. 802);
5. Marijuana User: The three steps in becoming a marijuana user: (1) learning the technique of marijuana smoking; (2) learning to perceive the mild and ambiguous effects of marijuana; and (3) learning to enjoy those effects (Howard Becker, 1963);
6. Multiple Drug User: An individual who uses marijuana in conjunction with other drugs like tobacco, alcohol, cocaine, heroin, amphetamines etc;
7. Addiction can be defined as the continued and compulsive use of substances in spite of adverse health and social consequences (WHO, 1957);
8. Other equivalents of Marijuana: cannabis, hemp (in some cases), pot, and reefer.

## Chapter II

### LITERATURE REVIEW

According to the 2002 National Survey on Drug Use and Health (NSDUH), marijuana was used by 75% of current (past month) illicit drug users. Some 55% of current illicit drug users used only marijuana, 20% used marijuana and another illicit drug, and 25% used an illicit drug other than marijuana in the past month (ONDCP, Drug Policy Information Clearing House Fact sheet. Retrieved April 7, 2006 from (<http://www.whitehousedrugpolicy.gov/publications/factsht>). More than 20 million Americans are current marijuana users. The drug is obtained from the plant Cannabis Sativa. It contains Delta-9-tetrahydrocannabinol or THC, which is the primary psychoactive agent in marijuana (NIDA, 2004). Other than THC, marijuana has been found to contain more than 400 chemicals; smoking one typical U.S. marijuana cigarette deposits about four times more tar into the lungs than a filtered tobacco cigarette (Hoffman et al., 1975). The risk of using cocaine is estimated to be more than 104 times greater for those who have tried marijuana than for those who have never tried it (National Institutes of Health, 2004). Use of marijuana along with other drugs poses a potential threat to the person's routine activities like driving. Reaction time for motor skills is reduced up to as much as 41% after smoking one joint and up to 63% after smoking two joints. There have been over 7,000 published scientific and medical studies documenting the consequences of marijuana and

multiple drug uses.

One of the primary issues of discussion is whether marijuana use 'caused' violent and antisocial behavior and whether it 'led to' the use of so-called "harder" drugs like cocaine and heroin. A former director of the Bureau of Narcotics and Dangerous Drugs has written: "The evidence is strong that the use of marijuana develops a taste for drug intoxication which, in turn, leads many people to the use of more potent drugs — even heroin" (Giordano 1968, p. 5). However, scientific research to support this association is lacking. As cited by Cohen and Sas, Nahas has summarized the evidence in support of the possible validity of the stepping stone hypothesis which connects marijuana use to the use of other drugs namely, cocaine and heroin. Towards the end of their study which was done in Amsterdam, they discovered varied groups of marijuana users ranging from some who continued using other drugs to some who discontinued the use of drugs completely. They conclude by saying that levels of experience with drugs other than marijuana are very similar between different marijuana users in age cohorts raised during different regimes of law enforcement in relation to drugs.

Drug addiction is a very commonly used term when it comes to the use of illicit drugs. Legalization is a consumer protection issue.

"America's current drug policies, such as the "war on drugs," "just say no", and "zero tolerance" are all fundamentally premised on the belief that certain drugs have such a high "abuse potential" that they cannot be used at all without that use

becoming abuse. These drugs are believed to be so seductive and so destructive that using them even once may be enough to entrap one in an addiction which may last a lifetime. While some lucky experimental users may escape harm from taking these drugs a few times, any continued use will inevitably destroy user's family life and career and most likely drive him to predatory crime to support an ever-growing habit. The logic of prohibition is founded upon this premise: that some drugs are so dangerous that the public safety can be protected only by forbidding anyone to make any use of them. Thus, even medically useful applications must be prohibited." (Nicholson et al., 1999)

When a particular drug encourages the user to adopt a criminal way of life in order to support his/ her ever-growing habitual usage or rather compulsive use of that drug then we call that person an addict. Drug laws in the United States fail to distinguish between the recreational drug use and drug addiction.

Marijuana has been believed to cause addiction in the users and also paved the way for the use of more dangerous drugs. But many scientists put forward an argument saying that certain myths have been propagated, which inflate the addictive properties of certain drugs beyond the extent of its inherent properties. Duncan (1992) states that,

"Above all, we must stop exaggerating the power of drugs. For too long the media, and many drug educators have conveyed absurdly

exaggerated notions of the seductiveness of the currently illegal drugs. Reefer Madness showed young people addicted to marijuana after smoking just one reefer that they thought it to be an ordinary cigarette. Numerous movies and T.V shows have shown innocent victims hooked on heroin after injection of a single dose.”

