

2003

Evaluation of the Maudsley Addiction Profile (MAP) for use with an American Substance Abuse Population

Hannelore T. Barbieri

Philadelphia College of Osteopathic Medicine, F-H-barbieri@verizon.net

Follow this and additional works at: http://digitalcommons.pcom.edu/psychology_dissertations



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Barbieri, Hannelore T., "Evaluation of the Maudsley Addiction Profile (MAP) for use with an American Substance Abuse Population" (2003). *PCOM Psychology Dissertations*. Paper 8.

This Dissertation is brought to you for free and open access by the Student Dissertations, Theses and Papers at DigitalCommons@PCOM. It has been accepted for inclusion in PCOM Psychology Dissertations by an authorized administrator of DigitalCommons@PCOM. For more information, please contact library@pcom.edu.

Philadelphia College of Osteopathic Medicine

Department of Psychology

EVALUATION OF THE MAUDSLEY ADDICTION PROFILE (MAP)
FOR USE WITH AN AMERICAN SUBSTANCE ABUSE POPULATION

by: Hannelore T. Barbieri

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Psychology

February 2003

PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE

DEPARTMENT OF PSYCHOLOGY

Dissertation Approval

This is to certify that the thesis presented to us by Hannelore T. Barbieri on the 11th day of February, 2003, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

Committee Members' Signatures:

Arthur Freeman, Ed.D., ABPP, Chairperson

Robert A. DiTomasso, Ph.D., ABPP

Steven Sachson, Ph.D.

Arthur Freeman, Ed.D., ABPP, Chair, Department of Psychology

ACKNOWLEDGMENT

My family and early experiences were instrumental in my interest and need to understand human behavior. Over the years, I have been fortunate to have been touched by many who have influenced me in a positive way. To a greater or lesser degree, most of them have influenced my career path as well. There are many who deserve my gratitude but several I cannot fail to mention. I am mostly indebted to my loving and patient grandmother, who is remembered dearly as my first therapist. Her attentive listening skills, gentle guidance and steady encouragement allowed me to come to be. My husband, Frank, has more than anyone been my greatest support. His love for and confidence in me has been a constant motivating force. He is also the father of our four children, Catherine, Jennifer, Michelle and Alexander. All of them are an integral part of my life and each one has followed their own calling. And to you, Mutti, you don't have to ask anymore "Wie lange musst Du denn noch?"

My sincere thanks go to Dr. Arthur Freeman and Dr. Robert DiTomaso who were my professors during my graduate school years and who encouraged me to further my education by completing a doctoral degree. Over the years I have come to appreciate their professionalism, knowledge and individual attention. With pride, respect and a touch of nostalgia, I thank Dr. Freeman as my chairperson and Dr. DiTomaso for being more than a vital committee members. My thanks also go to Dr. Steven Sachson, my third committee member, and Director of Psychology at my internship site and now my place of employment. He is always willing to take time out from his busy schedule to assist and guide me as both a student and as a supervisee. My gratitude also goes to Dr. Margo Morgan, Dr. Grete Hesse, Dr. Robert Waters and Dr. Thomas Schwartz who were my supervisors during my pre-

doctoral internship. Their professionalism and knowledge inspired me to work hard and to hone my clinical skills. Also, I would like to thank Dr. Linda Tuckley who inspired me during our many “power-walks.”

Finally, my undying thanks go to the Addiction Services Department and the volunteers who have interviewed over 100 participants during the past nine months. They were willing to add even more work to their already busy work schedule. To you, to every one involved in this project and to the patients who were willing to reveal a part of their history, I give my heartfelt thanks.

ABSTRACT

Multi-dimensional instruments in the addiction field developed in the United States as well as in other countries are limited. The Maudsley Addiction Profile (MAP), a brief, multi-dimensional instrument developed in the United Kingdom (UK), is designed to assess the treatment outcome of individuals with alcohol and/or drug (AOD) problems and associated issues. This measure consists of sixty items across the domains of substance use, health risk, physical/ psychological health and personal/social functioning. The MAP, which has been validated on British as well as on several European samples of substance abusers, has been suggested for further validation. The current study was designed to examine the psychometric features of the MAP on a sample of American AOD users. Subjects included 133 patients who had been admitted for treatment in an inpatient psychiatric hospital ; they had been identified with a recent substance abuse history. Seven interviewers were trained to criterion; 90 percent agreement with the investigator was achieved. The test-retest reliability of the MAP was good (average concordance of 0.96 across eight substances and 0.77 across health risk, health symptoms, and personal/social functioning). The interrater reliability among seven interviewers (one researcher and six clinicians) was also good (coefficients across eight substances were 0.95 and 0.78 across problem areas). The Pearson Correlation Coefficients of physical/psychological health symptoms between US and UK samples ranged between $r = 0.97$ and $r = 0.98$. Correlations among problem areas indicate several significant interactions between substance use and problem areas. Overall, the present study has shown that the MAP is a reliable outcome measure with several distinct advantages; it is an instrument which can be recommended for use in the US.

TABLE OF CONTENTS

	Page
LIST OF TABLES	ix
INTRODUCTION.....	1
The Current Scope of AOD Use in the United States.....	1
Most Widely Used Substances in the United States	2
Substance Abuse/Dependence as Defined by DSM I – IV	11
Health Risk Behaviors and AOD Use.....	13
Physical Health Symptoms and AOD Use.....	15
Psychological Health Symptoms and AOD Use.....	16
Social Functioning and AOD Use.....	17
Employment and AOD Use	19
Crime Involvement and AOD Use.....	20
Theoretical Models of Addiction	22
History of Substance Abuse Treatment	24
Historical Context of AOD Research.....	26
Outcome Studies in the United States.....	28
Outcome Measures in the United States	30
Outcome Studies and Measures in Other Countries	33
Cross-cultural Validation of Instruments.....	35
The Potential of Matching AOD Users to Treatment	37
Rationale	38
Hypotheses.....	41
METHODOLOGY.....	43
Subjects	43
Design	44
Description of the Maudsley Addiction Profile (MAP).....	45
Procedure	48
Statistical Analysis.....	49
RESULTS	51
Test Interview	51
Demographics	51
Substance Use	53
Health Risk Behavior.....	55
Physical and Psychological Health	56
Relationship Conflict	56
Employment.....	58
Crime.....	59
Intercorrelations Among Problem Areas	60
Interrater Reliability.....	64

Test-Retest Reliability.....	66
DISCUSSION	68
Personal and Demographic Characteristics.....	69
Substance Use	70
Health Risk Behavior	71
Health Symptoms	73
Personal/Social Functioning	73
Employment	74
Crime.....	74
Intercorrelations between Problem Areas.....	76
Interrater and Test-Retest Reliability.....	80
Limitations of this Study.....	80
Limitations of the Design of the MAP.....	81
Directions for Future Research	83
Summary	85
REFERENCES.....	87
APPENDICES.....	107

LIST OF TABLES

Table	Page
1. Characteristics of the whole US sample of psychiatric inpatient AOD users and the UK sample by main problem substance and treatment setting	51
2. Average number of days of substance use and typical daily amounts reported during the past 30days	53
3. Pre-treatment scores on health risk behaviors by US sample of psychiatric inpatient AOD users and UK treatment groups.....	54
4. Pre-treatment scores on physical and psychological health in US and UK.....	55
5. Pre-treatment scores on relationship conflict scales by US sample of psychiatric inpatient AOD users and by UK treatment group and setting	56
6. Employment data for psychiatric inpatient AOD users in US and primary drug and alcohol users in UK	57
7. Crime involvement in past 30 days among psychiatric inpatient AOD users in US (n = 133) and problem drug users in UK (n = 160)	58
8. Pearson product-moment correlation coefficients between intensity of substance use and health risk behavior, physical/psychological health and crime (n = 133)	60
9. Pearson product-moment correlation coefficients between crack/rock cocaine use (days and amount) and depressive symptoms (n = 133).....	61
10. Pearson product-moment correlation coefficients between age of participant and health risk behaviors and employment (n = 133).....	62
11. Three day Pearson interrater reliability estimates for substance use (n = 19).....	63
12. Three day Pearson interrater reliability estimates for health risk behavior, health symptoms, personal/social functioning and crime (n = 19).....	63
13. Ten day Pearson test-retest reliability estimates for substance use (n = 12).....	64
14. Ten day Pearson test-retest reliability estimates for health risk behavior, health symptoms, personal/social functioning and crime (n = 12).....	65

CHAPTER 1

INTRODUCTION

The Current Scope of AOD Use in the United States

The United States has a higher rate of substance abuse than any other industrialized country (Falco, 1992). The economic cost to our society and the number of drug-related deaths are staggering. According to the Office of National Drug Control Policy (2001), the total economic cost of illegal drug use in 2000 was an estimated \$160 billion, a 57 percent increase from 1992. The three major components of the total amount are health care costs (\$14.9 billion), productivity losses (\$110.5 billion), and other costs (\$35.2 billion), including the cost of goods and services lost to crime, the criminal justice system, and social welfare. The Centers for Disease Control and Prevention (CDC) (2001) estimate that 19,102 people died in 1999 (or 52 such deaths per day) as the direct result of drug-induced causes. Although current CDC data are not directly comparable with prior year estimates, there was a steady increase in drug-induced deaths between 1990 and 1998.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA, U.S. Department of Justice, National Drug Intelligence Center, 2000) sponsored the 1999 National Household Survey on Drug Abuse; this survey has conducted face-to-face interviews with a national probability sample of household members who had reached the age of 12 by 1971. In 1999 approximately 70,000 individuals were interviewed, allowing this survey to be used as a likely indicator of the drug prevalence among different segments of the U.S. population. The survey

reports that drug use among high school seniors has been increasing steadily since 1992. For instance, by 1997 six percent of high school seniors reported daily use of marijuana, and two percent reported daily use of cocaine. A similar pattern has been identified among 18 to 25-year-olds. While drug use among young people was decreasing in the 1980s before rising in the 1990s, drug use among individuals arrested for crimes had been steadily rising. The most widely used illicit drugs in this country have been identified as marijuana, cocaine, crack, methamphetamine, heroin and illicit benzodiazepine. Alcohol, even though a licit substance, affects individuals as do other drugs, because it frequently escalates to other drug use, negatively impacting the individual and his/her environment .

However, identifying the extent of AOD use requires more than just estimating the prevalence and extent of substance abuse. It also requires an understanding of substance abuse-related causes and/or consequences, such as health risk behaviors, physical and psychological health and personal and social functioning.

Most Widely Used Substances in the United States

Throughout most of the history of the United States, the most common substances of abuse were legal and were easily available. Many substances such as opium, hallucinogens, derivatives of the hemp plant and alcohol have been used for many thousand years to alleviate or eliminate pain, to treat anxiety and depression and to enhance perceptual properties. Chemical derivatives of these plants or synthetic new ones were developed in the middle to late nineteenth century. Some individuals are able to take certain substances for its intended purpose, while others develop a strong desire or craving

for a particular substance. Continued use of pleasure-giving substances can lead to dependence or addiction. The word addiction comes from the Latin word “addicere,” which means, “to favor.” The general meaning of this word today can be translated as “to surrender,” or to “give oneself up” to something (Berger, 1982). Addiction, then, is the overwhelming need to use a substance despite its devastating side effects in the physical, social and legal realm. Addiction has two components: tolerance and withdrawal.

Tolerance refers to the body’s acceptance of a substance over time. As a result of physical changes, the body craves more of the substance to provide the same effect. Withdrawal refers to either physical and/or psychological pain or discomfort after decrease or complete cessation of regular use. During withdrawal, physical changes can result in tremors, cramps, vomiting and general malais. Some experts consider the compulsive use of a substance an addiction only if it produces physical dependency; i.e., the process of changes in the body’s cells. Others believe that psychological dependency is also a form of addiction. Psychological dependency grows out of emotional reasons for abusing a certain substance in order to achieve mental or emotional wellbeing. According to the U.S. Food and Drug Administration, substance abuse is “deliberately taking a substance for other than its intended purpose, and in a manner that can result in damage to the person’s health or his ability to function “ (Berger, 1982, p. 2). The U.S. Drug Enforcement Administration divides approximately one hundred illicit substances into five major groups: narcotics, stimulants, depressants, hallucinogens, and cannabis. Alcohol remains one of the five licit substances.

The use of narcotics as a painkiller goes back to nearly 6,500 years when ancient

Egyptian physicians “used opium and chemicals derived from it, known as opiates, to kill pain” (Berger, 1982, p. 16). Opiates were also used recreationally once it became obvious that these drugs not only alleviated pain but also relieved anxiety, gave pleasure, and provided a temporary escape from reality. Morphine was extracted from opium around the year 1800. Wounded soldiers during the Civil War, who were permitted to inject the drug themselves, used this drug freely. Initially, it was believed that morphine was not addictive and, as a result, it was freely prescribed for all types of pain. With the widespread use it became increasingly more obvious that morphine was addictive and morphine dependence became known as the “soldier’s disease.” In 1898, chemists developed a drug from morphine that was thought to cure opium and morphine addiction; hence, this new drug was called “heroin.” The distribution of heroin, which is three times as powerful as morphine, spread rapidly during the nineteenth century because of its great potency.

Most narcotics addiction in the United States involves heroin. Heroin, a white powder with a sharp, bitter taste, is administered primarily by injecting it just under the skin, into a muscle, or directly into a vein. Data on various aspects of substance abuse in the U.S. is gathered from the National Household Survey on Drug Abuse (NHSDA), the Drug Abuse Warning Network (DAWN) and the Treatment Episode Data Set (TEDS) and published by the U.S. Department of Justice, National Drug Intelligence Center (2000). Based on this data, it has been estimated that the heroin population in the United States in 1999 was between 1.2 and 1.5 million. According to the 1999 NHSDA data, approximately 3.1 million individuals tried heroin in their lifetime, approximately 403,000 used heroin in 1998, and 208,000 used heroin in the month prior to data collection. While

national indicators suggest heroin use has reached its peak, lifetime heroin use among eighth-grade students rose from 1.4 percent in 1993 to 2.4 percent in 1996. During the same time period, heroin use among tenth and twelfth graders rose from 1.3 and 1.1 percent to 2.3 and 2.0 percent respectively.

Reports on admissions to publicly funded treatment facilities filed by TEDS indicated that in 1998 heroine was tied with cocaine as the illicit drug most often cited as the reason for admission to publicly funded treatment facilities. The most common method of administration was injection (67 percent), followed by inhalation (28 percent). According to DAWN, heroin/morphine ranked third ,with 15 percent of emergency department episodes. Heroin/morphine was the most frequently mentioned drug in 1998 Dawn medical examiner data for most of the metropolitan areas. (U.S. Department of Justice, National Drug Intelligence Center, 2000).

Stimulants are divided into cocaine and amphetamines. Cocaine is considered the most powerful of the natural stimulants. In 1844 it was isolated from the coca plant, which was growing in the Andes Mountains. When the Spanish Conquistadores invaded that region in the early sixteenth century, they noticed that the natives were chewing this plant. It was encouraged by their captors because of its tendency to reduce fatigue and hunger and, hence, to create an economical work force. Today, cocaine is usually distributed as a white powder. Most users either smoke, sniff, snort or inject the substance. Because of its purchasing expense, cocaine is frequently cut or mixed with other substances. Cocaine, in both powdered and crack forms, was rated as the second most commonly used illegal drug in 1999 by the National Drug Intelligence Center. According to 1999 NHSDA,

approximately 42.5 million individuals ages 12 or older reported lifetime cocaine use, approximately 4 million reported the previous year use, and 1.5 million reported current use. The prevalence of cocaine use varied considerably across age groups: lifetime use was highest among 35 to 44 year olds, but rates of previous year and current use were higher among the 18 to 25-year old.

A survey of national admissions to substance abuse treatment services released by TEDS evidenced the fact that 15 percent of all admissions to publicly funded treatment facilities in 1998 were for cocaine. Of those admissions, 73 percent were for crack. Almost 42 percent of admissions to publicly funded treatment for crack abuse were female, compared with 34 percent of admissions for powdered cocaine. TEDS data indicated that the typical crack user admitted to publicly funded treatment is black, male, and 34 years old, whereas a typical cocaine user requesting treatment in a publicly funded treatment facility is white, male and is approximately 32 years old.

Data from DAWN on both crack and cocaine indicated that cocaine was the drug most frequently mentioned in hospital emergency department episodes comprising 30 percent of all episodes in 1999. DAWN medical examiner data indicated cocaine as the drug most frequently mentioned by medical examiners in 1998.

Amphetamines or “uppers”, first made in 1887, include approximately thirty related stimulants. In the 1930s amphetamines were used medically to treat narcolepsy. Since then they have also become part of weight-loss programs in the form of diet pills as well as in prescriptions for hyperactivity. The effects of amphetamine abuse are similar to those of cocaine abuse. Both are known to produce symptoms of paranoia. If deprived,

withdrawal symptoms may include mental confusion, apathy, depression, sleepiness, irritability and cramps. Data from the 1999 NHSDA indicated that approximately 9.4 million people in the United States tried methamphetamines at least once in their lifetimes. Lifetime use was highest among those ages 26 to 34 years (5.4 percent) and lowest among 12 to 17 year olds (1.4 percent). TEDS reported that methamphetamine users accounted for 3.6 percent of all admissions for drug treatment. At the same time, 75 percent of those admitted for methamphetamine use were using multiple drugs. Typical admissions for methamphetamine use were white (80.4 percent) and over half (52.9 percent) were male. The predominant age group for both males and females was between 25 and 34.

Depressants are divided into barbiturates, quaaludes and tranquilizers. Although recognized for their calming effect, they are also known for their initial effect of stimulation and excitement. In the quest to find a drug to help individuals with sleep problems, anxiety and tension, two German chemists derived the first barbiturate, barbital, from barbituric acid in 1903. Since then, scientists have developed over 2,500 other barbiturates. Approximately fifteen of them are in use today. Users of barbiturates generally develop a tolerance to the drug and overdose is often a real danger. Quaaludes, like the barbiturates, are depressants that have an effect on the central nervous system. These drugs initially replaced barbiturates because of a false belief that they were not addictive, and that they had increasing sexual properties. Withdrawal symptoms of Quaaludes are known to be less severe than those of the barbiturates. Against the background of a campaign banning the barbiturates, drug manufacturers produced minor tranquilizers in the 1940s. The most popular to date are Valium and Librium. These drugs

were readily accepted by the medical profession and were prescribed as sedatives for many of the same ailments as barbiturates. By 1979, experts who were interviewed during Senate hearings on the subject indicated that “Valium, Librium, and the other minor tranquilizers could create a nightmare of dependence” (Berger, 1982, p. 26). Among these “pharmaceuticals” most frequently identified by law enforcement agencies as abused in their areas, diazepam (Valium) and hydrocodone top the list. Others frequently mentioned as abused include Xanax, Vicodin, Soma, Alprazolam, and Darvocet. Many agencies consider the use of these agents as underrated because of the “ease with which abusers can obtain prescription drugs over the Internet, by phone, and at drive-through pharmacies” (U.S. Department of Justice, National Drug Intelligence Center, 2000, p. 57).

