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**PSYCHOSOCIAL RISK FACTORS OF DRUG USE
WITHIN A PROBATION SAMPLE**

by

ELIZABETH R. MCAVOY

A thesis submitted to the
Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of

Masters of Arts

Department of Psychology

Carleton University

Ottawa, Ontario

May 1993

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**"PSYCHOSOCIAL RISK FACTORS OF DRUG USE
WITHIN A PROBATION SAMPLE"**

submitted by

ELIZABETH R. MCAVOY

**in partial fulfillment of the requirements for
the degree of Masters of Arts**

Thesis Supervisor

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May 17, 1993

Abstract

This study examined the relationship between a number of psychosocial risk factors and self-reported drug use. Data were gathered at two points in time from a sample of adolescent and young adult probationers. The present research found attitudes and social support for use to be the most powerful predictors of self-reported alcohol and cannabis use in this sample. Psychosocial risk factors such as family problems, anxiety, sensation seeking personality type, and alienation did not add to the prediction. The hypothesis that the joint effects of attitudes, social support and age would increase the prediction of drug use was tested. Support for this hypothesis was not found.

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Psychosocial Risk Factors of Drug Use Within A Probation Sample

A great deal of research effort has been devoted to understanding the etiology and antecedents of drug use among adolescents and young adults. Numerous factors have been implicated in the initiation and maintenance of substance use and progression to abuse. The following list includes some of the best-established psychosocial correlates and predictors of alcohol and drug use: poor relationship with parents (Kandel, Kessler, & Margulies, 1978; Kaplan, Martin, & Robbins, 1982); poor school performance (Jessor & Jessor, 1977; Fors & Rojek, 1983; Kleinman, Wish, Deren, Rainone, & Morehouse, 1988); peer use (Kandel, 1984; White, Johnson, & Horwitz, 1986); alienation (Paton & Kandel, 1978); sensation seeking (Bates, Labouvie, & White, 1986; Brook, White, Gordon, & Cohen, 1986; Kohn & Annis, 1978); low self-esteem (Bry, 1983; Kaplan, Martin, Johnson, & Robbins, 1986); tolerance of deviance (Jessor, Chase, & Donovan, 1980; Kleinman et al., 1988); lack of religiosity (Jessor, Donovan, & Costa, 1991); early onset of high risk behaviour (Alterman et al., 1990; Kleinman et al., 1988); psychological distress (Paton, Kessler, & Kandel, 1977); and attitudes favourable to use (Fors & Rojek, 1983; Dembo, Schmeidler, & Koval, 1976; Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). This study involved an examination of the relationship that exists between a number of these psychosocial factors and alcohol, marijuana and hard drug use. In particular, this study was concerned with such correlates as attitudes and social support favouring drug use. The relationship between attitudes and drug use is said to be stronger when social support for use is present, and this study examined the interaction between attitudes and social support in relation to self-reported drug use. In addition, the study explored the role of age in the interaction between attitudes and social support in relation to self-reported use of alcohol and cannabis.

Literature suggests that drug use can be understood to be generated by numerous factors that increase the risk of using or abusing drugs. As an alternative to searching for the one most important factor that predicts substance use and abuse, attention has shifted

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toward how many risk factors or conditions exist. The multiple risk factor type of model has been operationalized by creating risk factor indices that reflect the number of etiological influences for drug use on which a person reports extreme risk. Research with cross-sectional data (Bry, McKeon, & Pandina, 1982) and panel data (Newcomb, Maddahian, & Bentler, 1986) has indicated that this type of index is a powerful predictor of drug use, frequency of drug consumption, and heavy drug use. These findings were obtained measuring general drug involvement (Bry et al., 1982) and specific use of cigarettes, alcohol, marijuana, and hard drugs (Newcomb et al., 1986). The findings from both studies revealed that the number of psychosocial risk factors was linearly associated with increased percentage of drug users, frequency of drug use, and heavy drug use.

The study of deviant behaviours, such as illicit drug use and drinking in adolescence, has reflected a great deal of orientations in the fields of psychology and sociology. Due to the complexity of the social problem, there has been a theoretical move in the direction of a multi-disciplinary or integrated approach. Cross-sectional and longitudinal studies have depicted a consistent image of drug use across many studies, different cultures, and a variety of measures (Andrews, Bonta, & Wormith, 1988). Important variables resulting from these studies are personal attitudes favourable to drug use, together with the presence of intimate drug using associates who approve of one's use (Andrews et al., 1988).

Social Psychological Theories of Drug Use

There are two theoretical orientations and their respective studies that are of particular interest here: Social learning theory of deviance by Ronald Akers (1973) and colleagues (Burgess & Akers, 1966; Akers et al., 1979; Krohn, Skinner, Massey, & Akers, 1985; Lanza-Kaduce, Akers, Krohn, & Radesovich, 1984); and Problem-Behaviour theory by Richard and Shirley Jessor (1977). Each is a psychosocial

perspective concerned with etiology and intended to account for an individual's decision to become involved in alcohol and drugs.

The social learning theory of deviant behaviour is the result of an integration of a revised form of differential association theory and behavioural reinforcement theory (Burgess & Akers, 1966). It was part of a larger move toward incorporating modern behaviourism into sociological theory (Akers et al., 1979). In this model, there are four main concepts that are measured (Akers, 1973; Akers & Cochran, 1985; Akers et al., 1979; Krohn et al., 1985; Krohn, Lanza-Kaduce, & Akers, 1984; Lanza et al., 1984). The primary variable of differential association refers to all of the different reference groups (family, peer-friendship groups, church, school) that exercise direct or indirect influence on the individual. These groups are viewed as having the most influence on adolescent behaviour because they control the major sources of rewards and punishments during childhood and adolescence (Krohn et al., 1985). Other principal concepts in the theory are differential reinforcement, imitation, and definitions. Differential reinforcement involves the process by which an individual comes to prefer a particular behaviour over another because it has been more highly rewarded or less punished. Reinforcement can be social or nonsocial. Imitation is engaging in behaviour after observation of similar behaviour by peer and parental models. Definitions refer to the judgement of a behaviour as right or wrong, positive (approving), or negative (disapproving), or the process of neutralizing where the user provides excuses for their use.

According to this theory, one decides to engage in conformity or deviant behaviour as a result of differential social reinforcements (Akers, 1973). Delinquency is seen as the result of observing and learning in group interactions that some deviant behaviours are encouraged and rewarded by the group, and these rewards outweigh the potential costs or punishments associated with these behaviours in a given situation or setting. The adolescent peer group is considered to be the primary learning context for deviant

socialization. A peer delinquent group provides a setting in which the attitudes, motives and rationalizations that tolerate or encourage delinquency are learned; and deviant behaviours are modeled, socially rewarded and reinforced (Akers, 1973; Akers et al., 1979).

To apply Aker's social learning theory in the context of substance use, differential association (interacting and identifying with a particular group) occurs first (Akers, 1973; Akers & Cochran, 1985; Akers et al., 1979; Krohn et al., 1984). Consequently, a social environment is provided in which exposure to definitions, imitation of models and social reinforcement for use of, or abstinence from, any particular substance takes place. One learns the definitions through imitation, and social reinforcement of them by members of the group with whom one is associated. Once learned, these definitions function as discriminative stimuli for use or abstinence. Discriminative stimuli signal a person as to whether his behaviour is appropriate, and whether it is likely to be rewarded or punished. Initial use or continued abstinence is the result of an interaction between the definitions with imitation of using or abstinent models and the anticipated balance of reinforcement. However, imitation becomes less important while the influence of definitions continue depending on the experience of use.

The probability of continued drug use is determined by the consequences (social or nonsocial reinforcers and punishers) of the use. These consequences include the physiological effects of the substance at initial and subsequent use, the reactions of others present at the time or who will find out about it later, as well as the anticipated reactions of others not present or who don't currently know about the use. To summarize, imitation is considered to have its greatest effect at the onset and initial stages of drug use while the concepts of association, reinforcement, and definitions are more important in the maintenance of drug use.

An empirical test of the theory was carried out on a cross-sectional sample of young

people in the 7th to 12th grade in three mid-western states (Akers et al., 1979) . The main concepts that were measured were imitation; differential association; differential reinforcement; and attitudes and definitions. Attitudes toward each substance and differential association with using or nonusing friends explained most of the variance.

Akers and Cochran (1985) compared the empirical support for strain, social bonding, and social learning theories as independent models for adolescent marijuana use. They also examined the independent contributions of each theory in a combined model. When considered separately, they found that the social learning model accounted for 68 percent of the variance; social bonding theory accounted for 30 percent; and strain theory accounted for 3 percent of the variance in marijuana use. When all measures were included in one model, 69 percent of the variance in marijuana use was explained. The mixed model generated only a one percent improvement in explained variance over the social learning model. The authors then selected the strongest four predictors from both the strain and bonding set and the three strongest from the social learning set and examined the relative explanatory power of these independent variables in another multiple regression analysis. The results provided clear support for the social learning variables. The three variables that accounted for a high level of explained variance (69 percent) in marijuana use were differential peer associations, friends' reactions to marijuana use, and personal positive/negative definitions of use.

The second theoretical orientation of interest is Problem-Behaviour Theory. Jessor and Jessor (1977) developed this theory within a social-psychological framework which aids in explaining the nature and development of alcohol abuse, drug misuse and other forms of deviance. The theory was originally developed for a study of alcohol abuse and various problem behaviours in a tri-ethnic community in southwestern Colorado (Jessor, Graves, Hanson, & Jessor, 1975). It was later applied to a major longitudinal study of problem behaviour and psychosocial development among junior high school and college

youth (Donovan & Jessor, 1983; Donovan & Jessor, 1985; Jessor, Donovan, & Costa, 1991; Jessor & Jessor, 1977).

The main focus of problem-behaviour theory is on three systems: the personality system, the perceived environment system, and the behaviour system. The explanatory variables within each system reflect either instigations to, or controls against problem behaviour, and in combination they generate a status of proneness or risk, which indicates the probability that problem behaviour will occur (Jessor, 1987). The theoretical variables in the three systems are viewed as psychosocial risk factors for problem behaviour.

The variables that constitute the personality system belong to three related structures (a motivational-instigation structure, a personal belief structure, and a personal control structure), and are linked directly or indirectly to the occurrence of problem behaviour. This system assesses values and expectations for achievement, independence and affection; personal beliefs such as social criticism, alienation, internal-external locus of control, and self-esteem; and personal controls such as attitudinal tolerance for deviance, positive and negative functions of drug use, premarital sexual intercourse and drinking, and religiosity (Jessor, 1979, 1987; Jessor & Jessor, 1975, 1977; Jessor et al., 1991).

In the perceived environment system, the main variables include value compatibility between parents and friends, relative influence of parents versus friends, parental supports and controls, parental attitude toward problem behaviour, and friends' approval of and models for deviance. A central feature of this system is the distinction between variables that are closely related or proximal to the behaviour versus distal or remote variables which require theoretical linkage to the criterion. Examples of proximal variables include expectation of others, negative evaluations, models for behaviour, and social approval (Jessor & Jessor, 1973). Distal variables are those which are socio-demographic in nature such as race, socioeconomic status, and family structure. Whether a variable is considered proximal or distal depends on the behaviour to which it is being linked.

The behaviour system is composed of various problem behaviours (marijuana use, problem drinking, illicit drug use, premarital sexual activity, and general deviant behaviours such as lying, stealing, and aggression) as well as conventional behaviours (church attendance and school achievement). The specification of behaviour relies upon such considerations as personal meaning, social definition, age, status, and historical context (Jessor & Jessor, 1977).

Jessors' theory of adolescent drug use that emerges from the network of variables discussed above includes: a greater instigation to use (coming from higher value on independence, lower value on achievement, and lower expectations for achievement); less control over belief against use (more socially critical and alienated); and less personal control against use (more positive than negative reasons for drug use and less religious). In addition, there is greater environmental support for use (more peer oriented and greater models and supports), and more experience with other forms of deviant behaviour (Jessor & Jessor, 1977; Jessor, Jessor, & Finney, 1973).

The theory has been tested in two major parallel longitudinal studies. One in a cohort-sequential design on a sample of junior and senior high school students, the second on a cohort of college freshmen. Six waves of data were collected in both studies. In the first phase of the longitudinal study of high school and college students the contribution of the perceived environment in explaining variation in deviant behaviour was greater than the personality system (Jessor & Jessor, 1977). However, regression analysis of the personality measures in the high school sample yielded a multiple correlation beyond .50 for the measure of marijuana use (Jessor & Jessor, 1977). The proximal structure of the perceived environment system carried the most explanatory weight with the variables referring to the peer models and support for problem behaviour being the most important.

In a cross-sectional analysis of marijuana use in high school and college youth Jessor et al., (1973) found from a stepwise multiple regression analysis that the set of

perceived environment measures (parent-peer influence and social support for drugs) accounted for 46 percent of the variance in marijuana behaviour report scores. When they combined personality (independence-achievement value discrepancy, expectations for achievement, alienation, social criticism and attitude toward deviance) with environment measures, the amount of explained variance only increased to 47 percent.

The authors suggest that the weaker contribution of the personality variables is due to them being nearly all distal from marijuana use. That is, the key measures in the perceived environment system, particularly friends' approval and friends' models for drug use, are more proximal to the criterion measure than are the variables in the personality system. Perhaps if a variable that was proximal to marijuana use (e.g., positive-negative functions discrepancy measure) had been entered into the regression analysis there would have been a stronger contribution from the personality system. When general deviance is the criterion measure, the personality system which includes the measure of attitudinal intolerance of deviance is highly proximal and yields a larger multiple correlation than the perceived environment system (Jessor & Jessor, 1977; Jessor et al., 1991).

There is significant conceptual overlap among the social learning variables in the social learning and the perceived environment system of the problem-behaviour theory. Peer group orientation, modelling, approval and reinforcement of drug use are variables that compose both models. Another overlap between the theories is that they contain variables concerned with attitudes or definitions toward drug use. It is evident from the conceptual overlap that personal and peer endorsement of values and acts favourable to drug use are important variables in this area of research. In addition, there is empirical support for the significance of these variables.

Denise Kandel and her colleagues have developed a Socialization Framework which does not add theoretically to the psychosocial perspectives already discussed. Their research, however, is worth noting. Kandel (1973) investigated interpersonal influences by

studying samples of dyads and triads, in which independent data was obtained from adolescents, their parents, and their best school friends. Peer influence on adolescent drug use was found to be stronger than parental influence. The results indicated that 56 percent of adolescents used marijuana when their best friends used and their parents did not. However, only 17 percent of adolescents used marijuana when their parents used and their best friends did not.

In a study of the contribution of various background, personal, and interpersonal factors to adolescent involvement with various types of legal and illegal drugs Kandel, Treiman, Faust, and Single (1976) found that the sixteen variables combined accounted for 41 percent of the variance in probability of marijuana use. Taken alone, friends' self-reported frequency of use accounted for 25 percent of the variability in adolescent's use of marijuana as compared to 8 percent for the variables next in importance, which was political attitude and participation in peer activities.

Kandel et al. (1978) examined the antecedents of initiation into the use of alcohol, marijuana and hard drugs in a cohort of high school students. The results indicated that different factors predict initiation into different drug behaviours. Prior involvement in minor deviant activities was the most important predictor of hard liquor use. Beliefs and values favourable to the use of marijuana, and association with marijuana using friends were most important for initiation of marijuana use. Poor relations with parents, depressive mood, and exposure to parents and peers who use drugs were most predictive of initiation into hard drugs.

Kandel (1984) also found that in early adulthood, as in adolescence, marijuana use remains embedded in a social context favourable to its use. Perceived marijuana use by friends and use by spouse or partner emerged as the most important factors predictive of marijuana use among young adult women and second in importance to the use of other illicit drugs among young men.

More Empirical Evidence for the Role of Attitudes and Social Support on Alcohol and Drug Use

The strong relationship between a person's drug behaviour and the drug use of his or her friends, either as perceived by the individual or as reported by the friends, has been the most consistent and reproducible finding in drug research (Jessor et al., 1991; Kandel, 1984; Kandel, 1980; Lucas, Grupp, & Schmitt, 1973; Mandell & Ginzburg, 1976; White et al., 1986). Research in the area of marijuana use indicates that an important factor in the decision to try marijuana seems to be the drug experience of one's friends (Ginsberg & Greenley, 1978; Lucas et al., 1973; Marcos, Bahr, & Johnson, 1986; Vulcano, Barnes, & Langstaff, 1990). Even if the person has not tried marijuana, they are exposed to a favourable point of view of marijuana use through their relationship with the marijuana-favouring friend (Lucas, et al., 1973). This may be enough to convince the individual that he or she should also adopt a favourable attitude toward marijuana use, and perhaps try it.

It has been argued that the introduction of marijuana use is contingent on the person being in a setting where drugs are available and the introduction is made by someone the person holds in esteem (Lucas et al., 1973). Lucas et al. (1973) maintain that from a social-psychological standpoint it can be argued that this introduction and experience is more powerful than the physiological experience itself.