In recent years, the media has portrayed marijuana as a ‘gateway’ drug for the more dangerous drugs. In a study conducted at the Queensland Institute of Medical Research in Brisbane, Australia, 311 pairs of same sex twins from Australia, who used marijuana before age 17, were studied and examined. The study was further continued in the Missouri Alcoholism Research Center at the Washington University. The researchers discovered that relative to their co-twins, marijuana users experienced elevated lifetime rates of other drug use and dependence. The end result, as the researchers say, may be because teenage marijuana smoking open doors to harder drug abuse because smokers expose themselves to a drug lifestyle. They further acknowledge that this difference could be attributed to the difference in peer groups they encountered. (Lynskey, 2003). According to the National Collegiate Athletic Association (NCAA), in most individuals low to moderate doses of marijuana produce euphoria and relaxation. NCAA also states that after a few minutes of holding the smoke in the lungs most people experience the "high." During this state the individual experiences a dry mouth, increased heart rate, loss of coordination and balance and slower reaction times. However, the state of euphoria is usually short lived. A typical high from

one marijuana cigarette may last from 2 to 3 hours (Drugs in Sports, Recreational and Street Use of Marijuana, National Collegiate Athletic Association).

Marijuana has many medicinal uses and had been used to treat many types of illnesses for thousands of years throughout the world. But marijuana use was restricted in the United States after the 1937 Marijuana Tax Act, which categorized marijuana as a narcotic. But in the past two decades the medical researchers have rediscovered the power of marijuana in the field of medicine. The Food and Drug Administration (FDA) has approved the use of purified THC as the drug called Marinol (nabilon) for treatment of nausea in cancer patients. The Clinical Journal of Sport Medicine 2001 reports that marijuana has also been used to stimulate appetite in patients with advanced AIDS who are suffering from severe anorexia (Greene et al., 2001).

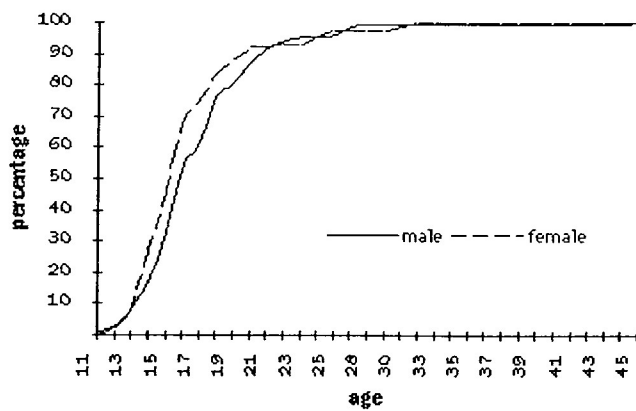
Initiation of marijuana use after a certain age may reach saturation. The indication is that the user may not further increase the frequency or intensity of marijuana use. This relationship between marijuana use and age is shown in Figure I. Many researchers assume that after drug users reach this point of saturation, they look for higher thrills and a different kind of intoxication, which they have not experienced before. According to them, this saturation often results in many consistent marijuana users turning to try more dangerous and less easily available drugs such as cocaine and heroin. On the other hand, the argument which some researchers make is that once the individuals reach saturation level or achieve the maximum satisfaction they want to achieve after marijuana consumption, many of them discontinue the use of marijuana. Hence it is not

uncommon to learn that people who used marijuana during their early adulthood and as they progress into their adulthood, they are free of any kind of illicit drug-consumption episodes. The early initiation of marijuana use also shows that most of the time, the onset of marijuana use is linked to young adulthood.

Figure I explains the steady progression and stability of marijuana use among a group of individuals in Netherlands. It shows the age of first cannabis use by sex. More than 96 percent of their respondents had started their cannabis use before the age of 25. Between men and women age of onset does not differ significantly. However, there are slight differences in the way men and women obtain their first cannabis. Only four women (4.5 percent) bought their first hashish or marihuana. The others were initiated by cannabis they received from friends. Of the men, 18 percent bought their first cannabis. However, for both women and men we observe a large majority who does not buy their first cannabis. There appears no difference in having asked for hashish or marihuana in order to initiate use between men and women. Figure II shows graphs displaying the pattern of drug taking among respondents in a study conducted by Cohen and Sas, (1997) in Amsterdam, Netherlands. Their study revealed that more than half of the respondents reported a decreasing level of cannabis use during their career. The researchers described the patterns as follows:

1. *First much - slowly less.* The respondent starts using large amounts after he or she first tried marijuana or hashish but gradually decreased since then. This pattern of cannabis use was reported by 17 respondents (7.8%).

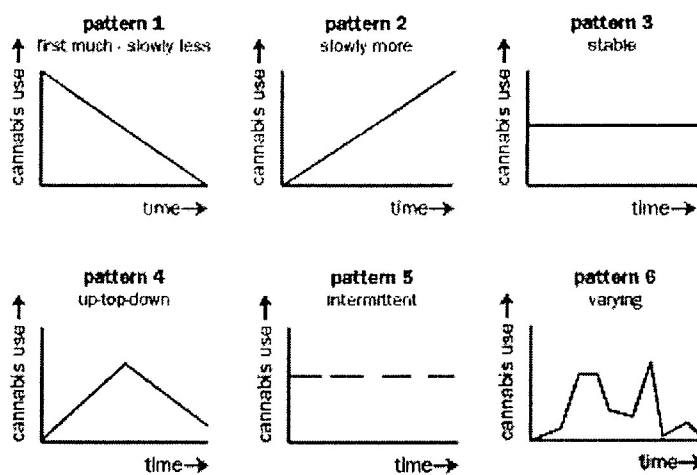
Figure I. Age of initiation of cannabis use among experienced cannabis users.