Hallucinogens or psychedelics, a group of mind altering drugs, such as LSD, PCP, and mescaline, are known to alter the brain and nervous system. The effects include changes in thought, self-awareness, sensation and emotion. This group of drugs has been around for approximately 3,500 years. Religious sects in Mexico were known to ingest certain mushrooms or cacti for their hallucinogenic properties. Other religious sects used natural hallucinogens as well. Synthetic hallucinogens such as LSD and PCP were used widely by the 1960s. These drugs can both produce a “good trip” or “bad trip” depending on the user’s mood or mind-set. In addition, “flashbacks” or recurrent reactions may occur between uses. According to 1999 NHSDA data, approximately 25 million people ages 12 or older used hallucinogens sometime in their lifetimes. Approximately 3 million reported the previous year’s hallucinogen use, and 1 million reported current use. Of all TEDS admissions in 1998, hallucinogen abuse accounted for 0.1 percent. Of admissions for

hallucinogens, 51 percent were between the ages of 15 and 19, and 23 percent were between 20 and 24. 86% of the hallucinogen users used other drugs as well.

Cannabis includes both marijuana and hashish. Marijuana is made from the hemp plant. This plant was widely used in China over 5,000 years ago as a remedy for rheumatism, gout, constipation, loss of appetite, melancholy, malaria and as a painkiller in child birth. Marijuana has been widely used for medicinal purposes all around the world. The active ingredient in marijuana is known as THC, or delta-9-tetrahydrocannabinol. The plant that grows wild in the United States contains less than 0.5 percent THC; plants that grow in Mexico, Columbia and Jamaica may contain up to four to seven percent of this substance. The effects of marijuana may run the spectrum, from feeling talkative and giggly to becoming quiet and withdrawn. Long-term effects may include an altered sense of time and space, memory problems, an increase in depression and a loss of motor coordination. Hashish is also derived from the hemp plant but is much higher in its THC content; it may contain up to 10 percent. Hashish in the form of oil may contain up to 20 percent THC. In this form it can be dropped on a tobacco cigarette and produce the same effect as smoking a joint of marijuana.

Marijuana is the most widely available and abused illegal drug in the United States. Approximately 20 percent of the population has used this drug at least once. According to 1999 data released by NHTSA, 76 million people ages 12 or older reported marijuana use in their lifetimes, 20 million reported use in the previous year, and 11 million reported current use. The number of marijuana users has been relatively stable since 1991, except for adolescents. Their rate of use more than doubled between 1992 (3.4 percent) and 1995

(8.2 percent) ; it peaked in 1997 (9.4 percent) and declined from 1997 to 1999 (7.0 percent). The societal impact of marijuana use is significant. TEDS reported that the proportion of admissions to publicly funded treatment facilities for marijuana abuse doubled between 1992 and 1998, from 6 percent to 13 percent of all TEDS admissions. In 1998, more than half (57 percent) of marijuana admissions had used the drug by the age of 14, and over 90 percent had used it by age 18. Of marijuana admissions, 77 percent were male, 59 percent were white, and 49 percent were under 20 years of age. Data released by DAWN suggests that between 1997 and 1999 the emergency departments' mention of marijuana /hashish increased from 64,744 to 87,150. Two age groups showed significant increases between 1997 and 1999; the 18-25 age group increased from 19,388 to 27,272, and the 35 and over age group increased from 17,403 to 25,796. DAWN medical examiner data reported marijuana to be implicated in 6 percent of all episodes, but marijuana/hashish was usually mentioned in combination with other drugs.

Alcohol, a legal substance, is considered a drug as well. For many addicts, the use of alcohol has precipitated the use of illegal drugs. Intoxication as a result of alcohol is to blame for many assaults, murders and suicides. It is believed that beer and wine were made in Turkey as early as 6,400 B.C. It was and still is obtained by a process called fermentation. In ancient times, it was practical to produce alcoholic drinks because regular grape juice would go bad while wine would last. The Chinese were thought to be the first who distilled liquor from wine. This process was brought to Europe around the tenth century A.D. Brandy and whiskey were the first known liquors. The percentage of alcohol in different drinks varies ; most distilled drinks contain between 40 and 50 percent

alcohol. The most popular distilled drinks include brandy, distilled from wine; whiskey, derived from fermented cereal grains; vodka, made from potatoes, barley or rye; and rum, made from molasses or sugar cane. Alcohol, which tends to weaken the part of the brain that controls muscle coordination, also weakens judgment. Metabolization also affects various organ systems. Longterm and heavy alcohol consumption tends to result in kidney problems, pancreatitis and/or liver damage. Individuals who regularly abuse alcohol may become alcoholics. Withdrawal symptoms may include tremors and shakes, nausea, cramps, and a hangover headache. Heavy drinkers may experience hallucinations such as threatening voices, convulsive seizures and delirium tremen, or DTs “One of every five people who goes into DTs dies” (Berger, 1982, p. 70).

Substance Abuse/Dependence as Defined by DSM I – IV

Alcohol and drug dependence were first categorized in the DSM-I (American Psychiatric Association, 1952) as a subset of Sociopathic Personality Disturbance which included antisocial behavior and sexual deviations, including homosexuality. DSM-II (American Psychiatric Association, 1968) continued this categorization, implying that these four patterns of behavior may constitute a greater threat to society than that posed by the victims of other mental or emotional disorders (Nathan, 1991). DSM-III (American Psychiatric Association, 1980) placed the substance use disorders in a separate category and eliminated the moralizing aspect of these disorders. In addition, the text of the DSM-III focused on research that investigated sociocultural and genetic factors in the etiology of these disorders. Hence, the role of scientists and of clinicians was implicated in both

aspects of research and treatment. DSM-III also separated the substance use disorders into two major categories: abuse and dependence. This division is the result of several longitudinal studies that began in the 1970s (Cahalan, 1970; Fillmore, 1988; Roizen, Cahalan, & Shanks, 1978), indicating that alcohol abuse does not necessarily progress to alcohol dependence. A more recent study by Hasin, Grant, and Endicott (1990) produced similar findings.

DSM-III-R (American Psychiatric Association, 1987) moved away from the primary physical aspects of dependence (i.e. tolerance and withdrawal symptoms) while focusing more on the multi-dimensional aspects of biologic, social and behavioral components (Rounsaville & Kranzler, 1989). This construct is known as the substance dependence syndrome and incorporates drugs as well as alcohol. The concept of a dimensional model of abuse steps away from the “traditional categorical model on which the disease model of alcoholism has rested” (Nathan, 1991, p. 422).

DSM-IV (American Psychiatric Association, 1994) defines both substance abuse and dependence in terms of the problems attendant upon misuse. Substance abuse is described as repeated use despite persistent or recurrent social or interpersonal consequences, such as poor work performance, legal issues, failure to fulfill major obligations, use in hazardous situations, and relational difficulties such as verbal and physical confrontations. Dependence is seen as addiction to a substance, which includes increased tolerance, decreased effect, withdrawal sickness, loss of control, inability to cut down or control use, preoccupation or compulsive psychosocial impairment and continued use despite negative effects. Often, but not always, a pattern of abuse will worsen and turn

into a dependency problem over time. Substance abuse is directly or indirectly associated with problems in the medical, psychiatric, interpersonal, social and legal realm.

Health Risk Behaviors and AOD Use

In the United States, as well as other countries, AOD users are at risk for the human immunodeficiency virus (HIV) infection through either intravenous drug use or unprotected sexual intercourse (Fleming, Wortley, & Karon, 2000; Kaplan, & Brandeau, 1994; Sumartojo, Carey, & Doll, 1997). National estimates of HIV infection through injection drug use and unsafe sexual practices are staggering. Approximately 36 percent of AIDS cases in the United States are directly or indirectly associated with injection drug use (Centers for Disease Control and Prevention, 2001). It is estimated that many injection drug users become infected with HIV and transmit the disease to their sexual partners through unprotected sexual practices (Corby, Jamner Schneider, & Wolitski, 1996; Krauss, Wolitski, & Tross, 1999; De Zoysa, Sweat, & Denison, 1996; Latkin, 1998; Quillet, Rahimian, & Wiebel, 1998). However, prostitutes in New Jersey were found to be as much at risk for HIV when they smoked crack as when they injected heroin (Sterk, 1988). In fact, a survey of HIV prevalence and incidence in 96 large U.S. metropolitan areas from the mid-1990s suggests that approximately 80 percent of HIV-infected adult heterosexuals who are not intravenous drug users, were infected by HIV-infected intravenous drug users through unprotected sexual contact (Holmberg, 1996).

Several “interpersonal avenues may connect drug use with sexual risk” (Morrill, Kasten, Urato, & Larson, 2001, p. 172). First, AOD users are more likely to be involved

with a partner who injects drugs. Second, many women depend on a partner for drugs and, hence, are more dependent on their partner's choice of protection. (Amaro, Fried, Carbral, & Zuckerman, 1990; Paone, Chavkin, Willets, Friedman, & Des Jarlais, 1992). The dependence on a substance forces many women to engage in "sex-for-drugs" or "sex-for-money" practices (Edlin, Irwin, Faruque, et al., 1994; El-Bassel, Ivanoff, Schilling, et al., 1997; Zweig, Greenberg, Singh, et al., 1991), or they engage in unsafe sexual practices because of impaired judgment when under the influence of drugs (Morrill & Ickovics, 1996). A survey to determine psychiatric symptoms, health services, and HIV risk factors among homeless women ages 15 to 44 found that 8 percent of the women injected drugs, 64 percent engaged in unprotected sex, and 22 percent traded sex (Kilbourne, Herndon, Anderson, et al., 2002).

Two noninjection drugs, crack and methamphetamine, are also associated with an increase in unsafe sexual practices and, hence, with HIV infection (Chiasson, Stoneburner, & Hildebrandt, 1991; Chirgwin, DeHovitz, & Dillon, 1991; Hall, & Broderick, 1991). The risk continues to be significant with the increase in supply of and demand for these drugs (Brown, & Beschner, 1993; Des Jarlais, Perlis, & Friedman, 1998; Needle, Coyle, & Normand, 1998). The use and marketing of crack/cocaine are associated with a potentially high risk for contracting HIV because of its sexually exploitative nature, or "sex for drugs" behavior. Crack users have unprotected sex more frequently, have more sexual partners, and are more likely to trade sex for drugs. Frequently, this practice precludes the use of condoms and has resulted in an extraordinarily high risk for HIV in especially African-American women. In areas where crack use has increased among African-American teens

and young adults, the rate of sexually transmitted diseases, including HIV, has dramatically increased after an earlier decline (Bowser, Fullilove, Thompson, et al., 1990; Edlin, Irwin, Ludwig, et al., 1992). “Sex-for-drugs” practices have also placed individuals in greater contact with crack-addicted men and women who are injecting their drugs. But male addicts are affected as well. A survey of indigent African-American men in New York City found that those who used crack were significantly less likely to use condoms (El-Bassel & Schilling, 1991).

“Sex-for-drugs” practices appear to be the third wave of HIV infection. The first wave of HIV infection involved gay and bisexual men, the second wave involved intravenous drug users, and the latest wave appears to be the result of individuals involved in “sex-for-drugs” or “sex-for-money” practices. Unfortunately, these practices also involve a much younger population because of their higher frequency in sexual involvement.

Physical Health Symptoms and AOD Use

Substance abuse presents a major health problem both directly attributable to drugs and alcohol and indirectly contributing to medical complications (Rubin & Benzer, 1997; Wartenberg, 1994). Trauma-centers, emergency rooms and doctor offices invariably report a high incident of patients with drug and/or alcohol related illnesses. A study examining the effects of cannabis dependence in young adults ages 21 (Taylor, Poulton, Moffitt, et al., 2000), concluded that respiratory symptoms associated with cannabis dependence included wheezing, shortness of breath, nocturnal wakening with chest

tightness and early morning sputum production. Injecting drug users have been associated with liver, renal, pulmonary, and cardiovascular problems (Bell, Batey, Farrell, et al., 1990; Selwyn, Hartel, Wasserman, & Drucker, 1989; Strang, & Gurling, 1989).

Approximately 18 million Americans experience health-related problems linked to alcohol use (U.S. Department of Health and Human Services, National Institute on Alcohol Abuse and Alcoholism, 1987) ; among these are liver disease and certain cancers. A study examining exposure to alcohol during adulthood provides evidence that long-term alcohol exposure can result in neuronal damage (Tagliaferro, Vega, Evrard, et al., 2002). The presence of declining physical health “can signal the possible presence of coexisting mental health problems” (Johnson, Brems, & Burke, 2002, p. 243).

Psychological Health Symptoms and AOD Use

There is growing evidence that AOD users present with concomitant psychiatric symptoms. The prevalence of psychiatric symptoms among these individuals is complex but important for assessment and treatment purposes. For instance, one difficulty in assessing concurrent depression in cocaine users is the fact that during the “crash” period of the initial 3 to 5 days after abstinence induced elevations in depressive symptoms can be noticed (Gawin, & Kleber, 1986).

The rate of concomitant psychiatric disorders in individuals with AOD use is very strong, especially the prevalence of affective disorders (mainly depression) and anxiety ? (mainly phobias) (Miller, & Janicak, 1997). The prevalence rates for the co-morbidity of depressive and addictive disorders range from 5 to 25 percent in epidemiologic and clinical

studies. Research of psychiatric co-morbidity among cocaine users suggest high levels of psychopathology, in particular for depressive disorders (Kilbey, Breslau, & Andreski, 1992). The authors suggest a lifetime prevalence for depressive disorders among individuals seeking treatment for cocaine use range from about 20 to 47 percent. Patients with higher pretreatment depression are at risk for early treatment termination. Depressive symptoms appear to indicate a risk of relapse to alcohol but not to cocaine. Since many cocaine abusers present with a concomitant alcohol diagnosis, depression is of concern with regard to their alcohol relapse (Brown, Monti, Myers, et al., 1996). For assessment and treatment purposes it is important to consider that alcohol is known to produce anxiety during withdrawal and cocaine is thought to produce anxiety during intoxication. Negative affect and anxiety are common features of youths who consume alcohol (Mezzich, Tarter, Kirisci, et al., 1993). One approach to reducing alcohol consumption is the treatment of comorbid anxiety in anxious alcoholics (Kranzler, & Liebowitz, 1988).

Social Functioning and AOD Use

Research indicates that retreat from traditional socialization influences and supportive interpersonal connections may exacerbate feelings of alienation and may result in increased substance abuse and increased dysphoria. Adolescents who reported low social support during adolescence also scored higher levels of depression during adulthood (Newcomb, & Bentler, 1988).

Age, mental illness and socio-economic status are important variables in the measurement of social support. Lam (1999) reports that older clients have not only fewer

relationships with their families of origin but they also have less contact with these family members. Studies of homeless populations evidence the fact that the more severe their mental illness and the longer their homelessness, the less social support they experience than the less disturbed and the more recently homeless. (Cohen, & Sokolovsky, 1989; Wolch, Rahimian, & Koegel, 1993). Faccincano, Mignolli, & Platt (1990) reported that social support was negatively correlated with the use of inpatient hospital care. It is hypothesized that involvement with formal supports (i.e. community treatment programs) can result in greater access to informal supports (ie. friends as well as family) (Thornicroft, & Breakey, 1991).

However, interpersonal connections and interactions are not always positive and may be characterized by poor communication, hostility, power inequity and interpersonal violence. Research indicates that there may be a reciprocal interaction between an aggressive interpersonal style and substance abuse and that the use of illicit drugs may elicit “a vicious cycle relationship in which substance use increases risk of future assault and assault increases risk of subsequent substance use” (Kilpatrick, Acierno, Resnick, et al., 1997, p. 834). This tendency has been observed in both men and women (Chermack, Walton, Fuller, & Blow, 2001), even though women tend to be the recipient of hostility and violence more often than men. Nevertheless, both violence expression and victimization are related to higher incidents of relapse. Research on substance abuse and interpersonal difficulties (especially violence) tends to focus either on communication difficulties among couples, on adult/adolescent or on adolescent/adolescent interpersonal difficulties. There is a need, as well, for research on communication styles of adult

substance users with their relatives and friends.

Employment and AOD Use

The employment rate for individuals with AOD problems has been relatively stable since the 1970s, ranging approximately between 15 and 35 percent (Platt, 1995).

Unemployment tends to be disproportionately high among heroin addicts. The prevalence of dependence on AOD is especially common among persons who have been recently laid off, but who are not yet reemployed. This is also true for individuals who are not working in the paid labor force (Anthony, Warner & Kessler, 1997).

There is a clear relationship between higher unemployment and higher levels of criminal activity among individuals with AOD problems (Faupel, 1988; Platt, 1986). AOD users appear to rely more on criminal or quasi-criminal activity than on legitimate work as a source of income; this activity is also used to support their drug habits. Criminal activity is much more likely among those with more serious drug abuse patterns than those with alcohol/marijuana or minimal drug use patterns (Hubbard, Marsden, Rachal, et al., 1989).

Using data from interviews with 544 daily heroin users in 5 cities, Faupel (1988) reports that unemployed male individuals (not legally employed) had the highest levels of criminal activity, followed by full-time workers, part-time workers and those not in the labor force (i.e. students, homemakers). Ironically, he also found that skilled and semiskilled workers reported the highest levels of criminal involvement, followed by white-collar employees and unskilled workers. This pattern is different among women,

who have the highest level of criminal involvement among unskilled workers, followed by white-collar, skilled, and semi-skilled workers. Women who are not in the labor force tend to commit the most property crimes. However, full-time employed men and women tended to commit the highest number of drug sale offenses. Hubbard et al. (1989) suggest that males and younger clients are more likely to have committed crimes in the year before treatment.

Crime Involvement and AOD Use

Drug abuse is significantly related to criminal behavior in the criminal justice system (Harrison, 1992; Innes & Greenfeld, 1990), in clinical populations (i.e. Hanlong, Nurco, Kinlock, & Duszynski, 1990; Newcomb, Galaif, & Carmona, 2001) in adolescent samples (Apospori, Vega, Zimmermann, et al., 1995; Hays & Ellickson, 1996; White, Johnson, & Garrison, 1985), and in the general population (Kaplan, 1995; Newcomb, et al., 2001). Research indicates that drug problems are both a predictor as well as an outcome of criminal behavior.

The association between AOD use and criminal behavior and delinquency in the general population has been examined (Kaplan, 1995; Miller, Whitney, & Washousky, 1986). Several theories have been proposed describing several paths to criminal involvement of substance abusers. The Impaired-Functioning theory (Graham, 1980; Vaillant & Milofsky, 1982; Zucker & Gomberg, 1986) states that abuse of drugs leads to criminal behavior by interfering with or impairing physical, psychological, and emotional functioning. Substance abuse may result in or increase criminal behavior by reducing

inhibitions that, without the use of a substance, would normally restrain the individual from acting on his or her criminal impulses (Graham, 1980; Kaplan, 1995). Over time, the use of drugs as a maladaptive coping response results in a greater need to engage in deviant behaviors (i.e. criminal acts) to obtain desired goals. The sociological drift theory describes how criminal behavior results in future substance abuse and drug-related crimes (Elliott, Huizinga, 1984). Elliott, Huizinga, & Ageton (1985) propose that engaging in criminal behavior provides the context and opportunity to engage in substance abuse. Antisocial behavior in adolescence is a critical determinant of whether future drug use increases these behaviors in adulthood (Rydelius, 1988). A study by Newcomb, et al. (2001), using a community sample of adult substance abusers, found support for both the impaired functioning and the sociological drift theories. Their study also suggests that early drug problems led to later criminal behavior, that thefts increased cocaine problems, that driving under the influence of alcohol increased alcohol problems, that driving under the influence of other drugs increased both marijuana and cocaine problems, and that arrests and convictions increased alcohol problems. This study also isolated significant gender differences between drug problems and criminal activity. Results suggest that males may develop a proclivity toward criminality earlier than their female counterparts. For instance, men reported a stronger relationship between early drug problems and early drug crimes, and between early drug crimes and later drug problems than women did. However, later in life, women do exhibit criminal behaviors that are similar to those committed by men. The authors suggest further research concerning this developmental difference in the proclivity between crime and drug problems along gender lines.

