A Social Psychological Model of Drug Use

Gregory A. Blevins
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Gregory A. Blevins
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A SOCIAL PSYCHOLOGICAL MODEL OF DRUG USE

Western Michigan University

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CHAPTER I

THEORY AND RESEARCH ON DRUG ABUSE

In recent years, there has been increasing concern with identifying the characteristics of drug users, misusers and abusers. Much of this research has been atheoretical and designed primarily to demonstrate the prevalence and/or incidence of drug usage among various groups. Typically, the research has focused on either socio-cultural and demographic variables or on psychological correlates of a specific type of drug usage. More recently, some theorists and researchers have sought to understand drug usage through the application of particular theoretical models which focus either on between group differences in rates of drug usage or on within group differences in the acquisition or avoidance of drug using behavior (Akers, 1977; Coombs, et al. 1976). Finally, problems in research design and a general reliance on bivariate rather than multivariate analysis techniques have compromised the ability to develop an analytical understanding of drug use.

The purpose of the present investigation is to generate a social psychological model of drug usage through a review and comparison of selected theories of drug usage and relevant research and to explore the empirical utility of the resultant model using previously collected data and multivariate analysis techniques.

In general, theories of drug usage can be divided into two types - structural and processual. Structural theories, including
social disorganization - anomie theories, conflict theories, and social control theories, essentially argue that drug usage, like other forms of deviant behavior, is the result of differences in the distribution of opportunities, rewards, values, norms, and other socio-cultural factors among the social strata of society. Researchers and theorists of the structural perspective generally focus on the rates of drug usage or changes in those rates among social strata. However, there is little or no attention paid to the processes of socialization or learning by which structural conditions produce differences in drug usage.

Processual theories of drug usage, in contrast to structural theories, focus on the process by which individuals become drug users. In focusing on the process of socialization or learning to be a drug user, processual theories must take into account life history events which are related to membership in social strata that affect the probability of becoming and/or remaining a drug user.

The succeeding sections of this chapter will (1) briefly describe three structural theories of drug usage and review the results of selected studies employing variables consistent with those theories, (2) describe and discuss four processual theories of drug usage that propose to explain within group variations in drug usage and review selected studies consistent with each of the processual theories, and (3) generate a social psychological model of drug usage which is consistent with the often documented differences in rates of drug usage among groups as well as hypotheses derived from the four processual theories.
While various research results are reviewed in the context of particular theoretical perspectives, it should be noted that any given set of studies may be incorporated post hoc into any given theoretical frameworks. The decision to include subsets of findings within a given perspective is based on the parsimony and consistency of the findings with one perspective in contrast with another. That is, in each instance fewer propositions and concepts are needed to predict the relationships reviewed in each theoretical section.

Structural Theories of Drug Usage

There are essentially three major types of structural theories of drug usage - consensus, conflict, and control - each of which starts with a different assumption about society. According to the consensus model, it is assumed that there is consensus regarding norms and values such that general expectations regarding behavior are shared and social interaction can and does proceed in an orderly way. Within the consensus model, illicit drug usage is assumed to occur as a result of social disorganization and/or anomie (Merton, 1968) and, since the degree of commitment to the general norms and values of society is assumed to vary by social class or strata, the rate of illicit drug usage should vary similarly.

A second type of structural theory is the conflict model (cf. Quinney, 1970, 1974, 1975). According to this perspective, there are group differences in norms, values, and interests and what is proper and appropriate behavior is determined by the power of a
group to enforce prescribed and proscribed behavior on other groups. Drug usage is then an ordinary, learned, expected, and normal behavior which is accepted or rejected according to the prevailing standards of the group in power. Thus, the emphasis of the conflict approach seems to stress the formation and enforcement of norms more than offer an explanation of drug usage.

Control models of drug usage, in contrast to the consensus and conflict models, assume that drug usage occurs because it is not prevented. That is, the social control perspective suggests a universal impetus to engage in drug usage which is constrained by the presence of internal and/or external controls (Reckless, 1967) or one's "bond" to conventional society (Hirschi, 1969). Thus, the absence or failure of the internal and external controls or "bond" results in drug usage (cf. Burkett and Jensen, 1975). It is further assumed that the presence and strength of the controls varies with one's status (e.g. age, sex, ethnicity, socio-economic position) in society; thus, the rates of drug usage will vary by social status.

**Social structure and drug usage**

The relationship between several structural variables and drug usage have been reported by researchers. The major ones to be discussed in this section are: age, ethnicity, religion, socio-economic status, sex, urbanicity, education and occupation, and marital status.
Age


These findings with respect to age and drug use and the

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hypothesized curvilinear relationship are consistent with all three structural perspectives. That is, drug usage is initiated and increases during the period of adolescent anomie for consensus theorists, youth counterculture for conflict theorists, and rebellion and lack of controls for control theorists. The rate of drug usage stabilizes and decreases as the users are integrated into society and consensus is established, conflict is no longer apparent, and internal controls are strengthened.

Ethnicity

Given the pervasive history of racial discrimination in the United States and the attendant minority status of non-whites, it seems likely, from both the consensus and conflict perspectives, that drug use would be greater among non-whites than whites. However, predictions based on the social control perspective are more difficult to make and depend on the assumptions one is willing to make regarding the direction and strength of internal controls against drug usage. If one is willing to assume that the direction and strength of internal controls is greater for whites than non-whites, then given the reliance on inconsistent external controls to constrain the behavior of non-whites, drug usage should be greater among non-whites.

In reviewing studies in which the race or ethnicity of the respondents was reported, fifteen studies reported greater use among minority groups than among whites (Dender, 1963; Boudouris, 1976; Chambers, 1974; Chein, 1959; Dudley, et al. 1976; Haberman and Baden, 1974; Helzer, et al. 1976; Graham, et al. 1976; Long
and Demaree, 1975; Lukoff, 1974; O'Donnell, et al. 1976; Stephens and Ellis, 1975; Suffet and Brotman, 1976; Vaillant, 1966; Weissman, et al. 1976). However, eight studies reported greater drug usage among whites (particularly non-narcotic use) than non-whites (Bloom, et al. 1974; Davis and Brehm, 1971; Kaestner, et al. 1977; McGlothin, 1974; Mullins, et al. 1975; Prendergast, 1974; Richman, 1975; and Tennant, 1976); five studies found no relationship (Greenwald and Luetgert, 1971; Grupp, et al. 1971; Londergan, 1971; Rathus, et al. 1976; Westermeyer and Walzer, 1975) and two studies reported inconsistent relationships which varied with the type of drug (Peterson and Chambers, 1975 and Warheit, Arey and Swanson, 1976). Thus, these studies do not clearly support any one of the three structural perspectives on drug usage unless assumptions about the type of drug (e.g. narcotics v. psychotropics, cf. Braucht, Brakarsh, and Follingstad, 1973) and frequency of use are included.

Religion

As an integrated set of beliefs regarding behavior, religious convictions may provide the basis for consensus on behavior, conflict among religious groups, and/or a source of internal and external control over behavior. Given that the three major formal religions in the United States can be ranked according to membership as Protestantism, Catholicism, and Judaism, it can be predicted from both the consensus and conflict approaches that drug usage should be least among Protestants and greatest among Jews. In contrast, explanations of drug usage based on social control models
should rely more on involvement in religious activities than on formal membership in a religion and would probably posit an inverse relationship between drug usage and religious activism.


Research which has utilized indicators of involvement, interest, and participation in religion and religious activities is more uniform in its findings. Bilodeau (1971) and Briscoe (1970) report that the parents of drug users did not practice a religion. Among

Socio-economic status

Due to the greater degree of social disorganization and/or anomie (consensus approach) and the lack of power (conflict approach), both the consensus and conflict models of social structure would predict greater drug usage among members of the lower social strata, (i.e. low socio-economic status) than among the middle class. Moreover, the consensus model, more clearly than the conflict model, might suggest greater drug usage among the upper class as a result of differences between the middle and upper classes in norms, expectations, and standards of behavior. Similarly, social control

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models would infer a greater likelihood of drug usage among the lower classes than among the middle and upper classes as a result of the lower class emphasis on external constraints.


Braucht, et al. (1973) suggests that narcotics use is most prevalent within the lower class (cf. Bender, 1963; Chein, 1959; Dudley, et al. 1976; Murray, 1967; Vaillant, 1966) while psychedelic drug users are generally from the middle and upper classes (cf. Carey and Mandel, 1968; Gillie, 1969; Hager, et al. 1971; Harris,
1971; Kuehn, 1970; McGlothin, 1974; Smart and Fejer, 1969; Steffenhagen, et al. 1969; Welpton, 1968). These various studies suggest that the relationship between socio-economic status and drug usage is a complex one which may depend on (1) the way in which socio-economic status is measured (e.g. user's status v. family status), (2) the type of drug (e.g. narcotics v. psychedelics), and (3) whether the usage is illicit or licit (Warheit, et al. (1976) report an inverse relationship between social class and general use of licit drugs).

Sex

It is a common finding among social scientists that males and females are subject to different expectations and socialization experiences (Rosenberg and Sutton-Smith, 1972). Typically, females are expected to be warm and expressive while males are expected to be competent, aggressive, and achievement oriented (Baron and Byrne, 1977). Such expectations tend to be universal and supercede other social structural expectations. It can be argued that rebellion, leadership, experimentation and exploration, and similar personality traits are related to the generalized expectations for males. By utilizing such traits, it is possible to encompass drug usage within a consensus model as a probable, although not necessarily desirable, behavior among males, but not females. Thus, males are more likely to engage in drug usage than females. Also, by viewing internal control as greater among females than males, the social control model would suggest a similar hypothesis. Finally, the conflict perspective, by arguing that females constitute a power minority,
would suggest that drug abuse would be greater among males only if such behavior was an accepted derivative of the norms, values and interests of the male culture.

Spevack and Pihl, 1976; Tolone and Dermott, 1975; Udell and Smith, 1969; Warheit, et al. 1976; Westermeyer and Walzer, 1975; Wiener, 1970). Other researchers have reported findings that indicate that male and female drug use patterns may be different (Mitchell, et al. 1971; Victor, et al. 1973) and/or vary by the particular drug of interest (Lu, 1974; Ludenia, 1972; Suffet, 1976). Nevertheless, the weight of the evidence suggests that males are generally more likely to engage in drug using behavior than females.

Urbanicity

The sixth structural variable to be considered is the population density of the area in which the drug user grew up. It is quite likely that the degree of urbanicity is confounded with both ethnicity (e.g. blacks and other ethnic minorities are more likely to live in areas of high population density than whites) and socio-economic status (e.g. the higher the socio-economic status, the lower the population density of the area in which one grew up and/or lives). Thus, consensus, conflict and control predictions similar to those made for ethnicity and socio-economic status can be made for urbanicity. That is, the greater the population density of the area in which one was raised or currently lives, the greater the likelihood of engaging in drug usage.

Few researchers have reported a relationship between urbanicity and drug usage and those that have tend to report a positive relationship. Bender (1963), Chein (1959), and Vaillant (1966 b) indicate that narcotic users are generally found in urban and metropolitan areas - a finding recently supported by Helzer, et al.
Moreover, studies by Greenwald and Luetgert (1971), Hindmarch (1970), Johnston, et al. (1976), Londergan, et al. (1971), and O'Donnell, et al. (1976) suggest that the population density in which one is raised is positively related to drug usage.

Education and occupation

Although the exact nature of the relationship between education, occupation, and socio-economic status has and continues to be the subject of much debate (cf. Gartner, et al. 1974; Brookover and Erickson, 1975), there is abundant evidence that the three variables are positively related. Thus, the earlier discussion regarding socio-economic status is relevant to both educational achievement and occupation. More specifically, the consensus, conflict and control models would each suggest that both educational attainment and occupational status are inversely related to drug usage.

In general, data on the relationship between education and drug usage support the hypothesized inverse relationship (Calvin and Post, 1972; Haberman and Baden, 1974; Helzer, 1976; Lukoff, 1974; Mullins, et al. 1975; Smart and Fejer, 1969; Suffet and Brotman, 1976). However, Davis and Brehm (1971), in a study of incarcerated offenders, suggests that narcotic offenders were better educated than either non-narcotic users or non-users and Nace, et al. (1975) report no differences in education among military users and non-users. Moreover, O'Donnell, et al. (1976) in a national survey of different types of drug users found a complex relationship between education and drug use. In particular,
O'Donnell, et al. report that, while college graduates were least likely to have ever used or to be currently using a drug, individuals with some college education were more likely than those with less than a high school degree to have ever used or to be currently using a drug. The same study also indicated that high school graduates were less likely than individuals with less than a high school education to have used or to be using a drug.

O'Donnell, et al.'s. (1976) findings are somewhat supported by studies on drug use among high school students. Calhoun (1975) and Carmen (1977) found greater use among high school students than junior high students and several studies suggest a positive relationship between grade in school and drug usage (Althoff, 1971; Bilodeau, 1971; Briscoe, 1970; San Mateo, 1971); however, there is also some evidence that drug usage peaks in the 10th and 11th grades (Brigance, 1970; Stennett, 1969). Thus, those who complete high school may be somewhat less likely to engage in drug usage than those who quit school short of graduation. Studies of college student drug usage are more mixed with some studies suggesting a positive relationship (Garfield, et al. 1971; Harris, 1971; Hogan, 1970; Kohn and Mercer, 1971; Marra, et al. 1968; Messer, 1969) and other studies suggesting an inverse relationship (Anker, et al. 1971; Blum, 1969; DeFleur and Garrett, 1970; Grupp, et al. 1971; Kwant, et al. 1976; Sadava, 1971; Suchman, 1968).

With respect to occupation, Haberman and Baden (1974) indicates that drug use is greater among blue collar workers than among white collar workers. Mangione and Quinn (1975) report an inverse
relationship between job satisfaction and drug use. Carlin and Post (1972), Graham, et al. (1976), Haastrup and Thomsen (1972), Helzer, et al. (1976), Lukoff (1974), and Westermeyer and Walzer (1975) report greater drug use among unemployed persons than among employed persons, a result not supported by Kilpatrick, et al. (1976). If students are considered to be unemployed or, at least, part-time employed, than Calhoun's (1975) finding that students are more likely to use marijuana than non-students is relevant; however, Carlin and Post (1972) report the opposite. Finally, as with education, O'Donnell, et al. (1976) report a more elaborate finding in which the unemployed are more likely than part-time employees to use drugs, part-time employees are more likely to engage in drug use than students, and full-time employees are least likely to use drugs.