In an effort to test an expanded version of Jessor and Jessor's problem behaviour model, Vulcano et al. (1990) compared delinquent and nondelinquent adolescents on their frequency of marijuana use and involvement with marijuana. Results indicated that delinquents reported using marijuana more often than nondelinquents. The variables Friends' Pressure for Marijuana Use and Friends' Models for Marijuana Use emerged as the best predictors of involvement with marijuana.

Marcos et al. (1986) tested a path model which integrated propositions derived from social control and differential association theories. The model included parental attachment,

religious attachment, educational attachment, conventional values, and drug using friends as precursors of drug use. For a sample of adolescents aged 14 to 19, the model explained 42 percent of the variation in self-reported lifetime marijuana use. The best single predictor of drug use was association with drug using friends.

Social Learning Theory was utilized in a study by Johnson (1988) to investigate the mechanisms by which adolescents continue to use alcohol and marijuana. Structural equation modeling was used to analyze the measurement and structural relationships among peer associations, attitudes, reinforcing and punishing consequences, and patterns of use at two points in time. It was found that the model fit the data for use of alcohol and marijuana. The most pronounced difference between the alcohol and marijuana models was that the proportion of close friends who use alcohol exhibited the strongest relationship to maintenance of alcohol use while reinforcers were most salient to continued marijuana use.

Many studies have shown a strong relationship between social support and alcohol use. Cahalan, Cisin, and Crossley (1969) discovered in their national survey that a high proportion of heavy drinkers reported having social acquaintances that drank "quite a bit" and reported this more frequently about their close friends than about persons in their neighbourhood. Cahalan's (1976) longitudinal national survey identified environmental support for heavy drinking to be an intervening variable. That is, drinking tends to be influenced by associates not only because these significant others teach them how, and when and how much to drink, but also because they reinforce either positive or negative drinking behaviour by their example, and by their expressed or implied attitudes toward drinking (Cahalan, 1976).

Alexander and Campbell (1967) investigated the influence of peers on the drinking behaviour of adolescent boys in an area of North Carolina where the dominant religious groups prescribe abstinence. They found that the likelihood and frequency of drinking

reflected the number of drinking friends an adolescent had.

Brook, Cohen, Whiteman, and Gordon (1992) examined the interplay of personality, family, and peer influences with different levels of drug involvement: light use, moderate use, and heavy use/abuse of marijuana and alcohol. The findings of the study indicated that tolerance of deviance, sensation seeking, low maternal attachment, peer drinking, peer deviancy, and more time spent with friends increased the odds of being in the moderate rather than the nonuser or light group. For those adolescents who engaged in more acting-out behaviour, the risk of being in the alcohol abuse group was almost tripled. Low maternal attachment and peer illegal drug use also increased the odds of being in the alcohol abuse group.

Clearly there is support for the significance of personal and peer endorsement of alcohol and drug use. What is particularly significant about these variables is their interaction. Various research efforts have focused on the role of social support and the extent to which attitudes and social support interact. (Acock & Defleur, 1972; Andrews & Kandel, 1979; Hope, 1989; Morrison, 1982; Warner & Defleur, 1969). Some of the research has been based on the contingent consistency hypothesis which is discussed in the next section (Acock & Defleur, 1972; Albrecht, 1977; Albrecht, Defleur, & Warner, 1972; Andrews & Kandel, 1979; Warner & Defleur, 1969).

Contingent Consistency Hypothesis

The contingent consistency hypothesis asserts that the relationship between attitude and behaviour is modified, depending on the level of some other variable. Attitude is only one of a series of factors that influence behaviour and its independent influence can vary from situation to situation. Social-situational variables have been shown to modify the relationship between attitudes and actions. Criminal behaviour and drug use are areas that have investigated the interaction between attitudes and social support when examining the

conditions under which attitude and behaviour relate. Studies have presented both supporting and nonsupporting evidence for the interaction.

In a study of religious involvement and deviance, Hope (1989) found that criminal sentiments (tolerance for law violations) were a strong indicator of reports of deviance among a sample of undergraduate students. Attitudes were shown to be a particularly strong positive correlate of deviance among those reporting strong levels of social support for crime. This interaction effect indicated increased deviance rates among those scoring high on both measures, and reduced deviance rates among those scoring low on both measures.

In a study of the differential association perspective, Jensen (1972) assessed the relationship between delinquent definitions and delinquent behaviour under conditions of parental supervision and support, perception of neighbourhood trouble, and number of delinquent friends. The findings indicated that delinquent attitudes and friends, and neighbourhood trouble all had independent effects on delinquent behaviour. No interactions were reported in this study.

There has been some controversy over when the contingent consistency hypothesis is supported (Acock & Defleur, 1972; Andrews & Kandel, 1979; Liska, 1974a; Liska, 1974b; Susmilch, Elliott, & Schwartz, 1975; Schuman & Johnson, 1976) because there has been disagreement about the interpretation of the statistical results that have been reported. Schuman and Johnson (1976), in a review of interactions in attitude-behaviour studies, concluded that there was no compelling evidence to suggest that interaction terms increased the variance in behaviour explained by attitudinal and social support variables.

Andrews and Kandel (1979) suggested that a respecification of the behaviour measure would help establish when the hypothesis is supported. Most research prior to Andrews and Kandel assessed attitudes at a single point in time and behaviour was measured at the same time or a short time later. These authors tested the contingent effect

of peers and parents on adolescent marijuana use at various stages of participation in marijuana usage to investigate whether attitudes and situations play different roles at different stages. The peer-related measure was the adolescent's report of drug use by close friends, and the parent-related measure was the adolescent's perception of parental tolerance of drug use. The adolescent's attitude toward marijuana was also measured. The authors found that attitudes favourable to marijuana use were more strongly associated with drug using behaviour when peers were drug users than when peers were less involved with drugs. However, support for the contingent consistency hypothesis held only for those adolescents who shifted from being non-users to becoming frequent users. That is, the interaction terms significantly increased the explained variance in marijuana use behaviour by eight percent.

Support for this hypothesis was also found by Morrison (1982), who examined the relationship between criminal sentiments and criminal behaviour in a university undergraduate sample. Morrison found that there are conditions which influence the relationship between criminal attitudes and criminal behaviour; namely, self-monitoring, attitude salience and gender. The findings indicated a ten percent increase in the variance accounted for in self-reported criminal behaviour by the interaction of these variables.

Personal attribute variables and stage of drug use have been shown to be important factors with respect to support of the contingent consistency hypothesis. Another variable which may influence support of the hypothesis is age. Age has been shown to influence the reasons for (Novacek, Raskin, & Hogan, 1991) and pattern of (Kandel & Logan, 1984) using various drugs. Research by Novacek et al. (1991) indicated that age differences exist in the reasons for using drugs. The study examined five kinds of reasons for drug use among a sample of 6th-12th grade students in rural Oklahoma. The results showed that high school students endorsed coping and pleasure reasons for drug use more than the elementary school students. Reasons of belonging and creativity were endorsed

more by the students in the elementary grades. The following section describes the influence of age in the patterns of substance use.

Age Trends in Patterns of Use

Cross-sectional and longitudinal studies of representative national samples or of more restricted populations have documented strong age-related trends in patterns of alcohol and drug use. These studies suggest that marijuana use among adolescents younger than 14 is low and increases sharply thereafter, age 15-17 is the period of highest risk for initiation into marijuana use, marijuana use stabilizes at about age 19, and the early twenties are a period of very active use (Kandel & Logan, 1984). Among the young adult group, use of marijuana can be considered statistically normal, with as many as 1 in 4 classifying themselves as "current" users (i.e., used in the month preceding the survey) (Parry, 1979). Use begins to decline at age 25 (Kandel & Logan, 1984; Parry, 1979). Alcohol use begins earlier in life than marijuana use, with initiation almost completed by age 18-19 (Kandel & Logan, 1984). The period of highest use is between age 18 and 24 (Blane, 1979; Wechsler, 1979). Developmental sequences in the use of licit, illicit, and medically prescribed psychoactive drugs from adolescence through young adulthood have also been identified (Kandel & Logan, 1984; Yamaguchi & Kandel, 1984a, 1984b). Surveys of the general population, or of targeted subgroups within it have revealed that young adults have a different pattern of alcohol and drug use from people in other age groups (Smart & Goodstadt, 1978; Cahalan, 1978; Cahalan et al., 1969; Goode, 1970). The pattern among young adults is to drink less frequently but consume large amounts when drinking occurs (Smart & Goodstadt, 1978).

The results of the 1978-1979 Canada Health Survey indicate that males in the 20-24 age group (35.5%) consumed the most alcohol (14 and over drinks) on a weekly basis compared to the other age groups (Alcoholism and Drug Addiction Research Foundation,

1979-80). Females of that age group also drank more on a weekly basis but only marginally.

Similar patterns are found in Ontario. Smart and Goodstadt (1978), in a survey of adults in Ontario, found that 7.7% of young people compared to 18.4% of older people report being daily drinkers. However, nearly three times as many young people as older people surveyed reported getting drunk and twice as many reported drinking large amounts. According to a survey conducted in Ontario in 1984, 64.1% of adults aged 18-29 reported becoming "high" or "tight" compared to 45.8% of 30 to 49 year olds and 18.5% of people 50 years and older (ARF, 1984). Ontario student surveys from 1977 to 1991 indicated that students aged 18 and over have consistently reported the highest rate of alcohol use (ARF, 1988, 1992).

According to the 1989 National Survey, cannabis is the most commonly used illicit substance in Canada (ARF, 1992). The highest rate of cannabis exposure was reported by those aged 20-24. Some 43.1% of individuals aged 20-24 reported using marijuana or hashish at some time in their lives, while 18.4% indicated having used in the year prior to the survey. In Ontario from 1977 to 1991, individuals aged 18-29 have consistently reported the highest rate of marijuana use (ARF, 1992). However, student surveys of cannabis use conducted in Ontario between 1977 and 1991 do not report similar results. The results indicated that students aged 16 and 17 reported using cannabis more often than those 18 and over in 50% of the survey years.

Clearly there are age-related trends in the pattern of alcohol and drug use. Although young adults have the highest rate of alcohol and drug use, the interactive nature of age with various factors found to be associated with alcohol, marijuana and other illicit drug use has rarely been tested. Dunnermeyer and Huang (1991) examined the interactive nature of age in predicting alcohol, marijuana and other drug use among a sample of junior and senior high school students. The results showed a statistically significant interaction

between age and time spent with family and peers on alcohol use, age and church participation on marijuana use, and age and church participation, and time with family on hard drug use. The impact of church attendance, and time spent with family and peers on alcohol and drug use was greater among older than younger adolescents.

Summary

Research on the number of risks an individual must cope with has been shown to be associated with increased drug use. Theoretical and empirical attention has been directed at certain types of psychosocial risk factors. Both cross-sectional and longitudinal studies have demonstrated the importance of two psychosocial risks, attitudes and social support in favour of drug use, in predicting use. There has been some interest in the interaction of these two variables, and the role, if any, this interaction plays with respect to the prediction of deviant behaviour. For the most part, research on the correlates and predictors of adolescent and young adult substance use has been done with samples of high school and college students.

The current study examined the relationship between a number of psychosocial risk factors and self-reported drug use within a probation sample. The purpose of this research was to determine whether some of the psychosocial variables identified as correlates and predictors of drug use within non-deviant populations would also predict use within a deviant population. More specifically, the study sought to determine whether attitudes and social support favouring drug use still emerge as the strongest predictors. Furthermore, the possibility of an increase using the joint relationship between these two variables was examined. Finally, this study investigated whether personal attributes such as age interact with attitude and social support to increase the prediction.

Several hypotheses were examined in this study. First, it was hypothesized that the number of risk factors would be related to the level of self-reported use of substances.

Secondly, it was hypothesized that attitudes and social support favouring drug use would be related to increased use of alcohol and cannabis. Thirdly, it was hypothesized that attitudes and social support would be more strongly associated with substance use than other psychosocial variables used in this study. In addition, it was hypothesized that social support would interact with attitudes in relation to self-reported drug use. It was not clear what role age would play in this interaction, or whether an increase in prediction would occur as a result of joint effects.

Method

The study was part of a larger study which investigated the selection and training of volunteer probation officers (Andrews, Kiessling, Russell, & Grant, 1979). Biosocial information gathered included age, sex, marital status, education, occupation, and father's occupation (see Appendix A). The Presentence Report or other file material was the source of information on the probationers. Alcohol and drug use was assessed during the study.

Subjects

The subjects ($N=138$) were selected from a sample of probationers who were involved with the Ottawa Probation and Parole offices during the years 1978-1981. The probationers eligible for the larger study were between the ages of 16 and 25 at time of intake, had been sentenced to at least six months of probation, had official records that were free of excessive violence, and had not been referred to professional therapy. Less than five percent declined to offer signed consent when approached. The mean length of probation was 15.22 months ($SD=6.23$). Just over 61.6% were convicted for a property offence, typically break and enter, theft or some variation of theft of auto. Approximately 6.5% of the sample were convicted for offences against persons (assault/ robbery) and 8.6% for offences involving drugs.

There were 84 (60.9%) probationers who reported being first offenders and, among the previous offenders, 14 (10.1%) reported being previously convicted for more than one offence. Information was missing on 40 (29%) of the probationers for this variable. There were 115 (83%) men and 23 (17%) women in the sample. The mean age was 18.04 years ($SD=2.18$). These data were collected prior to the introduction of the Young Offenders Act. The Juvenile Delinquents Act applied to any child over 7 years of age and, depending on the province, involved any adolescent under 16 or under 18. In Ontario the upper limit was set at 16. So if someone 16 and over was charged of an offense in Ontario, he or she was considered to be an adult from the point of view of the criminal law and was subject to the adult court system. Today the Young Offenders Act is in place. The Young Offenders Act applies to all young persons between 12 and 18 years of age. Thus, half of the sample for this study are, by today's definition, young offenders. Since these two age groups are dealt with differently by the criminal justice system and generally differ in their level of drug use, the correlates of drug use in these two age groups were explored.

Materials

Alcohol Use.

The Survey of Drinking Styles and Drug Use Questionnaire (see Appendix B) was designed to assess alcohol and drug use, and to aid in the identification of alcohol related problems. Prior to this study psychometric information for this survey was not available. The purpose of this study was to provide some of this information. The items in the questionnaire were drawn from a number of sources (Addiction Research Foundation survey instruments; Cahalan, 1976; Cahalan, 1978; Clark, 1966; Jessor & Jessor, 1977). The subjects were asked to report on the frequency and quantity of their alcohol use over a six month period. In addition, the questionnaire assessed problem areas which have been

associated with excessive use of alcohol. These problem areas include Loss of Control, Symptomatic Behaviours, Coping, and External Problems. The subjects respond to a series of statements by indicating how each apply to their situation in the last six months. The Loss of Control measure involves four statements which reflect the subject's inability to maintain socially acceptable levels of consumption: getting drunk at inappropriate times, drinking to unconsciousness, difficulty cutting down drinking or continued drinking after promising not to. Symptomatic Behaviours include drinking first thing in the morning, sneaking drinks, drinking alone, drinking to get rid of a hangover, and blackouts. Coping measures assess the subject's use of alcohol to forget worries or to relieve tension or unhappiness. Finally, External Problems are those which are a direct result of excessive use of alcohol such as a financial burden, accidents, problems with spouse and others, work related problems, and interaction with the police.

Alcohol use was measured by a composite quantity-frequency variable defined in terms of the alcohol consumed in a six month period. This measure was generated by combining the responses to the questions: "I have had a drink or drinks..." (ranging from "not once in the last six months" to "every day or almost every day" and "On those occasion(s) over the last six months when you had a drink or drinks, how many did you usually have?").

The concept of problem drinking focused on the negative social and interpersonal consequences associated with alcohol use (Sadava, 1985). Problem drinking was measured by (1) self-definition, 4 items including awareness of a drinking problem and seeking help; and (2) 6 items concerning external problems.

Drug Use.

A measure of drug use assessed the number of different drugs ever taken and the frequency of their use in the last six months. Subjects were asked to identify those drugs which they have used at least once in the last six months and to indicate how often they had

used them on a scale ranging from "never" to "daily or almost every day". The drugs surveyed included marijuana, hashish, barbiturates, speed, cocaine, morphine/heroin, LSD/mescaline, opium, solvents, and tranquilizers. The cannabis use score was defined in terms of the highest score of either marijuana or hashish used in the six months under investigation. The hard drug use score was defined as the sum of eight substances (drugs listed above excluding marijuana and hashish).

Validity of self-report behavioural measures.

Self-report questionnaires are often used as the measure of the dependent variable in studies that examine the attitude and behaviour relationship or deal with prediction. The question arises as to the validity of these self-reports. The possibility of problems in validity and reliability seem potentially greater for drug use than for other behaviours or attitudes generally assessed in attitude-behaviour or predictive research because such use is illegal and disapproved of by society. However, there are grounds for having confidence in the validity and reliability of self-reports of drug use (Akers et al., 1979; Smart & Jarvis, 1981; Whitehead & Smart, 1972).