Theoretical Models of Addiction

The approach to and treatment of substance abuse has been the result of several theoretical models of addiction. The moral model is based on the Christian view that “an addict is someone who lacks the moral fiber to resist temptation” (Marlatt & Gordon, 1985, p. 6). This view and the condemnation of alcohol resulted in the enforcement of Prohibition in this country more than 70 years ago. The disease model that followed was based on writings by the American physician Benjamin Rush in the early eighteenth century ; the term was formally coined by Jellinek (1960) after the American Medical Association officially declared alcoholism a disease. The disease model is based on the view that the alcoholic is suffering from a disease similar to other biological disorders. According to Marlatt & Gordon (1985), by denouncing moral stigma associated with alcoholism, this model may have influenced alcoholics to seek medical help. By absolving the addict of personal responsibility, it may have had the disadvantage of accepting alcohol consumption as one symptom of the disease.

While the literature on addictions had initially focused on alcoholism within a medical model, Sobell & Sobell (1976) presented a conceptually broadened view of addictions across several classes of drugs, specifically, alcohol, opiates, and barbiturates. These substances were grouped together for a number of reasons, i.e. because these substances tend to induce tolerance, physical dependence and withdrawal symptoms when ingested in sufficient quantities over a prolonged time span. This process-oriented view of addictive behaviors resulted in an increase in the interdisciplinary approach to

investigating the addictions. The interdisciplinary approach underlies the fact that addiction problems have multiple etiological determinants and multiple consequences.

In 1977, George Engel published an article in Science promoting a “biopsychosocial model,” or the integration of external as well as intrapersonal factors in the treatment of a wide range of health-related difficulties. According to this paradigm, a given disorder, including the addictions, is viewed within the context and the result of physiological, social, behavioral, and environmental factors. Within the field of addiction, the biopsychosocial model brought forth a number of implications concerning assessment and treatment outcome of addictive behaviors. One of the features is the move away from a reductionistic view of illness. It became insufficient to say that an individual is either well or ill. Rather, the disease had to be examined along a continuum, taking a wide variety of circumstances into consideration. A second feature of the biopsychosocial model is a move away from the process of classification to a process of information gathering. This approach allowed for a greater gain in understanding the interrelationship between biological, psychological and social systems. Since all of these factors contribute to addiction, failure to assess functioning initially in these domains, will by necessity reduce the effectiveness of treatment (Donovan, Kivlahem, & Walker, 1985). A third implication of the biopsychosocial model within addictive behaviors is that treatment will not only affect the individual but also the environmental factors in which a person resides. Hence, treatment must be dynamic and ongoing in order to predict increased or decreased focus on any given domain. A fourth aspect of the biopsychosocial model is based on the multiple-systems involvement. This concept necessitates a multi-disciplinary team in

order to allow for maximum treatment of those domains that contribute to AOD use (Donovan, & Marlatt, 1988). The recognition that substance abuse is multifaceted and has to be viewed within the context and result of physiological, social, behavioral, and environmental factors, necessitates the development of multifaceted measurements.

History of Substance Abuse Treatment

Treating alcohol and other drug (AOD) use has not always been part of public policy. In most of United States history, drug use was a private matter. The first efforts at drug abuse treatment took place in the beginning of the twentieth century and were directed primarily at opioid users. These publically supported treatments were generally conducted in medical settings. Moral standards changed with the beginning of the twentieth century. The use of synthetic drugs injected by the newly developed hypodermic needle caused many to raise moral objections(?) to drug use and “some were swept along by the temperance movement formed against the drinking of alcohol” (Berger, 1982, p. 49). Addicts were seen as immoral, as endangering their own welfare, as well as the welfare of society at large. A public outcry against the medical treatment of heroin addiction is reflected in the Harrison Narcotic Act passed in 1914. This Act favors the strategic control of the sale of heroin and other drugs, making the use of many substances illegal (Courtwright, 1986). After the return of many wounded World WarI veterans who were addicted to opiates, the U.S. Congress passed laws in 1916 and in 1919 restricting medical prescription of heroin to addicts. By 1923 the last public maintenance clinic closed its door. As a result of the Harrison Narcotic Act and other legislation, the

manufacture and sale of these illegal substances was taken over by a criminal subculture. In order to diminish the criminal element of drug use, making it instead a health problem, the government opened up 44 drug maintenance clinics for the sole purpose of supplying addicts with legal narcotics and other drugs. While harmful effects of substance abuse were treated by private doctors, the centers neglected to treat substance abuse nor did they assist the abusers to achieve abstinence. These early drug treatment centers were closed by 1925. Later, two drug treatment facilities were opened in the 1930s, one in Kentucky in 1935 and one in Texas in 1938. In those years drug use appeared to be limited to entertainment, remaining in inner-city communities. This picture changed during the years after WWII with the increase in demand and supply of substances. The first drug treatment facility designated for primarily juvenile addicts was Riverside Hospital in New York City.

In the 1950s, the belief prevailed that drug addiction was usually incurable. However, in 1958, Synanon, the first therapeutic community, made national headlines by announcing that heroin addicts treated there were abstinent for over a year. Its claims were questioned by the scientific community because of Synanon's failure to use the scientific method ; these included the lack of a control group, self-selection of subjects and lack of standardization of treatment.

In the 1960s, when the United States found itself in the grip of an epidemic of illicit drug use, the focus shifted from alcohol to other drugs. Even though the spectrum of illegal drugs included marijuana, LSD, amphetamines and heroin, the latter involved the potential of death related to overdose; it also involved a rising crime rate (Hubbard, et

al.,1989). Heroin, therefore, was considered a public enemy. Discovery of methadone maintenance and its effectiveness in the treatment of heroin addiction, resulted in the development of community methadone maintenance programs (Dole & Nyswander, 1965). In light of the positive effects of methadone maintenance and implementation of other modalities (i.e. therapeutic communities and drug-free programs) in the treatment of addictions a shift resulted from the long-held belief that drug addiction is incurable to the conviction that drug addiction is treatable (Tims & Ludford, 1984).

The change in view from addiction's being incurable to addiction's being treatable, resulted in the proliferation of drug-free outpatient programs. Programs became increasingly more necessary because of an epidemic of illicit drug use in the USA in the 1960s. President Nixon's War on Drugs in 1971 resulted in the further proliferation of treatment programs. Yet, there was a lack of objective measures that could statistically evidence which programs were able to produce specific changes in specific drug users. This recognition necessitated the development of data bases to provide more specific outcomes.

Historical Context of AOD Research

Research on and treatment of alcohol and other drug (AOD) problems is a fairly recent phenomenon and is less than one hundred years old. Implementation of these drug treatment centers opened up the possibility of research on causes of addiction, maintenance of and adherence to drugs and treatment modalities to achieve abstinence. Within the field of substance abuse, researchers previously investigated drugs separately and independently

(Shaffer & Milkman, 1985). Professional disciplines, including pharmacology, biochemistry, psychology, psychiatry, and sociology conducted research on specific issues concerning primarily alcohol. Research tended to focus on that component most suitable to the promotion of their discipline. There was minimal exchange of valuable information and findings which resulted in a fragmented view of addiction issues. This split manifested itself in the development of independent theories with little or no overlap (Lettieri, Sayers, & Pearson, 1980; Oxford, 1985; Peele & Alexander, 1985). The lack of a conceptual framework devoid of a unitary set of standards resulted in a number of reductionistic and mechanistic approaches to addictions (Schwartz, 1982). According to these paradigms, addiction was described as involving a single cause and a single effect. Adhering to this view, research focused on a single, unidimensional causative factor. For instance, factors of cause and maintenance that were examined included inherited mechanisms, reinforcing properties as well as social and psychological functions.

Most of the published literature on outcome research has focused on efficacy studies. These studies typically measure the effectiveness of a specific intervention under special experimental conditions using a mostly homogeneous population (Dennis, 1994; Howard, Moran and Brill, 1996). Typically, the experimental design consists of the comparison of two interventions that are based on the treatment of a symptom described in the DSM manual, excluding any subjects with multiple symptoms or with multiple treatment histories (Goldfried, & Wolfe, 1996). Within the mental health field, especially in the treatment of psychosis and affective disorders, “such diagnostic classification have added focus to research efforts and improved the specificity and effectiveness of

treatments” (McLellan, Luborsky, Woody, & O’Brien, 1980, p. 26). Within the field of substance abuse treatment, the dominant paradigm of efficacy research has been far less useful because of the heterogeneity of this population. Typically, these patients present with different histories of alcohol and drug use, medical, psychiatric, family, occupational and legal problems which require different treatment services. In recognition of this diversity, it is essential to measure treatment outcomes in terms of each individual patient’s improvement along a continuum rather than in comparison with some predetermined arbitrary success measure. For instance, expectations of treatment outcome for a dual diagnosed client would be different than for a substance abuser without a concomitant mental illness.

Outcome Studies in the United States

With the increasing emphasis on aftercare and relapse prevention, program staff have become increasingly more concerned with evaluating their services as related to treatment outcome. Studies of longterm behavioral outcome of substance abuse populations are rare and initially focused on the careers of opioid addiction. Before 1969, follow-up studies of opioid users were only conducted in the Federal Public Health Service Narcotics Hospitals in Lexington, Kentucky, and Fort Worth, Texas where this population was treated (Maddux & Desmond, 1981; O’Donnell, 1969, 1972; Vaillant, 1973; Zahn & Ball, 1972). Since the late 1960s community-based programs have replaced the Federal PHS treatment institutions resulting in the need for new data. Several post-treatment follow-up studies of an opioid population have been conducted ; these studies involve

those who have been treated in community-based programs. Most of these studies evidence a follow-up interval of fewer than six years. Included in these are studies based on the Drug Abuse Reporting Program (DARP, Simpson, & Sells, 1982; Simpson & Sells, 1990), a therapeutic community in New York (Phoenix House), and the Treatment Outcome Prospective Study (TOPS, Hubbard, Marsden, Rachal, et al., 1989). Others include those of returning Vietnam veterans (Robins, 1974), addicts treated in the California Civil Addict Program (McGlothlin, Anglin, & Wilson, 1977) and those in the Veterans Administration hospitals (Baker & Lorei, 1978). The first major outcome study was conducted by DARP between 1982 and 1983 as a follow-up interview six years after their first follow-up and 12 years after admission of 27,214 daily opioid users to 25 different DARP agencies between 1969 and 1972. Participants were 697 individuals from the original pool. Results of this study indicate that addicts who are exposed to therapeutic community treatment programs evidence better Year-12- outcomes on factors of drug use, criminality, and employment than those exposed to other treatments (Simpson & Curry, 1997).

The most recent outcome monitoring study is the Drug Outcome Monitoring System (DOMS) that includes eleven drug types and is based on the biopsychosocial model for treating and monitoring clients with chronic substance use disorders (Dennis, Godley, & Godley (1998). The DOMS, which includes 48 treatment units that are spread across the state of Illinois, is conducting in-treatment studies and a three-months post discharge followup with 1500 clients. DOMS measurement uses the GAIN, which includes a one-and-one half hour self-report questionnaire, a summary behavioral count for

the past 90 days, and a perceived urgency of care section.

Outcome Measures in the United States

The value of gathering data on treatment outcome has been widely promoted (Center for Substance Abuse Treatment, 1995; Institute of Medicine, 1990) and several monitoring systems have been developed (e.g. Dennis, et al., 1998; Harrison, Beebe, Fulkerson, & Torgerud, 1996) in order to aggregate data from many programs. Since monitoring client outcomes has become a priority for individual programs, these programs need access to satisfactory outcome measurement tools; therefore, appropriate instruments have been developed in order to facilitate assessment and outcome research. In the United States, research on alcohol and drug use treatment has produced several widely used instruments that pertain exclusively to the nature and extent of chemical use (Wells, Hawkins, & Catalano, 1988). The majority of these measures are either screening tools or are limited to measuring alcohol problems (Allen & Columbus, 1995; Donovan & Marlatt, 1988; Winters, 1999). With the advent of a broader view of substance abuse and an experimental shift from the etiology and development of substance abuse to prevention and treatment, comprehensive outcome measures are needed. An increased emphasis on process-oriented studies of the social, behavioral, and physiological determinants of addictive behaviors has resulted in a more comprehensive view of addiction, as well as an examination of the causes and the maintenance of such behaviors. Against this background “addiction is seen as a complex, progressive behavior pattern having biological, psychological, sociological and behavioral components” (Donovan, & Marlatt, 1988, pp. 5, 6). To encompass the diversity of client populations who need treatment for

both addictions and related difficulties, comprehensive measures need to be developed and validated. To date, few instruments are available that measure not only alcohol and other drug (AOD) problems but associated issues as well (Marsden, Gossop, Stewart, et al., 1998; McLellan, et al., 1980).

The development of such an instrument was first proposed at the National Institute of Drug Abuse Conference on Treatment Efficacy (O'Brien, 1975). Omnibus instruments for treatment research have been developed such as the Addiction Severity Index (ASI, McLellan et al., 1980; McLellan, Kushner, Metzger, et al., 1992) and the Opiate Treatment Index (OTI), which is designed to specifically assess the effects of opiate treatment (Darke, Hall, Wodak, Heather, & Ward, 1992).

The Addiction Severity Index (ASI) was introduced to evaluate treatment outcome for substance-dependent patients across six areas commonly affected by addiction. Since 1980 the ASI has been extensively used in treatment outcome studies for opiate (Ball & Carty, 1988), cocaine (Gawin, Kleber, Byck, et al., 1989), and alcohol (Kadden, Cooney, Getter, & Litt, 1990) dependence. The ASI has also been implemented in studies of other related populations such as drug abusing prisoners (Wexler, Falkin, & Lipton, 1988), dual-diagnosed clients (Lehman, Myers, & Carty, 1989), homeless individuals with or without a drug problem (Lubran, 1990), and pregnant addicts and addicted mothers (Smith, Moss-Wells, Moet, & Coles, 1990).

The scientific community has criticized the ASI for its limitations in several areas; it has been especially criticized for its composite drug use score (Wells, et al., 1988). The authors raise the issue that the composite drug use score “would not differentiate between a

user of a less serious drug, such as marijuana, and a user of a more serious drug, such as heroin, if the two users are equal in terms of the number of other drugs they use and their perception of a problem or a need for treatment” (p. 866). The authors point to the fact that two drug users with the same drug use frequency would be given different scores based on their own perception of how problematic the frequency of their drug use is to them. The authors themselves (McLellan, Luborsky, Cacciola, et al., 1985) question the scale’s validity if the ASI were to be given to younger sociopaths with a history of criminal involvement. Their tendency would be to underestimate the severity of their problems and, as a consequence, receive a lower score. The ASI has also been criticized for its American domain specificity in areas of family/social functioning and employment as well as for the composition of the severity ratings (Hendriks, Kaplan, Van Limbeck, & Geerlings, 1989). The authors argue that treating current as well as lifetime problems equally in terms of weight may spoil the reliability of the severity ratings. As a remedy they proposed that “the definition of severity as ‘need for additional treatment’ suggests that current problems should be weighted more than problems in the past” (p. 140). Most recently, the ASI has been criticized for its lengthy interview, failure to address risk-taking behaviors, and omission of drug use intensity, (e.g. Darke, et al., 1992; Marsden et al., 1998). Even though the authors claim that the ASI has been translated into nine languages, the only published study that was available was one done in the Netherlands (Hendriks, et al, 1989).

AOD use is not only a problem in the United States but is an international problem as well. In 1991, Longabaugh proclaimed that “there is no universally accepted

standardized instrument for measuring patient outcomes” (p. 190). More recently it has been noted that, “the international harmonization of methods and instruments is receiving special attention” (Kokkevi, 2001, p. 167). Outcome measures, such as the Addiction Severity Index (ASI) have been validated on native as well as on international samples but have been criticized for its lengthy completion time and for its subjectivity. The development of outcome measures in the addiction field is limited in this country as well as other countries. The Maudsley Addiction Profile (MAP), developed at the Maudsley Institute in England, has been validated on European samples (Mandersen, Nizzoli, & Corbelli, 2001) but not currently on an American sample..

Outcome Studies and Measures in Other Countries

The problem of AOD use, its associated mental disorders, potential health risks and psychosocial issues are not confined only to the USA. These problems are prevalent in other countries as well. AOD use and related issues predominate in urban centers (Vega, Kolody, Aguilar-Gaxiola, et al., 1998), especially in industrial areas which are known to have a higher incidence of drug addictions, health problems, mental health issues, high-risk behaviors and delinquency (Kiev, 1972).

The gathering of data on treatment outcome has been a priority in the United States for the past ten years. (Center for Substance Abuse Treatment, 1995; Institute of Medicine, 1990), and multiple systems have been developed (e.g. Dennis et al., 1998; Harrison, et al., 1996). Less emphasis has been placed on extending research on the outcome of treatment for substance use problems in the United Kingdom. Reasons for the delay include the lack

of consensus about which substance use treatment outcomes to measure, the manner in which to measure them, and the lack of agreement on how to define a minimum outcomes data set (Marsden, et al., 1998). Hence developing valid and reliable instruments to assess treatment outcome had not been a priority until several years ago.

With the increasing recognition in the United Kingdom of the importance of extending research on the outcome of treatment for substance use problems, the Department of Health Ministers set up a Task Force to review the effectiveness of services for drug users in England in the beginning of 1994. In 1996 the Task Force filed a report describing the negative impact of drug use on the individual and on society, isolating available treatment agencies, treatment modalities, and formulating that which constitutes recovery. The Task Force also recommended implementation of new research studies on key issues identified as the result of this report. The most comprehensive of these studies was the National Treatment Outcome Research Study (NTORS, Gossop, Marsden, & Stewart 1997). This longitudinal study tracked more than 1,000 drug users over an eighteen-months period. The study was not an experimental but an observational study, in which patients were monitored in a range of self-chosen existing treatment facilities. Based on the results of this study, a national strategy on drug use was launched which included the expansion of outcome research (Central Drugs Coordination Unit, 1998).

One of the outcome measures developed in the United Kingdom (UK) in response to the ASI was the Maudsley Addiction Profile (MAP, Marsden, et al., 1998). Unlike the OTI, the MAP assesses treatment outcomes of individuals with AOD problems. The decision to develop the MAP was influenced by the understanding that “culture patterns of

drug abuse and service response differ markedly from those in England” (Task Force to Review Services for Drug Misusers, 1996, p.7). Alcohol and drug use disorder instruments have been validated cross-culturally before. However, the MAP has been designed as a core research instrument and has been validated on a native sample of substance users. The authors recommend use of the MAP for treatment services wishing to undertake outcome studies.