From the preceding results on educational and occupational status as they relate to drug use, it is difficult to arrive at any firm conclusions other than to suggest the need for additional research particularly within the general population.

Marital status

While being married is generally considered to be the normal status (i.e. expected and approved behavior) for individuals of marital age (i.e. generally over 18 years of age), allowances are made for other status characteristics (e.g. age at first marriage is correlated with sex, education, occupation, etc.). Thus, the consensus and conflict perspectives generally imply that there will be greater drug usage among singles than among married individuals.
Similarly, a social control perspective would suggest greater drug use among single than married individuals as a result of increased external constraints and increased strengthening of social bonds. With respect to separated or divorced individuals, it seems likely that the marital failure would be correlated with social disorganization and anomie (consensus model), conflict of interests and values with the dominate social norms (conflict model), and decreased external constraints and weakened social bonds (control model); therefore, drug usage should be greater among separated or divorced individuals than among married individuals.

Studies of drug usage among university students are almost equally divided between showing that single students are more likely than married students to use drugs (Anker, et al. 1971; Blum and Garfield, 1969; Lipp, et al. 1971; Marra, et al. 1968; Sorenson, 1971; Suchman, 1968) and finding no relationship between marital status and drug usage (Axelrod and Rubenstein, 1969; Ferraro and Billings, 1974; Hinckley, et al. 1968; Pearlman, 1968 and 1969; Pollock, 1972; Westermeyer and Walzer, 1975). Three studies of narcotic users found that single persons were more likely than married individuals and the latter were more likely than separated or divorced persons to use drugs (Graham, et al. 1976; Haberman and Baden, 1974; Lukoff, 1974). Finally, in a national study of male drug users, O'Donnell, et al. (1976) indicate the following relationship between marital status and drug usage: cohabitating had a higher rate than independents who tended to use drugs more than those living with parents, which was greater than
among marrieds. Thus, among non-students, the data suggests that single individuals are more likely to use drugs than married individuals (Kilpatrick, et al. 1976; Tennant, 1976).

Processual Theories of Drug Usage

In the preceding section, three structural perspectives on drug usage were briefly described - consensus, conflict, and control - and a variety of research findings on drug usage were reviewed in terms of the three perspectives. The reviewed research both offered some support to all three structural perspectives and raised several anomalies. In this section, four processual theories of drug usage and selected relevant studies will be reviewed - the psychodynamic, labeling, self-concept, and social learning perspectives. As mentioned earlier, the structural and processual theories differ in their emphasis with the former focusing on differences in rates of drug usage among social strata and the latter focusing on the process by which drug usage is acquired or avoided irrespective of membership in a given social stratum. However, each of the processual theories should be able to incorporate the differences in rates of drug usage among social strata.

Psychodynamic perspective

Current psychodynamic theory regarding drug use/abuse considers compulsive drug abuse and dependence to be a manifestation of an underlying psychopathology (Blaine and Julius, 1977). Khantzian and Treece (1977) suggest that an individual's drug of choice may reflect different psychopathological types since the drugs have
distinctive psychopharmacological effects. However, Wieder (1977) has pointed to a general failure of the psychoanalytic community to develop either a comprehensive theory of drug use or unified special theories by type of drug.

Wurmser (1977) has suggested a general psychodynamic theory of compulsive drug use. Wurmser's model utilizes seven processes:

1) The narcissistic crisis, leading to overwhelming affects, to an affect regression, a totalization and radicalization of these feelings.
2) Directed affect defenses, the defense, mainly in the form of denial, but also of repression and other "mechanisms," is carried out partly by psychological means alone, partly and secondarily by pharmacological propping up (pharmacogenic defense).
3) Denial requires an additional form of defense, the element most specific in this series of seven, defense by externalization, the importance of reasserting magical (narcissistic) power by external action, including taking magical "things" such as drugs.
4) This reassertion of power by externalization requires the use of archaic forms of aggression, of outwardly attacking and self-destruction forms of sado-masochism.
5) In most cases this is only possible by a sudden splitting of the superego and other defenses against superego functions.
6) The final point is the enormous pleasure and gratification which this complex of compromise solutions of various instinctual drives with various defenses bring about.

Thus, Wurmser's model seems to suggest that drugs are used as one way of regaining a sense of control over powerful affects or feelings engendered by conflicts regarding the self.

While Wurmser has focused on the psychodynamic processes which co-exist with drug usage, Greenspan (1977) has attempted to articulate the developmental and learning processes that may result in...
drug usage. According to Greenspan's analysis, an individual's failure to successfully satisfy the requirements of any of the psychoanalytic stages of development may result in drug use as a means of compensating. Moreover, Greenspan argues that the psychopharmacological properties of the drugs probably reinforce the use of the drugs as a compensatory mechanism. Thus, the acute narcissistic crisis postulated by Wurmser may be the result of developmental deficiencies, as suggested by Greenspan, and the effectiveness of the drug(s) in both altering the resulting affects and in satisfying the developmental deficiencies contributes to the repeated use of the drug(s).

Currently there seems to be general agreement among psychodynamic theorists that (a) drug usage is symptomatic of and co-exists with underlying psychopathological states that are (b) the result of one or more developmental deficiencies and are (c) manifested in the form of overpowering affects. Drugs are used to (d) control the individual's affects and to re-establish one's self-esteem. Finally, (e) the effectiveness of the drug encourages the repeated usage of the drugs to compensate the psychodynamic defect.

In general, psychodynamic theory suggests that differences between drug users and non-users and/or among different types of drug users are related to variations in development, self-esteem, and environmental contingencies particularly those which are likely to induce strong affects (e.g. anxiety, stress, and fear). Moreover, the theory suggests that the differences among drug users and
between drug users and non-users should be discernible through a variety of psychiatric diagnostic techniques including the Hamilton and Beck depression scales, the Brief Psychiatric Rating Scale, the Rorschach, the Psychiatric Diagnostic Criteria, and the Minnesota Multiphasic Personality Inventory (Woody, 1977).

Psychodynamic research

A variety of techniques have been utilized by psychodynamic oriented researchers in their attempts to identify psychopathological states related to drug usage. Among the techniques that have been used are: Beck's Depression Inventory (DeLeon, 1974 and DeLeon, et al. 1973); Bendig's Manifest Anxiety Scale (DeLeon, et al. 1973); Brief Psychiatric Rating Scale (Mirin, et al. 1976); California Psychological Inventory (Green and Haynes, 1973; Hogan, et al. 1970; McLaughlin, 1973); Cattell High School Personality Questionnaire (Green, et al. 1971); Cattell 16 Factor Personality Inventory (Klickner, 1968; Knecht, et al. 1972; Krug and Henry, 1974; McLaughlin, 1973); Clark and Danielson's Schizophrenia Scale (DeLeon, 1974; DeLeon, et al. 1973); Comrey Personality Scale (Knecht, et al. 1972); Current and Past Psychopathology Scales (Mirin, et al. 1972); Human Figure Drawing Test (Gerard and Kornetsky, 1955; Welpton, 1968); Keup Home-Test (Keup, 1970); Lexington Personality Inventory (Berzins, et al. 1971, 1974); Motivational Analysis Test (Krug and Henry, 1974); Omnibus Personality Inventory (Crain, et al. 1975); Psychiatric Status Schedule (Senay, et al. 1976); Rorschach (Gerard and Kornetsky, 1955); Rotter I-E Scale (DeLeon, 1974; DeLeon, et al. 1973); Sensation Seeking Scale

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(Zuckerman, et al. 1972); and Taylor Manifest Anxiety Scale (Harmatz, et al. 1972). In addition to the preceding diagnostic techniques, many psychodynamic researchers prefer to use psychiatric interviews (cf. Ditman, et al. 1968; Halikas, et al. 1972; Kaufman, 1974) or various types of questionnaires (cf. Linn, 1972; Naditch, 1974 and 1975). However, the technique which seems to be used most frequently is the Minnesota Multiphasic Personality Inventory (see also Siegel, 1976).

Essentially, the Minnesota Multiphasic Personality Inventory (MMPI) is designed to detect psychopathology in any of ten clinical areas. A review of thirty-two studies which utilized the Minnesota Multiphasic Personality Inventory yielded the following results.


The psychopathological states of drug users identified through the preceding studies using the MMPI can be described as follows. Psychopathic deviation includes one or more of the following behaviors: nonconformance and noncompliance with social norms, chronic lying particularly regarding one's own behavior, immaturity, impulsiveness, lack of anxiety or guilt regarding one's own behavior, failure to learn from experience, uninfluenced by any form of authority or discipline, inability to sustain close interpersonal relationships, and/or involvement in criminal behavior that is petty and deceitful (Ullmann and Krasner, 1969:448-457). Schizophrenia is typified by disorganization of thinking, apathy, social withdrawal, and bizarre or aversive verbal behavior (Ullmann and Krasner,
1969:398). Depression, the third major characteristic of drug users according to MMPI studies, consists of sadness, psychomotor retardation and inhibition, uneasiness, apprehension, perplexity, stupor, agitation, and a sense of helplessness and meaninglessness (Ullmann and Krasner, 1969:415-425).

Several investigators have also attempted to utilize the MMPI to make distinctions among drug users. McAree, et al. (1972) and Steffenhagen, et al. (1971) found no differences between marijuana users and non-users using the MMPI although both studies report differences between multiple drug users and non-users. Berzins, et al. (1974) and Sheppard, et al. (1972, 1973) report MMPI differences among opiate users, a finding Hill, et al. (1960) does not support. Brook, et al. (1976), DeLeon (1974), Ellinwood (1967), and Olsen (1964) report sex differences on the MMPI among user populations. Similarly, DeLeon (1974) also reports MMPI differences by race among users. Pittel (1971) indicates that overall MMPI profiles for hallucinogen and opiates users are similar and Sanborn, et al. (1971) reports a similar finding for hallucinogen compared to stimulant users. However, Henriques, et al. (1972) found no differences in depression or anxiety among amphetamine, heroin, and barbiturate users although there were non-significant differences on the paranoia and mania scales. Davis and Brehm (1971) and Kendall and Pittel (1971) report no MMPI differences between users and controls and McGrath (1967) and Hill, et al. (1962) report a similar finding. Fitzgibbons, et al. (1973) found no differences in MMPI profiles among hospitalized users of various drugs.
Finally, Monroe, et al. (1964) factor analyzed the MMPI psychopathic deviate scale into six different traits and Lombardi, et al. (1968) found differences between drug users and a control group on only 19 of 226 MMPI items. Clearly, the results of the foregoing studies challenge the utility of the MMPI both in differentiating among users of different types of drugs and in differentiating drug users from non-users.

In 1956, Nyswander suggested that the incidence rate of mental illness among narcotic addicts was no different than the rate in the general population. More recently, Braucht, et al. (1973), after reviewing a variety of studies on the personality correlates of drug use, conclude that while there is general agreement that narcotic and psychedelic (i.e. marijuana, LSD, and methamphetamine) drug users suffer from some predisposing personality disorder, there is little consensus on the nature, form, or dynamics of the disorder. Siegel (1976) defends the primary assumption of the psychodynamic approach as sound, e.g. drug users possess unique characteristics which can be assessed using psychometric screening instruments such as the MMPI. The equivocality of the MMPI results, according to Siegel, are the result of differences in the types of subjects employed and the conditions under which the tests are administered (cf. Henriques, et al. 1972). Braucht, et al. (1973) indicate that the absence of consistent findings may be related to differences in psychological predispositions among socio-cultural strata, patterns of drug use, and variations in the psychological functions of drug use.
Labeling perspective

In contrast to the psychodynamic approach with its emphasis on the underlying psychopathology of drug usage, the labeling perspective is generally concerned with the effects that societal reactions to behavior may have on the self-concept and subsequent behavior of the person (Williams, 1976). In essence, the labeling perspective argues that observation of person's behavior results in the attribution of a status (i.e. a label) to the person. The attributed status includes a set of role expectations for person's subsequent behavior. Others then sanction (i.e. reward or punish) person's conformity (or deviance) to those expectations. If the labeling process is successful, person incorporates the role (cf. Duster, 1970) and confirms the assigned status through conformity to the expectations in accordance with Lemert's (1951) notion of secondary deviance.

While other's expectations focus primarily on the person (i.e. personality, motivation), attributions regarding the individual's social relationships (e.g. peer group dynamics, family dynamics) and environment (e.g. urbanicity, socio-economic status) are also engendered. The labeling process therefore involves an attributional theory of drug usage in which the observed behavior is used as a basis for inferences about the person's past and future behavior. This attributional theory utilizes the labeler's conception of the concomitants of drug usage in such a way that discordant information is ignored or minimally weighted while concordant information is highly weighted or valued. The net result is that the
individual may find it difficult, if not impossible, to gain re-entry into conventional society (Simmons, 1969; Payne, 1973).

There are, however, several processes available to person for resisting labeling. There seem to be four major categories of such processes (Williams, 1976). The first such category concerns the socialization process: to the extent that person has been socialized to believe that his/her behavior is "normal", the labeling process will not be effective in altering either his/her self-concept nor his/her behavior. A second way in which the labeling process may be mitigated focuses on person's reference groups (Merton, 1968; Kelley, 1952): to the extent that the labelers constitute a reference group for person, the labeling process will be effective. The third category of resistance to labeling focuses on Sykes and Matza's (1957) neutralization techniques: to the extent that person can (a) deny responsibility for his/her actions, injury, and/or victimization; (b) condemn the condemners, and/or (c) appeal to higher loyalties, the labeling process will not be effective. A final way of resisting labeling is through negotiation of the label (Scheff, 1968): to the extent that person is able to present information that negates the assigned status, person can negotiate an alternative (usually less serious) label with the labelers.

Through a combination of one or more of the preceding techniques, person can resist the effect of labeling on his/her self-concept.