Source: Sas, Arjan, & Peter Cohen (1997), Patterns of cannabis use in Amsterdam among experienced cannabis users; some preliminary data from the 1995 Amsterdam Cannabis Survey



Figure II. Theoretical Patterns of Development in Marijuana Use



Source: Sas, Arjan, & Cohen, Peter (1997), Patterns of cannabis use in Amsterdam among experienced cannabis users; some preliminary data from the 1995 Amsterdam Cannabis Survey

2. *Slowly more.* The respondents' marijuana use has gradually increased over the years. This pattern of cannabis use was reported by 13 respondents (6.0%).
3. *Stable.* The respondent started using marijuana or hashish at the same level that he or she still uses, and the amount and frequency have not changed. This pattern was reported by 25 respondents (11.5%).
4. *Up - top - down.* The respondents' use increased gradually until it reached a peak, then it decreased. This is the pattern of cannabis use that was reported most frequently. Almost half of the respondents (104, 47.9%) said that this pattern resembled their own cannabis using career.
5. *Intermittent.* The respondent has started and stopped using marijuana or hashish many times. This is the least reported pattern. Only 7 respondents (3.2%) reported this pattern.
6. *Varying.* The respondents' use pattern has varied considerably over the years. This pattern was reported by 51 respondents (23.5%) and is the second most frequently reported pattern.

Age was a pertinent factor in many analyses that examined differences between youth who progressed through alcohol, marijuana and other drugs and those who didn't. A recent study by Shillington and Clapp (2001), involving a national sample of adolescents, reported that among the college students, combined use of alcohol and marijuana would predispose the individuals to higher risk factors to their well-being than just the either of the two.

United Nations Office of Drugs and Crime had issued a commission for narcotics on February 16, 1946 as the central policy-making body within the

United Nations system dealing with drug-related matters. It categorized drug use into five conventions. These are compulsive, experimental, recreational, circumstantial and intensified. The WHO panel has described similar patterns of drug use as 'experimental use,' 'occasional use,' 'situation-specific use,' 'intensive use' and 'compulsive or dysfunctional use'. The recreational use falls in the category of 'occasional use' and is prevalent among individuals who are well employed, educated and leading a stable life. In fact some researchers state that the users of most drugs outnumber the abusers of the same drug by at least a ratio of nine to one (Duncan, 1992, p.318). Primary socialization theory (PST) suggests that peer groups, family, and school are the areas where adolescents are directly taught to accept or reject deviant or normative behavior. Hence these areas should be targeted in order to remove the myths, which are deeply rooted in our society. Individuals who are likely to use hard drugs would do so anyway irrespective of the type of drug and the order of consumption. Marijuana may be used more than other drugs just because it is the most easily available drug in the illicit drug market.

There is very little research being done in the field of recreational drug use focused solely on users and not abusers. Hence it is a usual tendency to place all the illicit drug users in the category of drug addicts. Dr. Andrew Weil (1972), author of the book 'Natural Mind: An Investigator of Drugs and Higher Consciousness,' has identified one more human need as something, which could be a trigger for the recreational use of drugs. It is the need to alter human consciousness. Recreational or occasional use of drugs addresses this need of the

user. Research done to distinguish the thin margin between drug use and abuse has figured out the misclassification of many drug users as abusers, this misclassification can be attributed to a form of “ecological fallacy” from an incomplete clinical picture (Morris, 1955). In a study performed by Dr Ginzler (2003) at the Department of Human Resources in Washington, D.C. the researchers examine the sequential use of various drugs and alcohol among 1544 subjects being treated for substance abuse. Length of use and amount of drug used initially in a sequence is associated with the lag from regular use of that drug to regular use of another drug – especially when the initial drug is marijuana. The lag from regular alcohol use to marijuana use followed by other drug use is positively related to the lag from first to regular marijuana use in this study.

The Dutch Drug Policy established a concept of normalization at the end of 1980's. It said that ‘Normalization’ of recreational drug use means setting limits to what society can and cannot tolerate as a part of establishing clearness about obligations and rights of drug users as members of an organized society (Normalization of Sensible Recreational Drug Use by H. Parker, L. Williams, J. Aldridge, University of Manchester). The factors influencing the measurement of normalization are access, cultural accommodations, rate of drug use, attitudes towards the use and availability. Countries like the Netherlands are more open to this sort of recreational drug use which is made very evident by the fact that marijuana is made available in Netherlands at coffee shops in limited quantities for the general public. One may purchase five grams of marijuana or hash at any one of the nearly 1000 marijuana coffee shops in the country. One may smoke it

anywhere where the owner of the property does not object and in all public spaces (Johnson, 2003).