Cross-cultural Validation of Instruments

AOD users in the USA and abroad may vary in many ways, including racial or ethnic composition, language diversity, poverty rates, cultural influences upon substance use patterns, the attitudes toward the prevalence of alcohol and other specific drug use disorders, as well as the rates of injection drug use and HIV/AIDS. Nonetheless, the diversity within substance abusers may be just as pronounced. Substance abusers, especially with concomitant mental disorders, are known for their heterogeneity. Lehman, Myers, and Dixon (1994), postulate that this target population is characterized more by their differences than by their similarities.

Despite the scarcity of comprehensive outcome measures in the addiction field, potentially suitable measures developed here or abroad that have been successfully tested on native populations, are available to be validated cross-culturally. The MAP has been validated on a native sample of substance users and has been recommended for further validation. In order for an instrument to be recommended for widespread use, it must have undergone testing on a wide variety of populations. An instrument developed for use with

AOD users in one country cannot be assumed to be valid for AOD users in another country since different cultures provide distinct environments that produce culture-specific stressors. "The environment and the individual are reciprocally related, in that shifts in one tend to be accompanied by corresponding changes in the other" (Kiev, 1972, p. 7).

In order to establish some standardization, alcohol and drug use disorder instruments have previously been validated cross-culturally, including the Composite International Diagnostic Interview (CIDI), the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) and a special version of the Alcohol Use Disorder and Associated Disabilities Interview Schedule - alcohol/drug-revised (AUDADIS-ADR). These three diagnostic instruments for AOD use disorders have been tested on a sample of addicts in 12 centers in ten countries (Uestuen, Compton, Mager, et al, 1997). The purpose of this particular study was to further develop the alcohol and drug sections of these instruments in order to achieve a more consistent range of substance-related diagnoses.

In order to fulfill the need for a multi-dimensional diagnostic instrument in the addiction field in the Netherlands, the Addiction Severity Index (ASI) was validated on a sample of Dutch AOD users (Hendriks, et al., 1989). Even though the ASI used was not a direct translation but was modified to address their clients' special needs, psychometric acceptability was achieved. On the other hand, the instrument has been proven to exhibit limitations in areas of the composite drug use score, the subjectivity of its scoring procedure, the American domain specificity, the lack of weight differences across current and lifetime problems, the lengthy interview, the failure to address risk-taking behaviors, and the omission of drug use intensity.

The use of a standardized comprehensive measure that is sensitive to change, is time-limited and quantifiable, using diverse populations and services will increase the certainty that matching patient to treatment will actually result in treatment outcome improvement (McLellan & Alterman, 1991). The ability to compare results across treatment programs and groups of patients across cultures is fundamental in developing some consensus with respect to addiction-related assessment, treatment and outcome.

The Potential of Matching AOD Users to Treatment

A multidimensional measure that recognizes the complexity of AOD users within the context of physiological, social, behavioral and environmental factors is the first step to a better understanding of and to a careful providing for a foundation for the development of more specific and comprehensive treatment modalities. The idea that patients vary in their problem areas and, hence, in their treatment needs underlies the concept of “treatment matching” (Beutler, 1983; Finney, & Moos, 1986). Only the identification of specific treatment needs “eventuates in a series of organized and focused treatment interventions” (Freeman, 1992, p.15). Research within the substance abuse field has resulted in empirical support for the efficacy of treatment matching, especially in the investigation of alcohol assessment and treatment. Several studies evidence significant interactions between patient treatment and psychopathology (Cooney, Kadden, Litt, & Getter, 1991; Dorus, Ostrow, & Anton, 1989; Kadden, Cooney, Getter, & Litt, 1989) and between patient treatment and psychological or social interactions (Longabaugh, Beattie, & Noel, 1990; Rohsenow, Monti, & Binkoff, 1991). During the last decade the investigation of

multifaceted treatment approaches has dramatically increased in various settings from inpatient to outpatient facilities in the United States and abroad. Comprehensive treatment is, in great part, provided by multidisciplinary professionals which may include an interdisciplinary team, casemanagement and behavior modification technicians. This approach attempts to integrate psychiatric and addiction services within one treatment setting (Harrison, Martin, & Tuason, 1985; Minkoff, 1991). The comprehensive treatment of drug use and concomittent problems has shown some promising results in the United States and abroad.

Rationale

The Maudsley Addiction Profile (MAP) is the first instrument developed in the United Kingdom that measures treatment outcomes for people with AOD problems and associated issues (Marsden et al., 1998). The MAP is a public domain research instrument which the authors recommend for use across other populations. The MAP has been designed specifically for outcome research. The multi-dimensional measure can be administered at intake as well as at other points during the treatment period. Changes in these measures are attributable to either treatment factors or other processes. Since the MAP is a core instrument, the authors recommend adding other measures for clinical or research purposes. The MAP has several unique features in comparison to other measures that predict an increased ability to assess treatment outcome using a minimum but comprehensive outcome data set. For instance, the interview completion time of only 12 minutes for most subjects makes the MAP an advantageous instrument from several

viewpoints. The brevity of the MAP impacts favorably on assessment personnel, treatment programs and addiction population. Considering the predominance of Managed Care in the mental health field with its focus on time-limited and outcome-oriented therapy, measures used for assessment and outcome need to be comprehensive but brief.

Completion time of the MAP is well within the one-hour assessment period allotted by Managed Care. This allows for sufficient time to collect center-specific information at the same time.

Furthermore, the short and precise design of the MAP minimizes treatment program disruption and lessens demands on staff. Addicts tend to be difficult to work with because of their low frustration level and short attention span. Some individuals addicted to AOD have Attention Deficit Disorder (Gawin, & Kleber, 1986; Glantz & Pickens, 1992). A lengthy questionnaire would likely intensify concentration difficulties and increase the tendency to provide inaccurate information.

Another unique feature of the MAP is the addition of health risk behaviors. HIV risk-taking behavior is a criteria infrequently addressed as part of an outcome measure (Darke et al., 1992). This domain reflects on the risk of exposure of drug injection and hazardous sexual practices to the Human Immunodeficiency Virus (HIV) and other blood borne infections (e.g. Hepatitis B and C Viruses).

An additional benefit of using the MAP as a research tool is its combined measures of frequency and intensity of substance abuse. Other studies have used quantity or frequency of a given substance consumed (i.e. Darke et al, 1992). Quantity is a construct that refers to the total volume or amount of a given substance ingested within a designated

follow-up period. Frequency is a construct that refers to the number of periods or times the person initiates consumption of a substance. The MAP, on the other hand, incorporates the intensity construct, or the amount per unit time within a given time-period.

Measurement of intensity is based on the observation that people vary in the amount of substance they ingest during a specific time-period or occasion. Combined measures of frequency and intensity are based on the assumption that frequent heavy consumption greatly increases the likelihood of negative consequences. Whereas frequent heavy consumption may increase the likelihood of negative consequences, frequent high intensity of AOD use should be a good predictor for increased likelihood of negative consequences (Babor, Longabaugh, Zweben, et al., (1994).

Substance abuse presents a major health problem because of the high risks and costs associated with chemical dependence (Rubin & Benzer, 1997; Wartenberg, 1994).

Because of these high risks and costs not only to the individual addict but also to society as a whole, measures should be developed and validated to meet the needs of the diversity of client populations who receive addictions treatment in this as well as other countries or cultures. The MAP is a brief measure suited for a heterogeneous population that meets the criteria for a comprehensive outcome measure.

An instrument can be recommended for widespread use, only if it has been tested on a variety of populations. "The fundamental concern of an instrument's ability to be transferred from one cultural context to another is the reliability of the instrument in the new context" (Hendriks et al., 1989, p. 134).

Hypotheses

The purpose of the present research was designed to examine the psychometric features of the Maudsley Addiction Profile (MAP) on a sample of American AOD users.

The Research Hypotheses are as follows:

1. The US and UK samples will not differ significantly on the scores of the MAP.
2. There will be a significant positive correlation between intensity of AOD use and health risk behavior, physical and psychological health, and criminality in the past 30 days.
3. There will be a significant positive correlation between crack/cocaine use, major depressive disorders, negative self-image, suicidal ideations and impaired relations.
4. There will be a significant negative correlation between age of client and number of health risk behaviors in the past 30 days.
5. There will be a significant positive correlation between female clients and health symptoms and a significant negative correlation between female clients and criminality in the past 30 days.
6. There will be a significant positive correlation between age of client and number of employment problems in the past 30 days.
7. There will be a significant positive correlation between unemployment and criminality.
8. There will be a significant agreement between two judges in using the MAP on categorical variables.
9. There will be a significant correlation between scores on the MAP across two

occasions (Test-retest).

CHAPTER 2

METHODOLOGY

Subjects

The subjects were 133 admissions to a New Jersey inpatient psychiatric hospital who had been identified with a recent substance abuse history. The sample consisted of a male/ female adult population from a mixed socio-economic background who were likely to present with various combinations of substance use and mental health diagnoses. The individuals were newly admitted patients not in need of specialized services such as medical, geriatric or forensic. Subjects in this study were assigned to one of two buildings based on their county of residence. The subjects were made familiar with the research study, and they were required to sign or initial a consent form before becoming part of this study. Subjects were advised, in writing, about the nature of the study and were informed that some of them would be interviewed a second time. Participation was voluntary and participants were free to withdraw from the study at any time. In order to optimize the validity of the participants' responses, administration of the measure was not given to individuals who presented with any signs of AOD intoxication or symptoms of acute withdrawal. Hence administration of the MAP was postponed to within the first couple of days of admission.

Information was confidential and anonymous; only the subjects' age and gender were required, accompanied by their mothers' first name. The person administering the measure advised the participants that it would be in their best interests and the program's best interest that information provided be as accurate as possible in order to prevent minimization or maximization of pathology. Because of the sensitive nature of some of the questions, participants were offered counseling, if necessary, by the treatment team.

Design

A training manual and training tape were developed demonstrating how to score in group format. A single two-hour session was scheduled to introduce the interviewers to the use of the questionnaire, to familiarize them with the manual that describes the interview protocol and scoring systems and to view a practice interview tape. Training included a thorough examination of the manual, a discussion of concepts and individual items, a practice involving the questioning format to preserve standardization and a rating of individual items. After becoming acquainted with the manual and procedures, the interviewers were introduced to the MAP. The trainees were taught the manner in which each section should be completed. The final part of the training consisted of the interviewers watching a 30-minute training tape of a simulated interview. Based on this interview, the raters completed a practice MAP. Results were then compared with those of the MAP completed by the investigator. The interviewers were all trained to criterion and achieved at least 90 percent agreement with the investigator's MAP that became the Gold Standard. After the initial training session, the interviewers were instructed to collect real data based upon these guidelines. Periodic contact was made with the interviewers to determine if they had any questions. Nineteen patients were re-interviewed after three days for the interrater reliability. Twelve subjects were re-interviewed within ten days for the test-retest reliability. The study employed a correlational research design to assess the psychometric properties of the MAP.

Description of the Maudsley Addiction Profile (MAP)

The Maudsley Addiction Profile (MAP) is a brief, multi-dimensional instrument developed in the United Kingdom for the purpose of assessing outcomes for people with drug and/or alcohol problems. A 30-day reporting period before intake to treatment is used as the recall period for the MAP interview. The instrument is interviewer-administered and consists of sixty items across substance use, health risk, physical/psychological health and personal/social functioning domains.

Several minor modifications have been made to the Management and Operational Information Section of the MAP to better reflect American Program settings and Referral details. For instance, the site of this study, a Medically Monitored Inpatient Residential facility was added to the Program/Setting options. Depending on need, other settings may be added. In addition to changes to the Program/Setting options, non-attributable client identifiers have been minimized in order to adhere to confidentiality requirements. These identifiers consist of mother's first name and the patient's age. The ethnicity options have also been altered to more clearly reflect racial and ethnic compositions in the US.

The Substance Use section has been altered as well to include another substance, since substance abuse assessment is limited to five substance types in the UK "which are associated with clinical problems among (their) clients" (Marsden, et al., 1998, p. 1859). These are illicit heroin, methadone, benzodiazepines, cocaine and alcohol. The authors recommend that "for use in other settings and countries the substitution or addition of other psychoactive substances to the MAP may be required" (Marsden, et al., 1998, p. 1859) This study added a sixth substance, marijuana, which is widely used in the United States .

The frequency of substance use in the previous 30 days is recorded first. The subject can choose from seven common frequency patterns, ranging from "one day per week" to "every day." The corresponding number of days is then recorded. Intensity of substance use is recorded as either the weight or the cost of a substance used on a typical day. Alcohol consumption is assessed in terms of beverage types, strength of alcohol content and the number and sizes of drinks. Self-reports are recorded verbatim and later converted into standardized units of ethanol (1 unit = 8g - 10g; 0.28 - 0.35 ounces). Route(s) of administration are as follows: oral, intranasal inhalation and injection.

Health risk behaviors include drug injection and penetrative sexual intercourse. Drug injection behaviors are recorded as the frequency of injections in the previous 30 days, the number of injections on a typical day, and times injected with a needle/syringe already used by someone else. Sexual intercourse is recorded as the number of sexual partners and frequency of penetrative sex without the use of a condom.

A 10-item scale that measures physical health was adapted from a 51-item checklist from the Opiate Treatment Index (Darke, Ward, Zador, & Swift, 1991). The five functional systems, component items and rank order correlations ($p < 0.0001$) are: general (poor appetite and tiredness/fatigue, $r = 0.31$), cardio-respiratory (chest pains and difficulty breathing, $r = 0.39$), gastrointestinal (nausea and stomach pains, $r = 0.38$), neurological (tremors/shakes and numbness/tingling, $r = 0.41$), and musculo-skeletal (joint pain/stiffness and muscle pain, $r = 0.32$). A five-point Likert-type scale assesses the frequency of experiencing each symptom and ranges from "never" to "always." The scale is scored by summing the weights 0-4 across the 10 items.

A 10-item scale that measures psychological health was adapted from the six-item anxiety and depression subscales of the Brief Symptom Inventory BSI (Derogatis, 1975). After adaptation to meet the needs for the MAP, internal reliability for anxiety and depression subscales are 0.88 and 0.81 respectively. The anxiety subscale contains the following five items: "feeling tense and keyed up," "suddenly scared for no reason," "feeling fearful," "nervousness or shakiness inside," and "spells of terror or panic." The depression subscale contains the following five items "feeling hopeless about the future," "feelings of worthlessness," "feeling no interest in things..... feeling lonely," and "thoughts of ending your life." A five-point Likert-type scale assesses the frequency of experiencing each symptom and ranges from "never" to "always." The scale is scored by summing the weights 0-4 across the 10 items.

Personal and social functioning is assessed using nine items in three areas: relationship conflict, employment and criminal behavior. Relationship conflict is measured by recording the number of days on which the subject has contact with his/her sexual partner, with relative(s) and with friends and the number of days on which there has been serious conflict. These were based on measures of family conflict developed for the Addiction Severity Index (McLellan et al., 1992). Contact is defined as face-to-face interactions or telephone calls and serious conflict is defined as major arguments, verbal abuse and/or violence, but not routine differences of opinion. Employment is measured by the number of days of formal unemployment, the number of days on which the subject undertook paid work, and the number of working days on which the subject did not attend work because of sickness or unauthorized absence. Criminal involvement examines

selling drugs, fraud/forgery, shoplifting, theft from a property, a person, from a vehicle, of a vehicle and other crimes. The number of days and times on a typical day on which each crime type was committed is recorded.

Procedure

While the study in London was conducted in two communities and two inpatient facilities, this study was conducted in one inpatient setting. The study was conducted at one inpatient psychiatric hospital in New Jersey. The inpatient facility is located in southern New Jersey and draws most of its clients from the surrounding counties. All patients are admitted for psychiatric reasons and most patients carry a secondary substance abuse diagnosis. Patients at the facility are predominantly drawn from urban areas and are involuntarily admitted. At this hospital, patients receive both psychiatric and substance abuse treatment.

During a single two-hour training session the interviewers were introduced to the use of the questionnaire and study protocol. The interviewers were made familiar with a manual that describes the interview protocol and scoring systems. A training tape using a non-clinical subject was shown. The interviewers were asked to complete the MAP based on questions and answers provided on the training tape. 90 percent agreement with the investigator was achieved.

A total of 133 subjects participated in this study. The individuals involved were patients suffering from a variety of psychiatric disorders of sufficient severity to warrant involuntary commitment to an inpatient psychiatric hospital. Once admitted and

sufficiently stabilized on the Admission's Ward, the patients were transferred to various sections of the hospital. Their destination depended on age, gender, admission's criteria and committing county. The pool of subjects for this study was drawn from two similar sections of the hospital not in need of specialized services such as geriatric, developmentally disabled, or forensic. Both sections were divided into four wards, consisting of one male, one female, one co-ed and one chronic male ward. Every patient who reported substance abuse during the previous 30 days and was deemed stable enough to participate was asked to become part of the study. The typical diagnosis of patients on these wards include, but were not limited to schizophrenia, major depression, bipolar disorders, anxiety disorders, personality disorders and drug and alcohol problems. All interviews were conducted between March and October of 2002.

Statistical Analysis

Demographics and pre-treatment scores of the MAP subscales of the US and UK samples were discussed. Pre-treatment scores on physical and psychological health between US and UK samples were compared using the Pearson Product-Moment Correlation Coefficient. In order to assess the degree of overlap between the problem areas of the US sample, the intercorrelations among the severity ratings were determined by using the Pearson Product-Moment Correlation Coefficients. The interrater reliability and test-retest reliability were measured by using the Pearson Product-Moment Correlation Coefficient. The interrater reliability of categorical measures was assessed with Cohen's Kappa. A k of 0.40 is suggested to be a minimum acceptable value, with a value of 0.60 or

above indicative of good or excellent reliability (Landis & Koch, 1977). 90 % agreement as Gold Standard was achieved.

CHAPTER 3

RESULTS

Test Interview

Most subjects asked to volunteer for this study were willing to participate. One individual was approached but was not included because he was observed to be psychotic. Four patients declined participation, questioning confidentiality. One patient asked to be excused midway through the interview. All other patients completed the interview, one individual needing two attempts to complete the questionnaire. Several individuals were hesitant to provide a criminal history whereas others boasted about their extensive criminal background. In general, the participants easily understood questions. They did not appear to have difficulties remembering their substance abuse background but exhibited some difficulties with the items on the physical/psychological health symptoms and personal/social functioning. Their frequent response was “I am not sure I know exactly,” or “I have to guess.” Completion time of the MAP was well within the 12 minutes time allotment. The clinicians reported no difficulties in completing the MAP in addition to their standard assessment.