The labeling perspective argues that both the self-concept and subsequent behavior should be affected by the labeling of the person as a drug user/abuser. Williams' (1976) review of the labeling
perspective on drug usage suggests that there is little support for the hypothesized effect on self-concept. According to Williams (1976), the absence of an effect on self-concept is probably due to a combination of methodological inadequacies, including selection bias (i.e. the use of apprehended subjects), and the absence of antecedent measures of the self-concept. The results of several studies which have sought to establish a relationship between the self-concept and drug usage will be reviewed as part of the discussion on self-concept theory, which follows this section. However, Williams (1976) suggests that studies on secondary deviance among drug users tend to support the labeling perspective.

Secondary deviance and drug usage

Four types of research on secondary deviance among drug users will be briefly reviewed. The first type of research focuses on multiple drug use among drug users. The second type of research centers on drug users in the educational setting. A third type of research focuses on interpersonal traits among drug users. The final type of research focuses on delinquent and criminal activity of drug users. However, it should be noted at the outset that most, perhaps all, of the studies to be reviewed fail to establish an important provision of Lemert's (1951) theory - the studies fail to provide evidence of others' expectations for the drug users' behavior and likewise fail to establish that drug users identify themselves as drug users rather than as users of a drug.

Multiple Drug Use In general, studies of illicit drug users report

Studies of marijuana users indicate positive correlations between the frequency of marijuana use and the use of other drugs (Brill, et al. 1970; Goode, 1969; Grossman, et al. 1971; Josephson, 1974; Mullins, et al. 1975; Traub, 1977; Victor, et al. 1973) particularly stimulants and hallucinogens (Cox and Smart, 1972; Davis and Brehm, 1971; Lu, 1974). Moreover, Cox and Smart (1972), Davis and Brehm (1971), McGlothin (1974), and Segal (1975) indicate amphetamine use is correlated with barbiturate and narcotic use. However, both Hagan, et al. (1970) and Segal (1975) suggest that marijuana usage and narcotic usage are not related or are inversely related. Thus, while there is evidence that marijuana users are likely to use stimulants and stimulant users are likely to use narcotics, marijuana users do not seem likely to use narcotics.

Overall, reported studies indicate that the use of any given drug is correlated with the use of other drugs and having ever used a drug us a predictor of current drug usage (Groves, 1974; Hagar,

Finally, drug users are more likely to get into trouble with school authorities than non-users (Blumenfield, et al. 1972; Cowan and Roth, 1972; Hawkes, et al. 1971; Rathus, et al. 1976). These findings suggest that academic performance is inconsistently related to drug use; however, drug users show less integration into and acceptance of the educational environment than non-users.

**Interpersonal Traits** O'Donnell, et al. (1976) in a national study of drug use among males report that the majority of drug users do not report any particular types of problems related to their drug usage. However, O'Donnell, et al. (1976) indicate that the most frequent type of problem reported are interpersonal problems with close friends and parents. It seems reasonable to speculate that the interpersonal relationship problems experienced by drug users are related to various traits of the drug users themselves. For example, the psychodynamic findings using the MMPI which suggest that drug users evince behaviors similar to psychopathic deviates, schizophrenics, and depressives. In addition, other studies have indicated that drug users are more rebellious (Blum, 1969; Hogan, et al. 1970; Holroyd and Kahn, 1974; Kohn and Mercer, 1971; Tec, 1971 and 1972), more hostile or aggressive (Edwards, et al. 1969; Green, et al. 1971; Hill, 1972; Jones, 1973), and more rejecting of conventional social norms (Blum and Garfield, 1969; Boggs, et al. 1969; Campbell, 1970; Cowan and Roth, 1972; Hager, 1970; Harris,
1971; Herz, 1968; Holroyd and Kahn, 1974; Jones, 1973; Messer, 1969; Smart, et al. 1970; Tec, 1971 and 1972; Victor, et al. 1973) than non-users of drugs. In addition to the studies cited here, both Braucht, et al. (1973) and Sadava (1970) in reviewing research on the personality correlates of drug use note that a wide array of personality traits have been reported as associated with drug use. However, how these traits fit together and whether they are precursors, correlates, or results of drug use remains to be demonstrated. Nevertheless, it seems reasonable to infer that to the extent that drug users engage in one or more of the previous types of behavior, other people would have difficulty in establishing and maintaining satisfactory interpersonal relationships with drug users. This problem is made more difficult by the possibility that drug users may not perceive themselves in the same way as others (cf. Cooper, 1959) and their experience of personal problems is associated with an increase in use of drugs (cf. Jessor, et al. 1973; Westermeyer and Walzer, 1975).

**Delinquency and Criminal Acts** Research findings generally support the common belief that drug use and delinquency (Londergan, et al. 1971) or criminal behavior (Lukoff, 1974) are positively associated. Drug users are more likely to be arrested and convicted of criminal offenses than non-users (Baridon, 1976; Rathus, et al. 1976) with the arrest rates among drug users reported as high as 60 to 75 percent (Hindler and Stephens, 1977; Long and Demaree, 1975; Suffet and Brotman, 1976) for non-drug related offenses. The strength of
the relationship between drug use and criminal behavior is probably affected by the age of onset for drug use, race, and sex (Weissman, et al. 1976) and applies more to crimes against property than to crimes against persons (Silverman and Spriull, 1977) although the latter seems to be increasing (Ray, 1978). Recent research suggests that general involvement in criminal activity precedes drug usage (Boudouris, 1976; California, 1973; Greenberg, 1976; Weissman, et al. 1976) although increased drug use is associated with intensified involvement in general criminal activity (Baridon, 1976; Green, 1975).

**A self-concept perspective**

Whereas psychodynamic theory posits a predisposing psychopathological state for drug usage and labeling theory is concerned with mechanisms that maintain drug usage, self theorists focus on a hypothesized reciprocal relationship between the self and behavior. The self, as defined by symbolic interactionists, is "the capacity to observe, respond to, and direct one's own behavior" (Lauer and Handel, 1977). According to this perspective, the self develops through the interaction of the individual in society.

In general, symbolic interactionists argue that society both precedes and is a product of individuals. Society is generally characterized as a group of individuals of indeterminate size who share (a) a set of norms, rules, standards, expectations for behavior and (b) a common language. Through language, both verbal and non-verbal, consensus on norms is established and maintained by
the members of society and these norms are transmitted to neophytes. Thus, expectations for an individual's behavior precede him/her. As these norms are incorporated into the individual through development and learning, the individual becomes capable of monitoring, evaluating, and directing his/her own behavior (i.e. the Meadian "me" develops). However, since the individual's actions are partially the product of impulsive forces (i.e. the Meadian "I") and are subject to interpretation and negotiation of meaning, the norms can change so that it is possible to conceptualize society as a product of its members.

Symbolic interactionists posit a relationship between the self and behavior that is similar to the relationship between the self and society. This relationship between the self and behavior may be generally described as (a) an individual will choose the line of action from among available alternative lines of action that is most congruent with his/her conception of themselves and that maximizes, or at least minimizes a loss in, self-esteem (defined as how favorably one evaluates oneself), (b) that line of action produces both a social effect (the evaluation by others of person's behavior) and a personal effect (the extent to which the line of action was successful in producing the expected or desired outcome), (c) the social evaluation of person's behavior and the success of the behavior influence person's self-concept and self-esteem which (d) affects person's subsequent lines of action. Thus, the self is hypothesized to be both a determinate and a product of behavior.

The importance of the "self" for understanding behavior should
be clear from the preceding discussion. What is perhaps less obvious is that the definition of the "self" as a process (Lauer and Handel, 1977) impels a classification of the concept as a hypothetical construct (cf. MacCorquodale and Meehl, 1948) incapable of being measured directly. The two principal aspects of the self which have been the focus of most empirical studies are the self-concept and self-esteem. The self-concept may be generally defined as the image or conception one holds about oneself and as such it is both a referent and an initial impetus for behavior since people generally strive to act in ways that are consistent with their self-concepts (Lauer and Handel, 1977). Self-esteem derives from the referential aspect of the self-concept and is determined by the ratio of a person's successful actions to his/her pretentions. It should be noted that self-theorists argue that individuals hold both general or global and situationally specific self-conceptions and self-esteem. Moreover, while the self-concept and self-esteem may change over time, it is generally argued that these are relatively stable (cf. Lindblad, 1977). The net result of the foregoing considerations of the self and its derivatives, the self-concept and self-esteem, is that the self becomes an extremely flexible and nebulous construct in "explaining" behavior (cf. Meltzer, Petras, and Reynolds, 1975) for a review of criticisms and comments regarding symbolic interactionism and the concept of self).

From the above discussion of the general relationship between the self and behavior, several prospective relationships between the
self-concept and drug usage can be developed as follows. First, given the assumption that the self-concept develops concurrently with behavior, it follows that drug usage should be congruent with the user's self-concept (Lauer and Handel, 1977). Given that drug usage, particularly illegal drug usage, is defined by society as a maladaptive behavior, it is expected that the self-concepts of drug users will differ from those of non-users (cf. Lindblad, 1977). Moreover, since individuals tend to associate with others who support their self-concepts, and avoid those others who do not, it is expected that drug users are more likely to perceive their peers as drug users than are non-users. Also, since the incorporation of a behavior into a stable self-concept occurs over time, it is expected that long-term drug users will attribute more positive effects and less negative consequences to drug use than will short-term users. Finally, the cessation and avoidance of drug use should be related to the perception of drugs as having harmful rather than beneficial effects.

Self-concept and drug use

A number of studies have been conducted on the relationship between drug use and self-concept. Unfortunately, most of these studies have used high school or college student populations. In general, the research indicates that drug users have poorer self-concepts (Cryns, 1974; Huntwork and Ferguson, 1977; Miller, 1976; Richek, et al. 1975; Samuels and Samuels, 1974; Segal, et al. 1975), lower self-confidence (Cockett and Marks, 1969; Dorhoffer,
1972) and/or are less happy and less satisfied with themselves (Althoff, 1971; Anker, et al. 1971; Brehm and Back, 1968; Briscoe, 1970; Gossup, 1976; Green, et al. 1971; Hinckley, et al. 1968; Linn, 1971; Robins, et al. 1970; Steffenhagen, 1971; Suchman, 1968). However, some researchers have reported no significant differences in self-concept between drug users and non-users (Cross and Davis, 1972; DeFleur and Garrett, 1970; Hogan, et al. 1970; Matchett, 1971; McAree, et al. 1969; McAree, et al. 1972; Sadava, 1971; Schaeffer, et al. 1976). While these studies generally support the self-concept perspective on drug usage by showing a correlation between self-concept and drug usage and differences in self-concept between drug users and non-users, the absence of self-concept measures antecedent to drug usage makes it impossible to either support or reject the hypothesized reciprocal relationship between self-concept and drug usage (see also Williams, 1976).

**Social learning perspective**

The basic premise of social learning theory is that drug use is a behavior which, like other types of behavior, is a function of its consequences. Unlike the other three processual perspectives, social learning theorists do not infer the presence of psychopathological states or a self as a source or cause of behavior. The focus of social learning theorists is on directly observable aspects of behavior. The basic principles upon which the social learning theory of drug usage is structured are the principles of operant conditioning and Sutherland's differential association.
theory (Akers, 1977). The essential features of the theory, as applied to drug usage, can be stated as follows (Burgess and Akers, 1966; Akers, 1977):

1. Drug usage is learned according to the principles of operant conditioning.

2. Drug usage is learned both in non-social situations that are reinforcing or discriminating and through social interaction in which the behavior of other persons reinforce or provides discriminative stimuli for such behavior.

3. The learning of drug use occurs in groups which comprise or control the individual's major source of reinforcements.

4. Drug usage, including specific techniques, attitudes and avoidance procedures, is a function of effective and available reinforcers and existing reinforcement contingencies.

5. The frequency of drug usage is a function of the effective and available reinforcers and the presence or absence of norms, rules, and definitions which promote and have in the past accompanied the reinforcement.

6. The probability of a person engaging in drug usage is increased in the presence of normative statements, definitions, and verbalizations, which, through a process of differential reinforcement of such behavior over non-drug use, have acquired discriminative value.

7. The strength of drug usage is a direct function of the amount, frequency, and probability of reinforcement. The association with others who use drugs or support the use of drugs is important insofar as it affects the source, amount, and scheduling of reinforcement.

Essentially, social learning theory assumes that drug usage is an operant behavior which may be initiated through several processes including shaping, imitation, and medical practice. However, once
initiated, the occurrence of the drug using behavior is a function of its consequences. The consequences which control drug usage include both primary (physiological) and secondary (social, learned, or acquired) rewards and punishers. Drug usage is strengthened through rewards (positive reinforcement) and the avoidance of punishment (negative reinforcement) and weakened by aversive experiences (positive punishment) and lack of reward (negative punishment). The occurrence and persistence of drug usage depends on the histories of reinforcement and punishment for both drug usage behavior and non-drug usage behavior (differential reinforcement). Thus, to the extent that an individual has in the past received reinforcement for drug usage and received punishment for non-drug usage, the individual is more likely to engage in drug usage. Finally, an individual's association with others who use drugs and/or support the use of drugs increases the likelihood of drug usage because the others become models, discriminative stimuli, and sources of social reinforcement and punishment for drug use and ancillary behaviors (e.g. rationalizations, avoidance and defensive processes). In summary, drug using behavior is a result of differential reinforcement for such behavior and differential association with others who engage in and/or encourage drug usage.

Given the foregoing general discussion of social learning theory as applied to drug usage, two general issues need to be discussed before preceding. The first issue is that operant psychology, the basis for social learning theory, has been criticized as tautological. Burgess and Akers (1966) have argued that the apparent
tautology occurs as a result of confusing definitions with propositions and can be avoided through careful specification of each. Moreover, Akers (1977) has suggested that the careful identification of the sources and kinds of stimuli which affect specific behaviors should avoid the problem of tautology.