The DRUGNET Study is a cross-sectional survey of adult recreational drug use via the world wide web of the internet. Thomas Nicholson, John White and David Duncan conducted this worldwide internet survey of adult recreational drug use to gather exploratory data on the hidden population of nonabusive, social, spiritual or recreational users of illegal drugs. Responses were gathered from 1,473 self-identified drug users from (1996, 1998, and 1999). The survey respondents seem to be a healthy group of individuals aged between 18 to 71 years and doing satisfactorily on both personal and professional fronts.

“The typical DRUGNET respondent was well educated, employed full time, regular voter, participated in recreational or community activities not involving drugs and described their physical status as good. Their mental well being was similar to the general adult population as a whole. This sample drug-taking behavior appears to be well controlled. Their consumption was generally mild-moderate in both frequency of use over time and the level of altered consciousness typically experienced.”

(Nicholson, White, Duncan, 1999, p.421)

The current study is an attempt to differentiate between the characteristics of marijuana users over time versus marijuana and other drug users, which may have implications for education, prevention, and treatment of marijuana use, abuse or dependence.

## Chapter III

### METHODS

The purpose of this study is to draw comparisons between the characteristics of marijuana users and multiple drug (including marijuana) users in a non-random sample of recreational drug users from the DRUGNET study. Nicholson, White and Duncan (1996-1998) developed the DRUGNET survey to study the hidden population of nonabusive recreational drug users. The structure of this study allowed for various comparisons between the study samples based on their demographics, lifestyle indices, and mental soundness.

#### *Research Issue*

This study examines drug use behavior in a self-described sample of adult recreational users. Comparisons were made between subjects whose only illicit drug use is marijuana and those who use both marijuana and other drugs.

#### *Hypotheses*

There are two hypotheses involved in this study:

1. Null Hypothesis: There are no differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on demographic variables.

Alternate Hypothesis: There are differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on demographic variables.

Null Hypothesis: There are no differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on lifestyle variables.

Alternate Hypothesis: There are differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on lifestyle variables.

#### *Target Population*

The population of interest was nonclinical, nondeviant, adults who recreationally used either marijuana or marijuana and other drugs.

#### *Sample Selection*

The sample used for this study consists of a group of self-selected individuals solicited via the World Wide Web (WWW). This sample was gathered between 1996 and 1998. Over 2,000 people participated in this survey whereas 906 out of this actually completed it. A random sample of 283 respondents was created from the larger data set of DRUGNET survey. All respondents answering the sections pertaining to marijuana use and demographic and lifestyle indices were compared on the basis of their illicit drug use which was either only marijuana or marijuana and along with drugs.

#### *Instrumentation and Design*

The survey developed by Nicholson et al. was a cross-sectional survey administered via the WWW. Data were collected from 1996 through 1998 in multiple versions of the survey (See Appendix A and Appendix B). Participants could learn about the survey and the study from the advertisements sent out

through various e-mail lists and web postings. Respondents were assured of anonymity and informed consent was implied through their voluntary participation in the study. The survey consisted of four main sections:

1. Demographic information and lifestyle indices (citizenship, race, gender, employment and marital status, education, child care, college attendance, household income and needs);
2. Recreational Use of drugs like alcohol, marijuana, cocaine, hallucinogens, depressants, opiates, stimulants;
3. Legal history and attitudes towards drug use;
4. General Well-being Schedule (GWBS).

The GWBS is a self-reported measure of mental well-being, the scores of which range from 0 to 110 with the well-being status increasing with scores in an ascending order (Fazio, 1997). The General Well-being Schedule was designed by the National Center for Health Statistic's U.S. Health and Nutrition Examination Survey (HANES I).

#### *Data Analysis*

The dependent variable in the study:

- Multiple drug use – marijuana only versus marijuana and other drugs.

The independent variables in the study:

- Demographics – Age, Gender, Citizenship, Race, Education, Marital Status, Employment, Household Income, Needs satisfied with the Income



- Lifestyle Indices – Happiness with marital status, Religious and Community Service, Recreational activities or Hobbies, Child Care Responsibility, Voting
- General Well-Being Schedule (GWBS)

#### *Statistical Procedure*

The Statistical Package for Social Sciences (SPSS) was the software system used for all analyses. Pearson's Chi-Square test and Analysis of Variance (ANOVA) were the two statistical procedures used to test for the statistically significant differences between the two groups based on variables under investigation.

## Chapter IV

### RESULTS

The total number of participants who completed the DRUGNET survey was almost half of the actual number of people who responded to the survey from all over the world. Over 2,000 people participated in this survey, whereas 906 out of this actually completed it. A random sample of respondents from the DRUGNET survey was created from this larger data set. There were a total of 283 respondents selected and the behavioral patterns were compared on the basis of their drug use, which were either only marijuana or marijuana and other drugs. All the subjects of this study had to be 18 years old or older, a U.S. citizen and report marijuana use. The demographic characteristics, marijuana use, use of marijuana simultaneously with other drugs, legal history, and mental well being of these subjects were compared and statistically significant differences were tested using the Pearson's Chi-Square Analysis and Analysis of Variance (ANOVA).