In particular, Single, Kandel, and Johnson (1975) showed that self-report questionnaires provide reliable and valid measures of adolescent use of illicit drugs at one point in time, but less so over time. A review by Smart and Jarvis (1981) indicated that studies done in North America with students and patients show that reliability is lower for questions about illicit drugs particularly where the time interval covered by the question is short (used in last 30 days as opposed to used in last year).

Validity studies using lie scales, "honesty" items, fictitious drugs, urinalysis and various internal consistency checks provide strong but not perfect evidence for the validity of self-reported drug use (Smart & Jarvis, 1981). Most studies suggest that the main problem is under-reporting, particularly among heavier users (Grossman & Macdonald, 1983; Single et al., 1975; Smart & Jarvis, 1981; Whitehead & Smart, 1972).

A Fake Scale (see Appendix C) which consists of 33 true/false items was included to measure positive malingering. It was developed for use with the MMPI (Cofer, Chance, & Judson, 1949).

Attitudes.

Attitude toward drinking was measured by agreement or disagreement to four statements about drinking being fun, drinking being a good way to meet people and get to know them, getting drunk whenever you feel like it, and getting drunk once in a while but not to the point where it becomes a habit. For marijuana use, the questionnaire provided a set of positive function items and negative function items. For example, a positive function item was "With marijuana, there is the feeling that you understand things better". An example of a negative function item would be "With marijuana, there is the possibility of suffering bad physical or emotional reactions from bad quality drugs". A measure of attitude toward marijuana use was contrived by recoding the negative function scale scores and adding them to the positive function scale scores.

Social Support.

Social support for drinking was measured by four questions which ask how often the respondent regularly drinks with a group of people, how many of this group get drunk, how many only have one drink, and how much support from friends and relatives would the individual receive if he/she were to stop or cut down on his/her drinking. Social support for marijuana use was measured by agreement or disagreement to statements regarding the ease of obtaining marijuana, knowing people who regularly use marijuana, and having best friends who use marijuana on a regular basis.

Risk Factors.

The initial study involved many risk factors. Of those, 14 were deemed relevant to this study. With a sample size of 138, and in most cases, smaller, 14 variables would lead to an inappropriate N to variable ratio for statistical analyses. On the basis of a review of

the theoretical and empirical literature on the psychosocial factors associated with drug use and abuse and the available data, 8 variables were selected as potential risk factors. The 14 variables are described in the following sections. The 8 variables did not reflect a complete or even representative list of all potential factors mentioned in the literature. Rather, they were limited to ones available in the data set. Nevertheless, these 8 variables reflected several psychosocial aspects of the probationer's life. The 8 variables involve the measures of attitude and social support and some of the self-report paper and pencil measures of criminal propensity gathered together by Andrews et al. (1979). Previous research has found the internal consistency of the scales to be moderate to moderately high within an offender sample. Validity estimates of the measures have consistently been positive and scores have been predictive of future criminal activity (Andrews, 1985; Andrews, Wormith, & Kiessling, 1985).

Alienation.

This measure included the total score of Isolation, Normlessness, and Powerlessness (TINP) (see Appendix D) (based on Dean, 1961) which consists of 28 items, and Awareness of Limited Opportunity (see Appendix E) which consists of 8 items (based on Reckless, 1973). Both are scored on a five point Likert scale. The internal consistency of the TINP scale was found to be .74. The stability coefficients were .70 and .46 within an offender sample for TINP and Awareness of Limited Opportunity respectively (Andrews, 1985; Andrews et al., 1985). A score above the median was considered to indicate risk.

Criminal Sentiments.

Tolerance for Law Violations (see Appendix E) is part of the measure of criminal sentiments and consists of 10 items scored on a five point Likert scale. The item content reflects justifications for illegal activity. Andrews (1985) reported an internal consistency estimate of .72 and a test-retest estimate of ($r = .41$) within an offender population.

Criminal sentiments were the strongest of the paper and pencil correlates of interview-based assessments of criminal assessments (Andrews et al., 1985). Morrison (1982) reported that Tolerance for Law Violations accounted for more of the variance in self-reported criminal activity than the other measures of criminal sentiments. A score above the median was considered to be an indicator of risk.

Personal Distress.

Anxiety (see Appendix F) was measured by the Bendig short form (1954) of the Taylor Manifest Anxiety scale. It consists of 20 true/false items. The Self Esteem measure (see Appendix G) is based on Bennett, Sorenson, and Forshay (1971) and consists of 47 items to be answered in a five point Likert response format. The internal consistency of these scales was moderately high, .78, and .79 for anxiety and self-esteem respectively. While the six month test-retest estimate is moderate ($r = .72$) for self-esteem, it is quite low ($r = .34$) for anxiety (Andrews, 1985; Andrews et al., 1985). These measures have been found to have construct validity as indicated by their strong correlation with interview measures of personal problems (Andrews et al., 1985). A score above the median for anxiety, and below it for self-esteem, was considered to indicate risk.

Conflict at Home and School.

The Family Dissension measure consists of 11 items; and the Scholastic Maladjustment measure consists of 10 items (see Appendix H). Both consist of true/false items and are based on Peterson, Quay, and Cameron (1959). Andrews (1985) reported an internal consistency estimate of .60 and .50; and a test-retest estimate of .77 and .67 for family and school problems respectively. Andrews, Kiessling, Mickus and Robinson (1985) found these measures to have construct validity in a comparison of them with relevant subtotals of the Level of Supervision Inventory. A score above the median was considered to be a risk indicator.

Criminal Personality.

Psychopathy consists of 25 items and Neuroticism is composed of 27 items (see Appendix H). Both measures are based on Peterson et al. (1959). Psychopathy reflects an aggressive component and Neuroticism measures one's tendency to act out (Andrews, 1985). The internal consistency reliabilities of the measures were found to be .62 and .66, and the test-retest estimates were .65 and .71 for psychopathy and neuroticism respectively. Andrews et al. (1985) found Criminal Personality to be the strongest of the paper and pencil correlates of criminal behaviour with Psychopathy being the major predictor of the criminal personality variables. A score above the median is considered to be a risk indicator.

Sensation seeking.

This variable consists of 19 items found within the measures of Education, Isolation, Normlessness and Powerlessness, Gough's (1969) Socialization scale (see Appendix H), Bendig's At-s Anxiety scale, the Fake Scale, and Hogan's (1969) Empathy scale (see Appendix I). It was created on the basis of face validity judgements made by staff and investigators on the Selection and Training Project (Andrews et al., 1979). Item-total correlations were conducted on items for which there was unanimous agreement. The final version of the scale contains items which correlate reliably ($p < .05$) with the total score (Andrews & Kiessling, 1979). A score above the median was considered to indicate risk.

Value of Education and Value of Employment.

Both measures consist of 18 items scored on a 5 point Likert scale (see Appendix J). Together with Alienation, these measures assess "sentimental ties to convention" (Andrews, 1985). The internal consistency estimates were .68 and .82, and the stability coefficients were .64 and .44, for value of education and employment respectively. A score above the median is considered to indicate risk.

Criminal Associations.

This variable consists of 8 items and scored on a four point Likert scale. It is a composite of two measures (Affective Ties to Offenders and Criminal Resources/Models) (see Appendix K) which were developed by Andrews et al. (1979) based on the work of Short (1957), Piliavin, Hardyck, and Vadum (1969), and Linden and Hackler (1973). The item content reflects intimate association with delinquent others, exposure to criminal models, and access to criminal resources. An internal consistency estimate of .80 and .81 for Affective Ties and Criminal Resources/Models respectively were reported by Andrews (1985). The test-retest estimate for Affective Ties was .11 and for Criminal Resources/Models it was .53 (Andrews, 1985). This measure has also been shown to have predictive criterion validity (Andrews & Wormith, 1984; Andrew et al., 1985). A score above the median was considered to a risk indicator.

Procedure

All probationers were told that participation in the study was not a requirement of probation, and that they were free to withdraw at any time without threatening their probationary status (see Appendix L). They were advised of this upon their first contact with their probation officer and again upon each subsequent contact with research staff. The questionnaires were administered upon intake to probation and on a second occasion six months into the probation period.

When investigating the relationship between the number of risk factors and cannabis and alcohol use, the risk factors were split at the median and scored in a dichotomous manner: zero if the risk is not present, and one if it is. The risk factor scores were summed into a single number ranging from zero to eight, which represented the number of risk factors reported by the subject.

Results

Prior to analysis, all the variables were examined for accuracy of data entry, missing values, and evaluation of assumptions. Missing values on one item of time one (T1) measures of Loss of Control, Symptomatic Behaviour, Awareness of Drinking Problem, External Problems, Social Support for Drinking, Attitude toward Marijuana, and Social Support for Marijuana Use were replaced by the median for the item for all cases. The median was used to replace missing values for time two (T2) measures of Attitudes toward Drinking, External Problems, Social Support for Drinking, and Attitudes toward Marijuana. Missing values on the amount of drinks the subject usually consumes was replaced by the smallest number of drinks for seven cases. One case was dropped from all analyses due to missing values on more than half of the variables. Two cases on time one and two alcohol use, one case for time one alcohol use, and three cases for time two alcohol use were found to be outliers. These cases were above three standard deviations from the mean and were not considered to be part of the population when investigating alcohol use; therefore, these cases were deleted from any analyses concerning alcohol use. One case on social support for marijuana use was found to be a univariate outlier and was deleted from all analyses. The number of subjects used in each analysis varied because cases were deleted in some analyses and not in others. The exact N for each analysis will be reported in the following sections.

Reliability

One purpose of this study was to examine the psychometric properties of the subscales of the Survey of Drinking Styles and Drug Use. Psychometric properties of the survey subscales are presented in Table 1. The internal consistency reliability estimates using Cronbach's coefficient alpha ranges from .44 to .79 for the T1 drinking measures, .46 to .82 for T2 drinking measures, .73 to .96 for T1 marijuana measures, and .77 to .90

Table 1

Internal Consistency and Test-retest Estimates of Subscales of Drinking Styles and Drug Use

Subscales		# of Items	Alpha	N	Test Retest	N
Loss of Control	(T1)	4	.64	115	.50	103
	(T2)		.65	109		
Symptomatic Behaviour	(T1)	5	.44	115	.36	103
	(T2)		.46	109		
Coping	(T1)	4	.78	115	.57	103
	(T2)		.82	109		
Attitudes toward Drinking	(T1)	4	.76	115	.52	103
	(T2)		.66	109		
Awareness of Drinking Problem	(T1)	4	.68	115	.55	103
	(T2)		.70	109		
External Problems	(T1)	6	.57	115	.53	103
	(T2)		.72	109		
Social Support for Drinking	(T1)	4	.58	115	.57	103
	(T2)		.59	109		
Social Support for Marijuana	(T1)	3	.75	115	.58	103
	(T2)		.85	109		
Negative Attitudes toward Marijuana	(T1)	6	.73	115	.48	102
	(T2)		.77	109		
Positive Attitudes toward Marijuana	(T1)	4	.81	115	.61	102
	(T2)		.82	109		
Attitude toward Marijuana	(T1)	9	.74	107	.57	103
	(T2)		.80	107		
Problem Drinking	(T1)	11	.72	115	.59	103
	(T2)		.80	109		
Alcohol Use	(T1)	2	.56	109	.56	103
	(T2)		.66	109		
Cannabis Use	(T1)	2	.96	108	.65	103
	(T2)		.90	108		
Hard Drug Use	(T1)	8	.75	108	.67	103
	(T2)		.69	108		

for T2 marijuana measures. Test-retest estimates ranged from .36 to .57 for drinking measures, and .48 to .65 for marijuana measures.

Extent of Drug Use

A breakdown of drug use among this sample of respondents showed that 76% had used cannabis, almost 50% had used at least one hard drug, and 91% had drunk at least once in the six month period prior to initial testing (T1). The corresponding figures for T2 use are 77%, 50%, and 91%. Table 2 displays the breakdown of time one and two use for the respondents who reported using cannabis during this time. A measure of cannabis use at T2 was missing for 3 cases. Table 3 displays the frequency of use and the range of drinks consumed for the respondents who reported drinking . Missing data was encountered for seven cases at T1 and eight cases at T2.

Correlational Analysis

Table 4 shows the correlations of subscale measures with alcohol use. The subscale measures include: loss of control, symptomatic behaviour, coping, awareness of drinking, external problems, and problem drinking. All of the time one (T1) measures were correlated with time one (T1) use. All of the time one (T1) measures with the exception of symptomatic behaviour and awareness of drinking problem are correlated with time two (T2) use. All of the time two (T2) measures are correlated with time two (T2) use. Table 5 shows the intercorrelations of the psychosocial risks, alcohol, cannabis and hard drug use.

Risk Factors

Eight risk factors were chosen from the 14 available on the basis of theoretical and empirical criteria. The eight risk factors were: attitude toward use; social support for use; tolerance for law violations; social support for crime; family dissension; anxiety; sensation seeking; and a measure of isolation, normlessness, and powerlessness. The risk factors

Table 2

Frequency of Cannabis Use by Probationers Who Reported Use in the Last Six Months

	Percent	
	T1	T2
On one or two occasions	14	22
Once a month or so	17	17
A few times a week	42	39
Daily or almost daily	23	22

Table 3

Frequency of Alcohol Use by Probationers Who Reported Drinking in the Last Six Months

	Range		Percent	
	T1	T2	T1	T2
Once in the last six months	1-8	1-8	3.3	8.4
On two or three occasions	1-12	1-12	21	15
At least once a month	2-10	1-9	14.1	13
Two or three times a month	2-7	1-10	20	25
At least once a week	1-12	1-15	23.3	20.2
Two or three times a week	1-12	3-15	15	15
Every day or almost every day	1-6	3-22	3.3	3.4

Table 4

Pearson Correlations between Subscale Measures and Alcohol Use

Subscale Measure (T1)	Subscale Measure (T2)		
	Alcohol Use (T1)	Alcohol Use (T2)	Alcohol Use (T2)
Loss of Control	.48***	.22*	.34***
Symptomatic Behaviour	.40***	.12	.40***
Coping	.38***	.32***	.43***
Awareness of Drinking Problem	.29**	.06	.19*
External Problems	.53***	.33***	.57***
Problem Drinking	.46***	.25**	.52***

Note. N=102* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Table 5
Intercorrelations of Psychosocial Risk Factors, Alcohol, Cannabis and Hard Drug Use^a

21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1. -.28**	-.04	.12	.04	.05	.15	.14	.06	.04	.16	.32†	.35†	.31**	.36**	.12	-.25*	-.22*	-.30**	.44†	.54†
2. -.26**	.23*	.17	.22*	.17	.15	.33†	.21*	.32†	.20*	.55†	.61†	.00	.51†	.30**	-.14	-.17	-.53†	.61†	
3. -.11	.19	.26**	.25**	.07	.20*	.36†	.29**	.36†	.35†	.62†	.55†	.23*	.57†	.41†	-.42†	-.28**	-.29**		
4. .28**	-.15	-.03	-.10	.01	.01	-.14	-.15	-.27**	-.27**	-.21*	-.64†	-.64†	-.14	-.38†	.10	.12			
5. .08	-.09	-.34†	-.28**	-.06	-.21*	-.18	-.20*	-.09	-.10	-.24*	-.20*	.03	-.31**	-.28**	.43†				
6. .11	-.14	-.39†	-.25**	-.03	-.14	-.11	-.12	-.16	-.28**	-.43†	-.37†	-.01	-.34†	-.42†					
7. -.20*	.03	.19	.13	-.01	.07	.12	.05	.10	.29**	.31**	.44†	.34†	.27**						
8. -.19	.27**	.35†	.36†	.28**	.28**	.41†	.28**	.39†	.29**	.54†	.27**	.00							
9. -.36†	.02	.01	.09	.08	.05	.05	.09	.12	.21*	.21*	.62†								
10. -.24*	.27**	.30**	.24*	.07	.13	.28**	.26**	.27**	.48†	.58†									
11. -.01	.35†	.27**	.28**	.23*	.17	.24†	.25*	.39†	.45†										
12. -.02	.28**	.27**	.26**	.09	.12	.17	.20*	.30**											
13. .01	.43†	.23*	.36†	.13	.31**	.23*	.18												
14. -.10	.33†	.47†	.49†	.48†	.19	.53†													
15. -.10	.35†	.41†	.52†	.59†	.34†														
16. -.22*	.44†	.41†	.57†	.29**															
17. -.21*	.25**	.35†	.41†																
18. -.08	.56†	.66†																	
19. -.09	.37†																		
20. .13																			

^aNote: see note for identification of variables. ^aN = 103. * $p \leq .05$, two-tailed; ** $p \leq .01$, two-tailed; † $p \leq .001$, two-tailed.