Demographics

The first hypothesis posited was only partially tested since the UK data was separated by primary problem drug users and primary problem alcohol users except for data on physical and psychological health. For these two domains the mean scores of the

Table 1: Characteristics of the whole US sample of psychiatric inpatient AOD users and UK sample by main problem substance and treatment setting

	In the US alcohol and drug users (AODs)	In the UK (Marsden, et al., 1998)			
		Primary problem drug users		Primary problem alcohol users	
Past Inpatient 30 days	Psychiatric Inpatient (n = 133)	Community (n = 80)	Inpatient (n = 80)	Community (n = 40)	Community (n = 40)
% Female	31.6	37.5	37.5	27.5	25.0
Average age (s.d.)	36.7 (9.3)	31.0 (6.7)	32.6 (7.8)	42.7 (9.8)	43.2 (10.3)
% non-white	30.8	10.0	11.3	5.0	7.5
% in relationship	40.0	63.8	50.0	45.0	50.0
% unemployed	85.0	83.8	86.3	85.0	82.5

whole UK data (n = 240) was available and could be statistically compared to the US data.

The remaining US and UK data have been discussed but were not statistically compared.

The personal and demographic characteristics of the US and UK samples are shown in

Table 1. The participants in this study were composed of 91 males (68.4 %) and 42

females (31.6 %) with an average age of 36.7 years (range = 18 – 59) and an

unemployment rate of 85.0 %. A total of 37 (27.8 %) described themselves as African

American, 1 (.7 %) as Black Other, 3 (2.3 %) as Other, 9 (6.8 %) as Hispanic, and 92 (68.7

%) as White. Of these patients, 40 % reported to be in an intimate relationship. Of the UK

sample, 31.8 % were female with an average age of 37.4 and an unemployment rate of

84.4%; 8.5 % considered themselves non-white and 52.2 % reported to be in an intimate relationship.

Substance Use

The UK study divided their sample into primary problem alcohol and primary problem drug users; the U.S. study, however, combined their participants into one sample consisting of alcohol and other drug (AOD) users. The patients' admission for primary psychiatric reasons made this particular separation difficult. Most patients used substances in combinations without a clear primary drug choice. In the UK study, the AUs were not included in the substance abuse profile because their use of the other substances assessed was rare. The US sample included all 133 participants with varying degrees of substance use including alcohol, cannabis, illicit heroin, illicit methadone, illicit benzodiazepine, cocaine powder and crack. The substance use profile of the US AOD users (n = 133) and the UK drug users (n = 160) is shown in Table 2. Of the US sample, 93 (69.9 %) drank alcohol during the previous 30 days; they consumed alcohol an average of 34.9% of days (SD = 10.9, range = 1-30 days), with an average of 12.1 units (SD = 13.3 units, range = 1.50-63.20 units). Fifty-two (39.1 %) of the US sample used marijuana during the previous 30 days, they used an average of 19.8% of days (SD = 9.7, range = 1-30 days), with an average of a 0.9g (SD = 1.6, range = 0.5-6.0g). Twenty-two (16.5 %) used heroin during the previous 30 days; they used an average of 9.0 % of days (SD = 9.7, range = 1-30 days), with an average of 0.03g (SD = 0.2, range = 0.03-1.80g). One (0.8 %) used methadone during the previous 30 days; he/she used an average of 0.1% of days (SD = 0.3, range = 1-3 days), with an average of 0.3mg (SD = 3.5, range = 1.0-40.0mg). Five (3.8

%) used benzodiazepine during the previous 30 days; they used an average of 2.2% of days (SD = 4.0, range = 1-30 days), with an average of 0.7mg (SD = 5.4, range = 1.0-60.0mg).

Table 2: Average number of days of substance use and typical daily amounts reported during the past 30 days

Substance use in past 30 days	In the US (n = 133)			In the UK (Marsden, et al., (1998) (n = 160)		
	Number of users (%)	Percent days used (SD)	Amount used on typical day (SD)	Number of users (%)	Percent days used (SD)	Amount on typical day (SD)
Alcohol	93 (69.9)	33 (11.0)	2.2 units(13.4)	90 (38)	57.8 (38.4)	11.4u (9.9)
Cannabis	52 (39.1)	20 (10.0)	0.9g (1.6)	(not included in UK)		
Illicit heroin	22 (16.5)	9 (7.0)	0.03g (0.2)	136 (57)	77.4 (32.6)	0.4g (0.3)
Ill. methadone	1 (0.8)	0.1 (0.3)	0.3mg(3.5)	35 (15)	47.3 (38.1)	49.6mg (35.5)
Ill. benzodiazepine (37.5)		5 (3.8)	2.2 (4.0)		0.7mg(5.4)	31 (13) 56.4
Cocaine powder	24 (17.9)	6.5 (6.3)	0.09g (0.3)	13 (5)	33.8 (32.8)	1.2g (1.0)
Crack	31 (23.3)	10 (7.0)	0.26g (1.0)	53 (22)	44.9 (41.3)	0.55g (0.4)

Substances not included were not used by participants.

Twenty-four (17.9 %) used cocaine powder during the previous 30 days; they used an average of 6.5% of days (SD = 6.3, range = 1-30 days), with an average of 0.09g (SD = 0.3, range = 0.05-2.0g). Thirty-one (23.3 %) used crack during the previous 30 days; they used an average of 10.0 % of days (SD = 7.0, range = 1-30 days), with an average of 0.26g (SD = 1.0, range = 0.05-7.0g). Not one individual reported using amphetamines.

Health Risk Behavior

The U.S. and UK samples reported the following health risk behaviors. Of the US sample, 8 (6.0 %) individuals used IV drugs; they injected 2.7% of days (SD = 3.9, range

Table 3: Pre-treatment scores on health risk behaviors by US sample of psychiatric inpatient AOD users and by UK treatment groups

Measure	In the US	In the UK(Marsden,et al., 1998)	
	Alcohol and Drug users (n = 133)	Drug users (n = 160)	Alcohol users (n = 80)
Risky sexual behavior	36.1% (n = 48)	44.0% (n = 71)	36% (n = 29)
Number of partners	1 (SD = 2.6)	1 (SD = 0.6)	1 (SD = 0.6)
Times had sex	2.66 (SD = 5.6)	9.3 (SD = 10.1)	5.1 (SD = 6.6)

= 0-26 days) and .16 (SD = .64, range = 0-3 times). Not one of the US participants injected with a needle/syringe already used by someone else. In contrast, in the UK sample the proportion of injecting DUs who reported sharing needles/syringes in the past month before intake to treatment was 16.5% (n=15). The average number of sharing occasions for these clients was 5.5 (SD = 7.4; range = 1 – 30). Pre-treatment scores for risky sexual behaviors for both US and UK samples are shown in Table 3. Of the US sample, 36.1% (n= 48) reported having had penetrative sex without using a condom in the 30 days before intake to treatment. These patients had sex when not using a condom with an average of 1 partner (SD = 2.6, range = 0-20) and had sex on an average of 2.7 times (SD = 5.6, range = 0-30).

Physical and Psychological Health

Scores for the physical and psychological health scales for U.S. and UK samples are shown in Table 4. The mean scores for the whole UK sample (n = 240) for physical

Table 4: Pre-treatment scores on physical and psychological health in U.S. and UK

Measure	In the US	In the UK (Marsden, et al.,1998)
	Psychiatric AOD users (n = 133)	Alcohol and Drug users (n = 240)
Physical health	14.6 (SD = 8.4)	15.5 (SD = 7.3)
Anxiety	10.4 (SD = 5.3)	8.5 (SD = 4.8)
Depression	12.1 (SD = 5.4)	9.3 (SD = 5.2)

and psychological health were available and could be statistically compared with the US sample. Even though the US sample evidenced higher levels on anxiety and depression, there were no significant differences as the correlation coefficients ranged between $r = .97$ and $r = .98$. For the US sample, the mean score for physical health was 14.6 (SD = 8.4, range = 1-35), for the anxiety subscale 10.4 (SD = 5.3, range = 0-20), and for the depression subscale 12.1 (SD = 5.4 range = 0-20). For the UK sample, the mean score for physical health was 15.5 (SD = 7.3, range = 0-34), for the anxiety subscale 8.5 (SD = 4.8, range = 0-20), and for the depression subscale 9.3 (SD = 5.2, range = 0-20).

Relationship Conflict

Of the US sample, 40% (n = 53) were in an intimate relationship with a partner during the 30-day period before assessment; 63.9% (n= 85) had contact with a relative and 43.6% (n = 58) had contact with a friend. Table 5 shows the percentage of contact time that

Table 5: Pre-treatment scores on relationship conflict scales by US sample of psychiatric inpatient AOD users and by UK treatment groups and setting

Measure	In the US	In the UK (Marsden et al., 1998)			
	Alcohol and Drug users Psychiatric in-patient (n = 133)	Prim. Drug users Comm. (n = 80)	Drug users In-pt. (n = 80)	Primary alcohol users Comm. (n = 40)	Primary alcohol users In-pt. (n = 40)
Partner Confl.	13.0 (28.0)	20.7 (36.3)	9.5 (23.9)	18.1 (33.6)	11.1 (30.2)
Relat. Confl.	23.0 (36.0)	10.7 (25.5)	12.9 (28.7)	2.8 (9.0)	6.3 (14.5)
Friends Confl.	11.0 (26.0)	5.4 (17.3)	10.5 (26.3)	8.0 (23.6)	2.3 (7.4)

% time in conflict is the quotient between conflict days and contact.

U.S. and UK samples reported having had serious conflict with their partners, relatives and friends.

Employment

Substantial employment difficulties were reported by U.S. and UK samples. Of the US sample, 85% (n = 113) were on average of 25.0 (SD = 10.3) days unemployed; they received payment on average 2.9 days (SD = 6.9), and they missed an average of 1.1 (SD = 4.2) days of work. Employment data during 30 days prior to admission for psychiatric inpatient AOD users in the US and primary alcohol and primary drug users in the UK is reported in Table 6. Results suggest that of the US sample, 15 individuals (11.3%) had paid work. These individuals reported an average of 26% (SD = 27.9) of working days missed because of sickness or unauthorized absence. The UK data for percent days paid work was not available.

Table 6: Employment data for psychiatric inpatient AOD users in US and primary drug and alcohol users in UK

Measure	In the US	In the UK (Marsden, et al., 1998)	
	Psychiatric inpatient AOD users (n = 133)	Primary problem drug users (n = 160)	Primary problem alcohol users (n = 80)
% unemployment	85 (n = 113)	85 (n = 136)	84 (n = 67)
% paid work	11.3 (n = 15)	21 (n = 33)	not available
% days missed	26 (SD = 27.9)	13 (SD = 29.9)	15 (SD = 29.6)

Crime

The US psychiatric AOD users provided the following crime data: 15.8% (n = 21) were selling drugs, 1.5% (n = 2) committed fraud/forgery, 9.8% (n = 13) engaged in shoplifting, 3.8% (n = 5) committed theft from property, 4.5% (n = 6) committed theft from a person, .8% (n = 1) committed theft from a vehicle, .8% (n = 1) committed theft of a vehicle; and 7.5% (n = 10) engaged in other crimes. Interestingly, 8 of 10 “other crimes” involved prostitution. Crime data in past 30 days among psychiatric inpatient AOD users in US and problem drug users in UK is reported in Table 7. The UK sample did not include the AUs because “criminal behavior during the past month was very rare among the AUs” (Marsden, et al., 1998, p.1862). In addition the UK study defined “other crime” in this table as composed of the following offense types: theft from a property, theft from a person, and theft from or of a vehicle, and fraud/forgery.

Table 7: Crime involvement in past 30 days among psychiatric inpatient AOD users in US (n = 133) and problem drug users in UK (n = 160)

Offense type	In the US			
	n (%)	% days comm. offenses	Average number of offenses	Total number of offenses
Selling drugs	21 (15.8)	60.5 (32.7)	158.4 (235.7)	3,326
Shoplifting	13 (9.8)	29.7 (22.9)	17.5 (17.6)	227
Other crime	13 (9.8)	21.3 (22.9)	18.1 (30.8)	235
Offense type	In the UK (Marsden, et al., 1998)			
	n (%)	% days comm. offenses	Average number of offenses	Total number of offenses
Selling drugs	24 (15)	42.6 (34.8)	93.0 (127.9)	2,233
Shoplifting	40 (25)	47.8 (40.3)	42.2 (61.4)	1,686
Other crime	25 (16)	40.9 (37.0)	68.4 (112.9)	1,711

Intercorrelations Among Problem Areas

In order to assess the degree of overlap between problem areas, the intercorrelations among the severity ratings were determined. Four out of the six hypotheses posited for these statistical analyses were confirmed. The second hypothesis was significant. Results showed a significant correlation between the intensity of several substances (especially alcohol and heroin) and health risk behavior,

physical/psychological health, and criminality in the prior 30 days. (Table 8). The intensity of alcohol was significantly related with tremors (physical health), nervousness (psychological health), days and frequency that fraud was committed, frequency of shoplifting in one day, and days that theft from a person occurred (crime). The intensity of cannabis was significantly correlated with the number of sex partners while not wearing a condom. The intensity of heroin was significantly correlated with days and frequency that drugs were injected (health risk), with stomach pain (physical health), with nervousness and a tendency toward suicide (psychological health), and with number of days and frequency of theft from a car (crime). The intensity of benzodiazepine showed a significant relationship with joint/bone pain (physical health) and the intensity of crack/rock cocaine was significantly correlated with the frequency of sex without wearing a condom.

The third hypothesis posited was confirmed. There was a significant positive correlation between days of crack/rock cocaine use and all factors of depression, which consisted of feelings of hopelessness about the future, feelings of worthlessness, feeling no interest in things, feeling lonely and thinking of ending one's life (Table 9). Research of psychiatric co-morbidity among cocaine users suggest high levels of psychopathology, in particular for depressive disorders (Kilby, et al., 1992). The authors suggest a lifetime prevalence for depressive disorders among individuals seeking treatment for cocaine use range from about 20 to 47 percent. Patients with higher levels of pre-treatment depression are at greater risk for early termination. The intensity of crack/rock cocaine use shows a significant correlation with relative conflict.

Table 8: Pearson product-moment correlation coefficients between intensity of substance use and health risk behavior, physical/psychological health and crime (n = 133)

Problem areas	Substances				
	Alcohol	Cannabis	Heroin	Benzodiazepine	Crack
<u>Health risk behavior</u>					
Frequency no condom					.19*
Partners no condom		.17*			
IV days			.51**		
IV often			.52**		
<u>Physical health</u>					
Stomach pain			.20**		
Joint/bone pain				.15*	
Tremors	.17*				
<u>Psychological health</u>					
Nervousness	.16*		.16*		
Thoughts of ending life			.18*		
<u>Crime</u>					
Fraud days	.24*				
Fraud often	.24*				
Shoplifting often	.15*				
Theft from person days	.27**				
Theft from car days			.96**		
Theft from car often			.96**		

* Correlation is significant at the 0.05 level (1-tailed)

** Correlation is significant at the 0.01 level (1-tailed)

Table 9: Pearson product-moment correlation coefficients between crack/rock cocaine use (days and amount) and depressive symptoms (n = 133)

Measure	Crack/Rock cocaine	
	days	amount
<u>Depressive symptoms</u>		
Feeling hopeless	.28**	
Feeling worthless	.29**	
No interest in things	.15*	
Feeling lonely	.21**	
Thoughts of ending life	.15*	
<u>Relationship conflict</u>		
Relative conflict		.15*

* Correlation is significant at the 0.05 level (1-tailed)

** Correlation is significant at the 0.01 level (1-tailed)

The fourth hypothesis was confirmed. There was a significant negative correlation between age of subject and number of sexual partners without using a condom (Table 10). This finding is in support of extensive research (Catania, 1996; Kelly, Sikkema, Winett, & Solomon, 1995).

The fifth hypothesis posited was not confirmed.

The sixth hypothesis was confirmed. There was a significant positive correlation between age of client and days of unemployment (Table 10).

Table 10: Pearson product-moment correlation coefficients between age of participant and health risk behaviors and employment (n = 133)

<u>Problem areas</u>	<u>Age of participant</u>
<u>Health risk behaviors</u>	
Partners no condom	-.15*
<u>Employment</u>	
Days unemployed	.15*

* Correlation is significant at the 0.05 level (1-tailed)

The seventh hypothesis was not confirmed.

Interrater Reliability

For the interrater reliability, MAP interviews were readministered to 19 patients after 3 days. Table 11 shows the Pearson Correlation Coefficients for the frequency and intensity of substance use. Interrater reliability for six substances was high, averaging 0.95 overall. The lowest coefficient, still with a margin reflecting excellent reliability, was for alcohol users (days used = 0.92, and intensity = 0.66). Kappa coefficients for the substances were as follows: alcohol (1.0), cannabis (1.0), heroin (1.0), Benzodiazepine (1.0), cocaine (1.0), crack (1.0)

Table 12 shows the Pearson interrater reliability coefficients for health risk behavior, health symptoms, and personal/social functioning. Pearson coefficients were again uniformly high, averaging 0.78. The lowest coefficient, still within good reliability, was for anxiety (0.62).

Table 11: Three day Pearson interrater reliability estimates for substance use (n = 19)

Substance	Days used	Frequency on typical day
Alcohol	0.91**	0.65**
Cannabis	0.98**	0.96**
Heroin	0.98**	0.95**
Benzodiazepine	1.00**	0.99**
Cocaine	0.99**	1.00**
Crack rock/Cocaine	0.99**	0.98**

** Correlation is significant at the 0.01 level (2-tailed)

Table 12: Three day Pearson interrater reliability estimates for health risk behavior, health symptoms, personal/social functioning and crime (n = 19)

Measure	Inpatient psychiatric AOD users
IV days	1.00**
Times injected	1.00**
Partners no condom	0.93**
Frequency no condom	0.95**
Physical health problems	0.68*
Anxiety symptoms	0.62*
Depression	0.79**
Partner conflict	0.67*
Relatives conflict	0.86**
Friends conflict	0.73**
Days worked	0.99**
No.of work absences	0.97**
Days unemployed	1.00**
Days drug selling	0.99**
Days shoplifting	1.00**

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Table 13: Ten day Pearson test-retest reliability estimates for substance use (n = 12)

<u>Substance</u>	<u>Days used</u>	<u>Frequency on typical day</u>
Alcohol	0.97**	0.93**
Cannabis	0.79**	0.99**
Heroin	0.98**	1.00**
Cocaine	1.00**	1.00**
Crack rock/Cocaine	0.99**	0.93**

** Correlation is significant at the 0.01 level (2-tailed)
 Substances not included were not used by participants

Test-Retest Reliability

For the test-retest reliability, MAP interviews were readministered to 12 patients after 10 days. Table 13 shows the Pearson reliability estimates for the frequency and intensity of substance abuse. Test-retest reliability for five substances was high, averaging 0.96 overall. The percent agreement across two occasions for the substances were as follows: 100 % for alcohol, heroin and cocaine; and 82 % for cannabis.

Table 14 shows the Pearson test-retest interrater reliability for health risk behavior, health symptoms, and personal/social functioning. With one exception, coefficients were again uniformly high, averaging 0.77. Pearson Correlation coefficients for number of work absences was the one exception with a coefficient of 0.20, indicating poor reliability.