#### *Description of the Sample*

##### *Demographic Information*

The racial composition or ethnicity of this study sample was clearly dominated by Whites (87.9%, n = 248), while nonwhites included Hispanics, African Americans, Native Americans, Asians, and other, all of which together accounted for 12.01% (n = 34); with one subject unidentified. The current age of the

participants ranged from 18 to 71 with a mean of 30.97 years (SD = 10.17). The employment status for the sample was quite impressive with most of the respondents being employed either full time or part time. Of the sample, 71.4% (n = 200) were employed full time, 15.4% (n = 43) worked part time, 8.2% (n = 23) were self-employed and 5.0% (n = 14) were unemployed. As far as their marital status was concerned, 35.5% (n = 100) were married, 42.6% (n = 120) had never been married, 12.4% (n = 35) were living together, about 8.9% (n = 25) were divorced or separated and .7% (n = 2) were widowed.

A majority of respondents reported having attained at least some college education. An educational attainment of Bachelors degree or higher was reported by 58.2% (n = 164), whereas 20.5% (n = 58) were high school graduates and 14.8% (n = 42) were associate degree holders. Of the sample, 82.6% reported that their income satisfied all their lifestyle needs. Out of all the subjects for this sample, 76% (n = 215) were men and 24% (n = 68) were women (See Table II). The salary ranges of the respondents were recoded into low income, middle income and upper middle income groups. Data revealed that 53.1% (n = 86) of the middle income group uses marijuana along with other drugs, while 46.9% (n = 76) use only marijuana where as from the low-income group, about 25.8% (n = 8) use marijuana along with other drugs and a large majority, about 74.2% (n = 23) reported the use of marijuana only. Among the upper middle-income group, 46.1% (n = 41) reported marijuana use along with other drug use while 46.4% (n = 48) reported only marijuana use (n = 1 for missing data). Table II shows the distribution of gender and household income of the sample.

Table II. Demographics of respondents by Marijuana use status.

Variable	Marijuana Only		Marijuana w/ Other Drugs	
	n	%	n	%
Ethnicity				
White	124	84.9	124	91.2
Other	22	15.0	12	8.8
Gender				
Male	100	68.0	115	84.6
Female	47	32.0	21	15.4
Household Income				
Low Income	23	15.6	8	58.8
Middle Income	76	51.7	86	63.2
Upper Middle	48	32.6	41	30.1
Total Subjects	147	51.9	136	48.1

### *Lifestyle Indices*

Among the respondents 34.4% (n = 88) reported that they had child care responsibility, while 65.6% (n=168) reported otherwise (n = 27 missing data). Data revealed that 95.1% (n = 269) respondents indicated that they were involved in recreational activities or hobbies. Again, almost all the respondents reported that they were happy with their marital status (90.7%, n = 214) (n = 47 missing data). A Likert Scale of 0 (no importance) to 10 (central focus of life) was used to assess the importance of spirituality in the participants' daily life and the mean was 4.64 (SD =3 .05) for the sample (n = 283). The total number of respondents who were involved in regular religious services was just about 14.2% (n=40, n=1 missing data). It was reported by 38.5% (n = 109) that they rendered some kind of community service while the remaining respondents did not report having involved in any such service. As far their voting patterns were concerned, the data revealed that 78.7% (n = 222) did report that they vote regularly, whereas 21.3% (n=60) reported that they did not (n= 1 missing data).

The mean for the age of onset of marijuana use was 16.46 years for the group that used marijuana and other drugs and 18.69 years for the group that used only marijuana. The age of onset of use of other drugs varied depending on the drug used by the respondents. Among this group, the mean age of onset of alcohol use was 13.96 years, for cocaine use it was 21.33, for the use of hallucinogens it was 18.97, for the use of depressants it was 19.33, for opiates use it was 20.41, for the use of stimulants it was 20.55 years. The group that used only marijuana also, not

surprisingly, used alcohol too. The mean age of onset of alcohol consumption for this group was 14.60.

### *General Well Being*

The General Well Being Schedule (GWBS) and its subscales scored for each participant who responded to the questions on this section of the survey. Their responses were recorded on a scale of 0 to 110. The mean score for this sample was found to be 78.29.

### *Hypotheses*

There are two hypotheses involved in this study:

1. Null Hypothesis: There are no differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on demographic variables.

Alternate Hypothesis: There are differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on demographic variables.

Amongst the demographic variables tested for the first hypothesis, ANOVA revealed that there were no statistically significant differences between the two groups based on current age. Pearson's Chi-Square test showed that there were no significant differences between the two groups based on the marital status variable. A statistically significant difference was observed between the two groups based on distribution of gender ( $X^2 = 10.57$ ;  $df = 1$ ;  $p < 0.05$ ). Men were more likely to report the use of marijuana along with other drugs while females were more likely to report the use of only marijuana. Statistically significant

differences were observed among the two groups when Pearson's Chi-Square test was performed on the household income variable ( $X^2 = 7.93$ ;  $df = 2$ ,  $p < .05$ ).

2. Null Hypothesis: There are no differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on lifestyle variables.

Alternate Hypothesis: There are differences between respondents who used only marijuana versus those respondents who used marijuana and other drugs on lifestyle variables.