Note for Table 5

- 1 = Family Dissension
- 2 = Neuroticism
- 3 = Psychopathy
- 4 = Self-esteem
- 5 = Value of Employment
- 6 = Value of Education
- 7 = Awareness of Limited Opportunity
- 8 = Scholastic Maladjustment
- 9 = Anxiety
- 10 = Isolation, Normlessness, Powerlessness
- 11 = Sensation Seeking
- 12 = Tolerance for Law Violations
- 13 = Social Support for Crime
- 14 = Attitudes toward Drinking
- 15 = Social Support for Drinking
- 16 = Hard Drug Use
- 17 = Alcohol Use
- 18 = Cannabis Use
- 19 = Attitude toward Marijuana Use
- 20 = Social Support for Marijuana Use
- 21 = Fake

See Appendix M for correlations between psychosocial risk factors and substance use with and without statistical controls for Faking.

were split at the median and those scores that were above the median indicated risk. Table 6 provides a breakdown of risk factors by the number and percent of probationers having them. The correlations among these predictors were not high enough to suspect multicollinearity. Three cases were found to be univariate outliers, and one of these three cases was identified through Mahalanobis distance to be a multivariate outlier with $p < .001$. These three outliers were deleted for the one-way analyses of variance and the standard regression analyses. Missing data was treated through listwise deletion. There were 131 cases for the time one cannabis analysis and 116 for the alcohol analysis. The number of risk factors reported by subjects ranged from zero to eight.

A one-way analysis of variance revealed a statistically significant relationship between number of risk factors and T1 use of cannabis, $F(8, 122) = 6.702, p \leq .00001$ and T2 use of cannabis, $F(1, 120) = 4.758, p \leq .00001$. The frequencies being compared in these analyses of variance are reported in Figure 1. Figure 1 presents the frequency of cannabis use reported for each number of risk factors. The figure shows T1 cannabis use generally increased by increasing number of risk factors, representing a linear trend, $F(1, 122) = 48.291, p \leq .00001$. Time 2 cannabis use also increased by number of risk factors, representing a linear trend, $F(1, 120) = 59.756, p \leq .00001$. The zero order correlation between T1 and T2 cannabis use and the total risk score was .53 and .47 ($p \leq .001$), respectively.

A one-way analysis of variance revealed a statistically significant relationship between number of risk factors and T1 use of alcohol, $F(8, 107) = 2.654, p < .05$. The frequencies being compared in this analysis of variance are reported in Figure 2. Figure 2 presents the frequency of alcohol use reported for each number of risk factors. The figure shows a general increase in alcohol use by increasing number of risk factors, representing a linear trend, $F(1, 107) = 14.959, p \leq .001$. There was no statistically significant relationship between T2 alcohol use and number of risk factors. The correlation between

Table 6

Frequency and Percentage Distributions for Number of Risk Factors (Within the Cannabis and Alcohol Samples)

Number of Risk Factors	Cannabis		Alcohol	
	T1 ^a	T2 ^b	T1 ^c	T2 ^d
	(%)	(%)	(%)	(%)
0	6 (5)	6 (5)	4 (3.4)	4 (3)
1	12 (9)	12 (9)	13 (11.2)	12 (11)
2	11 (8)	11 (8)	11 (9.4)	11 (10)
3	24 (18)	23 (18)	26 (22)	21 (19)
4	19 (14)	18 (14)	16 (14)	16 (14)
5	23 (18)	23 (18)	14 (12)	16 (14)
6	13 (10)	13 (10)	15 (13)	14 (12)
7	17 (13)	17 (13)	10 (9)	11 (10)
8	6 (5)	6 (5)	7 (6)	8 (7)

^aN = 131. ^bN = 129. ^cN = 116. ^dN = 113.

Figure 1. Frequency of Cannabis Use by Number of Risk Factors

Figure 2. Frequency of Alcohol Use by Number of Risk Factors

T1 and T2 alcohol use and the total risk score was .32 ($p \leq .001$) and .19 ($p \leq .05$) respectively.

A one-way analysis of variance on the total risk score for users ($M = 4.94$) versus nonusers ($M = 3.34$) of hard drugs indicated a statistically significant difference between these two groups, $F(1, 126) = 20.996, p < .00001$. A one-way analysis of variance on the total risk score for occasional ($M = 3.16$) versus regular ($M = 5.07$) use of cannabis indicated a statistically significant difference between these two types of use, $F(1, 129) = 32.849, p < .00001$. A statistically significant difference was not found between problem versus nonproblem drinking.

Multiple Regression Analysis

Multiple regressions were performed between alcohol and cannabis use as dependent variables and attitudes toward use, social support for use, tolerance for law violations, family dissension, anxiety, sensation seeking, social support for crime, and isolation, nonmlessness, and powerlessness, as predictor variables. It was hypothesized that attitudes toward use, social support for use, tolerance of law violations, and social support for crime would be the strongest predictors. Evidence has already been provided to support this expectation with respect to attitudes and social support for use. Since cannabis use and adolescent drinking are illegal behaviours, tolerance for law violations and social support for crime were considered to be the variables next in proximity to the criterion behaviour.

To identify the correlates and predictors of alcohol and cannabis use among adolescent and young adult probationers, eight analyses were carried out. For the adolescents four separate regression analyses were performed using the eight predictor variables to predict T1 alcohol use, T2 alcohol use, T1 cannabis use, and T2 cannabis use. For the young adults four separate regression analysis were performed using the eight predictor variables to predict T1 alcohol use, T2 alcohol use, T1 cannabis use, and T2

cannabis use. Attitudes and social support for use, tolerance for law violations, and social support for crime were entered in a standard multiple regression with the remaining four predictors entered using a stepwise technique. Due to missing data and outliers, the sample size varied among the analyses. Tables 7 to 10 display the correlations between the criterion variable and predictor variables, the unstandardized regression coefficients (B), the standardized regression coefficients (β), the zero order correlations (r), the squared semipartial correlations (sr^2) (F), the F test for the regression coefficient, and R , R^2 , and adjusted R^2 .

Time 1 Use.

Alcohol use for 16 to 17 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 55) = 15.278$, $p \leq .00001$ (see Table 7). The unique contribution of social support for use, with all other variables controlled, was statistically significant, ($B = 2.818$), $F(1, 55) = 24.081$, $p \leq .00001$. Cannabis use for 16 to 17 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 62) = 20.210$, $p \leq .00001$ (see Table 7). The unique contribution of attitudes toward use, with all other variables controlled, was statistically significant, ($B = .114$), $F(1, 62) = 29.798$, $p \leq .00001$. The unique contribution of social support for use, with all other variables controlled, was statistically significant, ($B = .179$), $F(1, 62) = 9.141$, $p < .01$. The unique contribution of social support for crime, with all other variables controlled, was statistically significant, ($B = .191$), $F(1, 62) = 4.172$, $p < .05$. For the younger age group, the four psychosocial variables accounted for 53% of the alcohol variance, $R = .72$ and 57% of the cannabis variance, $R = .75$. Results of the stepwise aspect of the regression indicated that sensation seeking, anxiety, family dissension, and the measure of isolation, normlessness, and powerlessness did not meet the statistical criteria required for entry.

Alcohol use for 18 to 25 year old subjects was statistically significantly predicted in

Table 7

Multiple Regression of Time 1 Alcohol and Cannabis Use on Risk Factors for 16-17 Year
Old Probationers

Predictors	Alcohol ^a					Cannabis ^b				
	B	β	r	sr ²	E	B	β	r	sr ²	E
Tolerance of Law Violations	-.014	-.006	.07	.00	.004	.011	.046	.26*	.00	.270
Social Support for Crime	.304	.115	.36**	.01	1.204	.055	.191	.41+	.03	4.172*
Attitudes	.912	.215	.54+	.03	3.442	.114	.493	.64+	.21	29.798+
Social Support	2.818	.539	.68+	.21	24.081+	.179	.293	.55+	.06	9.141**
R ²			.53					.57		
Adjusted R ²			.49					.54		
R			.72+					.75+		
unique variability			.25					.30		
shared variability			.28					.27		

^an = 60 ^bn = 67

* p < .05, ** p < .01, + p < .001.

the multiple regression analysis, $F(4, 50) = 5.837, p \leq .001$ (see Table 8). The unique contribution of attitudes toward use, with all other variables controlled, was statistically significant, ($B = 1.724$), $F(1, 55) = 5.635, p < .05$. Cannabis use for 18 to 25 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 57) = 15.073, p \leq .00001$ (see Table 8). The unique contribution of attitudes toward use, with all other variables controlled, was statistically significant, ($B = .094$), $F(1, 57) = 13.488, p \leq .001$. For the older age group, the variables accounted for 32% of the alcohol variance, $R = .56$ and 51% of the cannabis variance, $R = .72$. Results of the stepwise aspect of the regression indicated that sensation seeking, anxiety, family dissension, and the measure of isolation, normlessness, and powerlessness did not meet the statistical criteria required for entry.

The amount of variance explained by the four variables is much higher for alcohol use and slightly higher for cannabis use among the younger group. When other variables were controlled, social support showed consistent and significant effects across the two substances for the younger age group. Attitudes and social support for crime showed significant effects for cannabis use only for this age group. When other variables were controlled, only attitudes showed significant effects across alcohol and cannabis use for the older age group.

Time 2 Use.

Alcohol use for 16 to 17 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 53) = 7.840, p \leq .00001$ (see Table 9). The unique contribution of social support for use, with all other variables controlled, was statistically significant, ($B = 3.327$), $F(1, 53) = 17.778, p \leq .0001$. Cannabis use for 16 to 17 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 62) = 10.408, p \leq .00001$ (see Table 9). The unique contribution of attitudes toward use, with all other variables controlled, was statistically significant,

Table 8

Multiple Regression of Time 1 Alcohol and Cannabis Use on Risk Factors for 18-25 Year Old Probationers

Predictors	Alcohol ^a					Cannabis ^b				
	B	B	r	sr ²	E	B	B	r	sr ²	E
Tolerance of Law Violations	.406	.151	.24*	.02	1.361	.044	.170	.45+	.02	2.543
Social Support for Crime	-.143	-.052	.11	.00	.150	.048	.177	.48+	.02	2.544
Attitudes	1.724	.329	.49+	.08	5.635*	.094	.408	.62+	.11	13.488+
Social Support	1.814	.273	.47+	.05	3.390	.110	.174	.56+	.02	1.994
R ²			.32					.51		
Adjusted R ²			.26					.48		
R			.56+					.72+		
unique variability			.14					.17		
shared variability			.18					.34		

^an = 55 ^bn = 62.

* p < .05, ** p < .01, + p ≤ .001.

Table 9

Multiple Regression of Time 2 Alcohol and Cannabis Use on Risk Factors for 16-17 Year Old Probationers

Predictors	Alcohol ^a					Cannabis ^b				
	B	B	r	sr ²	E	B	B	r	sr ²	E
Tolerance of Law Violations	-.362	-.143	-.09	.02	1.594	.019	.082	.25*	.01	.629
Social Support for Crime	.172	.056	.16	.00	.241	.029	.104	.30**	.01	.894
Attitudes	.447	.090	.36**	.00	.470	.095	.420	.55†	.15	15.717†
Social Support	3.327	.539	.59†	.21	17.778†	1.55	.258	.47†	.05	5.152*
R ²			.37					.40		
Adjusted R ²			.32					.36		
R			.61†					.63†		
unique variability			.24					.22		
shared variability			.13					.18		

^an = 58, ^bn = 67.

* p ≤ .05, ** p ≤ .01, † p ≤ .001.

($B = .095$), $F(1, 62) = 15.717$, $p < .001$. The unique contribution of social support for use, with all other variables controlled, was statistically significant, ($B = .155$), $F(1, 62) = 5.152$, $p < .05$. For the younger age group, the variables accounted for 37% of the alcohol variance $R = .61$, and 40% of the cannabis variance $R = .63$. Results of the stepwise aspect of the regression indicated that sensation seeking, anxiety, family dissension, and the measure of isolation, normlessness, and powerlessness did not meet the statistical criteria required for entry.

Alcohol use for 18 to 25 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 49) = 2.668$, $p \leq .05$ (see Table 10). Cannabis use for 18 to 25 year old subjects was statistically significantly predicted in the multiple regression analysis, $F(4, 56) = 8.423$, $p \leq .00001$ (see Table 10). The unique contribution of attitudes toward use, with all other variables controlled, was statistically significant, ($B = .077$), $F(1, 56) = 7.359$, $p \leq .01$. For the older group, the variables accounted for 18% of the alcohol variance, $R = .42$, and 38% of the cannabis variance $R = .61$. Results of the stepwise aspect of the regression indicated that sensation seeking, anxiety, family dissension, and the measure of isolation, normlessness, and powerlessness did not meet the statistical criteria required for entry.

The amount of variance explained by the variables is much higher for alcohol use and slightly higher for cannabis use among the younger group. When other variables were controlled, social support showed consistent and significant effects across alcohol and cannabis use for the younger age group. Attitudes showed significant effects for cannabis use only for this age group.

Contingent Consistency Hypothesis

Analysis of Variance

Analyses of variance were performed to test the contingent consistency hypothesis. Six separate analyses of variance were performed and are reported in Tables 11 to 16. In

Table 10

Multiple Regression of Time 2 Alcohol and Cannabis Use on Risk Factors for 18-25 Year Old Probationers

Predictors	Alcohol ^a					Cannabis ^b				
	B	B	r	sr ²	F	B	B	r	sr ²	F
Tolerance of Law Violations	.750	.246	.33**	.05	2.838	.059	.235	.431	.04	3.745
Social Support for Crime	-.198	-.069	.08	.00	.231	-.014	-.052	.28*	.00	.166
Attitudes	.691	.121	.31*	.01	.531	.077	.344	.521	.08	7.359**
Social Support	1.404	.194	.34**	.02	1.256	.141	.225	.491	.03	2.530
R ²			.18					.38		
Adjusted R ²			.11					.33		
R			.43*					.61†		
unique variability			.08					.15		
shared variability			.10					.23		

^an = 54. ^bn = 61.

* p ≤ .05, ** p ≤ .01, † p ≤ .001.

each case the independent variables introduced as factors were attitudes, social support, and age. Attitudes and social support were split at their median into two levels. Age was split into two groups, 16 to 17 year olds and 18 to 25 year olds. The dependent variables were T1 alcohol use, T2 alcohol use, T1 cannabis use, and T2 cannabis use. For alcohol use, the following three analyses of variance were performed, T1 factors with T1 use, T1 factors with T2 use, and T2 factors with T2 use. For cannabis use, the following three analyses of variance were performed, T1 factors with T1 use, T1 factors with T2 use, and T2 factors with T2 use.

With respect to the analysis of variance for T1 factors and T1 alcohol use, the main effects of attitudes and social support were statistically significant, $F(1, 110) = 3.927, p \leq .05$, and $F(1, 110) = 19.808, p \leq .0001$ respectively (see Table 11). Probationers with attitudes more favourable to drinking ($M = 23.87$) showed greater involvement with alcohol use than probationers with attitudes less favourable to drinking ($M = 13.31$). Probationers with strong social support for use ($M = 25.15$) showed greater involvement with alcohol use than probationers with weak social support for use ($M = 11.52$).

With regard to the analysis of variance for T1 factors and T2 alcohol use, the second order interaction of attitudes by social support by age was statistically significant, $F(1, 107) = 6.355, p \leq .013$ (see Table 12). The simple interaction effect of attitudes and social support at the younger age group was statistically significant, $F(1, 107) = 4.355, p \leq .05$. The interaction was not in the predicted direction.

With respect to the analysis of variance for T2 factors and T2 alcohol use, the main effects of attitudes and social support were statistically significant, $F(1, 104) = 22.972, p \leq .0001$, and $F(1, 104) = 11.695, p \leq .001$ respectively (see Table 13). Probationers with attitudes more favourable to drinking ($M = 26.85$) showed greater involvement with alcohol use than probationers with attitudes less favourable to drinking ($M = 11.83$). Probationers with strong social support for use ($M = 25.60$) showed greater involvement

Table 11

Summary of Analysis of Variance in Self-Reported Time 1 Factors and Time 1
Alcohol Use

Source	Degrees of Freedom	Mean Square	F	p ≤
Attitudes	1	606.786	3.927	.050
Social Support	1	3060.361	19.808	.0001
Age	1	577.805	3.740	.056
Attitudes x Social Support	1	194.518	1.259	.264
Attitudes x Age	1	.475	.003	.956
Social Support x Age	1	116.661	.755	.387
Attitudes x Social Support x Age	1	258.340	1.672	.199
Residual	110	154.505		

Table 12

Summary of Analysis of Variance in Self-Reported Time 1 Factors and Time 2 Alcohol Use

Source	Degrees of Freedom	Mean Square	F	p ≤
Attitudes	1	234.690	1.104	.296
Social Support	1	505.374	2.376	.126
Age	1	37.521	.176	.675
Attitude x Social Support	1	24.620	.116	.734
Attitude x Age	1	479.047	2.253	.136
Social Support x Age	1	830.645	3.906	.051
Attitude x Social Support x Age	1	1351.487	6.355	.013
Residual	107	212.664		

Table 13

Summary of Analysis of Variance in Self-Reported Time 2 Factors and Time 2
Alcohol Use

Source	Degrees of Freedom	Mean Square	F	p ≤
Attitudes	1	4056.444	22.972	.0001
Social Support	1	2065.149	11.695	.001
Age	1	86.063	.487	.487
Attitudes x Social Support	1	411.173	2.329	.130
Attitudes x Age	1	466.772	2.643	.107
Social Support x Age	1	116.014	.657	.419
Attitudes x Social Support x Age	1	80.155	.454	.502
Residual	104	176.579		

with alcohol use than probationers with weak social support for use ($\underline{M} = 13.27$).