Table 14: Ten day Pearson test-retest reliability estimates for health risk behavior, health symptoms, personal/social functioning and crime (n = 12)

Measure	Inpatient psychiatric AOD users
Partners no condom	0.92**
Frequency no condom	0.90**
Physical health problems	0.62*
Anxiety symptoms	0.76**
Depression	0.73**
Partner conflict	0.97**
Relatives conflict	0.94**
Friends conflict	0.95**
Days worked	0.98**
No. of work absences	0.20
Days unemployed	0.95**
Days drug selling	1.00**

* Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

CHAPTER 4

DISCUSSION

The rationale for using the Maudsley Addiction Profile on an American substance abuse population has been described. The MAP is the first instrument developed in the United Kingdom that measures treatment outcome for individuals with AOD problems. The MAP contains 60 self-report items measuring problems from four domains: substance use, health risk behavior, physical/psychological health and personal/social functioning. The MAP is a core outcome measure and is known for its short completion time, its incorporation of health risk behaviors and its intensity factor. The MAP has been validated on a native sample of substance users, and it has been recommended for use with other populations. This study was designed to examine the psychometric features of the MAP on a sample of American AOD users. The US sample consisted of a male/female adult population who were admitted to an inpatient psychiatric hospital with a primary mental health problem and a secondary substance use diagnosis. Most of the US and UK data were presented separately. Differences or similarities between these two samples are not a major focus of this research; rather the purpose of presenting the US data separately is to evaluate the MAP for use with an American substance abuse population. Comparison between the US and UK samples was difficult because the UK sample was divided into primary alcohol and primary drug users, except for the physical and psychological health domains. The authors of the MAP proposed that the “pretreatment means for the physical and psychological health scales can be used to contrast mean scores for individuals and samples measured in future studies” (Marsden, et al., 1998, p. 1864).

Substance abusers, especially with concomitant mental disorders, are known for their heterogeneity and are characterized more by their differences than by their similarities (Lehman, Myers, & Dixon, 1994). Results of this study indicate that the US and UK samples were in many areas more similar than different, supporting the concept that intra-group differences are often just as pronounced as differences between two groups or populations. Findings specific to the US sample and similarities/differences between the US and UK samples are discussed below.

Personal and Demographic Characteristics

The personal and demographic characteristics of the US and UK samples were not statistically compared but were similar. There was a difference in the intimate relationship domain of the two samples. Forty percent of the US sample were in an intimate relationship versus 52.2 percent of the UK sample. This difference may be explained by the difference between an inpatient and an outpatient population. Inpatient psychiatric populations tend to present with repeat inpatient admissions and are less likely to develop as many intimate relationships as outpatient addiction populations. In addition, a certain percentage of the severely mentally ill would have difficulty in engaging in intimate relationships. The largest difference in values occurred in the racial composition of both samples; in the US, 30.8 percent of the participants described themselves as non-white versus 8.5 percent in the UK sample. This difference is reflective of the more racially diverse composition of the American population, especially on the East coast.

Substance Use

A direct comparison of substance use (average number of days and typical daily amounts during the past 30 days) between the US and UK studies could not be made because the UK study divided its sample into primary problem alcohol and primary problem drug users, whereas the US study combined their participants into one sample consisting of alcohol and other drug (AOD) users. In addition, the UK study did not include any AUs in the substance use profile of their drug users ($n = 160$) because their use of the other substances assessed was rare (Marsden et al., 1998). In contrast, the US sample included all 133 participants with varying degrees of substance use including alcohol, cannabis, illicit heroin, illicit methadone, illicit benzodiazepine, cocaine powder and crack. Cannabis, not included in the UK study, is the most widely available and abused illegal drug in the United States. Approximately 20 percent of its population has used this drug at least once (US Department of Justice, National Drug Intelligence Center, 2000). The UK study limited its substances to illicit heroin, methadone, benzodiazepine, cocaine and alcohol, the “five substance types which are associated with clinical problems among (their) clients” (Marsden et al., 1998, p. 1859). Even though cannabis continues to be an illegal drug in the UK, individuals smoking it or possessing a small amount of cannabis will no longer be arrested (Reid, 2002). Although the UK sample demonstrated a higher level of substance use across all substances in frequency and intensity of use, the US sample indicated that a greater percentage of their substance users reported alcohol, cocaine and crack use during the previous 30 days. Research indicates that “the presence of any mental disorder was associated with more than twice the risk of having an alcohol

disorder and over four times the risk of having a drug use disorder” (Marshall, 1998, p. 10). The higher levels of frequency and intensity of the UK sample can be explained by the UK sample’s admission for primary substance abuse detoxification and treatment and by the US sample’s admission for primary inpatient psychiatric treatment. In addition, the UK sample included, in their analysis, only drug users who are known for their more severe substance abuse history. The AUs were examined separately for alcohol use only. The largest difference of substance use between the US and UK samples was that of heroin and methadone. The US study had a very low representation of heroin users, while the UK sample evidenced this to be their most predominant drug. This comes as no surprise since one of the sites of the UK study was of an opioid substitution and detoxification facility. Besides the difference in treatment settings, the UK is known for its more extensive heroin use and the US for its more extensive cocaine use. The National Treatment Outcome Study (NTORS) in the UK evidenced more opiate problems and fewer cocaine problems than the TOPS and Drug Abuse Treatment Outcome Study samples in the US (Craddock, Rounds-Bryant, Flynn, & Hubbard, 1997).

The uneven distribution of heroin use in both countries is also supported by research comparing drug use rates of detained arrestees in the US and in England. Findings indicate that the use of opiates, amphetamines, and methadone was significantly lower in the United States than England, while cocaine use, and multiple drug use was significantly higher in the United States (Deitch, Koutsenok, & Ruiz, 2000).

Health Risk Behavior

Health risk behavior between US and UK samples was not statistically compared because the UK sample was divided into primary drug and primary alcohol users. Injecting drug use constitutes one of the highest risk activities for contracting and spreading HIV infection, especially when re-using needles. Of the US sample, a lower number reported IV drug use and not one participant reported injection with a needle/syringe already used by someone else. Again, this finding can be explained by the difference in populations and settings as well as the lower heroin use in this country (Craddock, Rounds-Bryant, Flynn, & Hubbard, 1997).

Pre-treatment scores on risky sexual practices between the two samples were similar, yet a greater percentage of the UK sample reported risky sexual behaviors as well as a higher frequency of sex without the use of a condom. These findings are not unexpected since the UK sample reported more severe substance abuse problems. Research indicates a positive relationship between substance abuse and HIV risk behaviors, especially with an increased demand of crack/cocaine (Brown & Beschner, 1993; Des Jarlais, et al., 1998; Needle, et al., 1998). Participants in both studies had sex with an average of one partner without the use of a condom (s.d. of US sample was four times that of the UK sample). Research on health risk behaviors indicates that older men may have fewer sexual partners, but that they engage in age mixing (having sex with younger women)(Catania, 1996). This behavior is shown to result in higher incidents of HSV-2 (Herpes Simplex Virus-2) and HIV, primarily because of “sex-for-drugs” or “sex-for-money” practices in younger women. Resumption of high risk sexual practices

(including number of partners) is associated more with younger age (Kelly, St. Lawrence, & Bransfield, 1991).

Health Symptoms

A direct comparison between the two studies on relationship between physical and psychological health scales could be made because for this data the mean scores for the whole UK sample (n = 240) were available. Even though the US sample evidenced higher mean scores on anxiety and depression, there were no significant differences as the correlation coefficients ranged between .97 and .98. This study supports the expectation that a primary inpatient psychiatric sample would exhibit a greater degree of anxiety and depression than a primary substance abuse population, even though among a substance abuse population the severity of alcohol and other drug problems is the best predictor of psychiatric disorders (Ross, Glaser, & Germanson, 1988). Studies suggest that there is a relationship between affective disorders (mainly depression and anxiety) and individuals who abuse alcohol and drugs. (Ross, Glaser, & Germanson, 1988).

Personal/Social Functioning

An direct statistical comparison between US and UK samples in this domain was not done because the UK sample was again divided into primary drug and primary alcohol users. However, relationship conflict, defined as the percentage of contact time that the patients reported having serious conflict with partners, relatives or friends, was compared. The results of this study indicated that the US sample reported less conflict with their

partners but more conflict with their relatives and friends than the UK sample. Some of these differences may be explained by the fact that fewer individuals of the US sample were in actual contact with a significant other (40%) than with their relatives (63.9%) or with their friends (43.6%). Research on relationship problems of couples abounds and a reciprocal relationship between aggressive interpersonal style and substance abuse has been established (Kilpatrick, Acierno, Resnick, et al., 1997). Research on relationship style and substance abuse among other groups is sparse. Yet, some researchers suggest that factors potentially related to violence risk such as socio-economic status, gender, ethnicity, age, alcohol-and-drug-related problems, and family violence history appear similar (Fagan & Brown, 1994).

Employment

A statistical comparison between US and UK samples in this domain was not done because the UK sample was divided into primary drug and primary alcohol users. A higher incidence of unemployment among substance abusers has been established. The unemployment rates reported by US and UK samples are the same; 85 % of both samples reported unemployment. These results support previous research findings (Platt, 1995; Marsden, et al., 1998). Employee drug use accounts for an increase in overall tardiness and absenteeism as well (Bass, 1996).

Crime

An association between AOD use and criminal behavior and delinquency in the general population has been established (Kaplan, 1995; Miller, Whitney, & Washouskey, 1986). A comparison between US and UK samples indicates that in the US sample more individuals reported drug selling behavior on more days during the previous 30 days while engaging in substantially more drug selling events on a typical day. In contrast, in the UK sample more individuals reported shoplifting behavior on more days during the previous 30 days while engaging in substantially more shoplifting events. These findings are in support of other research both here and abroad. Research in the US comparing drug use rates of detained arrestees in the United States and England, reported that “the relationship between drug use and type of crime was different in the two countries” (US Department of Justice, Office of Justice Programs, 1999, p. 21). The report further indicates that an arrestee with a positive urinalysis in England most often committed property crimes, whereas in the United States such an arrestee most often committed alcohol/drug offenses (including drugselling). A UK study investigating the patterns of criminal activity and poly drug use in a group of 100 new entrants in a methadone clinic indicated that forms of crime most commonly engaged in were shoplifting, receiving stolen goods and theft. There was no mention of any drug-selling activity (Best, Sidwell, Gossop, e tal., 2001).

Intercorrelations between Problem Areas

There is growing agreement within the research community that outcome studies should include the intensity of substance use or the amount of a substance used during one occasion or using day (Babor et al., 1994, Marsden, et al., 1998, Wells, et al., 1988). Recommendations of this measure reflect the concern that substances consumed not only with high frequency but also with high intensity are likely to cause more harm to the user. One of the promotional features of the MAP was the importance of inclusion of the intensity or amount “consumed during an occasion or (drinking) day” (Marsden, et al., 1998, p. 1858). In this study the intensity of five of the seven drugs used (especially alcohol and heroin) was significantly correlated with at least one factor of either health risk behavior, physical/psychological health and crime. The intensity of alcohol was significantly positive in relation to tremors (physical health), nervousness (psychological health), the days and frequency that fraud was committed, the frequency of shoplifting in one day, and the days that theft from a person was committed (crime). The literature recognizes the negative impact of alcohol consumption on multi-dimensional aspects or biologic, social and behavioral components (Rounsaville & Kranzler, 1989). Any drug abuse has been shown to increase criminal activity and “the most common psychoactive substance with biochemical propensity to trigger violent or criminal behavior is alcohol” (Deitch, 2000, p. 5). Alcohol dependence in comparison to alcohol use is associated with more severe problems, which includes increased tolerance, the need to drink more to reach the same effect, withdrawal sickness, loss of control, inability to cut down or control use as well as preoccupation or compulsive psychosocial impairment and continued use despite

negative effects (American Psychiatric Association, 1994). Cessation of prolonged heavy ingestion of alcohol or reduction in the amount of alcohol ingested is followed within several hours by coarse tremors of hands, tongue, or eyelids as well as by one of eight other factors, one being anxiety. Individuals participating in this study experienced sudden cessation of alcohol ingestion, even though most were prescribed benzodiazepine medication to eliminate some of the withdrawal symptoms. It is not surprising that the intensity of alcohol consumption is significantly related to tremors as well as to nervousness (one of the factors of anxiety). Incidentally, benzodiazepine was found to be significantly correlated with one of the physical health symptoms (joint/bone pain) as well. It needs to be stressed that only a few individuals were consuming only alcohol during the 30 days before intake but were using other substances as well. This study also revealed that not only the intensity, but also the number of days alcohol was consumed during the previous 30 days was significantly correlated with tremors, nervousness, stomach pain as well as to several depressive symptoms.

Additional information about the use of other drugs surfaced in this study. The intensity of cannabis, for example, was significantly correlated with the number of sexual partners without the use of a condom. The intensity of crack use was also significantly related to another health risk behavior, namely the number of sexual encounters without the use of a condom. In the literature, the use and the marketing of crack/cocaine are known for their potentially high risk of contracting HIV because of their sexually exploitative nature or “sex- for-drugs” behavior (Kilbourne, Herndon, & Anderson, et al., (2000). Heroin, in addition to alcohol, is the other substance that produces dependency.

During withdrawal, physical changes can result in tremors, shakes, cramps, nausea, vomiting and general malais. The overall physical health of injecting drug users is known to be poor and, especially opiod users “have been associated with liver, renal, pulmonary, cardiovascular and sexually transmitted diseases” (Darke, Ward, Zador, & Swift, 1991, p. 1217). In this study, the intensity of heroin use shows a significant relationship with the number of reported days and the frequency that drugs were injected (health risk), with stomach pain (physical health), with nervousness and suicidal thoughts (psychological health), and with the number of days and frequency that theft from a car (crime) was reported.

The third hypothesis evidenced a significant correlation between crack/cocaine and depression. In this study, the frequency of crack use during the previous 30 days (not the intensity) is significantly correlated with all factors of the depression scale consisting of feeling hopeless, feeling worthless, feeling lonely, having no interest in things, as well as having thoughts of suicide. Research of psychiatric co-morbidity among cocaine users suggest high levels of psychopathology, in particular for depressive disorders (Kilbey, Breslau, & Andreski, 1992). The authors estimate that the lifetime prevalence of depressive disorders among individuals seeking treatment for cocaine use ranges from about 20 to 47 percent.

The fourth hypothesis demonstrated the fact that there was a significant negative correlation between age of subject and number of sexual partners without the use of a condom. Research indicates that the use and marketing of crack/cocaine are associated with “sex for drugs” practices (Edlin, Irwin, Faruque, et al., 1994; El-Bassel, Ivanoff,

Schilling, et al., 1997; Irwin, Edlin, Wong, et al., 1995; Zweig, Greenberg, Singh, et al., 1991). Unfortunately, this practice also involves a much younger population because of their higher frequency in sexual involvement.

The fifth hypothesis was not confirmed since this study did not show a significant positive correlation between being female and the indication of health symptoms or a significant negative correlation between being female and engaging in criminality. On the other hand, this study indicated positive significance between being female and the days on which other crimes were committed. Eight out of ten “other crimes” were reported as prostitution by the US sample (prostitution is legal in the UK). As discussed earlier, “sex-for-drugs,” or “sex-for-money” practices are a widespread practice for the younger, primarily female, addiction population (Edlin et al., 1994).

The sixth hypothesis was confirmed since there was a positive correlation between age of patient and days of unemployment. The unemployment rate among addicts remains high. Unemployment rates for the non-addicts are substantially lower (US Bureau of the Census, 1993). Research is very limited, however, on aging and on unemployment in the general public. Research that examines this particular topic among substance abusers is practically non-existent. One reason may be the understanding that, in the general population older individuals are more likely to be unemployed or have difficulty finding employment, then this finding can be generalized to substance abusers who present with more disadvantages.

This study indicates a significant positive correlation between age and unemployment. This study as well as the study in London considers individuals on welfare or on Social Security Disability as unemployed.

Interrater and Test-Retest Reliability

The ICCs for both interrater and test-retest reliability were uniformly high. Similar values between the UK and US samples were achieved. ICCs across health risk, health symptoms and social/interpersonal problems were lower than for substance use. This difference can be explained by the open endedness of the Likert Scale and the subjectivity of the questions. In addition, it is difficult to remember exactly one's emotional and physical level of functioning during the previous 30 days.

Limitations of this Study

There are limitations to this study. The MAP is a self-report questionnaire and, as such, has strength and weaknesses. A major strength of self-report is that it presents the interviewee's own report; a major weakness is that the interviewee may provide inaccurate information. For whatever reason, subjects may exaggerate or underestimate their responses. Some of the sections of the MAP include rather sensitive questions (i.e. high risk behaviors and criminality) and may deter respondents from telling the truth. Several conditions have been identified as essential to increase the validity of self-reports for substance abusers (Babor, Brown, Del Boca, 1990; Babor, Stephens, & Marlatt, 1987; Skinner, 1984; Sobell & Sobell, 1986). These conditions include: a.) that the subject be

totally drug-free when interviewed, b.) that sufficient time has elapsed since last drug taking to allow for clear responses, c.) that corroborating data be collected (e. g. breath test, report by spouse), d.) that the respondent be made aware of inclusion of these assessment tools. This study tried to adhere to three out of the four conditions. Patients who volunteered for this study were interviewed between three to seven days after admission. This delay should have allowed for complete withdrawal from any substance. This study did not fulfill the third criteria because it relied solely on self-report data. The use of self-report as a sole means of data collection may limit the reliability and validity of the measure. For instance, results on reported substance use were based on self-report. Urine samples were not collected and, as a result, concordance between the results of urinalysis and self-reported drug use could not be evaluated.

Another limitation of this study is the subject sample. The focus on only a psychiatric inpatient sample with a secondary diagnosis of substance abuse/dependence limits the generalizability of the results to community or specialty samples of adults.

As with all correlational studies, results cannot be interpreted as having a cause/effect relationship. In this study, results of identified problem areas are not necessarily caused or attributed by the subject's substance abuse.

Limitations of the Design of the MAP

The design of the MAP offers a number of advantages as well as a number of limitations. For instance, the inclusion of the intensity factor (amount of substance used in a certain time frame) may be seen as both a strength and as a limitation. There are

concerns about self-reported amounts, doses and drug purity. According to the authors, however, “an estimate of the usual quantity of substances consumed is a desirable additional clinical and research measure, not least because at follow-up an individual may have maintained the same frequency of use but achieved a reduced level of consumption” (Marsden et al., 1998, p. 1858).

A limitation of the MAP, as well as other comprehensive substance use measures, is the possible impact of recent substance use on the severity of psychiatric problems. As such, problem severity on the psychological health domain of the MAP may either be substance-related or purely mental health-related. It is important to define this difference clinically for treatment purposes.

Another limitation may be found in the relationship conflict domain, especially in what constitutes conflict. Conflict is defined by major arguments as well as by violence. What constitutes a major argument needs to be operationalized. The difference between what constitutes a major argument or a relatively minor argument is rather vague and may result in false positives or false negatives concerning subject responses.

The MAP has been developed as an outcome measure with a minimum outcome data set. As such, this measure may be used as a screening tool to identify problem areas for which more extensive clinical evaluation is necessary, using more specific and extensive assessment tools.

The MAP has been recommended for use in other treatment settings and with other populations. This study took place in a long-term inpatient psychiatric setting. In this particular setting as well as in other inpatient settings (i.e. prisons) the MAP could not be

given for outcome purposes since severity ratings for some domains (i.e. employment and crime) would not change. In these types of settings the MAP may be used to assess specific treatment needs to prepare for community living. This study included individuals whose intellectual functioning is estimated to be within normal range. The MAP is not suitable for all populations such as individuals with lower intellectual functioning or with memory problems..