The second issue involved in social learning theory involves the generalizability of the theory in understanding, explaining, and predicting social aggregate behavior from knowledge about individual behavior. Operant psychologists have demonstrated the utility of their perspective with a wide range of behaviors and have argued for the applicability of these principles to both other instances of the same or similar behavior and to other types of behavior (Honig, 1966). Both behavioral sociologists (cf. Burgess and Bushell, 1969; Hamblin and Kunkel, 1977) and exchange theorists (cf. Homans, 1974) as well as social learning theorists have argued that operant principles are extremely useful in understanding social behavior. Akers (1977:47) suggests that:

...knowledge of group history, social structure, and cultural values enables us to make predictions about what are likely to be available and effective reinforcers for members of specific groups. Through observation of individuals who are exposed to a given set of recurring stimuli, we can say something about what typically will happen when other individuals are exposed to the same stimuli. Finally, by observing an individual's behavior we can determine what specific parts of his behavior are under the control of what specific stimuli.

Thus, from knowledge of the effects of various stimuli on behavior, the generalizability of the effect, and the distribution of those
stimuli among various social groups, it is possible to predict the probability of the behavior's occurrence among various social strata.

Several general predictions regarding drug usage seem to follow from the preceding discussion of social learning theory. User's perceptions of drug use should be more positive and reflect fewer problems than those who have tried and stopped using drugs or avoided drug use. In addition, user's perceptions of friend's usage should reflect more positive aspects and a greater number of user friends than do non-users. Social reinforcement for use may well be more important to neophyte users than long-term users. Parental alcohol and drug usage or non-usage should be related to respondent's use or non-use of drugs. The frequency of drug use should be related to perceptions of parental use, peer use, and expected benefits of use. Finally, there should be variations among social strata in the perceptions of users, non-users, and those who have stopped usage.

Primary reinforcement for drug use

Psychopharmacological and pharmacological studies of drugs clearly demonstrate the ability of most drugs to affect the sensory, cognitive, and physical functioning of humans (Goodman and Gilman, 1976). Studies such as those done by Schachter and associates (1964) demonstrate that the subjective interpretation of drug effects are affected by one's expectations, the social context, and the physical environment. Social learning theory implies that drug usage behavior is maintained and strengthened by the subjective experience
of the drug effect as pleasurable or desirable and is avoided or ceases when the experience is perceived as harmful or unpleasant. Moreover, it seems reasonable to infer that the perceived positive effects (or negative effects) of drug use would generalize to drug use related attitudes such as perceived knowledge about drugs and perceived effects on one's lifestyle.


Overall, the results of the preceding studies suggest that the perceived primary reinforcing and punishing effects of drugs is an important element in maintaining and/or strengthening drug use behavior. Moreover, the studies imply that the attitudes of drug users towards drug use related topics are more positive than those of non-users.

Social support for drug usage

According to the principles of social learning theory, an important element in the acquisition and maintenance of drug use behavior is the social reinforcement and punishment one receives for the behavior. Two types of social reinforcers and punishers are of particular importance - parental and peer support.


In addition to the research on family dynamics and structure,
researchers have also noted a positive relationship between parental use of alcohol, tobacco and other drugs with drug usage (Bilodeau, 1971; Bowker, 1976; Cox and Smart, 1972; Fejer, et al. 1972; Haastrup and Thomsen, 1972; Miller, 1976; Prendergast, 1974; Smart and Fejer, 1971 and 1972; Smart and Jackson, 1969; Spevack and Pihl, 1976; Tec, 1970; Tennant, 1976; Tolone and Dermott, 1975).

Peer Influence  Research on the importance of peer influence on drug using behavior indicates that peers are important in both the initiation and maintenance of the behavior. Moreover, the research indicates that the drug users' perceptions of the prevalence of drug use among their peers may be altered by their own drug use. Many studies have reported that drug users are introduced into drug usage and first obtain their drugs from friends (Becker, 1953; Cameron, 1963; Chein, et al. 1964; Clark, et al. 1975; Gamso and Mason, 1958; Goode, 1970; Gossett, et al. 1971; Hanneman, 1972; Lucas, et al. 1973; Modlin and Montes, 1964; O'Donnell, et al. 1976; Oswalt and Sexton, 1972; Pearlman, 1969; Robinson, 1970; Sadava, 1970 and 1973; Samuels and Samuels, 1974; Scher, 1966; Scherer, et al. 1972; Shetterly, 1970; Smart and Fejer, 1970; Tolone and Dermott, 1975; Traub, 1977; Vaillant, 1966). Moreover, drug use is more likely if one's siblings are drug users (Bowker, 1976; Fejer, et al. 1972; Smart and Fejer, 1971 and 1972).

The importance of peer group reinforcement in the form of acceptance and approval in maintaining drug usage has also been widely documented (Calhoun, 1975; Carey and Mundel, 1968; Freedman,


Summary of Theoretical Perspectives

Several theoretical perspectives on drug usage have been identified and the results of selected studies relevant to each perspective have been reported. The three structural perspectives, based on concepts of social consensus, social conflict, or social
control, were useful in focusing on differences in rates of drug usage between social strata, particularly between the advantaged and disadvantaged members of society. However, the structural perspectives were not particularly useful in explaining differences in drug usage within social strata. The four processual perspectives; psychodynamic, labeling, self-concept, and social learning - each focus on processes related to the acquisition and maintenance of drug usage behavior regardless of social stratum. Two of the processual perspectives, the psychodynamic and self-concept perspectives, generally fail to account for differences in the rate of drug usage between social strata and a third, the labeling perspective, focused on the maintenance of the behavior without explaining the initiation of drug use. The social learning perspective, in contrast to the other three processual theories, explicitly recognizes the importance of differences between social strata in the initiation, maintenance, and cessation of drug use without articulating which differences between strata are important determinants of drug use. Thus, no single model nor type of perspective seems to adequately explain the prevalence of drug use. A more promising approach is to attempt to combine structural and processual perspectives into a general social psychological model of drug use.

Problems in Research on Drug Using Behavior

In the preceding sections, about 300 studies have been cited which, in one way or another, have sought answers to the questions of (1) who is doing what with which drugs and (2) what is currently
known about individual and group trends in the use of drugs and the factors related to those trends (Josephson, 1974)? While it is apparent that there is some consensus among research findings, it is equally clear that there is little consensual validation for some of the findings and some results are evidently contradictory. To a large extent, the confusion apparent in the results of these studies is attributable to combinations of the following problems in the design and implementation of research on drug use and abuse.

1. Absence of a theoretical framework. The majority of the research on drug usage has been explicitly concerned with documenting the prevalence and/or incidence of drug use among particular groups. Very few of the studies have attempted to explore the implications of any given theoretical perspective on drug usage and even fewer studies have been devoted to contrasts and comparisons among perspectives.

2. Differing definitions of drug use and abuse. Researchers on drug use and abuse have utilized an impressive array of operational definitions of drug use and/or abuse that vary in the type, frequency, and quantity of drug use under consideration.

3. Different definitions of other major concepts. Frequently the similarities between studies in the use of particular concepts is only superficial. All too often, researchers have employed conceptual and operational definitions of major concepts that make it difficult to determine whether the results are complementary or contradictory.

4. Single drug studies. Many of the studies cited have focused on a particular drug (e.g. LSD) or on a specific type of drug (e.g. hallucinogen). Inconsistencies in results can be and often are attributed to differences in the particular type of drug studied.

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5. Subject selection. Typically, studies on drug usage have used small samples, failed to use random sampling techniques, and/or relied on restricted populations such that the generalizability of the results is severely restricted.

6. Control and comparison groups. The majority of research studies do not include control and/or comparison groups. In particular, studies which compare licit and illicit use of drugs are very rare.

7. Reliance on percentage differences. Consistent with (a) the emphasis of most studies on establishing the prevalence and/or incidence of drug use among particular groups, (b) inadequate sampling procedures, and (c) the absence of control and comparison groups, very few studies have been done in which statistical significance tests were appropriate and reported.

8. Bivariate analysis. Typically, the studies cited have relied on bivariate analysis techniques which obscures interaction effects among variables and makes it impossible to determine the relative importance of different variables to the variance between drug users and non-users.

9. Different combinations of variables. Given that research on drug usage has generally been atheoretical, it is not surprising that the various researchers have included different variables of interest in their studies.

10. Socio-cultural vs. psychological studies. Typically, research on drug usage has focused either on socio-cultural and demographic variables or on psychological correlates of drug usage. Very few studies have included both socio-cultural and psychological variables in their research design.

As a representative list of the kinds of problems one finds in reviewing research on drug use, it should be apparent that it is difficult to determine whether the inconsistencies and contradictions
in findings among studies are the result of differences in research
design or differences in drug use behavior.

A Social Psychological Model of Drug Use

Bivariate hypotheses

The preceding review of theoretical perspectives and research
findings on drug usage suggests a vast array of social and psycholog­
ical concepts and variables that should be related to the use of
illicit drugs. For the purposes of this study, these concepts and
variables can be grouped into five major categories: (1) social
structural, (2) primary group influence, (3) self-concept, (4) drug
use behavior, and (5) attitudes about drug usage.

Social structural concepts refer to the differential allocation
or distribution of opportunities, means, ends, rewards and similar
social factors among social strata. Conceptually, there are at
least two different types of social structural concepts: (a) those
which relate to the socialization context and (b) those which re­
late to social status. Socialization context refers to the en­
vironmental conditions which effect the way in which one is raised
and includes race or ethnicity, sex or gender, the urbanicity of
the area, religious denomination, and the cohesiveness and in­
tactness of one's family of orientation.

Assumption I: Socialization context is related
to illicit drug usage.

H¹: Drug usage by whites will be greater than
for blacks and both groups will exceed
the use by other minority groups.
H₂: Drug usage by males will be greater than for females.

H₃: The greater the urbanicity of the area in which one was raised, the greater the use of drugs.

H₄: Jews are more likely to engage in drug use than Catholics and both groups are more likely to use drugs than Protestants.

H₅: Family intactness is inversely related to drug use.

Social status, in contrast to socialization context, is defined by one's present position in society as indicated by occupation, employment, education, length of residence, urbanicity, religious participation, household ownership, household income, and age. The working assumption of the present model is that the socialization context is antecedent to and, therefore, a general determinant of social status.

Assumption II: Social status is related to drug use.

H₆: The greater the household occupation status, the lower the likelihood of drug usage.

H₇: Unemployment is positively associated with drug use.

H₈: Education is inversely related to drug use.

H₉: Length of residence is inversely related to drug use.

H₁₀: Urbanicity of current residence is positively related to drug use.

H₁₁: Church attendance is inversely related to drug use.

H₁₂: Drug use is greater among household renters than household owners.
H13: The greater the household income, the lower the likelihood of drug usage.

H14: Age is curvilinearly related (inverted U) to drug usage.

The second major category of concepts consists of primary group influences. It is an explicit or implicit assumption of most theoretical perspectives on the socialization and learning of behavior that modeling, imitation, and similar processes facilitate the acquisition and maintenance of behavioral repertoires. In addition, there is substantial evidence that parental and/or peer use or non-use of drugs affects the probability of one's own use. Thus, the following assumption and related hypotheses can be generated:

Assumption III: Perceived use of drugs by one's primary groups is positively correlated with drug usage.

H15: The greater the perceived parental use of alcohol, tobacco, and other drugs, the greater the use of drugs.

H16: The greater the perceived peer use of drugs, the greater one's own use of drugs.

H17: Peer influence will be greater than parental influence on drug usage.

H18: Primary group influences are intervening variables between social structural variables and drug usage.

Self-concept, the third major category, theoretically is reciprocally related to drug usage. More specifically, the model for this study is that self-concept intervenes between social structural concepts and drug usage such that one's socialization context and

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social status affect one's self-concept and "poor" self-concepts are positively related to illicit drug usage. However, it is also possible that the self-concept either (a) covaries with drug usage or (b) is a product of drug usage. In any event, it is apparent from both theory and prior research that the self-concept of drug users should be "poorer" than the self-concept of non-users.

Assumption IV: "Poor" self-concepts are associated with drug use.

H19: Self-descriptions of oneself as (a) tense, (b) incompetent, (c) non-aggressive, (d) follower, (e) unfriendly, (f) lacking in self-confidence, (g) insensitive to others, (h) timid, (i) not talkative, (j) not likeable, and (k) critical of others will be positively related to illicit drug usage.

H20: The self-concept is an intervening variable between social structural variables and drug use.

Drug use behavior, the fourth major category, consists of two principle types: prescribed drug usage and non-prescribed drug usage. Consistent with the preceding hypotheses, it is expected that both prescribed drug use and non-prescribed drug use will vary by socialization context, social status, primary group influence, and self-concept. However, both the strength and direction of the relationships may be different for prescribed in contrast to non-prescribed drug use.

Assumption V: Individuals who are able to engage in prescribed drug usage need not engage in non-prescribed drug usage although the factors related to both types of drug use may be similar.

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H₂₁: Prescribed drug use is inversely related to non-prescribed drug use.

The final set of variables included here have been labeled attitudes about drug usage. Attitudinal variables are assumed to be effected by a person's involvement in or abstinence from drug use and include the reasons for drug use, estimated availability of drugs, reasons for friends' drug use, perception of one's problems as related to drug use, perceived knowledge about drug use and abuse, and willingness to stop using. The major assumption and hypotheses related to this set of variables are:

Assumption VI: Attitudes about drug usage are mediated by one's involvement in drug usage.

H₂₂: Drug use is positively related to estimated availability of drugs.

H₂₃: Drug use is positively related to perception of one's problems as drug related.

H₂₄: Drug use is positively related to self perceived knowledge about drug use and abuse.

H₂₅: Drug use is positively related to the perception that the user would miss the use of drugs.

Path model

While the preceding twenty-five hypotheses adequately portray the expected relationships between each of the independent variables and drug usage, these hypotheses oversimplify the complex relationships among the variables. Path modeling is a technique for specifying complex multivariate relations among variables in such a way
that the resulting path model can be empirically tested. In the following diagram, one-way arrows represent a causal relationship between two variables in the direction of the arrow while non-causal associations are represented by curved lines and two-headed arrows.

The socialization context variables of family structure, sex, religious denomination, household occupational status, race, and being raised in an urban area are assumed to be exogenous variables in the present model. The sex or gender of an individual is biologically determined and uncorrelated with other socialization context variables. In contrast to one's sex or gender, family structure (Goode, 1959 and 1961), religious denomination (Pope, 1948; Warren, 1970), race or ethnicity (Edwards, 1966; Heller, 1967; Lieberson, 1970; Siegel, 1970), and being raised in an urban environment (Blau & Duncan, 1965; Goldthorpe, 1964; Hoselitz, 1966) have been found to be related to occupational status. In addition to occupational status, family structure has been shown to be associated with religious denomination and urbanicity (Kephart, 1977). Finally, race or ethnicity is related to being raised in an urban environment (Berelson and Steiner, 1964).