With regard to the analysis of variance for T1 factors and T1 cannabis use, the main effects of attitudes and social support were statistically significant, $F(1, 123) = 28.331, p \leq .0001$, and $F(1, 123) = 26.753, p \leq .0001$ respectively (see Table 14). Probationers with attitudes more favourable to marijuana ($\underline{M} = 2.95$) showed greater involvement with cannabis use than probationers with attitudes less favourable to marijuana ($\underline{M} = 1.32$). Probationers with strong social support for use ($\underline{M} = 2.68$) showed greater involvement with cannabis use than probationers with weak social support for use ($\underline{M} = .98$).

With respect to the analysis of variance for T1 factors and T2 cannabis use, the main effects of attitudes and social support were statistically significant, $F(1, 123) = 14.480, p \leq .0001$, and $F(1, 123) = 13.359, p \leq .0001$ respectively (see Table 15). Probationers with attitudes more favourable to marijuana ($\underline{M} = 2.71$) showed greater involvement with cannabis use than probationers with attitudes less favourable to marijuana ($\underline{M} = 1.41$). Probationers with strong social support for use ($\underline{M} = 2.49$) showed greater involvement with cannabis use than probationers with weak social support for use ($\underline{M} = 1.14$).

With regard to the analysis of variance for T2 factors and T2 cannabis use, the main effects of attitudes and social support were statistically significant, $F(1, 119) = 30.499, p \leq .0001$, and $F(1, 119) = 25.216, p \leq .0001$ respectively (see Table 16). Probationers with attitudes more favourable toward marijuana ($\underline{M} = 2.79$) showed greater involvement with cannabis use than probationers with attitudes less favourable toward marijuana ($\underline{M} = 1.34$). Probationers with strong social support for use ($\underline{M} = 3.00$) showed greater involvement with cannabis use than probationers with weak social support for use ($\underline{M} = 1.58$).

Hierarchical Regression Analysis.

It is suggested that the hierarchical technique be performed when testing for

Table 14

Summary of Analysis of Variance in Self-Reported Time 1 Factors and Time 1 Cannabis Use

Source	Degrees of Freedom	Mean Square	F	p ≤
Attitudes	1	35.594	28.331	.0001
Social Support	1	33.612	26.753	.0001
Age	1	.648	.516	.474
Attitudes x Social Support	1	.085	.068	.795
Attitudes x Age	1	.054	.043	.836
Social Support x Age	1	.013	.011	.918
Attitudes x Social Support x Age	1	1.026	.816	.368
Residual	123	1.256		

Table 15

Summary of Analysis of Variance in Self-Reported Time 1 Factors and Time 2 Cannabis Use

Source	Degrees of Freedom	Mean Square	F	p ≤
Attitudes	1	22.847	14.480	.0001
Social Support	1	21.078	13.359	.0001
Age	1	.341	.216	.643
Attitudes x Social Support	1	.163	.103	.748
Attitudes x Age	1	.440	.279	.599
Social Support x Age	1	.183	.116	.734
Attitudes x Social Support x Age	1	.470	.298	.586
Residual	123	1.578		

Table 16

Summary of Analysis of Variance in Self-Reported Time 2 Factors and Time 2 Cannabis Use

Source	Degrees of Freedom	Mean Square	F	p =
Attitudes	1	39.769	30.499	.0001
Social Support	1	32.880	25.216	.0001
Age	1	.128	.098	.754
Attitudes x Social Support	1	.148	.114	.737
Attitudes x Age	1	1.644	1.261	.264
Social Support x Age	1	.474	.363	.548
Attitudes x Social Support x Age	1	.540	.414	.521
Residual	119	1.304		

interaction in multiple regression (Allison, 1977; Pedhazur, 1982). That is, tests for higher order interactions are performed only when all lower order interactions and main effects are included in the equation. Frequency of drug use was regressed on attitude toward use and social support for use, first in an additive model, and subsequently in a multiplicative model that included the first order and second order product of attitude, social support, and age variables. These analyses were carried out in order to determine if the joint relation of attitude, social support, and age would increase the prediction of self-reported alcohol use. The results of the hierarchical regression analysis indicated that the increment to R^2 with the inclusion of the product term was not statistically significant.

Discussion

In an investigation of the relationship between several psychosocial risk factors and drug use this study posed the following questions: Do attitudes and social support favouring drug use still emerge as the strongest predictors? Does the joint relation between these two variables increase the prediction of substance use? Do personal attributes such as age interact with attitudes and social support to increase the prediction? Several hypotheses were put forth to describe the relationship of attitudes and social support to self-reported substance use. A review of these hypotheses in light of the results will follow a discussion of the psychometric information on the Survey of Drinking Styles and Drug Use provided by this study.

In any attempt to assess the degree of the relationship between a predictor and criterion, errors of measurement should be held to a minimum. Unreliable variables can discredit an analysis and distort interpretations. Therefore, a discussion of the reliability of the measures used in this study is important. Two estimates of reliability were carried out on the Survey of Drinking Styles and Drug Use measures: internal consistency and temporal stability.

The internal consistency estimates of the self-report measures of drinking problems

such as loss of control, symptomatic behaviour, coping, awareness of a problem, external problems and problem drinking was considered to be moderate to moderately high. In most cases the internal consistency estimates were better for time two measures. Temporal stability estimates were weak to moderate. Low stability coefficients generally suggest that some change has occurred between testing or that the measure is unreliable. Given that the subjects were participating in a larger study it is possible that some change was occurring.

The relationship between the subscale measures and alcohol use are within the range found in other research. In a summary of the relationships between measures of consumption and alcohol related problems, Sadava (1985) indicated that the average correlation was .37. Correlations between loss of control and consumption ranged from .22 to .44. Correlations for awareness of a drinking problem ranged from .47 to .54. The correlation between use and symptomatic drinking was .34. Correlations between external problems and alcohol consumption ranged from .16 to .53. The awareness of drinking problem measure in the present research did not fall within the range found in other studies. Due to the nature of the questions that compose the awareness measure, and the age of the sample, it is not surprising that the relationship is weak.

Internal consistency and temporal stability estimates for attitudes toward drinking and social support for drinking are moderate. The internal consistency of the Q-F index of alcohol use is moderate. Although the two items are not, strictly speaking, parallel items, the reliability is comparable to that found by Armor, Polich, and Stambul (1978) who suggest that quantity and frequency measures do tend to vary together for the alcoholic population. The test-retest coefficient for the criterion variable is also moderate. To enhance the interpretation of the results change scores were calculated in order to determine if there was movement over time with respect to drinking. A score of zero would indicate no change. The change score mean ($M = 1.25$) suggested an increase in alcohol use from time 1 to time 2. Since the test-retest method treats true individual change as error, any

change between time 1 and time 2 use would therefore yield a lower reliability. The cross-sectional and longitudinal correlations of attitude and social support with self-reported alcohol use is comparable to those reported by others (Cahalan, 1976; Johnson, 1988; Krohn et al., 1984; McCarty, Morrison, & Mills, 1983; White et al., 1986).

Reliability for attitude and social support for marijuana measures are high and consistent with those reported by Andrews and Kandel (1979) and Jessor and Jessor (1977). The cross-sectional relationships between attitudes toward marijuana and self-reported cannabis use were also comparable to those found by other researchers (Andrews & Kandel, 1979; Jessor & Jessor, 1978; Krohn et al., 1984). The internal consistency reliability of the cannabis measure is quite high and the temporal stability is moderate.

The analyses which have been presented indicate a satisfactory rate of reliability in the attitude and social support measures, a high to moderate rate for the criterion measures, and a moderately high to low rate for the drinking subscale measures. This study is in agreement with a few studies which evaluated similar measures and found them to be reliable instruments for data collecting and arriving at conclusions. Caution should be exercised in generalizing the alcohol use results to other situations. Due to missing values on the attitude and social support measures for non drinkers, they were eliminated from the analysis of variance and regression tests. Consequently, the alcohol use analyses were based on drinkers only. The impact of moderate reliabilities and a restricted range on these measures must be considered when interpreting the results. Having presented the psychometric properties of the measures utilized in this study, a review of the hypotheses in light of the results will follow.

It was hypothesized that the number of risk factors would be related to the level of self-reported use of substances. The findings support this hypothesis. The number of risk factors was linearly associated with current use of alcohol and cannabis as well as future use of cannabis. These findings support previous research in the multiple risk factor

approach to drug use (Bry et al., 1982; Newcomb et al., 1986). More research is needed to determine whether certain combinations of risks, in addition to the number of risk factors, would contribute to our understanding of drug use.

Secondly, it was hypothesized that attitudes and social support favouring drug use would be related to increased use of alcohol and cannabis. Support is evident by inspection of the zero order correlations which ranged from .48 to .66. The main effects of the factorial analyses of variance indicated that probationers with attitudes more favourable toward drinking and marijuana showed greater involvement with alcohol and cannabis than probationers with less favourable attitudes. The main effects of the analyses of variance indicated that probationers who experienced strong social support for use showed greater involvement with alcohol and cannabis than probationers experiencing weak social support for use.

Thirdly, it was hypothesized that attitudes and social support would be most strongly associated with substance use. The central concepts derived from social learning theory are clearly the most powerful predictors of drug use in this sample. Psychosocial risk factors such as family problems, anxiety, sensation seeking personality type, and alienation did not add to the prediction in the multiple regression analyses predicting alcohol and cannabis use from these variables. The present research found attitudes and social support for use to make significant and independent contributions in accounting for variance in self-reported alcohol and cannabis use. In combination with tolerance of law violations and social support for crime, these variables account for 18% to 57% of the variance in the drug use measures. These variables are clearly more proximal to drug using behaviour than the other psychosocial variables.

A closer look at the regression analyses for each age group revealed the effects of social support for alcohol use to be much stronger among the younger age group than the older age group. In contrast, alcohol and drug use by the older age group were best

understood in terms of attitudes. This finding concurs with Jessor et al.'s (1991) point that "differential explanatory strength is not inherent in the theoretical systems per se. Rather, it is, at least in part, a function of the degree of proximity of the measures employed to the particular criterion behaviour being analyzed" (p. 146). The social support for drinking measure is more proximal to adolescent drinking than to young adult drinking. The attitude measures are more proximal to young adult alcohol and cannabis use. Akers et al. (1979) suggest that imitation or modelling of others' behaviour is considered to have its greatest effect in the initial stages of behaviour, while reinforcement, association and definitions are more important in the maintenance of behaviour. Based on the age trends described earlier in this paper, perhaps the modelling effects of the peer group are influencing the younger probationers who are legally in the initiation stages of drinking. The age trends also indicate that the rate of cannabis use is high among both age groups, suggesting that the initiation stage is over, which could explain why attitudes are playing a slightly larger role. Perhaps in this sample attitudes, or definitions as Akers refers to them, are slightly more important in the prediction of use than association with drug using peers. The fact that the relative power of variables differed for the alcohol and cannabis use among the younger group also supports previous research which indicates that specific predictors may vary depending on the type of drug (Jessor & Jessor, 1977; Johnson, 1988; Kandel et al., 1978).

It was hypothesized that social support would impose conditions on the relationship between attitudes toward drugs and drug using behaviour. While there was no first order interaction between attitudes and social support there was a second order interaction between attitude, social support and age. The contingent consistency hypothesis is only supported when the product terms (that is, interactions between attitudes, social support and age) significantly improve the prediction of drug use. Evidence was not found to support this hypothesis. This finding addresses Schuman and Johnson's (1976)

conclusion that there was no compelling evidence to suggest that interaction terms increased the variance in behaviour explained by attitudinal and social support variables.

Andrews and Kandel contend that respecification of the behaviour measure is required. The research by Andrews and Kandel (1979) and Morrison (1982) were based on non-deviant populations, and support for the hypothesis was only found among those who were primarily at the initial level of participation in a behaviour. Perhaps, the contingent consistency hypothesis does not hold within a deviant population. Drug use in a young deviant population is higher than that found in a nondeviant population (Vulcano et al., 1990). In addition, attitudes and social support favourable to substance use among offenders in this age group are high. The results provide evidence to support Andrews' (1982) view that there is a "threshold" or "ceiling" effect on the level of density of rewards for a particular behaviour. That is, beyond some level of density one more reward makes little difference. Attitudes and social support are both making significant contributions independently, and an increase in either makes little difference.

Overall, the results of this study are not surprising from the perspective of the drug use literature. Variables that are proximal to the criterion variable, namely those central in the social learning model, are the strongest predictors of substance use. Although these results are consistent with drug use research with non-deviant populations, generalizability is limited by the size of the sample, lack of cross validation, and the problems previously discussed concerning the alcohol measures. The author is also aware that the consequences of categorizing continuous variables, such as loss of information, underestimation of the strength of relationships, and decrease in statistical power, must be considered in interpretation and generalization of the results (Cohen, 1978, Cohen & Cohen, 1975; Pedhazur, 1982)

The present research is an encouraging but limited attempt to integrate and extend empirical findings on the predictors of drug use. Several directions for future research are

suggested based on the findings of this study. A study including the alcohol measures should ensure that revisions are made to the questionnaire. Instructions in Part A of the Survey of Drinking Styles and Drug Use direct respondents who have not drunk in the last six months to proceed to Part B. Missing data of non-drinkers in the present study were the direct result of these instructions. The author suggests that these instructions be revised in a manner that requests all respondents to complete Part A of the survey. In addition, reliability of these measures needs to be enhanced.

Research should be conducted with larger sample sizes, especially when regression analyses are being performed with so many variables to increase the ratio of the number of subjects to independent variables. The use of large samples also allows for cross validation between subsets of a larger sample (Pedhazur, 1982).

In addition, several improvements should be made with regard to the risk indices. First, the literature suggests that the range of potential influences should include other psychosocial risks (Bry et al., 1982; Newcomb, 1992; Newcomb et al., 1986). Second, multiple regressions using all the variables should be performed to make sure they contribute to the prediction of drug use and then those variables not contributing could be eliminated from further analyses. Finally, the current study used the median as a cutoff point and the cutoff points for risks could be more theoretically based which would ensure more replicable results across studies.

Conclusion

This study has provided psychometric information for one of the paper and pencil measures of criminal propensity gathered together by Andrews et al. (1979). The reliability estimates of the subscales of the Survey of Drinking Styles and Drug Use indicate that the marijuana measures are comparable to those used in other research. However, the alcohol measures need improvement. More research with different populations is also required for generalization of the results.

Keeping the limitations in mind, the results of this study do contain implications for drug intervention and prevention policies. Prevention and intervention efforts must be sensitive to the presence of personal definitions favourable to drug use and/ or the presence of drug using peers. The success or failure of such programs may be dependent upon their ability to provide strategies that demonstrate and reinforce alternatives to using drugs. Programs designed to weaken the role of the peer group as a source of prodrug definitions, modelling and reinforcement would be appropriate. Appropriate interventions would also need to target personal definitions already established.

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APPENDIX A

BIO-SOCIAL INFORMATION

O.T.P FACE SHEET

1. Name: _____
(last name) (first name)
2. Sex: M F
3. Age: _____
4. Date of Birth: _____ / _____ / _____
Day Month Year
5. Marital Status:

Currently married.....	yes	no
Ever separated.....	yes	no
Ever divorced.....	yes	no
Ever widowed.....	yes	no
Single, never married.....	yes	no
Cohabiting without formal marital status.....	yes	no
6. Number of Children:

None _____

Actual number _____ and age(s)/sex: (e.g. 18M/5F) _____
7. Current Educational Status:

Studying full-time..... Where? _____

Studying part-time..... Where? _____

Not enrolled in any school program _____

Other (please specify) _____
8. Last grade completed:

Grade _____, Province (Canada only) _____, plus _____ college/univ.
9. Type of Educational Achievement (most recent):

Graduated from grade school (name: _____).....

Graduated from high school (name: _____).....

Successfully completed a recognized trade? profession program _____

Specify certificate: _____

Graduated from community college.....

Graduated from university

Other (please specify) _____
10. Current Occupational Status (refers only to paid positions):

Employed, fulltime.....