Directions for Future Research

Given the aforementioned limitations of this study and of the MAP, and considering the relatively recent development of the MAP, the psychometric features of the MAP need further validation using diverse populations and program settings. In order to further validate the MAP, domains adapted for the MAP need to be correlated with other relevant measures. For instance, the 10-item physical health symptoms and the 10-item psychological health symptoms were derived from the Opiate Treatment Index (OTI, Darke, et al., 1991) and the Brief Symptom Inventory (BSI, Derogatis, 1975) respectively. Comparison of the MAP's psychological health scales, the Symptom Checklist (SCL-90, Derogatis, Lipman & Rickels, 1974) and the Beck Depression Inventory (BDI, Beck, Ward, & Mendelson, 1961) is recommended.

Exploratory principle components analysis, a test of the independence of the problem areas, revealed that the MAP domains were statistically independent in the UK research study. The statistical independence of the problem domains suggests that an individual who scores high on one domain may score low, moderately or high on another

domain, depending on problem severity. Further exploration of item-independence is necessary for clinical utility and the predictive validity of the instrument. This would allow for identification of patient subgroups and could result in patient-matching for specific treatment services.

The similar psychometric characteristics of the US primary inpatient psychiatric AOD users and the UK primary AUs and DUs from two community and two inpatient settings advocates the use of this instrument with a wide variety of populations from different settings in cross-cultural research. On the other hand, the differences between the US and UK samples suggest research that investigates differences inherent to location or to culture. For instance, what are the differences or similarities between an urban or a rural sample or between a sample drawn from the East or from the West coast? Are there culture-specific differences? For instance, results of the US study indicated greater use of crack/ cocaine than heroin , whereas results of the UK study indicated greater use of heroin than cocaine . Cultural differences may necessitate culture-specific changes to the MAP. This study added cannabis to the substance use section of the MAP.

The MAP has been developed to be used both as an assessment and as an outcome measure. As such, it can be given after certain points of treatment in order to measure any change across problem-domains. It is recommended to use this instrument in longitudinal studies of treatment outcome in order to evaluate the instrument's sensitivity to patient change following treatment.

Lastly, it is recommended that further research be conducted with other treatment populations and in other settings in order to compare findings. Expectations of treatment

outcomes for the severely mentally ill are quite different from those for the recovering substance abuser.

Summary

A central objective of this study was the evaluation of the MAP for use with an American population of substance users. The instrument was highly acceptable to subjects and to administrators of the questionnaire. Results indicated findings similar with those obtained at the Maudsley Institute in London. The mean scores between the US and UK samples across physical and psychological health indicated excellent concordance. Findings of this study also showed that the US sample was, as indicated by extensive research, very heterogeneous. They presented with different histories of alcohol and drug use, medical, psychiatric, family and legal problems. These diverse problems require different treatment services. Research indicates that a variety of treatments are instrumental in the prevention and reduction of substance abuse and are effective in bringing about improvements in areas of concomitant problem areas (Ball & Corty, 1988; Cooney, Kadden, & Litt, 1991; Hubbard, et al., 1989). Initial failure to assess functioning in these problem areas could reduce the effectiveness of treatment (Donovan, Kivlahem, & Walker, 1985). Those patients with the most severe difficulties in any problem domain at admission would benefit from intense treatment for reduction in these problem areas. If this can be done, there would be a “good match” between the patient’s problems and the treatments pertaining to these problems (McLellan, Alterman, Cacciola, et al., 1992). Outcome measures that assess problem areas during assessment need to be comprehensive

and sensitive enough to screen for any immediate crisis intervention, need to be easily interpretable to involve patients in treatment planning and have to be broad and sensitive enough to measure any change following treatment.

The MAP has been designed to be used both as an assessment and as an outcome tool. As an outcome measure it is sensitive to change because data collected is time limited and quantifiable. The MAP is a new measure and needs further validation using a wide variety of samples and settings. In order to compare results across treatment programs and groups of patients across cultures, some consensus in assessment, treatment and outcome of substance use and related issues needs to be established.

REFERENCES

Allen, J. P., & Columbus, M. (Eds.) (1995). Assessing alcohol problems: A guide for clinicians and researchers. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.

Amaro, H., Fried, L. E., Carbral, H., & Zuckerman, B. (1990). Violence during pregnancy and substance use. American Journal of Public Health, 80, 575-579.

American Psychiatric Association (1952). Diagnostic and statistical manual of mental disorders (1st ed.). Washington, DC: Author.

American Psychiatric Association (1968). Diagnostic and statistical manual of mental disorders (2nd ed.). Washington, DC: Author.

American Psychiatric Association (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

American Psychiatric Association (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev.). Washington, DC: Author.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Anthony, J. C., Warner, L. A., & Kessler, R. C. (1997). Comparative epidemiology of dependence on tobacco, alcohol, controlled substances, and inhalants: Basic findings from the National Co-morbidity Survey. In G. Alan Marlatt & Gary R. VandenBos

(Eds.),

Addictive behaviors: Readings on etiology, prevention, and treatment. Washington, D.C.: American Psychological Association.

Apospori, E. A., Vega, W. A., Zimmermann, R. S., Warheit, G. J., & Gil, A. G. (1995). A longitudinal study of the conditional effects of deviant behavior on drug use among three racial/ethnic groups of adolescents. In H. B. Kaplan (Ed.), Drugs, crime, and other deviant adaptations: Longitudinal studies (pp. 211-230). New York: Plenum.

Babor, T. F., Longabaugh, R., Zweben, A., Fuller, R., Stout, R., Anton, R., & Randall, C. (1994). Issues in the definition and measurement of treatment outcome in alcoholism research. Journal of Studies on Alcohol, 12, 101-111.

Babor, T. F., Brown, J., & Del Boca, F. K. (1990). Validity of self-reports in applied research on addictive behaviors: Fact or fiction. Behavioral Assessment, 12, 5-31.

Babor, T. F., Stephens, R- S., & Marlatt, G. A. (1987). Verbal report methods in clinical research on alcoholism: Response bias and its minimization. Journal of Studies on Alcohol, 18, 410-424.

Baker, S. L., & Lorei, T. (1978). Evaluation of treatment effectiveness: Veterans Administration experience. Annals of the New York Academy of Science, 311, 253-264.

Ball, J. C., & Corty, E. (1988). Basic issues pertaining to the effectiveness of methadone maintenance treatment. In C. G. Lukefeld, & F. M. Tims (Eds.), Compulsory treatment of drug abuse: Research and clinical practice [MDA Research Monograph 86]. Rockville, MD: National Institute on Drug Abuse.

Bass, A. R. (1996). Employee drug use, demographic characteristics, work reactions, and absenteeism. Journal of Occupational Health, 1, 92-99.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J. E., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.

Bell, J., Batey, R. G., Farrell, G. C., Crewe, E. B., Cunningham, A. L., & Byth, K. (1990). Hepatitis C virus in intravenous drug users. Medical Journal of Australia, 153, 274-276.

Beutler, L. E. (1983). Eclectic psychotherapy: A systematic approach. New York: Pergamon.

Berger, G. (1982). Addiction: its causes, problems, and treatments. New York: Franklin Watts.

Best, D., Sidwell, C., Gossop, M., Harris, J., & Strang, J. (2001). Crime expenditure amongst polydrug misusers seeking treatment: The connection between prescribed methadone and crack use, and criminal involvement. British Journal of Criminology, 41, 119-126.

Bowser, B. P., Fullilove, M. T., & Fullilove, R. E. (1990). African-American youth and AIDS high-risk behavior: The social context and barriers to prevention. Youth and Society, 22, 54-66.

Brown, A. R., Monti, P. M., Myers, M. G., Martin, R. A., Rivinus, T., Dubreuil, M. E., L.C.D.P., & Rohsenow, D. J. (1996). Depression among cocaine abusers in treatment: relation to cocaine and alcohol use and treatment outcome. American Journal of Psychiatry, 155, 220-225.

Brown, B. S., & Beschner, G. M. (1993). Handbook on risk of AIDS: Injection drug users and their sexual partners. Westport, CT: Greenwood Press. Ris.

Cahalan, D. (1970). Problem drinkers: A national survey. San Francisco: Jossey-Bass.

Catania, J. A. (1996). Relationship of sexual mixing across age and ethnic groups to herpes simplex virus-2 among unmarried heterosexual adults with multiple sexual partners. Health Psychology, 15, 362-370.

Centers for Disease Control and Prevention (2001). Youth Risk Behavior Surveillance System. <http://www.cdc.gov/nccdphp/dash/yrbs/index.htm>.

Center for Substance Abuse Treatment (1995). Developing Outcomes Monitoring Systems for Alcohol and Other Drug Treatment Services [Treatment Improvement

Protocol Series 14, DHHS Publication No. (SMA) 95-303]. Rockville, MD: US Department of Health and Human Services.

Central Drugs Coordination Unit (1998). Tackling drugs to build a better Britain. The government's 10-year strategy for tackling drug misuse. London: Stationary Office.

Chermack, S. T., Walton, M. A., Fuller, B. E., & Blow, F. C. (2001). Correlates of expressed and received violence across relationship types among men and women substance abusers. Psychology of Addictive Behaviors, 15, 140-151.

Chiasson, M. A., Stoneburner, R. L., & Hildebrandt, D. S. (1991). Heterosexual transmission of HIV-1 associated with the use of smokable freebase cocaine (crack). AIDS, 9, 1121-1126.

Chirgwin, K., DeHovitz, J. A., & Dillion, S. (1991). HIV infection, genital ulcer disease, and crack cocaine use among patients attending a clinic for sexually transmitted diseases. American Journal of Public Health, 81, 1576-1579.

Cohen, C. I., & Sokolovsky, J. (1989). Old men of the Bowery: Strategies for survival among the homeless. New York: Guilford Press.

Cooney, N.L.; Kadden, R.M. & Litt, M.D, & Getter, H. (1991). Matching alcoholics to coping skills or interactional therapies: Two year follow-up results. Journal of Consulting and Clinical Psychology, 59, 598-601.

Corby, N. H., Jamner Schneider, M., & Wolitski, R. J. (1996). Using the theory of planned behavior to predict intention to use condoms among male and female injection drug users. Journal of Applied Social Psychology, 26, 52-75.

Courtwright, D. T. (1986). Charles Terry, the opium problem, and American narcotic policy. Journal of Drug Issues, 16, 421-434.

Craddock, G. S., Rounds-Bryant, J. L., Flynn, P. M. & Hubbard, R. L. (1997). Characteristics and pretreatment behaviors of clients entering drug abuse treatment: 1969 to 1993. American Journal of Drug Alcohol Abuse, 23, 43-59.

Darke, S., Ward, J., Zador, D., Swift, G. (1991). A scale for estimating the health status of opiate users. British Journal of Addiction, 86, 1317-1322.

Darke, S., Hall, E., Wodak, A., Heather, N., & Ward, J. (1992). Development and validation of a multi-dimensional instrument for assessing outcome of treatment among opiate users: The Opiate Treatment Index. British Journal of Addiction, 87, 733-742.

Deitch, D., Koutsenok, I., Ruiz, A. (2000). The relationship between crime and drugs: What we have learned in recent decades. Journal of Psychoactive Drugs, 32, 391-397.

Dennis, M. L. (1994). Ethical and practical randomized field experiments. In J. S. Wholey, H. P. Hatry, & K. E. Newcomer (Eds.). Handbook of Practical Programs Evaluation (pp. 155-197). San Francisco: Jorsey-Bars.

Dennis, M. L., Godley, S. H., & Godley, M. D. (1998). Drug Outcome Monitoring Systems (DOMS): Developing-a new paradigm for health services research. Bloomington, IL: Chestnut Health Systems.

Derogatis, L. R. (1975). Brief Symptom Inventory. Baltimore: Clinical Psychometric Research.

Des Jarlais, D. C., Perlis, T., & Friedman, S. R. (1998). Declining seroprevalence in a very large HIV epidemic: injection drug users in New York City, 1991-1996. American Journal of Public Health, 88, 1801-1806.

De Zoysa, I., Sweat, M. D., & Denison, J. A. (1996). Faithful but fearful: reducing HIV transmission in stable relationships. AIDS, 10, 197-203.

Dole, V. P., & Nyswander, M. E. (1965). A medical treatment for diacetylmorphine (heroin) addiction. Journal of the American Medical Association, 193, 80-84.

Donovan, D. B., Kivlahem, D. R., & Walker, R. D. (1985). Derivation and validation of neuropsychological clusters among men alcoholics. Journal of Studies on Alcohol, 46, 205-211.

Donovan, D. M., & Marlatt, G. A. (1988). The assessment of addictive behaviors. New York: Guilford.

Dorus, W.; Ostrow, D.G. & Anton, R. (1989). Lithium treatment of depressed and nondepressed alcoholics. Journal of the American Medical Association, 262, 1646-1652.

Edlin, B., Irwin, K., Ludwig, D., Serrano, Y., Word, C., McCoy, C., Byers, R., & Holberg, S. (1992). HIV infection and crack cocaine smoking in street recruited urban youth, US Paper presented at the VIII International Conference on AIDS, Amsterdam, The Netherlands.

Edlin, B. R., Irwin, K. L., Faruque, S., McCoy, C. B., Word, C., Serrano, Y., Inciardi, J. A., Bowser, B. P., Schilling, R. F., Holmberg, S. D., & Multicenter Crack Cocaine and HIV Infection Study Team (1994). Intersecting epidemics-crack cocaine use and HIV infection among inner-city young adults. New England Journal of Medicine, 331, 1422-1427.

El-Bassel, N., Ivanoff, A., Schilling, R. F., Borne, D., & Gilbert, L. (1997). Skills building and social support enhancement to reduce HIV risk among women in jail. Criminal Justice and Behavior, 24, 205-223.

El-Bassel, N., & Schilling, R. (1991). Drug use and sexual behavior of indigent African-American men. Public Health Reports, 106, 586-590.

Elliott, D. S., & Huizinga, D. (1984). The relationship between delinquent behavior and ADM problems. Boulder, CO: Behavioral Research Institute.

Elliott, D. S., Huizinga, D., & Ageton, S. S. (1985). Explaining delinquency and drug use. Newbury Park, CA: Sage.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. Science, 196, 129-136.

Faccincano, C., Mignolli, G., & Platt, S. (1990). Service utilization, social support and psychiatric status in a cohort of patients with schizophrenic psychoses. A 7-year follow-up study. Schizophrenia Research, 3, 139-146.

Fagan, J.A., & Brown, A. (1994). Violence between spouses and intimates. In A. Reiss & J. Roth (Eds.), Understanding and preventing violence (pp. 115-292). Washington, DC: National Academy Press.

Falco, M. (1992). The making of a drug-free America: Programs that work. New York: Random House.

Faupel, C. E. (1988). Heroin use, crime and employment status. Journal of Drug Issues, 18, 467-479.

Fillmore, K. M. (1988). Alcohol use across the life course: A critical review of 70 years of international longitudinal research. Toronto: Addiction Research Foundation.

Finney, J. W. & Moos, R.H. (1986). Matching patients with treatments: Conceptual and methodological issues. Journal of Studies on Alcohol, 47, 122-134.

Fleming, P. L., Wortley, P. M., & Karon, J. M. (2000). Tracking the HIV epidemic: current issues, future challenges. American Journal of Public Health, 90, 1037-1041.

Freeman, A. (1992). The development of treatment conceptualizations in cognitive therapy. In A. Freeman & F. M. Dattilio (Eds.), Comprehensive Casebook of Cognitive Therapy. New York: Plenum Press.

Gawin, F. H., Kleber, H. D., Byck, R., Rounsaville, B. J., Kosten, T.R., Jatlow, P. I., & Morgan, C. (1989). Desipramine facilitation of initial cocaine abstinence. Archives of General Psychiatry, 46, 117-121.

Gawin, F. H., & Kleber, H. (1986). Abstinence symptomatology and psychiatric diagnosis in cocaine abusers: Clinical observations. Archives of General Psychiatry, 43, 107-113.

Glantz, M., & Pickens, R. (Eds.) (1992). Vulnerability to drug abuse. Washington, DC: American Psychological Association.

Goldfried, M. R., & Wolfe, B. A. (1996). Psychotherapy practiced and researched; Repairing a strained alliance. American Psychologist, 51, 1007-1016.

Gossop, M., Marsden, J. & Stewart, D. (1997). The national treatment outcome research study: six-month follow-up outcomes. Psychology of Addictive Behavior, 11, 324-337.

Graham, S.A. (1980). Psychotherapists' attitudes toward offender clients. Journal of Consulting & Clinical Psychology, 48, 796-797.

Hall, J. N., & Broderick, P. M. (1991). Community networks for responses to abuse outbreaks of methamphetamine and its analogs. In M. A. Miller, & N. J. Kozel (eds.) Methamphetamine abuse: epidemiologic issues and implications (Publication DHHS, 109-120). Washington, DC: Government Printing Office.

Hanlong, T. E., Nurco, D. N., Kinlock, T. W., & Duszynski, K. R. (1990). Trends in criminal activity and drug use over an addiction career. American Journal on Alcohol Abuse, 16, 223-238.

Harrison, L. D. (1992). Trends in illicit drug use in the United States: Conflicting results from national surveys. The International Journal of the Addictions, 27, 817-847.

Harrison, P. A., Beebe, T. J., Fulkerson, J. A., & Torgerud, C. R. (1996). The development of patient profiles from Minnesota's treatment outcomes monitoring systems. Addiction, 91, 687-699.

Harrison, P. A., Martin, J. A., & Tuason, V. B. (1985). Conjoint treatment of dual disorders. In A.I. Alterman (Ed.), Substance Abuse and Psychopathology (pp. 367-390). New York: Plenum.

Hasin, D., Grant, B., & Endicott, J. (1990). The natural history of alcohol abuse: Implications for definitions of alcohol use disorders. American Journal of Psychiatry, 147, 1537-1541.

Hays, R. D., & Ellickson, P. L. (1996). Associations between drug use and deviant behavior in teenagers. Addictive Behaviors, 21, 291-302.

Hendricks, V. M., Kaplan, C. D., Van Limbeck, H., & Geerlings, P. (1989). The Addiction Severity Index: Reliability and validity in a Dutch addict sample. Journal of Substance Abuse Treatment, 6, 133-141.

Holmberg, S. D. (1996). The estimated prevalence and incidence of HIV in 96 large US metropolitan areas. American Journal of Public Health, 86, 642-654.

Howard, K. I., Moran, K., Brill, P. L., et al. (1996). Evaluation of psychotherapy: Efficacy, effectiveness and patient progress. American Psychologist, 51, 1059-1064.

Hubbard, R. L., Marsden, M. E., Rachal, J. V., Harwood, H. J., Cavanaugh, E. R., & Ginsberg, H. M. (1989). Drug abuse treatment: A national study of effectiveness. Chapel Hill, NC: University of North Carolina Press.

Innes, C. A., & Greenfeld, L. A. (1990). Violent state prisoners and their victims (Special Report). Washington, DC: US Department of Justice.

Institute of Medicine (1990). Broadening the base of treatment for alcohol problems. Washington, DC: National Academy Press.