Pearson's Chi-Square test was used to test the differences based on child care responsibility, happiness with marital status, involvement of the respondents in any kind of recreational, community and/or religious activities. Chi-Square showed no statistically significant differences between the two groups based on any of the above variables.

The ANOVA F-test with an alpha level of 0.05 confirmed that there were no statistically significant differences between the two groups based on the General Well Being Schedule scores of the respondents. Table III shows the between group and within group variation for the age of onset of marijuana use in both the groups. Bonferroni's adjustment was done in order to maintain an overall alpha level across all variables. Following adjustment, a result had to have a probability of 0.0026 to be accepted as significant. ANOVA was performed and a statistically significant difference was observed between the groups for age of onset of marijuana use ( $F=10.48$ ,  $df=1$ ,  $p<0.05$ ); (See Table III).

Table III. Analysis of Variance for Age of Onset of Marijuana use.

Source	Sums of Squares	<i>df</i>	Mean Squares	<i>F</i>
Between	351.501	1	351.501	10.484*
Within	9421.041	281	33.527	
Total	9772.544	282		

\* $p < .05$



## Chapter V

### SUMMARY AND CONCLUSIONS

The DRUGNET survey developed by Nicholson, White and Duncan in 1996 is an internet-based approach to gather exploratory data on the hidden population of adult recreational drug users. The primary purpose of this family of cross-sectional surveys was to understand the effects of recreational drug use on the lives of healthy, successful adults and to contribute to the reassessment of policies affecting recreational drug use. The survey consists of sub-sections such as a demographic information, drug use with questions on the use of alcohol, cocaine, depressants, hallucinogens, marijuana, opiates, and stimulants, legal history and past experiences; and mental well being. This particular study is a sub-analysis of the DRUGNET data and deals with adult recreational drug users whose only illicit drug intake is marijuana in comparison with a group of adults who use marijuana along with other drugs. It is an epidemiological cross-sectional study, first of its kind, conducted in an attempt to address the research issue regarding the comparisons made between subjects whose only illicit drug use is marijuana and those who use both marijuana and other drugs.

#### *Summary of Results*

The sample consists of 283 self-selected subjects who are self described successful drug users and are US citizens age 18 years or older. The sample was further restricted to only those subjects who reported marijuana use. A little less

than half the sample use marijuana along with one or more other illicit drugs.

This study compared this group and the remaining subjects whose only illicit drug use is marijuana.

#### *Demographic Information*

The sample was predominantly white, male and young. Male subjects were more likely to report the use of marijuana along with other drugs, whereas female subjects were more likely to report the use of marijuana alone. Most of the sample was employed with a household income that satisfied their needs. There were no statistically significant differences between employment status, household income and whether their needs were met by their income. Both the groups were tested for their marital status and majority of respondents from the sample reported that they were happy with their marital status. All groups were comparable and no significant differences were found based on these variables. This sample was a group of educated individuals with a majority of them having attained some kind of college education.

#### *Lifestyle Indices*

The aspect of childcare responsibility was also equally distributed between both the groups. An overwhelming majority i.e., over 90% of the sample from both groups reported an involvement in some kind of recreational activity. A majority of the sample were not involved in any kind of religious or community services. Over three quarters of the sample indicated that they voted regularly.

The group that used only marijuana reported an older age for the initiation of marijuana use than the group that reported marijuana use in conjunction with

use of other drugs. Statistically significant differences were observed between the means of their age of onset of use. These differences by itself could explain the fact that the group of multiple drug users had plunged themselves into drug taking behaviors at an early age and this facilitated their venture further into the world of other illicit drugs. Also, the possibility of exploring different kinds of drugs, in search of more pleasurable experiences, cannot be ruled out. The age of initiation of alcohol use was younger compared to the age of initiation for the use of other drugs in both groups. This age was observed to be about 14 years in both groups. The age of onset of cocaine use was highest being slightly over 21 years in both groups.

#### *General Well Being (GWB)*

Since this survey was an anonymous one, the factor of social desirability does not seem to have influenced the answers of the respondents on this concluding section of the DRUGNET survey. The General Well Being Schedule (GWBS) developed by Dupuy in 1970 and validated by Fazio in 1977 consists of a set of questions that analyzed the General Well Being of the subjects in the sample. Both the groups scored in the normal well being range and showed no statistically significant difference between the scores on GWBS.

#### *Conclusions*

The study findings do not support the first hypothesis that there are no differences between respondents who used only marijuana versus those respondents who used marijuana along with other drugs on demographic variables. Statistically significant differences were observed as regards two

*variables, gender and household income.* It was observed from the study that males are more likely to indulge in multiple drug use involving the use of marijuana in conjunction with other drugs but females are more likely to use marijuana alone. This difference in the gender variable could be attributed to risk taking behavior, which is more present in males more than it is in females. Also, the data findings have shown that the low-income groups are more likely to report the use of marijuana only rather than the use of marijuana with other drugs.