Employed, part-time (not actively seeking full-time job)

Employed, part-time (actively seeking full-time job)

Employed on an occasional basis (e.g. supply teaching)

Unemployed, not actively seeking employment

Unemployed, actively seeking employment

Retired

Other (please specify) _____
11. Current Occupation Type (or last occupation if retired or unemployed):

a) Actual job/position title: _____

- b) Professional/Technical (teacher, lawyer, technician)
 Manager, Official, Proprietor (farmer, pub. admin.)
 Technical/Administrative (book-keeper, programmer)
 Clerical/Filing (secretary, filing)
 Sales (insurance agent, real estate, wholesale, retail)
 Craftsman, Foreman (lineman, brickmason, mechanic)
 Operative (welder, bus driver, meat cutter)
 Service (policeman, bartender, waiter, janitor)
 Labourer (construction, farm labour)
 Private Household Worker (maid, housekeeper, gardener).....
 Home-maker
 Student
 Volunteer work

- c) If you are unemployed and have never worked, please state the type of job for which you are qualified and/or are seeking:

- d) Length of time in present job or situation: _____
 Use the space below to clarify any of the above information, if necessary:

12. Income, last 12 months:

Please enter the income you have received over the last 12 months from each of the following sources.

Employment	\$
Unemployment Insurance (U. I. C.)	\$
Welfare.....	\$
Pension	\$
Grants	\$
Mother's Allowance (Ontario Government)	\$
Family Allowance (Federal Government "Baby Bonus")	\$
Orphan's Allowance	\$
Disability compensation (permanent)	\$
Workman's compensation (or equivalent)	\$
Other (please specify)	\$

13. Income, last 6 months:

How much from employment have you received in the last 6 months?
 \$

14. Which of the following statements best describes your employment history?

Check one of the following statements:

Often employed, and hold the same job for one year or more
 Often employed but choose to change jobs frequently

Primarily a seasonal worker, but usually find work in the off season.....
 Frequently unemployed, but actively seek employment
 Frequently unemployed, but lack concern for finding new employment
 Almost always unemployed, but able to work
 Not really in the labour market (e.g. homemaker, student)
 Other (please specify) _____

15. Parents' Occupation Type (or last occupations if retired or unemployed):

- a) Father's actual job/position title: _____
 Mother's actual job/position title: _____
	Father	Mother
b) Professional/Technical		
Manager, Official, Proprietor		
Technical/Administrative		
Clerical/Filing		
Sales		
Craftsman, Foreman		
Operative		
Service		
Labourer		
Private Household Worker		
Home-maker		
Student		
Volunteer work		

Use the space below to clarify any of the above information, if necessary:

16. Age at first reported trouble with the law:

a) Ever in Juvenile Court?

No _____
 Yes _____ Number of times _____ Age at first time _____

b) Ever in Criminal Court?

No _____
 Yes _____ Number of times _____ Age at first time _____

17. Previous Probation Sentences (as an adult):

Number of past probation sentences

Total months of past probation sentences

18. Previous prison sentences (as an adult):
Number of previous prison sentences
Total months of previous prison sentences

19. Number of previous convictions under the Criminal Code as
an adult

*** Questions 20 and 21 are for Probationers only ***

20. Current offence(s) :

21. Length of current probation sentence:
.....

22. a) Have you previously done volunteer work in Health, Welfare,
Education or Criminal Justice?

No

Yes What program(s):

Length of time in each program:

Direct contact with clients:

- b) Previously in Ottawa Criminal Court Volunteer Program?

No

Yes

.....
.....
.....

APPENDIX B

SURVEY OF DRINKING STYLES AND DRUG USE

This questionnaire asks a series of questions about your drinking habits and about your use of other drugs.

Please answer honestly and as carefully as possible. Remember, no one but the research staff will have access to this questionnaire and all material is stored on a computer without your name being attached to your answers. Once we have made provisions for the information to be stored on a computer and your questionnaire has been assigned a number, we will remove this front sheet with your name on it. The sheets with your name on it will then be destroyed.

1. Please check () the one phrase which best describes your drinking history (use of beer, wine or liquor).

Check () one

- a) I have had drinks - I will keep on having drinks.
- b) I have had drinks - I might have more drinks in the future.
- c) I have had drinks - I will have no drinks in the future.
- d) I have never had drinks - I might like to try drinking.
- e) I have never had drinks - I am not going to have any drinks in the future.

2. In this question a "drink" means a glass or bottle of beer, a 4 ounce glass of wine or a shot (1.5 ounce) of liquor. "Drinks" means more than one glass, bottle or shot.

Please check () the one phrase which best describes your use of alcohol over the last six months.

I have had a drink or drinks

Check () one

- a) not once in the last six months.
- b) once in the last six months.
- c) on two or three occasions.
- d) at least once a month.
- e) two or three times a month.
- f) at least once a week.
- g) two or three times a week.
- h) every day or almost every day.

-2-

* If you answered "not once in the last six months", you may skip the rest of Part A and go directly to Part B. *

3. On those occasion(s) over the last six months when you had a drink or drinks, how many drinks did you usually have? _____
4. On those occasion(s) over the last six months when you had a drink or drinks, what was the smallest number of drinks you had? _____
5. On those occasion(s) over the last six months when you had a drink or drinks, what was the largest number of drinks you had? _____

All of the following questions refer to the last six months. Please answer the following questions by circling one of "A", "B" or "C", whichever is the most appropriate answer for your situation. Please answer every question.

6.	Have you stayed drunk for more than a day at a time?	A. Three or more occasions.
B. On one or two occasions.
C. Never.
7.	Do you sometimes get drunk at inappropriate times and places?	A. Three or more occasions.
B. On one or two occasions.
C. Never.
8.	Do you drink to unconsciousness when drinking?	A. Three or more occasions.
B. On one or two occasions.
C. Never.
9.	Have you had difficulty cutting down or stopping drinking?	A. Three or more occasions.
B. On one or two occasions.
C. Never.
10.	Have you kept on drinking "after I promised myself not to"?	A. Three or more occasions.
B. On one or two occasions.
C. Never.

Please answer the following questions by circling the answer which best applies to you. Please remember, we are interested in the last six months.

11.	I take a drink the first thing in the morning when I get up.	Often	Sometime s	Never
12.	I sneak drinks when no one is looking.	Often	Sometimes	Never
13.	When drinking by myself, I drink more than I do when I'm drinking with other people.	Often	Sometimes	Never
14.	I have taken a drink to get rid of a hangover.	Often	Sometimes	Never
15.	I wake up in the morning after drinking and cannot remember doing some of the things I did even after people tell me about them.	Often	Sometimes	Never
16.	Do you ever have more drinks than usual, when you just want to forget something?	Often	Sometimes	Never
17.	Have you gotten high or drank when you were upset, unhappy, tense or a little worried, or because you were trying to forget something that was on your mind?	Often	Sometimes	Never

Please give your agreement or disagreement to the following statements by circling the appropriate response.

SA - strongly agree
 A - agree
 N - neither agree nor disagree
 DA - disagree
 SD - strongly disagree

		Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
18.	I drink because I need it when I am tense and nervous.	SA	A	N	D	SD
19.	I drink because it helps me forget my worries.	SA	A	N	D	SD
20.	It's alright to get drunk whenever you feel like it.	SA	A	N	D	SD
21.	It's alright to get drunk once in a while as long as it doesn't get to be a habit.	SA	A	N	D	SD
22.	Drinking is fun.	SA	A	N	D	SD
23.	Drinking is a good way to meet people and really get to know them.	SA	A	N	D	SD

Please answer the following questions by circling "A", "B" or "C", which ever is the most appropriate description of your situation over the last six months.

24.	Were you ever afraid you might be, or think you might become, an alcoholic?	A. On two or more occasions.
B. On one occasion.
C. Never.
25.	Did a doctor ever tell you that drinking was having a bad effect on your health?	A. On two or more occasions.
B. On one occasion.
C. Never.
26.	Did you ever think you might lose control- that is, you were afraid that you might not be able to stop drinking once you started?	A. On two or more occasions.
B. On one occasion.
C. Never.
27.	Have you ever thought you really ought to cut down and then found out that you couldn't manage to do it?	A. On two or more occasions.
B. On one occasion.
C. Never.
28.	Have you consulted an agency or a professional for help with a drinking problem?	A. On two or more occasions.
B. On one occasion.
C. Never.
29.	Do you feel you are spending too much money on drinking, or that your drinking is now a financial burden?	A. On two or more occasions.
B. On one occasion.
C. Never.
30.	Have you ever been in an accident (auto accident, accident at work etc.) due to drinking?	A. On two or more occasions.
B. On one occasion.
C. Never.
31.	Have you ever been stopped by the police and were talked to, or sent home, or arrested in connection with your drinking?	A. On two or more occasions.
B. On one occasion.
C. Never.
32.	Has anyone other than your spouse or ex-spouse ever been angry at you (or worse) about your drinking?	A. On two or more occasions.
B. On one occasion.
C. Never.
33.	Has your spouse, or ex-spouse ever been angry at you (or worse) about your drinking?	A. On two or more occasions.
B. On one occasion.
C. Never.
34.	Have you ever received a complaint or warning from a co-worker, supervisor, or client about your drinking?	A. On two or more occasions.
B. On one occasion.
C. Never.

Please circle the one answer most appropriate to your situation for each of the following questions.

35. If you were to stop drinking or to try and cut down on your drinking, do you have friends or relatives who would support your effort.
- A. All of my friends and close relatives would support my effort.
 - B. Several friends and close relatives would support my effort.
 - C. A few of my friends and close relatives would support my effort.
 - D. None of my friends or close relatives would support my effort.
36. Is there a group of people that you drink with fairly regularly?
- A. Quite regularly.
 - B. Somewhat regularly.
 - C. Now and then.
 - D. Rarely
37. In the group with which you drink most often, how many of them sometimes get drunk?
- A. None of them.
 - B. A few of them.
 - C. Several of them.
 - D. All of them.
37. In the group with which you drink most often, how many of them don't have a drink at all, or just have one drink?
- A. None of them.
 - B. A few of them.
 - C. Several of them.
 - D. All of them.
39. a) Were you drinking just before, or at the time of, the offense which you were convicted and given a probation sentence?
- Yes No
- b) In your opinion, did drinking contribute to the fact that you committed the offense?
(Please circle A, B,C, D, whichever best reflects your opinion.)
- A. Yes, drinking was the main factor leading up to the offense.
 - B. Yes, drinking was an important factor leading up to the offense, but not the only thing.
 - C. Yes, drinking was a factor, but not as important as some other things.
 - D. No, drinking had nothing to do with the offense.

Thank you for completing Part A of the questionnaire. Now turn to the next page and begin Part B.

Part B

1. Have you ever tried any of the following drugs:
(Please check (✓) which ones you have tried; do not make a check if
a doctor prescribed the drug.)

Check Mark

Coffee

Tobacco (cigarettes, cigars, pipe)

"Speed" (amphetamines, stimulants, pep pills)

Cocaine ("Coke")

Heroin/Morphine

LSD/Mescaline (or other hallucinogenic drugs)

Opium

Marijuana ("Grass", "pot")

Hashish ("Hash")

Solvents (sniffing of glue, contact cement,
nail polish remover etc.)

Barbiturates (bennies, goofballs, seconal,
amytal, phenobarb).....

Tranquilizers (mild "downers", sleeping pills)

Other Drugs: (Please specify).....

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2. Have you used any of the following drugs in the last six months?
(Please circle the appropriate answer for each type of drug.)

Coffee	Never	One or two occasions	Once a month or so	Several cups a week	Several cups a day
Tobacco	Never	One or two occasions	Once a month or so	Several cigarettes/cigars/pipes a week	Several cigarettes/cigars/pipes a day
"Speed"	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Cocaine	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Heroin/ Morphine	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
LSD/ Mescaline	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Opium	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Marijuana	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Hashish	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Solvents	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Barbiturates	Never	One or two occasions	Once a month or so	A few time a week	Daily or almost every day

-Q-

Tranqui- lizers	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day
Other	Never	One or two occasions	Once a month or so	A few times a week	Daily or almost every day

3. a) In your opinion, does your use of any of the above drugs represent a problem or a source of problem(s) in your life?

Yes

No

- b) If yes, which drug(s)?

- c) If yes, what sort of problem(s)?

2 OF 2

PM-1 3 1/2" x 4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

4. Now, and this is the last series of questions, we would like you to answer a few questions about marijuana ("grass" or "pot"). Please answer these questions whether you smoke marijuana or not.

Circle one of SA, A, N, D, or SD for each item depending upon how you feel about each statement.

SA - strongly agree
 A - agree
 N - neither agree nor disagree
 DA - disagree
 SD - strongly disagree

		Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a)	As long as possession of marijuana is against the law, I am less likely to use it regularly or less likely to use it at all.	SA	A	N	D	SD
b)	With marijuana, you may not become addicted but there is always the chance of developing a dependency or a strong habit.	SA	A	N	D	SD
c)	With marijuana, there is the possibility of suffering bad physical or emotional reactions from bad quality drugs.	SA	A	N	D	SD
d)	With marijuana, there is the possibility of suffering bad physical or emotional reactions even from good quality drugs.	SA	A	N	D	SD

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		Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
e)	With marijuana, a person can better appreciate beauty.	SA	A	N	D	SD
f)	With marijuana, there is the feeling that you understand things better.	SA	A	N	D	SD
g)	With marijuana, there is a pleasant feeling of being on one's own.	SA	A	N	D	SD
h)	With marijuana, there is the fear of being arrested.	SA	A	N	D	SD
i)	With marijuana, there is always the unpleasant possibility that ones relatives or friends would disapprove.	SA	A	N	D	SD
j)	With marijuana, there is a "good stone", a "pleasant state".	SA	A	N	D	SD
k)	It would be pretty easy for me to get some marijuana if I wanted some.	SA	A	N	D	SD
l)	I know some people who use marijuana on a fairly regular basis.	SA	A	N	D	SD
m)	Some of my best friends use marijuana on a fairly regular basis.	SA	A	N	D	SD

Thank you for taking the time to complete this long questionnaire.

APPENDIX C

FAKE SCALE

Circle each of the following statements as "true" (T) or "false" (F) according to the way you feel about it. If you agree with the statement, circle "T". If you disagree, circle "F". There is no "right" or "wrong" answers. Please try to answer every statement. If you are not sure, circle the choice which comes closest to your general feeling or to the way you usually feel.

For each statement, circle the appropriate answer according to how you feel about it.

TRUE FALSE

1.	I gossip a little at times	T	F
2.	At times I have very much wanted to leave home.	T	F
3.	I would like to be a soldier.	T	F
4.	Sometimes when I am not feeling well I am cross.	T	F
5.	I am very careful about my manner of dress.	T	F
6.	I go to church almost every week.	T	F
7.	My hardest battles are with myself.	T	F
8.	I must admit that I have at times been worried beyond reason over something that really did not matter.	T	F
9.	If given the chance I could do some things that would be of great benefit to the world.	T	F
10.	I have been inspired to a program of life based on duty which I have since carefully followed.	T	F
11.	I do not always tell the truth.	T	F
12.	Religion gives me no worry.	T	F
13.	I like to talk about sex.	T	F
14.	When I was a child I belonged to a crowd or gang that tried to stick together through thick and thin.	T	F
15.	I hate to have to rush when working.	T	F
16.	I frequently find myself worrying about something.	T	F
17.	If given the chance I would make a good leader of people.	T	F
18.	I find it hard to set aside a task that I have undertaken, even for a short time.	T	F
19.	I worry over money and business.	T	F
20.	Sometimes at elections I vote for men about whom I know very little.	T	F
21.	I very much like hunting.	T	F
22.	At times I feel like swearing.	T	F
23.	I feel sure that there is only one true religion	T	F
24.	I have several times had a change of heart about my life work.	T	F
25.	I would like to hunt lions in Africa.	T	F
26.	I like to flirt.	T	F
27.	I am entirely self-confident.	T	F

	TRUE	FALSE
28. At periods my mind seems to work more slowly than usual.	T	F
29. I do not like everyone I know.	T	F
30. It is always a good thing to be frank.	T	F
31. I would like to be an auto racer.	T	F
32. I would like to be a journalist.	T	F
33. I have very few fears compared to my friends.	T	F

APPENDIX D

ISOLATION NORMLESSNESS POWERLESSNESS SCALE

This is not a test and there are no "right" or "wrong" answers.

Following are some statements with which you may agree or disagree. Circle the answer which best represents your feeling about the statement. Circle the answer which best represents your general feeling or the way you usually feel.

If you **STRONGLY AGREE** circle **SA**

If you **AGREE** circle **A**

If you are not sure or UNDECIDED circle U

If you **DISAGREE** circle D

If you **STRONGLY DISAGREE** circle **SD**

Please indicate your feelings about every statement by circling one of the five (5) answers; that is please answer every question by circling one of the five phrases.

Confidential Research Scales: CU XII

For each statement, please choose the response (using the scale indicated on the preceding page) which best describes yourself.....that is, which describes the extent to which you feel each statement does or does not apply to you. The response you choose for any given statement will be either SA, A, U, D or SD. Please answer all questions.