Irwin, K. L., Edlin, B. R., Wong, L., Faruque, S., McCoy, H. V., Word, C., Schilling, R., McCoy, C. B., Evans, P. E. & Holmberg, S. D. (1995). Urban rape survivors: characteristics and prevalence of human immunodeficiency virus and other sexually transmitted infections. Obstetrics and Gynecology, 85, 330-336.

Jellinek, E. M. (1960). The disease concept of alcoholism. New Brunswick, NJ: Hillhouse.

Johnson, M., Brems, C., & Burke, S. (2002). Recognizing co-morbidity among drug users in treatment. American Journal of Drug & Alcohol Abuse, 28, 243-261.

Kadden, R. M., Cooney, N. L., Getter, H., & Litt, M. D. (1989). Matching alcoholics to coping skills or interactional therapies: Post treatment results. Journal of Clinical Consulting Psychology, 57, 851-863.

Kaplan, H. B. (1995). Drugs, crime, and other deviant adaptations. In H. B. Kaplan (Ed.), Drug, crime, and other deviant adaptations: Longitudinal studies (pp. 3-46). New York: Plenum.

Kaplan, E., & Brandeau, M. (1994). Modeling the AIDS epidemic: planning, policy, and prediction. New York: Raven Press.

Kelly, J., St.Lawrence, J. S., Bransfield, T. (1991). Predictors of vulnerability to AIDS risk behavior relapse. Journal of Consulting & Clinical Psychology, 59, 163-166.

Kiev, A. (1972). Transcultural Psychiatry. New York: The Free Press.

Kilbey, N. M., Breslau, N., & Andreski, P. (1992). Cocaine use and dependence in young adults: associated psychiatric disorders and personality traits. Drug and Alcohol Dependence, 29, 283-290.

Kilbourne, A. M., Herndon, B., Anderson, R. M., Wenzel, S. L., & Gelberg, L. (2002). Psychiatric symptoms, health services, and HIV risk factors among homeless women. Journal of Health Care for the Poor & Underserved, 13, 49-65.

Kilpatrick, D. G., Acierno, R., Resnick, H. S., Saunders, B. E., & Best, C. L. (1997). A 2-year longitudinal analysis of the relationships between violent assault and substance use in women. Journal of Consulting & Clinical Psychology, 56, 834-847.

Kokkevi, A. (2001). Psychosocial assessment in substance abuse and dependence. Current Opinion in Psychiatry, 14, 167-172.

Kranzler, H. R., & Liebowitz, N. (1988). Anxiety and depression in substance abuse: Clinical implications. In S. Frazier (Ed.), Anxiety and depression, medical clinics of North America, (Vol. 72, pp. 867-885). Baltimore: Williams & Wilkins.

Krauss, B., Wolitski, R., & Tross, S. (1999). Getting the message: HIV information sources for women who have sex with injecting drug users: a two-site study. Applied Psychology: An international Review, 48, 153-173.

Lam, J. A. (1999). Social support and service use among homeless persons with serious mental illness. International Journal of Social Psychiatry, 45, 13-16.

Landis, R. J., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. Biometrics, 33, 159-174.

Latkin, C. A. (1998). Outreach in natural settings: the use of peer leaders for HIV prevention among injecting drug users' networks. Public Health Report, 113, 151-159.

Lehman, A. F., Myers, C. P., & Corty, E. (1989). Assessment and classification of patients with psychiatric and substance abuse syndromes. Hospital and Community Psychiatry, 40, 1019-1025.

Lehman, A. F., Myers, C. P., & Dixon, L. B. (1994). Defining subgroups of dual diagnosis patients for service planning. Hospital and Community Psychiatry, 45, 556-561.

Lettieri, D. J., Sayers, M., & Pearson, H. W. (Eds.) (1980). Theories on drug abuse: Selected contemporary perspectives [NIDA Research Monograph No. 30]. Washington, DC: US Government Printing Office.

Longabaugh, R. (1991). Monitoring treatment outcomes. Alcohol Health and Research World, 15, 189-199.

Longabaugh, R., Beattie, M., & Noel, N. (1990). Matching alcoholic patients to relationally focused treatments. Paper presented at the annual convention of the American Psychological Association, Boston, MA.

Lubran, B. (1990). Alcohol and drug abuse among the homeless population: A national response. Alcoholism Treatment Quarterly, 7, 11-23.

Maddux, J. F., & Desmond, D. P. (1981). Careers of opioid users. New York: Praeger.

Mandersen, J., Nizzoli, U., Corbelli, C., Margaron, H., Torres, M. A., Castro del Prado, I., & Gossop, M. (2001). Reliability of the Maudsley Addiction Profile ERIT Version (MAP) and the Treatment Perception Questionnaire (TPQ) in Italy, Spain and Portugal for the evaluation of treatments. Adicciones, 13, 217-227.

Marlatt, G. A., & Gordon, J. R. (1985). Relapse Prevention. New York: Guilford Press.

Marsden, J., Gossop, G., Stewart, D., Best, D., Farrell, M., Lehmann, P., Edwards, C. & Strang, J. (1998). The Maudsley Addiction Profile (MAP): A brief instrument for assessing treatment outcome. Addiction, 93, 1857-1868.

Marshall, J. (1998). Dual diagnosis: co-morbidity of severe mental illness and substance misuse. The Journal of Forensic Psychiatry, 9, 9-15.

McGlothlin, W. H., Anglin, M. D., & Wilson, B. D. (1977). A follow-up of admissions to the California civil addict program. American Journal of Drug and Alcohol Abuse, 4, 179-199.

McLellan, A. T. & Alterman, A. I. (1991). Patient treatment matching: a conceptual and methodological review with suggestions for future research. In R. W. Pickens, C. G. Leukefeld, & C. R. Schuster (Eds.). Improving Drug Abuse Treatment [NIDA Research Monograph 106. DHHS Publication No. (ADM) 91-1754] (pp. 114-135). Washington, DC: US Government Printing Office.

McLellan, A. T., Luborsky, L., Woody, G. E., & O'Brien, C. P. (1980). An improved evaluation instrument for substance abuse patients. Journal of Nervous and Mental Diseases, 168, 26-33.

McLellan, A. T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grisson, G., Pettinati, H., & Argeriou, M (1992). The fifth edition of the Addiction Severity Index. Journal of Substance Abuse Treatment, 9, 199-213.

McLellan, A. T., Luborsky, L. Cacciola, J., Griffith, J., Evans, R., Barr, H., & O'Brien, C. P., (1985). New data from the Addiction Severity Index: Reliability and validity in the centers. Journal of Nervous Mental Disorders, 173, 412-423.

Mezzich, A., Tarter, R., Kirisci, L., Clark, D., Bukstein, O., & Martin, C. (1993). Subtypes of early age onset alcoholism. Alcoholism in Clinical and Experimental Research, 17, 767-770.

Miller, N. S., & Janicak, P. G. (1997). Treatment of comorbid psychiatric disorders. In N. S. Miller, M. S. Gold, & D. E. Smith (Eds.). Manual of Therapeutics for Addiction. Chicago, Illinois: John Wiley & Sons, Inc.

Miller, F. T., Whitney, R., & Washousky, R. (1986). Alcoholism diagnoses for convicted drinking drivers referred for alcoholism evaluation. Alcoholism: Clinical and Experimental Research, 10, 651-656.

Minkoff, K. (1991). Program components of a comprehensive integrated care system for serious mentally ill patients with substance disoredrs. In K. Minkoff & R.E. Drake (Eds.), Dual Diagnosis of Major Mental Illness and Substance Disorder (New Directions for Mental Health Services, No. 50). San Francisco: Josey-Bass.

Morrill, A. C., & Ickovics, J. R. (1996). Surviving abuse and HIV risk: how women's experiences of abuse shape their heterosexual risk for HIV. Poster symposium at the XI International Conference on AIDS, Vancouver, Canada (July).

Morrill, A. C., Kasten, L., Urato, M., & Larson, M. J. (2001). Abuse, addiction, and depression as pathways to sexual risk in women and men with a history of substance abuse. Journal of Substance Abuse, 13, 169-184.

Nathan, P. E. (1991). Substance use disorders in the DSM-IV. Journal of Abnormal Psychology, 100, 356-361.

Needle, R. H., Coyle, S. L., & Normand, J. (1998). HIV prevention with drug using populations – current status and future prospects: introduction and overview. Public Health Report, 113, 4-18.

Newcomb, M. D., & Bentler, P. M. (1988). Impact of adolescent drug use and social support on problem of young adults: A longitudinal study. Journal of Abnormal Psychology, 97, 64-75.

Newcomb, M. D., Galaif, E. R., & Carmona, J. V. (2001). The drug-crime nexus in a community sample of adults. Addictive Behaviors, 15, 185-193.

O'Brien, C. P. (1975). Efficacy of drug abuse treatments. Paper presented at the National Institute of Drug Abuse Conference. Reston, VA.

O'Donnell (1969). Narcotic Addicts in Kentucky (USP.H.S. Publication No. 1881). Washington, D.C.: US Government Printing Office.

O'Donnell (1972). Lifetime patterns of narcotic addiction. In L. N. Robins & M. Pollack (Eds.). Life History Research in Psychopathology Vol. 2. Minneapolis: University of Minnesota Press.

Office of National Drug Control Policy (2001). The Economic Costs of Drug Abuse in the United States, 1992-1998. Washington, D.C. 20503.

Office of National Drug Control Policy (1997). National Admission to Substance Abuse Treatment Services: The Treatment Episode Data Set (TEDS), 1992 – 1995, advance Report # 12. Rockville, MD: SAMSHA.

Oxford, J. (1985). Excessive appetites: A psychological view of addictions. New York: Wiley.

Paone, D., Chavkin, W., Willets, I., Friedman, M., & Des Jarlais, D. (1992). The impact of sexual abuse: implications for drug treatment. Journal of Women's Health, 1, 149-153.

Peele, S., & Alexander, B. K. (1985). Theories of addiction. In S. Peele (Ed.), The meaning of addiction: Compulsive meaning and its interpretation. (pp. 47-72). Lexington, MA: Lexington Books.

Platt, J. J. (1986). Heroin addiction: Theory, research and treatment. Melbourne, FL: Krieger.

Platt, J. J. (1995). Heroin addiction: Theory, research and treatment: Vol. 2. The addict, the treatment process, and social control. Melbourne, FL: Krieger.

Quellet, L. J., Rahimian, A., & Wiebel, W. W. (1998). The onset of drug injection among sex partners of injection drug users. AIDS, 10, 341-350.

Reid, T. R. (2002). UK: Britain relaxes criminalization of marijuana. <http://www.mapinc.org/drugnews/v02/n1293/a05.html>.

Robins (1974). The Vietnam Drug User Returns. Washington, D.C.: Government Printing Office.

Roizen, R., Cahalan, D., & Shanks, R. (1978). Spontaneous remission among untreated problem drinkers. In D. Randell (Ed.), Longitudinal research on drug use: Empirical findings and methodological issues. Washington, DC: Hemisphere.

Rohsenow, D. J.; Monti, P. M.; & Binkoff, J. A. (1991). Patient-treatment matching for alcoholic men in communication skills versus cognitive-behavioral mood management training. Addictive Behaviors, 16, 63-69.

Ross, H. E., Glaser, F. B. & Germanson, T. (1988). The prevalence of psychiatric disorders in patients with alcohol and other drug problems. Archives of General Psychiatry, 45, 1023-1031.

Rounsaville, B. J. & Kranzler, H. R. (1989). The DSM-III diagnosis of alcoholism. Annual Review of Psychiatry, 8, 323-340.

Rubin, J. M., & Benzer, D. G. (1997). Treatment of comorbid medical complications. In N. S. Miller, M. S. Gold, & D. E. Smith (Eds.), Manual of therapeutics for addictions (pp. 149-158). New York: Wiley-Liss.

Rydelius, P. A. (1988). The development of antisocial behavior and sudden violent death. Acta Psychiatrica Scandinavica, 77, 398-403.

Schwartz, G. E. (1982). Testing the biopsychosocial model: The ultimate challenge facing behavioral medicine. Journal of Consulting and Clinical Psychology, 50, 1040-1053.

Selwyn, P. A., Hartel, D., Wasserman, W., & Drucker, E. (1989). Impact of the AIDS epidemic on morbidity and mortality among intravenous drug users in a New York City methadone maintenance program. American Journal of Public Health, 79, 1359-1362.

Shaffer, H. J., & Milkman, H. B. (1985). Introduction: Crises and conflict in the addictions. In H. B. Milkman, & H. J. Shaffer (Eds.), The addictions: Multidisciplinary perspectives and treatment (pp. 9-18). Lexington, MA: Lexington Books

Simpson, D. D., & Curry, S. J. (Eds.) (1997). Special Issues: Drug Abuse Treatment Outcome Study (DATOS). Psychology of Addictive Behaviors, 11(4).

Simpson, D. D., Joe, G. W., & Lehman, W. E. K. (1986). Addiction careers: Summary of studies based on the DARP 12-year follow-up. NIDA Treatment research Report, DHHS Publication No. (AMD) 86-1420. Rockville, MD: National Institute of Drug Abuse.

Simpson, D. D., & Sells, S. B. (1982). Effectiveness of treatment for drug abuse. An overview of the DARP research program. Advances in Alcohol and Substance Abuse, 2, 7-29.

Simpson, D. D., & Sells, S. B. (1990). Opioid addiction and treatment: A 12-year follow-up. Malabar, FL: Krieger.

Skinner, H. A. (1984). Assessing alcohol use by patients in treatment. In R. G. Smart, H. D. Cappell, F. B. Glazer, Y. Israel, H. Kalant, R. E. Popham, W. Schmidt, & E. M. Sellers (Eds.), Research advances in alcohol and drug problems, Vol. 8. (pp. 183-207). New York: Plenum Press.

Smith, I. E., Moss-Wells, S., Moet, R., & Coles, C. (1990). Characteristics of non-referred cocaine abusing mothers. In L. S. Harris (Ed.). Problems of drugs, dependence [NIDA Research Monograph 959] (p. 330). Rockville, NM: National Institute on Drug Abuse.

Sobell, M. B., & Sobell, L. C. (1976). Second year treatment outcome of alcoholics treated by individualized behavior therapy: Results. Behavior Research and Therapy, 14, 195-215.

Sobell, L. C., & Sobell, M. B. (1986). Can we do without alcohol abusers' self-reports? The Behavior Therapist, 9, 141-146.

Sterk, C. (1988). Cocaine and HIV positivity. Lancet, 1, 1052-1053.

Strang, J., & Gurling, H. (1989). Computerized tomography and neuropsychological assessment in long-term high-dose heroin addicts. British Journal of Addiction, 84, 1011-1019.

Sumartojo, E. S., Carey, J. W., & Doll, L. S. (1997). Targeted and general population interventions for HIV prevention: towards a comprehensive approach. AIDS, 11, 1201-1209.

Tagliaferro, P., Vega, M. D., Evrard, S. G., Ramos, A. J., & Brusco, A. (2002). Alcohol exposure during adulthood induces neuronal and astroglial alterations in the hippocampal CA-1 area. Annals of the New York Academy of Sciences, 965, 334-342.

Task Force to Review Services for Drug Misusers (1996). Report of an independent review of drug-treatment services in England. London: Department of Health.

Taylor, D. Poulton, R. Moffitt, T.E. Ramankutty, P. & Sears, M.R. (2000). The respiratory effects of cannabis dependence in young adults. Addiction, 95, 1669-1677.

Thornicroft, G., & Breakey, W. R. (1991). The costar programme: improving social networks of the long-term mentally ill. British Journal of Psychiatry, 159, 245-249.

Tims, F., & Ludford, J., (Eds.) (1984). National Institute on Drug Abuse Research Analysis and Utilization System Monograph 51. [DHHS Pub. No. (ADM) 84-1329]. Washington, DC: US Government Printing Office.

Uestuen, B., Compton, W., Mager, D., Babor, T., Baiyewa, O., Chatterji, S., Cottler, L., Goegues, A., Mavreas, V., Peters, L., Pun, C., Saunders, J., Smeets, R., Stipeck, M-R., Vrasti, R., Hasin, D., Room, R., Van den Brink, W., Regier, D., Blaine, J., Grant, B. F., & Santorius, N. (1997). WEO Study on the reliability and validity of the alcohol and drug use disorder instruments: Overview of methods and results. Drug & Alcohol Dependence, 47, 161-169.

US Bureau of the Census (1993). Statistical abstract of the United States: 1993 (113th ed). Washington, DC: US Government Printing Office.

US Department of Health and Human Services, National Institute on Alcohol Abuse and Alcoholism (1987). Sixth Special Report to the US Congress on Alcohol and Health. Washington, DC: Authors.

US Department of Justice, National Drug Intelligence Center (2000). National Drug Threat Assessment 2001: The Domestic Perspective. Johnstown, PA: Authors.

US Department of Justice, Office of Justice Programs (1999). Comparing Drug Use Rates of Detained Arrestees in the United States and England. Washington, DC: Authors.

- Vaillant, G. E. (1973). A 20-year follow-up of New York narcotic addicts. Archives of General Psychiatry, 29, 237-241.
- Vaillant, G. E., & Milofsky, E. S. (1982). Natural history of male alcoholism: IV. Paths to recovery. Archives of General Psychiatry, 39, 127-133.
- Vega, W. A., Kolody, B., Aguilar-Gaxiola, S., Alderete, E., Catalano, R., Caraveo-Anduaga, J. (1998). Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. Archives of General Psychiatry, 55, 771-778.
- Wartenberg, A. A. (1994). Management of common medical problems. In N. S. Miller, M. S. Gold, & D. E. Smith (Eds.). Manual of Therapeutics for Addictions (pp. 168-180). Chevy Chase, MD: American Society of Addiction Medicine.
- Wells, E. A., Hawkins, J. D., & Catalano, R.-F. (1988). Choosing drug use measures for treatment outcome studies: the influence of measurement approach on treatment results. International Journal of the Addictions, 23, 851-873.
- Wexler, M. K., Falkin, G. P., & Lipton, D. S. (1988). A model prison rehabilitation program: An evaluation of the stay'n out therapeutic community. New York: NDRI Press.
- White, H. R., Johnson, V., & Garrison, C. G. (1985). The drug-crime nexus among adolescents and their peers. Deviant Behavior, 6, 183-204.
- Winters, K.C. (1999). A new multiscale measure of adult substance abuse. Journal of Substance Abuse Treatment, 16, 237-246.
- Wolch, J.R., Rahimian, A., & Koegel, P. (1993). Daily and periodic mobility patterns of the urban homeless. Professional Geographer, 45, 159-169.
- Zahn, M. A., & Ball, J. C. (1972). Factors related to the cure of opiate addiction among Puerto Rican addicts. International Journal of the Addictions, 7, 237-245.
- Zucker, R. A., & Gomberg, E. S. (1986). Etiology of alcoholism reconsidered: The case for a biopsychological process. American Psychologist, 41, 783-793.

Zweig, Greenberg, M. S., Singh, T., Htoo, M., & Schultz, S. (1991). The association between congenital syphilis and cocaine/crack use in New York City: a case-control study. American Journal of Public Health, 81, 1316-1318.

APPENDICES

Appendix A Maudsley Addiction Profile (MAP) Training and User Manual

Appendix B Consent Forms

Appendix C Drug and Alcohol Dosage Units