Social status variables, as described earlier, define an individual's present position vis-a-vis society and are determined, in part, by one's socialization context. Participation in religious activities (church attendance) has been found to be related to sex or gender (Berelson and Steiner, 1964) and to religious denomination (Moberg, 1962). Since sex or gender and affiliation with a religious denomination are presumed to be precursors of religious
participation, these two variables are considered to be causal determinates of church attendance. Similarly, educational achievement (Blau and Duncan, 1965), rates of unemployment (Miller, 1964; Myrdal, 1963) and income (Miller, 1964) have been found to vary by socio-economic status as measured by occupation. In addition to occupation, race or ethnicity seems to be a determine of income (Siegel, 1970). Urban residence has been shown to be inversely related to occupational status and positively related to race or ethnicity (Berelson and Steiner, 1964) and it seems reasonable to infer that one's residential preference is related to the residential pattern one was raised in (Berelson and Steiner, 1964). Thus, current residence in an urban area is presumed to be causally determined by occupational status, race, and prior residence. Home ownership is presumed to be determined by available financial resources as indicated by occupational status and income and has been demonstrated to be related to residential proximity to the central city (Berelson and Steiner, 1964). In addition, it seems likely that the probability of home ownership will increase with age for, as one grows older, geographic stability increases, occupational mobility stabilizes, and financial reserves generally increase. Geographic migration and mobility has been found to be inversely related to urban vs. rural residence and to age (Berelson and Steiner, 1964) and is presumed to be positively related to home ownership. Finally, research findings indicate that religious participation or church attendance increases and geographic mobility decreases (i.e. length of residency and home.
ownership increases) with age (Berelson and Steiner, 1964) and it can be argued that seniority and similar wage increment systems result in increased income with age.

Opinions, attitudes, beliefs, and behaviors are generally considered to be initially formed through parental influence (Berelson and Steiner, 1964). However, the strength of parental influence seems to depend on the consistency, coherence, congruence, and integration of parental opinions, attitudes, beliefs, values and behaviors. Thus, it seems reasonable that parental influence will be a function of family structure. Moreover, it seems reasonable to suggest that parental influence will be stronger when it is supported and confirmed by other value systems such as those found in religious belief systems. Hence, in addition to family structure, parental influence is presumed to be a function of adherance to religious doctrine as indicated by church attendance.

Berelson and Steiner (1964) indicate that as children age and are introduced to new ways of life, new social groups, new community environments, and other types of comparative and normative references, parental influence decreases and peer influence increases. In particular, one's opinions, attitudes, values, beliefs, and behaviors become increasingly congruent with (i.e. are influenced by) the group standards that one is a member of and/or identifies with. The major social characteristics which have been found to be related to influence are: urban vs. rural residence, race, religion, occupational status, age, sex, and education. Thus, it is expected that peer influence will be a function of these same variables.
Furthermore, it seems reasonable to presume that home ownership and length of residency are determinants of peer influence since residential stability promotes contact and interaction with neighbors. Finally, employment has been found to be a determinate of social consensus and social bonding (Berelson and Steiner, 1964); thus, peer influence is presumed to be determined by the employment status of the head of household.

The self-concept, as defined earlier, refers to an individual's image or conception of him/herself. Both theoretically and empirically, the self-concept is a function of one's social status as mediated by one's relationships with others (Lauer and Handel, 1977; Scheirer and Kraut, 1979). Several types of relationships are of particular importance in the formation and maintenance of the self-concept including family relationships, friends, educational experiences, and reference groups (Lauer and Handel, 1977). Thus, family structure, parental influence, peer influence, and education are obvious determinants of self-concept. In addition, important reference group determinants of self-concept are presumed in the present model to be socio-economic status as indicated by occupational status of the head of household and household income, race or ethnicity, and length of residency as an indicator of "local" influence.

Two types of drug use are of interest. Prescribed or conventional drug use is one type. The second type is non-prescribed drug use, more frequently referred to as illicit drug use or abuse. Both types of drug use are presumed to be directly affected by the
same variables: e.g. parental influence, peer influence, self-concept, sex, residence, and age. The remaining variables in the path model are presumed to influence drug use indirectly.

Finally, attitudes towards drug usage, like other attitudes, are subject to a continuing controversy over whether attitudes precede or are products of behavior (cf. Insko, 1967; Kiesler, et al. 1968). It seems reasonable to speculate that a predisposition to act precedes the action and the consequences of the act strengthen or weaken the predisposition. However, such a hypothesis requires pre and post-act indicators of relevant attitudes as well as an assessment of the act's consequences which are not available in the present study. Thus, it is presumed that the current study's attitudinal measures are post-behavioral and therefore determined by the behavior. In addition, available research suggests that attitudes towards drug usage are determined by both parents and peers (Ferguson, et al. 1974 a and b).

The relationships among the variables discussed above are diagramed in Figure 1.
FIGURE 1
THEORETICAL PATH MODEL
CHAPTER II

METHODS

Data Collection

Source of the data

The data to be used in this study were originally collected by the Office of Substance Abuse Services (OSAS) of the Michigan Department of Public Health through a contract with Macro Systems, Incorporated and Market Opinion Research. Macro Systems Incorporated was responsible for the overall study including data analysis while Market Opinion Research conducted the interview survey of a random sample of the Michigan population. All interviews were conducted between August 13 and August 31, 1974. (See Alcohol and Other Drug Use and Abuse in the State of Michigan; Final Report, April, 1975, for additional details of the study not included here.)

Sampling procedure

The study population was defined as persons 13 years of age and over residing in households classified by the United States Census as occupied dwelling units. This definition excludes persons residing in (a) penal, mental, and rehabilitation institutions, (b) hospitals or nursing homes, (c) native American reservations, (d) armed forces bases, (e) migratory housing, and (f) quasi-households.

A multistage sampling procedure was used to select a statewide sample of 2,100 households. The first sampling stage consisted of an area probability sample of counties stratified by whether or not...
they were a Standard Metropolitan Statistical Area. A sample of counties was then selected with probability proportionate to population. Through the subsequent sampling stages, a subsample of two or more household clusters were selected within each of the sample counties such that a total of 200 clusters were selected throughout the state. Each of the clusters represented approximately 40 occupied housing units within a small geographic area. The final sample stage consisted of a subsample of one in four households, ten or eleven units within each cluster, for a total sample of 2,100 households.

For each household included in the sample, an interviewer listed the four oldest persons 13 years of age and older in descending order. These four persons constituted the frame for selecting the individuals for inclusion in the survey. A pre-designated systematic sample of odd-number residents was selected in half the households and the even-numbered residents were selected in the remaining households. This procedure resulted in one individual being selected in half of the single person households, one of the two residents being selected in two person households, either one or two persons being selected when there were three residents and two persons being selected from each household containing four or more eligible residents. The sampling process resulted in 2,539 individuals being selected for inclusion in the study.

Interviewers were instructed to make an initial call plus two callbacks on each household selected. If an interviewer was unable
to establish contact with the residents after the third call, either the household to the right or to the left, on an alternate basis, of the initially selected household was substituted. The response rates were:

<table>
<thead>
<tr>
<th>response category</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed on initial call</td>
<td>112</td>
<td>44</td>
</tr>
<tr>
<td>Completed on first callback</td>
<td>288</td>
<td>11</td>
</tr>
<tr>
<td>Completed on second callback</td>
<td>152</td>
<td>6</td>
</tr>
<tr>
<td>Interviews completed at substitute households</td>
<td>839</td>
<td>33</td>
</tr>
<tr>
<td>No record of designated/substitute households</td>
<td>148</td>
<td>6</td>
</tr>
<tr>
<td>Total Interviews</td>
<td>2539</td>
<td>100</td>
</tr>
</tbody>
</table>

As the preceding data indicates, 839 interviews were completed at substitute households. There were 700 designated households which could not be used for one of the following reasons:

<table>
<thead>
<tr>
<th>reason</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household eliminated (even-numbered respondent single person household; vacant or residents on vacation).</td>
<td>11</td>
<td>1.6</td>
</tr>
<tr>
<td>Unavailable adult after three calls</td>
<td>289</td>
<td>41.3</td>
</tr>
<tr>
<td>Unavailable juvenile after three calls</td>
<td>287</td>
<td>41.0</td>
</tr>
<tr>
<td>Household refusal</td>
<td>96</td>
<td>13.7</td>
</tr>
<tr>
<td>Adult refusal</td>
<td>2</td>
<td>0.3</td>
</tr>
<tr>
<td>Juvenile refusal</td>
<td>4</td>
<td>0.6</td>
</tr>
<tr>
<td>Adult refused to allow juvenile interview</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>No record</td>
<td>10</td>
<td>1.4</td>
</tr>
<tr>
<td>Non-completion by household</td>
<td>700</td>
<td>100</td>
</tr>
</tbody>
</table>

These data indicate that most substitutions occurred after initial contact was made with the residents of designated households and either an adult or juvenile selected for inclusion in the survey could not be contacted. Only 15% of the substitutions resulted from refusals to participate in the study.

Since the content of the interviews was controversial, three procedures were employed to protect the confidentiality of the respondents. First, in order to assure anonymity, individual identifying information was not requested. Second, interviews were

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conducted in private, other members of the household were not present. Finally, it was required that interviewers conduct interviews of a parent or guardian before interviewing a minor.

**Interviewer selection and training**

All of the interviewers used in this study had previously been employed in survey work by Market Opinion Research. Each interviewer was reimbursed to attend a day long training session which included lectures, practice interviews, and role-playing on topics related to the study. The topics discussed during the training sessions included sampling maps, respondent selection process, generic and "street" names including common usages of the drugs included in the survey, and a review of reasons to be used with persons who resisted being interviewed or were reluctant to permit the interviewing of a juvenile. Quality control checks on the interviewers were not included in the study since such checks would have challenged the assurances of respondent anonymity and increased the costs and time required for the study.

**Questionnaire development**

A two step process was used in constructing the structured interview questionnaire used in this study. The initial step was the development of a questionnaire based on the ideas and needs of the Office of Substance Abuse Services staff in consultation with staff from Market Opinion Research and Macro Systems Incorporated. This questionnaire focused on sixteen substances and the use of those substances by respondents ever in life, within the past year,
and within the past four weeks. More emphasis was placed on use of substances within the past year than on the other two categories of drug usage. Prior to finalizing the questionnaire, the study director, senior analyst, and analyst from Market Opinion Research met with three specialists from the University of Michigan, one each from the Mental Health Institute, Institute for Social Research, and Public Health Administration.

Sample checks

The sex, race, and age distributions of the survey respondents were checked against updated estimates of the United States Census. The race and age distributions of the sample were within 5 percent of the accepted distributions for the state. The sex or gender distribution of the sample was 43.6 percent male and 56.3 percent female compared to the 1970 census figures of 48.3 percent male and 51.7 percent female which slightly exceeded the 5 percent error tolerance level.

Survey bias

Three types of non-sampling bias occurred in the survey: coverage bias, non-response bias, and response bias. Coverage bias occurs whenever a survey either (a) omits individuals who belong to the target population or (b) includes individuals who should have been excluded. Omissions of individuals who should have been included is typically the more serious problem. Three such groups of individuals were generally omitted in this survey: (1) individuals 13 years of age or over residing in households with four
or more older individuals, (2) individuals who did not reside in regular households, and (3) individuals who had died of drug-related causes within twelve months prior to the survey (the reference period for the survey was one year). There is no way to estimate the effect on the first group of individuals, and the second and third groups together were unlikely to noticeably affect the results since they constituted a very small fraction of the target population.

The second type of bias, non-response bias, occurs whenever enumerated individuals are not actually included in the survey. One-third of the interviews (839 respondents) were conducted at substitute households (700 households). An internal analysis of the data revealed that substitute respondents exerted mixed effects on the self-reported use of drugs. Substitute respondents tended to report less alcohol, non-prescribed drug use, and illicit drug use than those respondents contacted on the second and third callbacks and reported greater prescribed drug use than among callback respondents. Thus, from the perspective of the purpose of the present study, the substitute respondents exerted a conservative bias on (i.e. underestimates) the self-reported use of non-prescribed and illicit drugs.

Response bias, the final type of survey bias considered here, occurs when the information obtained in the survey results in an incorrect classification of the respondent as a user or non-user of a given drug. Response bias is a result of incomplete or inaccurate data collection. In the present study, virtually all of the
respondents gave replies to nearly all of the questions asked of them, (family income level being a notable exception); therefore, incompleteness of the data does not appear to pose a significant problem. With respect to the accuracy of the responses, Josephson (1974) has noted that "there are as yet no practicable ways of validating survey data on illicit drug use." In general, the practicability of validating responses on surveys such as the present one, (a) is inversely related to such factors as the number of respondents and the geographic area, (b) is positively related to fiscal resources, length of time, and similar constraints, and (c) varies with the type of behavior being studied (e.g. it is easier to validate licit drug use than to validate illicit drug use). Overall, the data collected in the Michigan survey on drug usage is probably conservatively biased and therefore tends to underestimate the prevalence of drug usage; however, it appears that this data is as reliable and valid as that which has been collected on similar general surveys of drug usage.

Data analysis

The principle data analysis strategies to be employed in the testing of the proposed model are multiple regression analysis and path analysis. In multiple regression analysis, the relationships between an independent variable (X) and a dependent variable (Y) can be expressed as:

\[ Y = a + bX \]

In this formula, b, the slope, is defined as the ratio of the change
in $Y$ (i.e. $Y_2 - Y_1$) to the change in $X$ (i.e. $X_2 - X_1$) and may take any value. It should be apparent that if there is no third variable affecting the relationship (i.e. the relationship is direct and nonspurious), then the relationship between $X$ and $Y$, as indicated by the slope $b$, is affected only by changes in the units of measure of $X$ and/or $Y$ and by sampling variations. However, in a complex model, such as the present one, involving multiple independent variables it is unlikely that the measurement units are strictly comparable. Thus, in order to compare the relative impact of the independent variables, it is desirable to transform the slopes into a standard form. This may be accomplished by the formula:

$$B_{yx} = b_{yx} \left( \frac{S_X}{S_Y} \right)$$

where $B_{yx}$ is the standardized regression coefficient and $S_X$ and $S_Y$ are the standard deviation of $X$ and $Y$ respectively. However, this formula for the standardized regression coefficient is mathematically equivalent to the path coefficient ($P_{xy}$). Hence, the path coefficient permits comparisons of the relative influence of several independent variables on a dependent variable while the slope $b$, does not.