The findings of this study support the second hypothesis, which stated that there are no differences between respondents who only used marijuana versus those respondents who used marijuana and other drugs on lifestyle. Thus it was quite evident from the data analysis that both the groups are quite comparable on numerous variables that could possibly affect the drug use behaviors of the participants in the study. Because of easier availability and accessibility of the drug, it seems quite logical that a majority of the subjects had reported to try marijuana before they tried other drugs with the exception of alcohol. The significant difference between the ages of onset of marijuana use between the two groups suggests that there could be an association between using marijuana at an early age and using marijuana along with other drugs later. The behavioral patterns of the two groups were comparable without statistically significant differences in more than three variables.

### *Discussion*

The entire sample for this study was a healthy, educated group of people who were involved in illicit drug use. They were employed and they earned an

income that was sufficient to satisfy their needs. This impression of marijuana and other drug users is quite contradictory to the impression of illicit drug users that is deep-rooted in the society. But it appears from the study that the entire sample of recreational marijuana users is very stable in their personal and professional lives. It also appears that using marijuana is almost equivalent to using any other illicit drug as far as the most of the variables of this study are concerned. The public image that has been created over a period of time about marijuana being a 'soft drug' while cocaine, LSD, amphetamines, heroin and such other illicit drugs being 'hard drugs' or more damaging or more addictive than marijuana is contradicted. Though the study showed that this sample is not very religiously inclined or not much involved in community service, they do not significantly harm their progress or their family's standing in the society.

#### *Limitations*

The major limitation of the study, which would affect the extrapolation of the results beyond the sample, is the use of a non-probability sampling procedure. Thus lack of probability sampling coupled with the aspect of self-selection among the subjects together does not allow the reader to generalize the results to the entire adult recreational drug using population in US or abroad. Another limitation of the study is that the survey was administered via internet and hence the respondents were a segment of a computer-literate population. This limitation increases the probability of this sample being more exposed to varying media and has a different lifestyle than other recreational drug users who could not access the internet. These issues have introduced a selection bias or a representative bias

in the study. The sample was largely male-dominated; hence the results are more attributable to the male population than the female population;

### *Recommendations*

A more representative sampling method should be used that will help us to understand the drug use behaviors and characteristics of the recreational marijuana users beyond the scope of this study. Probability sampling techniques would provide results, which can be extrapolated to the entire target population. Further studies should be performed especially on the association between the early use of marijuana and use of marijuana with other drugs. This association between using marijuana at an early age and using marijuana along with other drugs later is confounded with gender. A two-way ANOVA should be performed on the age of onset variable with gender and drug use as factors. Efforts also need to be taken into assessing the needs of illicit drug taking population and their drug use preferences. More studies should focus on the comparisons between individuals who pursue recreational use of varied drugs. This approach will help us find out what kind of drugs actually hamper or nurture their personal lives and professional achievements and in what way. While performing these studies the use of random sampling will provide us with a study sample representative of the entire target population and thus enable us to conclude for the entire population. But because of the regulations and strict laws against all kinds of drug users it is difficult to perform such studies without a sampling bias. The legal history of the respondents should also be studied in detail, as with the findings of such studies we can correlate the impact of drug use on the society. Thus, we can apply

appropriate measures for harm reduction for both the individual and the community. The issue of drug abuse has two broad aspects to deal with. The first being that it is a public health problem and the second being that it compromises the quality of life at the individual level. But with proper drug use theories and drug education programs, we can clearly distinguish between drug users and abusers. We can thus modify the outlook of society towards recreational drug users and use our laws and regulations more effectively to curb drug abuse and drug use-related crimes other than simple possession.

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## Appendix A

### DRUGNET (1997)

#### Demographic Information

We would like to get some demographic information from you. Please answer the following questions about your background. Remember, all of this information is general and will not be used to identify you.

1. Are you a citizen or a legal resident of the United States?

Yes

No

2. What country(s) are you a citizen of?

*If you are a U.S. citizen, leave this question blank*

3. Are you living the majority of this calendar year in the United States?

Yes

No

4. What is your ethnic identification?

Asian

Blank

Hispanic/Latino

Pacific Islander

White

Other

5. What is your gender?

Male

Female

6. What is your current age?

7. Are you employed?

Full-time Employee  
 Part-time Employee  
 Self-Employed  
 Unemployed

8. Please type in your job title: (leave blank if unemployed)

9. Please tell us, in what industry are you employed?

*If we left your industry out, please tell us what it is:*

10. Please rate how important spirituality is in your daily life:

0 1 2 3 4 5 6 7 8 9 10  
 No Importance Central Focus of your life

11. Please rate how important your religious beliefs and values are in your daily life:

0 1 2 3 4 5 6 7 8 9 10  
 No Importance Central Focus of your life

12. Do you attend religious services?

Yes  
 No

13. Do you participate in community activities? (E.g., PTA, Chamber of Commerce, United Way, etc...)

Yes  
 No

14. Do you vote regularly?

Yes  
 No

15. How would you rate your own physical health?

Excellent  
Good  
Average  
Fair  
Poor  
Very Poor

16. Do you regularly engage in recreational activities? (E.g., hobbies, athletics, crafts, reading, etc...)?

Yes  
No

17. What is your marital status?

Never married  
Married  
Divorced/Separated  
Widow/Widower  
Living with someone

17a. Does your spouse or significant other work? (*Please skip if this question does not apply.*)

Yes  
No

17b. Are you happy with your marital status?