For each statement, circle the the appropriate answer according to how you feel about it.

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1/	It is impossible for one person to really understand the feelings of another.	SA	A	U	D	SD
2/	If you really want to get somewhere in this world, it doesn't matter what you have to do to get there.	SA	A	U	D	SD
3/	People have to do what others are doing so much that a person can't choose for himself very often.	SA	A	U	D	SD
4/	Sometimes I feel all alone in the world.	SA	A	U	D	SD
5/	A person is foolish to keep working if he doesn't have to.	SA	A	U	D	SD
6/	The only thing you can be sure of is that you can't be sure of anything.	SA	A	U	D	SD
7/	There are very few people you can count on.	SA	A	U	D	SD
8/	Too many people are just out for themselves and don't really care for anyone else.	SA	A	U	D	SD
9/	Sometimes I have the feeling that other people take advantage of me.	SA	A	U	D	SD
10/	Not many people really feel lonely.	SA	A	U	D	SD

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
11/	In this fast changing world, with so much different information available it is difficult to think clearly about many things.	SA	A	U	D	SD
12/	A person can always find friends if he is friendly himself.	SA	A	U	D	SD
13/	It's who you know, not what you know, that counts.	SA	A	U	D	SD
14/	The world is mostly a friendly place.	SA	A	U	D	SD
15/	There just aren't any definite rules to live by.	SA	A	U	D	SD
16/	Success comes more from luck than real ability.	SA	A	U	D	SD
17/	Real friends are easy to find.	SA	A	U	D	SD
18/	I often wonder what the meaning of life really is.	SA	A	U	D	SD
19/	In life people are just parts of a big machine.	SA	A	U	D	SD
20/	The only way to get along nowadays is not to trust anyone.	SA	A	U	D	SD
21/	It is frightening to be responsible for someone else.	SA	A	U	D	SD
22/	People will do almost anything if the reward is high enough.	SA	A	U	D	SD
23/	Of all the ways that people could live their lives, one way is just about as good as another.	SA	A	U	D	SD

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
24/	Nowadays a person has to live pretty much for himself; people soon come to distrust each other.	SA	A	U	D	SD
25/	There are so many religions that you don't really know which to believe.	SA	A	U	D	SD
26/	I have so many decisions to make that I could just 'blow up'.	SA	A	U	D	SD
27/	People are just naturally friendly and helpful.	SA	A	U	D	SD
28/	There are very few things in life you can really depend on.	SA	A	U	D	SD

APPENDIX E

AWARENESS OF LIMITED OPPORTUNITIES TOLERANCE FOR LAW VIOLATIONS SCALES

This is not a test and there are no "right" or "wrong" answers.

Following are some statements with which you may agree or disagree. Circle the answer which best represents your feeling about the statement. Circle the answer which best represents your general feeling or the way you usually feel.

If you STRONGLY AGREE circle SA

If you AGREE circle A

If you are not sure or UNDECIDED circle U

If you DISAGREE circle D

If you STRONGLY DISAGREE circle SD

Please indicate your feelings about every statement by circling one of the five (5) answers; that is please answer every question by circling one of the five phrases.

Confidential Research Scales: CU XII

For each statement, circle the the appropriate answer according to how you feel about it.

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1/	Laws are so often made for the benefit of small selfish groups that a man cannot respect the law.	SA	A	U	D	SD
2/	Nearly all laws deserve our respect.	SA	A	U	D	SD
3/	It is our duty to obey all laws.	SA	A	U	D	SD
4/	Laws are usually bad.	SA	A	U	D	SD
5/	The law is rotten to the core.	SA	A	U	D	SD
6/	Almost any jury can be fixed.	SA	A	U	D	SD
7/	You can't get justice in court.	SA	A	U	D	SD
8/	On the whole, lawyers are honest.	SA	A	U	D	SD
9/	Fake witnesses are often produced by the prosecution.	SA	A	U	D	SD
10/	On the whole, policemen are honest.	SA	A	U	D	SD
11/	A cop is a friend to people in need.	SA	A	U	D	SD
12/	Life would be better with fewer policemen.	SA	A	U	D	SD
13/	Policemen should be paid more for their work.	SA	A	U	D	SD
14/	Policemen are just as crooked as the people they arrest.	SA	A	U	D	SD
15/	All laws should be strictly obeyed because they are laws.	SA	A	U	D	SD
16/	The law does not benefit the common man.	SA	A	U	D	SD

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
17/	The law as a whole is sound.	SA	A	U	D	SD
18/	In the long run law and justice are the same.	SA	A	U	D	SD
19/	The law enslaves the majority of people for the benefit of a few.	SA	A	U	D	SD
20/	On the whole judges are honest and kindhearted.	SA	A	U	D	SD
21/	Court decisions are almost always just.	SA	A	U	D	SD
22/	Almost anything can be fixed in the courts if you have enough money.	SA	A	U	D	SD
23/	A judge is a good man.	SA	A	U	D	SD
24/	Our society would be better off if there were more policemen.	SA	A	U	D	SD
25/	Police rarely try to help people.	SA	A	U	D	SD

Confidential Research Scales: CU XII

For each statement, circle the the appropriate answer according to how you feel about it.

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1/	I probably won't be able to do the kind of work I want to do, because I won't have enough education.	SA	A	U	D	SD
2/	No matter where a guy comes from he can still get ahead if he works hard.	SA	A	U	D	SD
3/	Most people are better off than I am.	SA	A	U	D	SD
4/	I am as well off as most people.	SA	A	U	D	SD
5/	The world is usually good to people like me.	SA	A	U	D	SD
6/	There is a good chance that some of my friends will have a lot of money.	SA	A	U	D	SD
7/	A guy like me can't become successful unless he gets a lucky break.	SA	A	U	D	SD
8/	Sometimes a guy like me has to break the law in order to get ahead.	SA	A	U	D	SD
9/	Most successful men used illegal means to become successful.	SA	A	U	D	SD
10/	People who have been in trouble with the law have the same sort of ideas about life that I have.	SA	A	U	D	SD
11/	A man should always obey the law no matter how much it interferes with his personal ambition.	SA	A	U	D	SD

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
12/	I would rather associate with people that obey the law than those that don't.	SA	A	U	D	SD
13/	It's alright for a person to break the law if he doesn't get caught.	SA	A	U	D	SD
14/	I'm more like the people who can make a living outside the law than I am like those who only break the law occasionally.	SA	A	U	D	SD
15/	Most people would commit crimes if they knew they wouldn't get caught.	SA	A	U	D	SD
16/	People who have been in trouble with the law are more like me than people who don't have trouble with the law.	SA	A	U	D	SD
17/	There never is a good cause for breaking the law.	SA	A	U	D	SD
18/	I don't have much in common with people who never break the law.	SA	A	U	D	SD
19/	A hungry man has the right to steal.	SA	A	U	D	SD
20/	It's alright to evade the law if you don't actually violate the law.	SA	A	U	D	SD
21/	No man can violate the law and be my friend.	SA	A	U	D	SD
22/	A person should obey only those laws which seem reasonable.	SA	A	U	D	SD
23/	A man's a fool to work for a living if he can get by some easier way; even if it means violating the law.	SA	A	U	D	SD
24/	If a person works hard he will get ahead in the world.	SA	A	U	D	SD

APPENDIX F

ANXIETY SCALE

Circle each of the following statements as "true" (T) or "false" (F) according to the way you feel about it. If you agree with the statement, circle "T". If you disagree, circle "F". There is no "right" or "wrong" answers. Please try to answer every statement. If you are not sure, circle the choice which comes closest to your general feeling or to the way you usually feel.

At-s

For each statement, circle the appropriate answer according to how you feel about it.

		TRUE	FALSE
1.	I am not usually self-conscious.	T	F
2.	I am happy most of the time.	T	F
3.	I cannot keep my mind on one thing.	T	F
4.	I am certainly lacking in self-confidence.	T	F
5.	I work under a great deal of tension.	T	F
6.	I have periods of such great restlessness that I cannot sit long in a chair.	T	F
7.	I sometimes feel that I am about to go to pieces.	T	F
8.	I feel anxiety about something or someone almost all the time.	T	F
9.	I am usually calm and not easily upset.	T	F
10.	Life is a strain for me much of the time.	T	F
11.	I am inclined to take things hard.	T	F
12.	I am more sensitive than most other people.	T	F
13.	I have sometimes felt that difficulties were piling up so high that I could not overcome them.	T	F
14.	I am a high-strung person.	T	F
15.	I shrink from facing a crisis or difficulty.	T	F
16.	I frequently find myself worrying about something.	T	F
17.	I certainly feel useless at times.	T	F
18.	At times I think I am no good at all	T	F
19.	I beleive I am no more nervous than most others.	T	F
20.	I find it hard to keep my mind on a task or job.	T	F

APPENDIX G

SELF ESTEEM SCALE

This is not a test and there are no "right" or "wrong" answers.

Following are some statements with which you may agree or disagree. Circle the answer which best represents your feeling about the statement. Circle the answer which best represents your general feeling or the way you usually feel.

If you **STRONGLY AGREE** circle **SA**

If you AGREE circle **A**

If you are not sure or UNDECIDED circle U

If you DISAGREE circle D

If you **STRONGLY DISAGREE** circle **SD**

Please indicate your feelings about every statement by circling one of the five (5) answers; that is please answer every question by circling one of the five phrases.

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1/	I spend a lot of time daydreaming.	SA	A	U	D	SD
2/	I'm pretty sure of myself.	SA	A	U	D	SD
3/	I often wish I were someone else.	SA	A	U	D	SD
4/	I'm easy to like.	SA	A	U	D	SD
5/	I never worry about anything.	SA	A	U	D	SD
6/	My parents and I used to have a lot of fun together.	SA	A	U	D	SD
7/	I wish I were younger.	SA	A	U	D	SD
8/	There are lots of things about myself I'd like to change if I could.	SA	A	U	D	SD
9/	I can make up my mind without too much trouble.	SA	A	U	D	SD
10/	I'm a lot of fun to be with.	SA	A	U	D	SD
11/	I get upset easily when dealing with others, especially with those close to me.	SA	A	U	D	SD
12/	I always do the right thing.	SA	A	U	D	SD
13/	Someone always has to tell me what to do.	SA	A	U	D	SD
14/	It takes me a long time to get used to anything new.	SA	A	U	D	SD
15/	I'm often sorry for the things I do.	SA	A	U	D	SD
16/	I'm popular with people my own age.	SA	A	U	D	SD
17/	I'm never unhappy.	SA	A	U	D	SD

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
18/ I'm doing the best work that I can.	SA	A	U	D	SD
19/ I give in very easily.	SA	A	U	D	SD
20/ I can usually take care of myself.	SA	A	U	D	SD
21/ I'm pretty happy.	SA	A	U	D	SD
22/ I'm usually proud of what I am doing.	SA	A	U	D	SD
23/ My parents expected too much of me.	SA	A	U	D	SD
24/ I like everyone I know.	SA	A	U	D	SD
25/ I understand myself.	SA	A	U	D	SD
26/ Things are all mixed up in my life.	SA	A	U	D	SD
27/ Younger people usually follow my ideas.	SA	A	U	D	SD
28/ I never got scolded.	SA	A	U	D	SD
29/ My parents understood me pretty well.	SA	A	U	D	SD
30/ I can make up my mind and stick to it.	SA	A	U	D	SD
31/ I really don't like being who I am.	SA	A	U	D	SD
32/ I have a low opinion of myself.	SA	A	U	D	SD
33/ I don't like to be with other people.	SA	A	U	D	SD
34/ I'm never shy.	SA	A	U	D	SD
35/ I often felt upset in school.	SA	A	U	D	SD
36/ I often feel ashamed of myself.	SA	A	U	D	SD

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
37/ I'm not as nice looking as most people.	SA	A	U	D	SD
38/ If I have something to say, I usually say it.	SA	A	U	D	SD
39/ I always tell the truth.	SA	A	U	D	SD
40/ I don't care what happens to me.	SA	A	U	D	SD
41/ I'm a failure.	SA	A	U	D	SD
42/ Most people are better liked than I am.	SA	A	U	D	SD
43/ I usually felt as if my parents were pushing me.	SA	A	U	D	SD
44/ I always know what to say to people.	SA	A	U	D	SD
45/ I get upset easily when I'm called down about something.	SA	A	U	D	SD
46/ Things usually don't bother me.	SA	A	U	D	SD
47/ I can't be depended on.	SA	A	U	D	SD

APPENDIX H

FAMILY DISSENSION
SCHOLASTIC MALADJUSTMENT
PSYCHOPATHY
NEUROTICISM
SOCIALIZATION
SCALES

This is not a test and there are no "right" or "wrong" answers.

Circle each of the following statements as "true" (T) or "false" (F) according to the way you feel about it. If you agree with the statement, circle "T". If you disagree, circle "F". There is no "right" or "wrong" answers. Please try to answer every statement. If you are not sure, circle the choice which comes closest to your general feeling or to the way you usually feel.

Confidential Research Scales: CU XIII (Rev)

For each statement, circle the appropriate answer according to how you feel about it.

	TRUE	FALSE
1. While I was in school I played hookey quite a bit.	T	F
2. If someone dares me to do something, I usually do it.	T	F
3. The way things look, it's pretty hard to keep up hope of amounting to something.	T	F
4. I feel more strongly about right and wrong than most people.	T	F
5. Most things don't excite me or thrill me.	T	F
6. My parents often didn't like my friends.	T	F
7. I was always happy about my home life.	T	F
8. I often do things on the spur of the moment without thinking first.	T	F
9. Most of the time my parents let me make my own decisions.	T	F
10. I wouldn't ask for a favour even if it meant going without something.	T	F
11. I have had more things to worry about than most people.	T	F
12. Before I do something I try to think of how my friends will react to it.	T	F
13. When I was in school I was sometimes sent to the principal for fooling around.	T	F
14. I try to stay out of trouble at all costs.	T	F
15. I usually feel pretty happy.	T	F
16. Many times I feel as though I have done something wrong or wicked.	T	F
17. I have often done things against my parent's wishes.	T	F
18. How I look, and what impression I am making upon others, is important to me.	T	F
19. I have never drank heavily.	T	F

	TRUE	FALSE
20. It is hard for me to drop, or break with a friend.	T	F
21. When I was younger I often felt like leaving home.	T	F
22. The way I look has never worried me.	T	F
23. My sex behaviour has gotten me into trouble before.	T	F
24. If I see trouble I go out of my way to meet it rather than try to escape it.	T	F
25. My home life was never enjoyable.	T	F
26. I seem to have more regrets than other people about the things I do.	T	F
27. My table manners are better when I am out in company than they are at home.	T	F
28. It doesn't take much for someone to win an argument with me.	T	F
29. Seeing a smart lawyer get a criminal free makes me pretty discouraged with the law.	T	F
30. At times in the past I drank far too much alcohol.	T	F
31. Even when I have gotten into trouble I was usually trying to do the right thing.	T	F
32. Having enough friends and social life is very important to me.	T	F
33. I often had the urge to run away from home.	T	F
34. I have gotten a pretty raw deal out of life.	F	F
35. I often find people talking about me behind my back.	T	F
36. When I was in school I used to give the teachers a lot of trouble.	T	F
37. I think most other people are happier than I am.	T	F
38. When I was a youngster I stole something occasionally.	T	F
39. When I was a child my home was less peaceful and quiet than those of most other people.	T	F
40. If I could make enough money I would like to travel with a circus or carnival.	T	F

		TRUE	FALSE
41.	Going to school never interested me much.	T	F
42.	My family was always very close to one another.	T	F
43.	I don't think my parents ever really understood me.	T	F
44.	The only way to get along nowadays is not to trust anyone.	T	F
45.	The only way to make big money is to steal it.	T	F
46.	I have very strong likes and dislikes.	T	F
47.	I got (or used to get) into a lot of fights in school.	T	F
48.	When something goes wrong I usually blame myself rather than the other fellow.	T	F
49.	It isn't their fault that most guys get into trouble.	T	F
50.	I do what I want to, whether anybody likes it or not.	T	F
51.	I sometimes feel that I made the wrong choice in my occupation.	T	F
52.	I don't mind lying if I am in bad trouble.	T	F
53.	I get nervous when I have to ask someone for a job.	T	F
54.	It is hard for me to act natural when I am with new people.	T	F
55.	I have never been in trouble with the law.	T	F
56.	I enjoy work as much as play.	T	F
57.	I often feel that I am not getting anywhere in life.	T	F
58.	When in school, I sometimes felt like quitting.	T	F
59.	When I was a little kid, I was always doing things my folks told me not to.	T	F
60.	I have failed at least one year in school.	T	F
61.	The only way to settle anything is to lick the guy.	T	F
62.	A lot of times it's fun to be in jail.	T	F
63.	My folks move (or used to move) from place to place a lot.	T	F

	TRUE	FALSE
64. My folks have sometimes been in trouble with the law.	T	F
65. I would rather be at home when things go wrong.	T	F
66. I'm really too tough a guy to get along with most friends.	T	F
67. I would have been more successful if people had given me a fair chance.	T	F
68. I have run away from home.	T	F
69. Cops and judges will tell you one thing and do another.	T	F
70. Winning a fight is more fun than anything.	T	F
71. If you don't have enough to live on it's okay to steal.	T	F
72. Sometimes I feel (or used to feel) that if I could just get away from home, everything would be alright.	T	F
73. If somebody does something to me, I always get them back.	T	F
74. A guy like me hits first and asks questions later.	T	F
75. The people that run things are usually against me.	T	F
76. My folks usually blame bad company for the trouble I get into.	T	F
77. Cops usually treat you dirty.	T	F
78. If the cops don't like you, they will get you for anything.	T	F
79. Most brothers and sisters are more trouble than they are worth.	T	F
80. It's dumb to trust older people.	T	F
81. My mother and father argued a lot.	T	F
82. My father (or mother) treated me badly.	T	F
83. I was often punished unfairly as a child.	T	F
84. My folks yelled at us a lot.	T	F
85. My mother and father have never really been friends of mine.	T	F
86. I have lived in an orphan's home or a foster home at some time.	T	F

APPENDIX I

EMPATHY SCALE

Circle each of the following statements as "true" (T) or "false" (F) according to the way you feel about it. If you agree with the statement, circle "T". If you disagree, circle "F". There is no "right" or "wrong" answers. Please try to answer every statement. If you are not sure, circle the choice which comes closest to your general feeling or to the way you usually feel.