From the preceding definition of the path coefficient (or standardized regression coefficient), it should be noted that the path coefficient will change anytime the slope ($b$), variation in $X$, or variation in $Y$ changes. While it is possible to control the units of measure of $X$ and of $Y$ and sampling variations are an ever present problem, the degree of variation in $X$ and/or in $Y$ may vary among populations and therefore the path coefficient may vary from

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one population to another. Thus, the path coefficient is usually not generalizable while the slope is generalizable. Hence, the two procedures compliment one another insofar as multiple regression analysis facilitates comparisons between populations and path analysis is useful in describing the relative influence of variables within a population.

In addition to permitting a comparison of the relative influence of variables, path analysis permits the identification of direct, indirect and spurious effects. For example, given the following simple model:

Then, the simple correlation coefficient between $X_2$ and $X_4$ is defined as:

$$r_{42} = P_{42} + P_{32} P_{32} + P_{21} P_{41}$$

In the preceding equation, $P_{42}$ is the direct effect of $X_2$ on $X_4$, $P_{32} P_{43}$ is the indirect effect of $X_2$ on $X_4$ and $P_{21} P_{41}$ is the spurious effect between $X_2$ and $X_4$. The total nonspurious effect between two variables can then be calculated by summing the direct and indirect effects.

Measuring the Variables

Socialization context variables

The respondent's family structure during socialization was indicated by his/her response to the question: During most of the
time you were growing up, were both parents present, father only, your mother only, some other adult guardians, or did you live some place else (e.g. institution or orphanage)? The sex or gender of the respondent was determined by observation as either male or female. Respondents were allowed to indicate their religious denomination as Roman Catholic, Jewish, any of several Protestant churches, or other. The race of the respondent was based on self-identification as white or non-white. Finally, the urbanicity of the area in which the respondent was raised was based on the question: While you were growing up, where did you live most of the time up to age 13; in a rural area, in a small town, in the suburbs of a city, or in a large city?

Social status variables

The household socio-economic status was based on the occupational status of the head of household using eight major categories: (a) professional, technical, farm owner or manager with income greater than $15,000, (b) officials, business owners, administrators, farm owners or managers with annual incomes between $10,000 and $15,000, (c) clerical, sales, farm owners or managers with incomes under $10,000, (d) skilled craftsmen, (e) operatives, (f) service workers, laborers, and farm laborers, (g) unemployed, laid off, on strike, full-time student, and welfare recipients, (h) retired or disabled, and (i) homemakers. Head of household employed is based on the respondent's description and refers to either an employed male or employed female, both employed, or neither employed.
Household income was partitioned into eight categories: 0 - $2,999; $3,000 - $4,999; $5,000 - $5,999; $6,000 - $6,999; $7,000 - $9,999; $10,000 - $14,999; $15,000 - $24,999; or $25,000 and over. Home ownership was based on the question: Do you own or rent your home? Participation in religious activities relied on the respondent's self-description as once or more per week, one or twice a month, a few times a year, rarely, or not at all. The respondent's educational achievement was classified as grade school or less (grades 1 - 8), some high school (grades 9 - 12), high school graduate, post high school vocational/technical, some college (including junior/community college), college graduate, or post graduate work. Current residence included five categories: Detroit Metropolitan area, balance of the Detroit SMSA, other major cities, balance of other SMSAs, and rural areas. Length of residency included having lived at one's present location for less than six months, six months to a year, one year to two years, two years to five years, or five years or more. Finally, age was divided into nine categories: twenty or less years old, twenty-one to twenty-five, twenty-six to thirty, thirty-one to thirty-five, thirty-six to forty, forty-one to forty-five, forty-six to fifty, fifty-one to fifty-nine, and sixty or greater years of age.

Primary group influence

There were three questions which related to parental substance use: parents alcohol use, parents use of prescription drugs, and parental use of non-prescription drugs as perceived by the respondent.
while he/she was growing up. Perceived peer substance use was based on the perceived proportion of friends who use alcohol, the average proportion of friends who use prescription drugs and the average proportion of friends engaging in non-prescribed drug use.

**Self-concept**

Each respondent rated him/herself on eleven bipolar items as tense or relaxed, incompetent or competent, non-aggressive or aggressive, follower or leader, unfriendly or friendly, lacking in self-confidence or self-confident, insensitive or sensitive to others, timid or bold, not talkative or talkative, not likeable or likeable, and critical or tolerant of others. These items were factor analyzed using principal component factor analysis with the minimum eigenvalue for inclusion set equal to 1.0. The factor analysis suggested a two-factor solution:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Proportion of Total Variance</th>
<th>Proportion of Common Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor One</td>
<td>4.31546</td>
<td>39.2%</td>
<td>77.6%</td>
</tr>
<tr>
<td>Factor Two</td>
<td>1.24335</td>
<td>11.3%</td>
<td>22.4%</td>
</tr>
</tbody>
</table>

After an orthogonal quartimax rotation of the two factor solution, the following results were obtained:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Proportion of Total Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor One</td>
<td>3.75289</td>
<td>85.9%</td>
</tr>
<tr>
<td>Factor Two</td>
<td>0.61554</td>
<td>14.1%</td>
</tr>
</tbody>
</table>

Self-concept factor scores for factor one were determined and utilized in subsequent regression and path analysis.
Drug use

The respondent's self-reported frequency of prescribed and non-prescribed drug use was used in this study. The frequency of use scale for each of five prescribed and ten non-prescribed drug types was: 0 = never used, 1 = used, but not in past year, 2 = tried only a few times in past year, 3 = used regularly in past year, 4 = not used in past four weeks, 5 = used once in last four weeks, 6 = used two or three times in last four weeks, 7 = used once per week for last four weeks, 8 = used two or three times per week over last four weeks, and 9 = daily use over last four weeks. Total prescription and non-prescription drug use scores were created by summing across the reported use of drugs within each category.

Attitudes toward drug use

Four different attitudinal indicators toward drug use were included in the model. First, there was self-perceived knowledge about drug use and abuse. Second, users were queried as to the extent to which they would miss the use of drugs if they gave up usage. The third attitude was the estimated availability of the drug. Finally, the user's perceptions of his/her health, social, psychological, legal, and/or employment problems as being related to use of drugs were included.
CHAPTER III

RESULTS

Bivariate Hypotheses

The review of theories and research related to drug usage in Chapter I resulted in the positing of twenty-five hypotheses regarding drug use. Most studies on drug use have relied on bivariate analysis techniques; this confounds the direct and indirect effects of an independent variable on a dependent variable. This section presents the results of a multivariate regression analysis on non-prescribed and prescribed drug usage. This allows for the identification of direct effects of each independent variable on the respective dependent variables.

From Table 1, it is apparent that eight of the independent variables included in this study have statistically significant direct effects on non-prescribed drug usage (i.e. sex, household employment status, education, age, friends non-prescribed drug use, personal prescribed drug use, household ownership and household income). Thus, there is statistical support for the following hypotheses:

- $H_2$: Non-prescribed drug use is greater among males than females.
- $H_7$: Non-prescribed drug use is greater among individuals from unemployed homes than among those from employed homes.
- $H_8$: Education is inversely related to non-prescribed drug use.
$H_{12}$: Non-prescribed drug use is greater among household renters than among household owners.

$H_{13}$: Household income is inversely related to non-prescribed drug use.

$H_{14}$: Age is inversely related to non-prescribed drug use.

$H_{16}$: The greater the perceived use of non-prescribed drugs among friends, the greater the personal non-prescribed drug use.

Hypothesis twenty-one was originally posited in Chapter I as an inverse relationship, however, the regression analysis indicates the following positive relationship:

$H_{21}$: Prescribed drug use is positively related to non-prescribed drug use.

In addition to the preceding hypotheses, Table 2 regarding attitudes towards drug use indicates there is support for the following hypotheses:

$H_{22}$: Non-prescribed drug use is positively related to estimated availability of non-prescribed drugs.

$H_{23}$: Non-prescribed drug use is positively related to the perception of (a) health problems, (b) social problems, (c) psychological problems, (d) legal problems, and (e) employment problems as related to the use of non-prescribed drugs.

$H_{24}$: Non-prescribed drug use is positively related to self perceived knowledge about drug use/abuse.

$H_{25}$: Drug use is positively related to the perception that the user would miss the use of the drugs for both prescribed and non-prescribed drug use.

Thus, of the original twenty-five hypotheses regarding drug use posited in Chapter I, the multiple regression analysis indicates support for eleven hypotheses (i.e. the null hypothesis of no relationship was rejected) and a modification of hypothesis twenty-one.
from an inverse to a positive relationship.

Path Analysis

Figure 2, Table 3, and Table 4 represent the resultant path model after the multiple regression analyses were performed. Several aspects of the path model represented in Figure 2 should be noted in contrast to the theoretical path model developed in Chapter I (see Figure 1).

First, the self-concept variable has been entirely eliminated from the resultant path model (Figure 2). The self-concept or self-esteem variable was discarded from the model after the multiple regression analysis failed to substantiate a direct effect between self-concept and non-prescribed drug use. Thus, the global self-concept variable included in the theoretical path model (Figure 1) did not seem to contribute to an understanding of the dependent variable of interest - non-prescribed drug use - and was eliminated from the resultant path model.

A second area of interest in contrasting the earlier theoretical path model in Figure 1 with the resultant path model in Figure 2, is the inclusion of several relationships which are empirically significant although they were not theoretically predicted. For example the direct relationships between (a) education and non-prescribed drug use, (b) household employment and non-prescribed drug use, and (c) household income and non-prescribed drug use were empirically evident although not specifically predicted.

The third point to note in Figure 2 is the obvious importance
<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>-1.362</td>
<td>1.430</td>
<td>0.907</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>-2.338</td>
<td>.904</td>
<td>6.689</td>
<td>.005</td>
</tr>
<tr>
<td>Urbanicity Raised In</td>
<td>-0.048</td>
<td>.398</td>
<td>0.014</td>
<td></td>
</tr>
<tr>
<td>Religious Affiliation</td>
<td>0.401</td>
<td>.381</td>
<td>1.110</td>
<td></td>
</tr>
<tr>
<td>Family Structure to Age 13</td>
<td>-0.053</td>
<td>.521</td>
<td>0.010</td>
<td></td>
</tr>
<tr>
<td>Household Occupation Status</td>
<td>0.236</td>
<td>.238</td>
<td>0.984</td>
<td></td>
</tr>
<tr>
<td>Household Employment Status</td>
<td>1.018</td>
<td>.612</td>
<td>2.767</td>
<td>.05</td>
</tr>
<tr>
<td>Education</td>
<td>-0.662</td>
<td>.292</td>
<td>5.133</td>
<td>.025</td>
</tr>
<tr>
<td>Length of Residence</td>
<td>0.442</td>
<td>.407</td>
<td>1.180</td>
<td></td>
</tr>
<tr>
<td>Urbanicity of Residence</td>
<td>-0.272</td>
<td>.360</td>
<td>0.572</td>
<td></td>
</tr>
<tr>
<td>Religious Activism</td>
<td>0.185</td>
<td>.305</td>
<td>0.368</td>
<td></td>
</tr>
<tr>
<td>Household Owner</td>
<td>1.887</td>
<td>1.289</td>
<td>2.142</td>
<td>.10</td>
</tr>
<tr>
<td>Household Income</td>
<td>-0.396</td>
<td>.295</td>
<td>1.797</td>
<td>.10</td>
</tr>
<tr>
<td>Age</td>
<td>-0.499</td>
<td>.205</td>
<td>5.919</td>
<td>.01</td>
</tr>
<tr>
<td>Parents Alcohol Use</td>
<td>-0.380</td>
<td>.332</td>
<td>1.306</td>
<td></td>
</tr>
<tr>
<td>Parents Prescription Drug Use</td>
<td>-0.303</td>
<td>.292</td>
<td>1.072</td>
<td></td>
</tr>
<tr>
<td>Parents Non-prescribed Drug Use</td>
<td>-0.588</td>
<td>1.174</td>
<td>0.226</td>
<td></td>
</tr>
<tr>
<td>Friends Alcohol Use</td>
<td>0.104</td>
<td>.122</td>
<td>0.729</td>
<td></td>
</tr>
</tbody>
</table>
### Table 1
Continued

Multiple Regression with Non-prescribed Drug Use as Dependent Variable

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends Prescription Drug Use</td>
<td>0.232</td>
<td>0.348</td>
<td>0.444</td>
<td></td>
</tr>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td>1.530</td>
<td>0.280</td>
<td>29.838</td>
<td>0.0001</td>
</tr>
<tr>
<td>Personal Prescribed Drug Use</td>
<td>0.267</td>
<td>0.119</td>
<td>5.056</td>
<td>0.025</td>
</tr>
<tr>
<td>Self-concept</td>
<td>-0.549</td>
<td>0.460</td>
<td>1.419</td>
<td></td>
</tr>
</tbody>
</table>

* with degrees of freedom = 1,284

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Table 2
Attitudes Toward Drug Use

<table>
<thead>
<tr>
<th>Dependent Variable: Health Problems</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td></td>
<td>0.033</td>
<td>0.004</td>
<td>65.506</td>
<td>.0001</td>
</tr>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td></td>
<td>0.016</td>
<td>0.019</td>
<td>0.694</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{df} = 1,417 \]

<table>
<thead>
<tr>
<th>Dependent Variable: Social Problems</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td></td>
<td>0.032</td>
<td>0.004</td>
<td>76.968</td>
<td>.0001</td>
</tr>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td></td>
<td>0.044</td>
<td>0.017</td>
<td>6.939</td>
<td>.005</td>
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</tbody>
</table>

\[ \text{df} = 1,417 \]