Yes  
No

18. Do you regularly have parental care responsibilities?

Yes  
No

18a. If yes, please check all that apply:

Biological Parent  
Step-Parent  
Adoptive Parent  
Grand Parent  
Foster Parent  
Other Parent

18b. Do your children know about your use of illicit drugs?

Yes  
No

19. Please tell us the highest education level you have achieved:

Less than High School  
High School  
Graduate Equivalency Diploma (GED)  
Associate Degree (2 year degree)  
Vocational Degree  
Bachelors Degree (BA, BS, etc.)  
Masters Degree (MA, MS, etc.)  
Law Degree  
Doctoral Degree (Ph.D., Ed.D., M.D., etc.)  
Post-Doctoral Study

20. Are you currently attending college? (Note: Leave blank if not in college.)

Yes  
No

20a. What is your year at school?

Freshman  
Sophomore  
Junior  
Senior  
Graduate Student  
Other

20b. What do your parents earn in a year (If both parents work, please add together parents income to obtain the amount. If you are not sure, please take your best guess.) *Skip if you are not in school, or if in school, are self-supported.*

Less than \$10,999  
\$11,000 to \$29,999  
\$30,000 to \$49,999  
\$50,000 to \$69,999  
\$70,000 to \$89,999  
\$90,000 to \$109,999  
\$110,000 or more

21. What is (or if graduated, was) your last overall GPA?  
*(Note: Please use a 4 point scale where a 4.0 would be an "A", 3.0 would be "B", etc.)*



## Appendix B

### Use of Marijuana

I have never used marijuana. Skip to [OPIATES]

Note: These questions were written with the assumption that you are currently using this drug. If you have quit using this drug please answer the questions as if they were asking about your behavior when you were “using.”

1. At what age did you first try marijuana?
2. At what age did you first become intoxicated by marijuana?
3. Have you used marijuana in the past year?

Yes

No

If you haven't used marijuana in the past year, how many years has it been since you used marijuana?

[Note: 1.5 would mean one and one-half years.]

4. Do you consider yourself to have permanently quit using marijuana?

Yes

No

5. When you do use marijuana, how much do you usually have, on the average? If you have quit how much did you have on average? (# of hits, NOTE: .5 would mean half of a hit)
6. How many times, on average, do you use marijuana? [Remember, if you have not used marijuana in the past year, what was your frequency of use?]

At least once a week

At least once a month

At least once a year

Less than once a year

7. When you do use marijuana what is the level of intoxication that you usually reach?

Not at all intoxicated

Mildly intoxicated

Moderately intoxicated

Very intoxicated  
Extremely intoxicated

8. How many times, on average, do you use marijuana and other drugs at the same time?

At least once a week  
At least once a month  
At least once a year  
Less than once a year  
Never

9. Has your use of marijuana ever caused or contributed to a failure in your education, work or family life – such as failing a course, being fired, family problems, or a divorce?

Yes  
No

10. Have you ever used marijuana under circumstances which might be dangerous, such as while driving a car or operating machinery?

Yes  
No

11. If you have used marijuana under dangerous circumstances, how often does this occur? [*Skip if you have answered no to question #10*]

Less than once a year  
Once a year  
A few times a year  
Once a month  
A few times a month  
Once a week  
A few times a week  
Daily

12. Have you ever had legal problems because of your use of marijuana?

Yes  
No

13. Have you had arguments with your family or friends about your use of marijuana?

Yes  
No

14. During the past year that I most heavily used marijuana, I used them about:

- About the same as first year of use
- Somewhat more than the first year of use
- A lot more than the first year of use

15. This past year I used marijuana:

- Much less than my heaviest year of use
- Somewhat less than my heaviest year of use
- About the same as my heaviest year of use

16. Have you ever experienced withdrawal (e.g., shakes, nausea, trouble sleeping) illness when you stopped taking marijuana?

- Yes
- No

17. If so, how often does this happen?

- On a daily basis
- On a weekly basis
- On a monthly basis
- On a yearly basis

18. Have you wanted to stop using marijuana but had trouble doing so?

- Yes
- No

19. Does getting marijuana occupy a large part of your time?

- Yes
- No

20. Have you ever experienced health or psychological problems as a result of your use of marijuana?

- Yes
- No

21. If you **have** had health or psychological problems, did you quit using marijuana or cut down on your use as a result? [*Skip if you answered no to #17.*]

Yes

No

22. If you **haven't** had health or psychological problems, did you quit using marijuana or cut down on your use as a result? [*Skip if you answered no to #17.*]

Yes

No

23. Overall the effects of marijuana on my life have been:

0      1      2      3      4      5      6      7      8      9      10

Negative

Positive

24. What positive effects has marijuana had on your life?