For each statement, circle the appropriate answer according to how you feel about it.

		TRUE	FALSE
1.	A person needs to "show off" a little now and then.	T	F
2.	As a rule I have little difficulty in "putting myself into other people's shoes".	T	F
3.	Clever, sarcastic people make me feel uncomfortable.	T	F
4.	Once in a while I think of things too bad to talk about.	T	F
5.	I feel that it is certainly best to keep my mouth shut when I'm in trouble.	T	F
6.	I have seen some things so sad that I almost felt like crying.	T	F
7.	I usually take an active part in the entertainment at parties.	T	F
8.	I am a good mixer.	T	F
9.	I feel sure that there is only one true religion.	T	F
10.	I am afraid of deep water.	T	F
11.	I am an important person.	T	F
12.	I like poetry.	T	F
13.	My feelings are not easily hurt.	T	F
14.	I must admit I often try to get my own way regardless of what others may want.	T	F
15.	I have at one time or another in my life tried my hand at writing poetry.	T	F
16.	Disobedience to the government is never justified.	T	F
17.	Most of the arguments or quarrels I get into are over matters of principle.	T	F
18.	I have met problems so full of possibilities that I have been unable to make up my mind about them.	T	F
19.	Often I can't understand why I have been so cross and grouchy.	T	F
20.	I would like the job of a foreign correspondent for a newspaper.	T	F
21.	People today have forgotten how to feel properly ashamed of themselves.	T	F

		TRUE	FALSE
22.	It is the duty of a citizen to support his country, right or wrong.	T	F
23.	What others think of one does not bother me.	T	F
24.	I would like to be a journalist.	T	F
25.	I prefer a shower to a bathtub.	T	F
26.	I always try to consider the other fellow's feelings before I do something.	T	F
27.	I usually don't like to talk much unless I am with people I know very well.	T	F
28.	I like to talk about sex.	T	F
29.	My way of doing things is apt to be misunderstood by others.	T	F
30.	Sometimes without any reason or even when things are going wrong I feel excited, happy, "on top of the world".	T	F
31.	I can remember "playing sick" to get out of something.	T	F
32.	I like to keep people guessing what I'm going to do next.	T	F
33.	Before I do something I try to consider how my friends will react to it.	T	F
34.	I like to talk before groups of people.	T	F
35.	I am usually rather short-tempered with people who come around and bother me with foolish questions.	T	F
36.	When a man is with a woman he is usually thinking about things related to sex.	T	F
37.	I am not easily angered.	T	F
38.	I like to be with a crowd who play jokes on one another.	T	F
39.	My mother or father often made me obey even when I thought that it was unreasonable.	T	F
40.	I easily become impatient with people.	T	F
41.	Sometimes I enjoy hurting persons I love.	T	F
42.	I tend to be interested in several different hobbies rather than to stick to one of them for a long time.	T	F

		TRUE	FALSE
43.	Only a fool would try to change our North American way of life.	T	F
44.	My parents were always very strict and stern with me.	T	F
45.	Sometimes I rather enjoy going against the rules and doing things I'm not supposed to.	T	F
46.	I think I would like to belong to a singing club.	T	F
47.	I have a pretty clear idea of what I would try to impart to my students if I were a teacher.	T	F
48.	People have often misunderstood my intentions when I was trying to put them right and be helpful.	T	F
49.	I am usually calm and not easily upset.	T	F
50.	I would certainly enjoy beating a crook at his own game.	T	F
51.	I think I am usually a leader in my group.	T	F
52.	I like to have a place for everything and everything in its place.	T	F
53.	I don't like to work on a problem unless there is the possibility of coming out with a clear and unambiguous answer.	T	F
54.	It bothers me when something unexpected interrupts my daily routine.	T	F
55.	I am often so annoyed when someone tries to get ahead of me in a line of people that I speak to him about it.	T	F
56.	I have never been made especially nervous over trouble that any members of my family have gotten into.	T	F
57.	I have a natural talent for influencing people.	T	F
58.	I enjoy the company of strong-willed people.	T	F
59.	I don't really care whether people like me or dislike me.	T	F
60.	The trouble with many people is that they don't take things seriously enough.	T	F
61.	I frequently undertake more than I can accomplish.	T	F
62.	It is hard for me just to sit and relax..	T	F

APPENDIX J

**VALUE EDUCATION
VALUE EMPLOYMENT
SCALE**

This is not a test and there are no "right" or "wrong" answers.

Following are some statements with which you may agree or disagree. Circle the answer which best represents your feeling about the statement. Circle the answer which best represents your general feeling or the way you usually feel.

If you **STRONGLY AGREE** circle **SA**

If you AGREE circle **A**

If you are not sure or UNDECIDED circle U

If you DISAGREE circle D

If you **STRONGLY DISAGREE** circle **SD**

Please indicate your feelings about every statement by circling one of the five (5) answers; that is please answer every question by circling one of the five phrases.

Confidential Research Scales: New CU III

For each statement, circle the appropriate answer according to how you feel about it.

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.	Information gained in school is essential for any kind of work one may wish to pursue.	SA	A	U	D	SD
2.	I go to school or went to school, only because I am (was) compelled to.	SA	A	U	D	SD
3.	Education is of first rate importance in the life of man.	SA	A	U	D	SD
4.	Education tends to make people snobs.	SA	A	U	D	SD
5.	I think education will be of use to me after I leave school <u>or</u> has been of use since I left school.	SA	A	U	D	SD
6.	I see no value in education	SA	A	U	D	SD
7.	Education enables us to make the best use of our lives.	SA	A	U	D	SD
8.	Education is an excellent character builder.	SA	A	U	D	SD
9.	A person can learn far more by working than by going to school.	SA	A	U	D	SD
10.	The more educated a person is, the better he is able to enjoy life.	SA	A	U	D	SD
11.	Education is no help getting a job today.	SA	A	U	D	SD
12.	An education is worth all the time and effort it requires.	SA	A	U	D	SD

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
13.	School training is of little help in meeting the real problems of real life.	SA	A	U	D	SD
14.	A person is foolish to keep going to school if that person can get a job.	SA	A	U	D	SD
15.	Education makes a person a better citizen.	SA	A	U	D	SD
16.	A high school diploma is the only way to get ahead.	SA	A	U	D	SD
17.	A real education comes from your own experience and not from the things you learn in school.	SA	A	U	D	SD
18.	School is a waste of time.	SA	A	U	D	SD

Confidential Research Scales: New CU III

For each statement, circle the appropriate answer according to how you feel about it.

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.	If a person doesn't want to work, it is his (her) own business.	SA	A	U	D	SD
2.	Work is a good character builder.	SA	A	U	D	SD
3.	Work is a way of being of service to God.	SA	A	U	D	SD
4.	Work helps you forget about your personal problems.	SA	A	U	D	SD
5.	To work is to be worthwhile to society.	SA	A	U	D	SD
6.	A person can only earn the respect of family and friends if he/she is working.	SA	A	U	D	SD
7.	For most people, work is being told what to do and making profit for someone else.	SA	A	U	D	SD
8.	I work only because I am compelled to.	SA	A	U	D	SD
9.	An employed person who is not working is not a good citizen.	SA	A	U	D	SD
10.	I see no value in work except a pay cheque.	SA	A	U	D	SD
11.	Lack of work is the source of all evil.	SA	A	U	D	SD
12.	Work is a good learning experience.	SA	A	U	D	SD
13.	A person is foolish to keep working if he doesn't have to.	SA	A	U	D	SD

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
14.	I believe a person needs to work in order to feel that he has a real place in the world.	SA	A	U	D	SD
15.	A regular job is good for one.	SA	A	U	D	SD
16.	The happiest persons are those who work only when they need money.	SA	A	U	D	SD
17.	Every person should have a job that gives him a steady income.	SA	A	U	D	SD
18.	Work can be a tremendous source of satisfaction.	SA	A	U	D	SD

APPENDIX K

CRIMINAL ASSOCIATION SCALE

This questionnaire asks several questions about how much crime you see going on around you.

Please answer as honestly and as carefully as possible. Remember your answers are confidential and will not be seen by anyone other than the research staff. The answers will be stored on a computer without your name attached to the answers. This front sheet with your name on it will then be destroyed once your answers are counted and stored into the computer.

Please circle the answer which best describes your situation in the last six months.

1. Think of the people you know and have been associating with over the last six months:
 - (a) Are any of them involved in activities such as stealing (cars, money or other property or fraud)?

Most are	Several are	Very few are	None
----------	-------------	--------------	------
 - (b) Are any of them the type of person who enjoys fighting and/or destroying things and/or just gets into fights whether they enjoy it or not?

Most are	Several are	Very few are	None
----------	-------------	--------------	------
2. Think of your best friends, that is, those close friends who you have seen most frequently over the last six months.
 - (a) Are any of them involved in activities such as stealing (cars, money or other property or fraud)?

Most are	Several are	Very few are	None
----------	-------------	--------------	------
 - (b) Are any of them the type of person who enjoys fighting and/or destroying things and/or just gets into fights whether they enjoy it or not?

Most are	Several are	Very few are	None
----------	-------------	--------------	------
3. If I want to purchase some stolen goods at a reduced price, I'd know where to go or who to see.

Definitely Yes	Yes	Not sure	No
----------------	-----	----------	----
4. If I want to get some money for stolen goods, I'd know where to go or who to see.

Definitely Yes	Yes	Not sure	No
----------------	-----	----------	----
5. If I was planning to commit a crime, I know some people who could and would help me to plan it.

Definitely Yes	Yes	Not sure	No
----------------	-----	----------	----

6. While I might not call them friends and I might not see them very often, I know some people who are involved in criminal activity.
Definitely Yes	Yes	Not sure	No
7. I know of at least one person in my neighbourhood or area of town who appears to be doing "just fine" as a result of his/her criminal activity.
Definitely Yes	Yes	Not sure	No
8. In my neighbourhood or area of town, there are people who are involved in criminal activity and are liked and respected by others in the neighbourhood.
Definitely Yes	Yes	Not sure	No
9. In my neighbourhood or my own area of town, I have been a victim of a crime or crimes: (Please circle the appropriate answer for you.)
- (a) "beaten up" or "roughed up" for no reason at all or in a fight or argument which I did not start.
Never	At least once but
not in the last six
months | Once in the
last six months | More than once
in the last six
months |
|-------|--|--------------------------------|---|
- (b) have been indecently assaulted, or the victim of an attempted rape or raped.
Never	At least once but
not in the last six
months | Once in the
last six months | More than once
in the last six
months |
|-------|--|--------------------------------|---|
- (c) have been "mugged", "robbed" or had my purse or bag "snatched" (had money or property stolen from me on the street or have been confronted by a "robber").
Never	At least once but
not in the last six
months | Once in the
last six months | More than once
in the last six
months |
|-------|--|--------------------------------|---|
- (d) have had money or property stolen from my home, a parked car, a locker or some other place in my neighbourhood (when I was not present or did not see the person who did it).
Never	At least once but
not in the last six
months | Once in the
last six months | More than once
in the last six
months |
|-------|--|--------------------------------|---|

- (e) have had property damaged or destroyed (vandalism).

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

- (f) have been approached and bothered by drunk persons outside of my own home but in my own neighbourhood or have seen drunks lying around on sidewalks or on benches in my own neighbourhood.

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

10. Have you reported any of the crimes in Question 9 to the police? (Please check (✓) the appropriate answer for you for each crime.)

	Yes	No	Did not happen to me
a) Assault	_____	_____	
b) Sexual Assault	_____	_____	
c) Mugged/Robbed	_____	_____	
d) Theft	_____	_____	
e) Vandalism	_____	_____	
f) Witness to public drunkenness	_____	_____	

11. Outside of my own neighbourhood, or outside of my own area of town, I have been a victim of a crime or crimes: (Please circle the most appropriate answer for you.

- (a) have been "beaten up" or "roughed up" for no reason at all or in a fight or argument which I did not start.

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

- (b) have been indecently assaulted, or the victim of an attempted rape or raped.

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

(c) have been "murdered", "robbed" or had my purse or bag "snatched" (had money or property stolen from me on the street or have been confronted by a "robber").

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

Reminder: Please remember that this series of questions deal with crimes outside of your own neighbourhood or area.

(d) have had money or property stolen from my home, a parked car, a locker or some other place in my neighbourhood (when I was not present or did not see the person who did it).

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

(e) have had property damaged or destroyed (vandalism).

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

(f) have been approached and bothered by drunk persons outside of my own neighbourhood or have seen drunks lying around on sidewalks or on benches outside my own neighbourhood.

Never	At least once but not in the last six months	Once in the last six months	More than once in the last six months
-------	--	--------------------------------	---

12. Have you reported any of the crimes in Question 11 to the police? (Please check (✓) the appropriate answer for you for each crime.)

	Yes	No	Did not happen to me
a) Assault	_____	_____	_____
b) Sexual Assault	_____	_____	_____
c) Mugged/Robbed	_____	_____	_____

	Yes	No	Did not happen to me
d) Theft	_____	_____	
e) Vandalism	_____	_____	
f) Witness to public drunkenness	_____	_____	

APPENDIX L

CONSENT FORM

Carleton University
Ottawa, Canada K1S 5B6

OTTAWA PROBATION RESEARCH PROGRAM

This is to note that the research program has been explained to me. I understand that I will be asked to complete some confidential research forms, including taped interviews, and I agree to these conditions. I also give my permission for research staff to contact me sometime after my probation period has expired for a follow-up interview. I also recognize that participating in research testing and interviewing is not a condition of my probation and that my participation in the research is in addition to my required reporting to my probation officer.

Signature of Probationer

Signature of Research Staff

Date: _____

APPENDIX M

CORRELATIONS BETWEEN PSYCHOSOCIAL RISK FACTORS AND SUBSTANCE USE WITH AND WITHOUT STATISTICAL CONTROLS FOR FAKING

Correlations between Psychosocial Risk Factors and Substance Use With and Without Statistical Controls for Faking

Predictors	Alcohol		Cannabis		Hard Drug	
	r	pr	r	pr	r	pr
Family Dissension	.05	-.01	.04	.02	.15	.09
Neuroticism	.17	.13	.22*	.21*	.15	.10
Psychopathy	.07	.05	.25**	.25**	.20*	.18
Self Esteem	.01	-.07	-.10	-.08	.01	.07
Value Employment	-.06	-.05	-.28**	-.28**	-.21*	.20*
Value Education	-.03	-.01	-.25**	-.25**	-.14	.12
Awareness of Limited Opportunity	-.01	.06	.13	.12	.07	.02
Scholastic Maladjustment	.28**	.25**	.36†	.35†	.28**	.25*
Anxiety	.08	.01	.09	.07	.05	.03
Isolation, Normlessness, Powerlessness	.07	.02	.24*	.23*	.13	.08
Sensation Seeking	.23*	.23*	.27**	.28**	.17	.18
Tolerance of Law Violations	.09	.08	.26**	.26**	.12	.12
Social Support for Crime	.13	.13	.36†	.36†	.31**	.32†
Attitudes toward Drinking	.48†	.48†	.49†	.49†	.19	.17
Social Support for Drinking	.59†	.58†	.52†	.52†	.34†	.34†
Attitudes toward Marijuana	.35†	.34†	.66†	.66†	.41†	.40†
Social Support for Marijuana	.25**	.23*	.56†	.56†	.44†	.43†

Note. N = 103. * $p \leq .05$, ** $p \leq .01$, † $p \leq .001$

END

1 3-1 2-9 3

FIN