<table>
<thead>
<tr>
<th>Dependent Variable: Psychological Problems</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td></td>
<td>0.031</td>
<td>0.004</td>
<td>65.139</td>
<td>.0001</td>
</tr>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td></td>
<td>0.028</td>
<td>0.018</td>
<td>2.405</td>
<td>.10</td>
</tr>
</tbody>
</table>

\[ \text{df} = 1,418 \]
Table 2
Continued
Attitudes Toward Drug Use

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td>0.020</td>
<td>0.003</td>
<td>56.319</td>
<td>.0001</td>
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<tr>
<td>Friends Non-prescribed Drug Use</td>
<td>0.032</td>
<td>0.012</td>
<td>6.975</td>
<td>.005</td>
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</table>

**df = 1,418**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td>0.005</td>
<td>0.002</td>
<td>9.470</td>
<td>.001</td>
</tr>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td>0.012</td>
<td>0.008</td>
<td>2.014</td>
<td>.10</td>
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**df = 1,415**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td>0.039</td>
<td>0.006</td>
<td>36.566</td>
<td>.0001</td>
</tr>
<tr>
<td>Education</td>
<td>0.166</td>
<td>0.034</td>
<td>24.304</td>
<td>.0001</td>
</tr>
<tr>
<td>Age</td>
<td>-0.046</td>
<td>0.021</td>
<td>4.878</td>
<td>.025</td>
</tr>
</tbody>
</table>

**df = 1,427**

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Table 2
Continued
Attitudes Toward Drug Use

<table>
<thead>
<tr>
<th>Dependent Variable: Miss Prescribed Drug Use</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription Drug Use</td>
<td>0.145</td>
<td>0.006</td>
<td>514.218</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>0.095</td>
<td>0.047</td>
<td>4.035</td>
<td>.025</td>
<td></td>
</tr>
<tr>
<td>df = 1,1260</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable: Miss Non-prescribed Drug Use</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-prescribed Drug Use</td>
<td>0.028</td>
<td>0.002</td>
<td>140.694</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.042</td>
<td>0.008</td>
<td>31.529</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Parents Alcohol Use</td>
<td>0.019</td>
<td>0.014</td>
<td>1.771</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>-0.045</td>
<td>0.040</td>
<td>1.281</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df = 1,428</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable: Availability of Non-prescribed Drugs</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td>0.180</td>
<td>0.018</td>
<td>99.941</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Non-prescribed Drug Use</td>
<td>0.030</td>
<td>0.004</td>
<td>61.935</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>0.057</td>
<td>0.018</td>
<td>9.984</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>df = 1,427</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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10. Page(s) seem to be missing in numbering only as text follows  
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Table 3
Correlations Between the Exogenous Variables

<table>
<thead>
<tr>
<th>Variable Combination</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious Affiliation with Race</td>
<td>-.13417</td>
</tr>
<tr>
<td>Age with Raised Urban</td>
<td>-.15806</td>
</tr>
<tr>
<td>Age with Household Occupation</td>
<td>.29111</td>
</tr>
<tr>
<td>Raised Urban with Age</td>
<td>-.15806</td>
</tr>
<tr>
<td>Raised Urban with Household Occupation</td>
<td>-.10141</td>
</tr>
<tr>
<td>Household Occupation with Age</td>
<td>.29111</td>
</tr>
<tr>
<td>Household Occupation with Raised Urban</td>
<td>-.10141</td>
</tr>
<tr>
<td>Household Occupation with Race</td>
<td>.18082</td>
</tr>
<tr>
<td>Race with Religious Affiliation</td>
<td>-.13417</td>
</tr>
<tr>
<td>Race with Household Occupation</td>
<td>.18082</td>
</tr>
</tbody>
</table>

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### Table 4: Path Model Coefficients

<table>
<thead>
<tr>
<th>Dependent Variable: Non-prescribed Drug Use</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescribed Drug Use</td>
<td>.25673</td>
<td>.11690</td>
<td>.11193</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.33995</td>
<td>.18562</td>
<td>-.10981</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>-2.43340</td>
<td>.87688</td>
<td>-.14272</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-.75293</td>
<td>.27646</td>
<td>-.14677</td>
<td></td>
</tr>
<tr>
<td>Friends Non-prescribed Drug Use</td>
<td>1.59835</td>
<td>.26853</td>
<td>.34197</td>
<td></td>
</tr>
<tr>
<td>Household Income</td>
<td>-.45895</td>
<td>.24686</td>
<td>-.10551</td>
<td></td>
</tr>
<tr>
<td>Home Owner</td>
<td>1.36995</td>
<td>1.16901</td>
<td>.06526</td>
<td></td>
</tr>
<tr>
<td>Household Employment</td>
<td>1.02480</td>
<td>.60389</td>
<td>.08625</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable: Prescribed Drug Use</th>
<th>Independent Variable</th>
<th>Slope</th>
<th>Standard Error</th>
<th>Path</th>
</tr>
</thead>
<tbody>
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Table 4
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Path Model Coefficients

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Path Model Coefficients

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### Table 4
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Path Model Coefficients

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Table 4
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Path Model Coefficients

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of several of the variables in the path model as intervening variables in describing and predicting drug use. Of the twenty-two variables treated as independent variables in the multiple regression and path analysis on non-prescribed drug use, only eight were found to be directly related to non-prescribed drug use (see Table 1). The relationships between the remaining fourteen variables in the model and non-prescribed drug use were either mediated by one or more of the eight variables that are directly related to non-prescribed drug use or eliminated from subsequent analyses (i.e. parents alcohol use, parents non-prescribed drug use, friends alcohol use, and the self-concept). Of particular importance is the central role of prescribed drug use, friends non-prescribed drug use, and education as intervening variables in describing and predicting non-prescribed drug use.

The final point to be noted in Figure 2 concerns the attitudes that drug users hold towards drug use. The more prescription drugs a person is using, the more likely he/she is to feel they would miss the drugs if they stopped using them and a similar relationship exists for non-prescribed drug usage. With respect to perceived problems associated with non-prescribed drug usage, it is evident that both non-prescribed drug use and friends use of non-prescribed drugs are important determinants of the degree to which one feels one's problems are associated with non-prescribed drug usage. Self-perceived knowledge about drug use and abuse is positively related to non-prescribed drug usage and education and inversely associated with age. Finally, the perceived availability

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of non-prescribed drugs increases as a function of perceived friends' use of non-prescribed drugs, one's own use, and educational achievement. Thus, attitudes toward drug use are determined primarily by the extent to which one engages in non-prescribed drug use and secondarily by perceived use of non-prescribed drugs among one's friends.

Total Effects

Table 5 presents the direct, indirect, and total non-spurious effects of each of the independent variables on non-prescribed and prescribed drug use. Friends non-prescribed drug use has the greatest relative impact on non-prescribed drug use. It is also evident that while age has considerable impact on non-prescribed drug use, over half of the effect is mediated by other variables in the model. Several of the variables included in the study, most notably family structure and parents prescribed drug use, have relatively little effect on non-prescribed drug use.

Summary

By way of summarizing the multiple regression and path analyses results, let us review the twenty-five hypotheses developed in Chapter I and describe the degree of support or non-support for each hypothesis.

\[ H_1: \text{Drug usage by whites will be greater than for blacks and both groups will exceed the use by other minority groups.} \]

The positive indirect relationship between race and both non-prescribed and prescribed drug use in Table 5 suggests that
### Table 5
DIRECT, INDIRECT AND TOTAL EFFECTS OF THE INDEPENDENT VARIABLES ON DRUG USE

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this hypothesis was incorrect and that non-prescribed and pre-
scribed drug use among non-whites was greater than among whites.
However, no test of the relative drug use among non-whites was
included in the study due to the small numbers of non-black,
non-whites included in the sample.

\[ H_2: \text{Drug usage by males will be greater than for females.} \]

This hypothesis was supported. The negative path coefficient
in Table 5 between sex and non-prescribed drug use indicates that
non-prescribed drug use is greater among males than females. How­
ever, the positive relationship between sex and prescribed drug use
indicates greater use by females than males.

\[ H_3: \text{The greater the urbanicity of the area in which one was raised, the greater the use of drugs.} \]

The urbanicity of the area in which one is raised is positively
related to non-prescribed drug use. However, there is a weak in­
verse relationship between being raised in an urban environment and
prescribed drug use.

\[ H_4: \text{Jews are more likely to engage in drug use than Catholics and both groups are more likely to use drugs than Protestants.} \]

The inverse relationships between religious affiliation and
both non-prescribed and prescribed drug use reported in Table 5
suggests that hypothesis four is incorrect and that the order of
the religious denominations should be reversed. That is, Pro­
testants were more likely than Catholics to engage in drug use and
Catholics were more likely than Jews.
H₅: Family intactness is inversely related to drug use.

Table 5 indicates that family structure of family intactness has almost no effect on either non-prescribed or prescribed drug use and that effect is almost totally mediated by educational attainment (see Figure 2). Nevertheless, the effect is in the predicted direction.

H₆: The greater the household occupation status, the lower the likelihood of drug usage.

This hypothesis is supported by the results reported in Table 5. The positive, although indirect effect of household occupation on drug use, indicates drug use decreases with decreased occupational status.

H₇: Unemployment is positively associated with drug use.

The reported negative relationship between household employment and drug use, although partially indirect, supports this hypothesis for both non-prescribed and prescribed drug use.

H₈: Education is inversely related to drug use.

Support for this hypothesis is found in both Table 4 and Table 5. The total effects are inverse as predicted for both non-prescribed and prescribed drug use.

H₉: Length of residence is inversely related to drug use.

The negative relationships between length of residence and drug use, both non-prescribed and prescribed, reported in Table 5 is as predicted. Thus, hypothesis nine is supported.
$H_{10}$: Urbanicity of current residence is positively related to drug use.

Urbanicity of current residence is indirectly related to drug use. The positive relationship reported in Table 5 is in the direction expected; hence, the hypothesis is supported.

$H_{11}$: Church attendance is inversely related to drug use.

The relationships between religious activism and both non-prescribed and prescribed drug use reported in Table 5 is in the predicted direction and therefore supports the hypothesis.

$H_{12}$: Drug use is greater among household renters than household owners.

This hypothesis is supported by the direct, indirect and total effects reported in Table 5. The inverse relationship suggests that renters are somewhat more likely than owners to engage in both non-prescribed and prescribed drug use.

$H_{13}$: The greater the household income, the lower the likelihood of drug usage.

The hypothesis is supported by the reported inverse relationship between household income and drug usage reported in Table 5.

$H_{14}$: Age is curvilinearly related (inverted U) to drug usage.

The curvilinearity of the relationship between age and non-prescribed drug usage was not tested. However, an inverse relationship between age and non-prescribed drug use and a positive relationship between age and prescribed drug use were found. This finding suggests that younger individuals are more likely to engage in non-prescribed drug usage than older persons while the
latter are more likely to use prescription drugs.

$H_{15}$: The greater the perceived parental use of alcohol, tobacco, and other drugs, the greater the use of drugs.

Only one test of this hypothesis was included in this study; the relationship between perceived parental use of prescribed drugs and drug usage. Table 5 and the path analysis of Figure 2 indicate positive relationships between parental prescribed drug use and non-prescribed drug use and with prescribed drug use.

$H_{16}$: The greater the perceived peer use of drugs, the greater one's own use of drugs.

There is substantial support for this hypothesis. Friends prescribed drug use has a direct effect on one's own use of prescribed drugs (Table 5) and is a major intervening variable between other variables in the model and prescribed drug use. In addition, friends prescribed drug usage is positively related to non-prescribed drug use (Table 5), although the relationship is small and mediated by personal prescribed drug use. Similarly, friends non-prescribed drug use is the major determinant of non-prescribed drug use in the present study (Table 5) and a major intervening variable for the relationships between other independent variables and non-prescribed drug usage.

$H_{17}$: Peer influence will be greater than parental influence on drug usage.

As tested in the present model, this hypothesis is clearly supported. Friends prescribed drug usage had a greater effect on prescribed drug use than parents prescribed drug use. Similarly,
friends non-prescribed drug use had a greater effect on non-prescribed drug use than any other variable included in the study.

\( H_{18} \): Primary group influences are intervening variables between social structural variables and drug usage.

The multiple regression and path analyses results indicate that parental and friends drug use did affect the relationship between each of the fourteen social structural variables included in the study and both non-prescribed and prescribed drug use. Eight of the social structural variables had no direct effect on non-prescribed drug use and for one variable, age, the indirect effect on non-prescribed drug use was greater than the direct effect. Similarly, seven of the structural variables were not directly related to prescribed drug use. However, since six of the social structural variables had direct effects on non-prescribed drug use and seven structural variables were directly related to prescribed drug use, the hypothesis is partially supported.

\( H_{19} \): Self-descriptions of oneself as (a) tense, (b) incompetent, (c) non-aggressive, (d) follower, (e) unfriendly, (f) lacking in self-confidence, (g) insensitive to others, (h) timid, (i) not talkative, (j) not likeable, and (k) critical of others will be positively related to illicit drug usage.

\( H_{20} \): The self-concept is an intervening variable between social structural variables and drug use.

These two hypotheses are considered together since neither was supported by the study's results. The self-concept factor score, which was used in a test of hypothesis nineteen, was not related to

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either non-prescribed drug use or prescribed drug use at a statistically significant level. Hence, the null hypothesis was not rejected in either case. The failure to find a statistically significant relationship between the self-concept and either non-prescribed or prescribed drug use resulted in the elimination of the variable from the model. Thus, neither hypothesis nineteen nor hypothesis twenty was supported by the results of the study.

H21: Prescribed drug use is inversely related to non-prescribed drug use.

A statistically significant relationship between prescribed drug use and non-prescribed drug use was found; however, this relationship was the opposite of the one that was predicted, i.e. prescribed drug use was positively related to non-prescribed drug use. Thus, the converse of hypothesis twenty-one was supported by the study.

H22: Drug use is positively related to estimated availability of drugs.

This hypothesis was supported (Table 2). Estimated availability of non-prescribed drugs was significantly and positively related to one's own and one's friends use of non-prescribed drugs as well as to educational achievement.

H23: Drug use is positively related to the perception of one's problems as drug related.

There was a statistically significant relationship between the use of non-prescribed drugs and the perception that one's (a) health, (b) social, (c) psychological, (d) legal, and (e) employment problems were drug use related (Table 2). That is, non-
prescribed drug use was positively related to the perception of one's problems as drug related. It should also be noted that friends use of non-prescribed drugs was positively associated with the perception of one's problems as drug related.

$H_{24}$: Drug use is positively related to self perceived knowledge about drug use and abuse.

This hypothesis was supported by the study (Table 2). Non-prescribed drug users felt they knew more about drug use and abuse than non-users. In addition, educational achievement was positively related to perceived knowledge about drug use and abuse while age was inversely related to perceived knowledge.

$H_{25}$: Drug use is positively related to the perception that the user would miss the use of the drugs.

The results of the analyses for both prescribed and non-prescribed drug use support this hypothesis (Table 2). Both prescribed and non-prescribed drug users felt they would miss their use of drugs if they were to give up using the drugs.

Overall, of the twenty-five hypotheses developed in Chapter I, twenty were supported as predicted, converse relationships were found for three hypotheses, and two hypotheses involving the self-concept were not supported. The adequacy of the path model is indicated by the proportion of variance explained and by support for the predicted paths. The overall proportion of variance explained for prescribed drug use is about four (4) percent and for non-prescribed drug use it is about twenty-five (25) percent. The theoretical paths were generally supported by the analysis.
although several unpredicted relationships were identified through the analysis.
CHAPTER IV

DISCUSSION AND IMPLICATIONS

Theories of Drug Use

Structural theories

It was suggested earlier that social structural theories generally regard non-prescribed drug use as a form of deviant behavior that derives from the differential distribution of socio-cultural factors among the social strata of society. Three principle types of social structural theories were identified on the basis of the assumptions each made about society. However, the three perspectives - social consensus, social conflict, and social control - generally lead to similar hypotheses regarding the specific differential involvement of various social strata in non-prescribed drug use.

The results of the present study tend to support the social structural theories. The general assertion of differential involvement in non-prescribed drug use by social strata is supported. In addition, most of the specific hypotheses by social strata were supported. However, it should be noted that many of the relationships between the social strata indicators and non-prescribed drug use were indirect and at least three of the theoretical derivations need to be reconsidered, i.e. those regarding ethnicity, religious affiliation, and religious activism.

In terms of the earlier distinction between socialization

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context (contingencies affecting the way in which one is raised) and social status (indicators of one's present position in society), it appears that social status is a more important determinant of non-prescribed drug use than socialization context. Only one of the five indicators of socialization context used in this study (i.e. sex as opposed to race, raised urban, religious affiliation, and family structure) was directly related to non-prescribed drug use and sex can be considered to be as much an indicator of social status as of socialization context. In contrast, five of the nine indicators of social status (i.e. household employment, household income, home ownership, education and age as compared to household occupation, length of residence, reside urban, and religious activism) were directly related to non-prescribed drug use. Thus, while both socialization context and social status are determinants of non-prescribed drug use, the effect of the former is mediated by the latter and by friends use of non-prescribed drugs.

**Processual theories**

Psychodynamic perspective

The review of psychodynamic theory suggested that non-prescribed drug use is symptomatic of an underlying psychopathological state although specific etiological foundations and psychopathological diagnoses were not identified. It was argued that psychodynamic theory implies that non-prescribed drug use is related to variations in development, self-esteem, and environmental contingencies likely to induce strong affect reactions.
Four types of results from the present study are relevant to the psychodynamic perspective. First, while there is debate as to the extent to which caretakers and particular circumstances affect psychodynamic development (cf. Baldwin, 1967), the present study's results do indicate that variations in socialization context affect the use of non-prescribed drugs. Second, to the extent that prescribed drug use can be accepted as an indicator of psycho-social problems, the positive relationship between prescribed drug use and non-prescribed drug use implies support for the notion that non-prescribed drug use is the result of developmental deficiencies and/or environmental contingencies. A third area of support for the psychodynamic perspective derives from the relatively strong positive relationships between non-prescribed drug use and (a) perceived personal desirability of such drug use (i.e. would miss the use of the drugs) and (b) the perception that one's problems (health, social, psychological, legal and employment) are related to one's use of non-prescribed drugs. Note that according to the psychodynamic perspective, drug use is symptomatic of psycho-social problems. However, such problems may be exacerbated by drug use or, at least, by social reactions to drug use. Thus, the relationship between non-prescribed drug use and psycho-social problems may be reciprocal. Unfortunately, recursive path analysis, as used in this study, does not permit identification of reciprocal (non-recursive) relationships. Hence, the positive relationship between non-prescribed drug use and perceived problems is a weak test of the causal ordering implied by the theory. Finally, the psycho-
dynamic perspective implies that there should be variations in non-prescribed drug use by self-esteem. The results did not support this contention since the self-concept/self-esteem indicator used here was neither a direct nor an indirect determinant of drug use. While the results of the study can be interpreted as supporting a psychodynamic perspective, the degree of support seems weak and debatable.

Labeling perspective

The labeling perspective, as discussed earlier, indicates that engaging in a behavior such as non-prescribed drug use may result in the attribution of a status (or label) to the actor by self and/or others. The attributed status (label) is expected to affect the actor's self-concept and subsequent behaviors. Thus, the labeling perspective implies that both the self-concepts and the behavioral repertoires of non-prescribed drug users should be different from those of non-users.

With respect to the self-concept, no statistically significant evidence was found that the self-concepts of non-prescribed drug users was different from those of non-users. More specifically, the self-concept indicator used here did not have a significant direct effect on non-prescribed drug use and the indicator was subsequently eliminated from the path model.

However, the results do offer some support for the labeling perspective implication that subsequent behavior (i.e. secondary deviance) is altered by engaging in deviant drug use. Non-prescribed
drug use was found to be a significant determinant of: (a) the
degree to which individual's felt they would miss drug use if they
stopped; (b) perceptions that health, social, psychological, legal,
and employment problems were associated with drug use; (c) per­
ceived knowledge about drug use and abuse; and (d) perceived
availability of non-prescribed drugs. Since it can be argued that
these perceptions can affect subsequent behaviors, it is reasonable
to infer that these results are somewhat supportive of a labeling
perspective.

Self-concept perspective

The self-concept perspective hypothesizes a reciprocal rela­
tionship between the self and behavior. In particular, it was
argued that this perspective implies that there are differences
in self-concept between those who engage in non-prescribed drug
use and those who do not so behave. Furthermore, it is presumed
that the consequences of the behavior in turn affect the self-
concept.

The recursive path analysis techniques used in the study did
not permit a test of the hypothesized reciprocal relationship.
However, a recursive relationship would show up if a reciprocal
relationship were present. A direct relationship between the self-
concept indicator and non-prescribed drug use was not found and the
indicator was subsequently eliminated for the analysis. Thus, the
results of this study fail to support a self-concept perspective on
non-prescribed drug use.
It is possible that the indicator of self-concept used in the study was too global and non-specific. Lauer and Handel (1977) and Meltzer, et al. (1975), among others, have indicated that there is a general failure to find associations between general, global, and non-specific measures of self-concept and specific behaviors. These theorists suggest that self-concept measures should be used that are relevant and specific to the behavior under investigation. Since such a measure was not used, the results are consistent with other studies. Thus, it can be argued that the results have no bearing on the self-concept perspective.

Social learning perspective

While the social learning perspective describes various means by which non-prescribed drug use may be initiated, the focus of this perspective is more on the mechanisms which maintain and/or strengthen behavior than on initiation of a behavior. In particular, the social learning perspective argues that rewarding and punishing consequences of a behavior determine the frequency and circumstances of the behavior's occurrence. The earlier review of the social learning perspective indicated that there are two principle types of rewards and punishers - primary (physiological) and secondary (social, learned, or acquired).

Three of the relationships identified in this study imply support for the notion that the primary consequences of drug use are important in maintaining the behavior. First, the positive relationship between prescribed drug use and non-prescribed drug
use and the importance of the former as a determinant of the latter may be mediated by the perceived desirability of the effects of the drugs. That is, if the effects of prescribed drug use are perceived as desirable, then the desirability of the effect may mediate the positive relationship between prescribed use and non-prescribed use. An indicator of the desirability of drug effects was not included in the original data; hence, it was not possible to assess the effect that perceived desirability of drug effects have on this relationship.

The second relationship with implications for the primary consequences of non-prescribed drug use is the relatively strong positive relationship between drug use and the perception that this behavior would be missed, among both prescribed and non-prescribed users, if it were terminated. Again, the perceived desirability of the drug's effects in reinforcing or avoiding/terminating punishment may mediate this relationship. That is, drug use may result in effects perceived to be desirable. In the absence of alternative means of achieving similar effects, the user feels that the drug use would be missed if terminated.

Third, the relatively strong positive relationship between non-prescribed drug use and perceived availability of non-prescribed drugs implies that users feel they are able to obtain non-prescribed drugs more or less at will. If non-prescribed drugs are relatively available, then whether or not a person uses those drugs may depend on the anticipated effects of the drugs. Anticipated effects of a drug are a function of personal and perceived friends experiences.
with a drug. Thus, positive or desirable effects determine how frequently an individual uses non-prescribed drugs and the more often an individual uses drugs, the more available the drugs are felt to be.

With respect to the social consequences of non-prescribed drug use, it is important to note the central impact of perceived friends use of non-prescribed drugs in determining: (a) involvement in non-prescribed drug use; (b) perceptions of health, social, psychological, legal, and employment problems as related to drug use; and (c) perceived availability of non-prescribed drug use. Of the variables included in this study, the perception of friends use of non-prescribed drugs was the most important determinant of non-prescribed drug use. Similarly, the perception that one's health, social, psychological, legal and/or employment problems were associated with non-prescribed drug use was partly determined by friends non-prescribed drug use. Finally, perceived availability of non-prescribed drugs was clearly related to friends use of non-prescribed drugs. The importance of friends use of non-prescribed drugs implies that one's friends serve as models, provide a definitional context, and otherwise socially reinforce non-prescribed drug use. Thus, these results support the social learning perspective's contention that non-prescribed drug use is a consequence of social (or secondary) rewards and punishers.

Limitations

While this study has sought to improve upon the typical
studies on drug use, misuse, and abuse, it is itself limited in several respects. These limitations include the following:

1. While a wide variety of concepts drawn from the various theories were included in the study, other concepts were excluded because the original data collection did not include relevant indicators.

2. Since the study relied on secondary data analysis, crucial tests between theories could not be conducted.

3. The study relies heavily on the use of single indicators of theoretical concepts rather than utilizing multiple indicators.

4. Rather than focusing on particular types of drug use, such as heroin use, the study focuses on the general use of prescribed and non-prescribed drugs. It is possible that such a strategy obscures important differences between types of drug users; however, such analysis was beyond the scope of this study.

5. The validity and reliability of the data were not established in the original data collection process and could not be determined by secondary data analysis.

6. It was assumed that measurement errors were either random or non-existent. Violation of this assumption generally results in attenuated or underestimated relationships.

7. The use of the statistical significance tests assumes:
   a. simple random sampling,
   b. interval scale measures,
   c. variables are normally distributed, and
   d. linear relationships.

The sampling used in the original data collection was based on a multistage cluster design. It can be questioned whether or not such variables as sex or gender and religious affiliation are interval. The homoscedasticity of the
variables and the linearity of the relationships were not tested.

8. Simple multiple regression analysis assumes the variables are additive. Although none was anticipated, tests for statistical interaction were not included in the study.

9. Recursive path analysis assumes that the relationships among variables are uni-directional (i.e., the relationships are not reciprocal). While a reciprocal relationship would show up in a recursive analysis, the inclusion of reciprocal relationships requires the identification of at least one variable related to each of the reciprocally related variables that is not related to the other. It was not possible to develop a non-recursive model with this data.

10. It is assumed that the analytical model is correctly specified (i.e., major intervening and spurious relationships are not excluded from the model). If this assumption is incorrect, then the estimated relationships are biased and the causal inferences are incorrect.

Implications

Many of the foregoing limitations were the result of the original data collection process. Nevertheless, these data offered a rich source of information for exploring a novel, complex theoretical model using sophisticated analytical methods. As a result of the study, several implications should be noted.

The general social psychological perspective which guided this research involved the integration of two basic theoretical types: structural and processual. The success of this venture should encourage other researchers to attempt similar theoretical inte-
grations. For example, if structural and processual perspectives can be integrated, it is reasonable to explore the integration of processual and physiological perspectives. A second area of exploration would involve the elaboration and refinement of the fit between structural and processual perspectives. For example, the psychodynamic perspective's emphasis on the superego, ego, and id seems to fit the social control perspective's emphasis on internal controls better than the assumptions of the consensus and conflict models.

In comparing non-prescribed and prescribed drug use, there are three differences which should be noted. First, there are three independent variables which have direct effects on prescribed drug use, but not on non-prescribed drug use: race, religious affiliation, length of residence. Conversely, two independent variables, i.e. home owner and household income, which directly affect non-prescribed drug use do not have a direct effect on prescribed drug use. Second, the total effect of the independent variables on non-prescribed drug use is generally greater than the total effect on prescribed drug use. Finally, three of the relationships are in opposite directions for non-prescribed drug use than for prescribed drug use: sex, being raised in an urban environment, and age. Thus, while the multivariate model is predictive of both non-prescribed and prescribed drug use, the relationships are often of a different type (inverse vs. positive or direct vs. indirect) and generally stronger for non-prescribed drug use.

As indicated earlier, many of the research findings identified
and reviewed in Chapter I were based on bivariate analyses techniques. Bivariate analyses techniques severely limit an understanding of a complex behavior, such as non-prescribed drug use, in at least two respects. First, bivariate analysis is by definition an examination of the effect one variable (usually referred to as an independent variable) has on a second (or dependent variable). Such an analysis does not, therefore, control for the effects other variables may have on the relationship. Second, bivariate analysis techniques make it difficult to assess the relative effects of several independent variables on a dependent variable. Multiple regression and path analyses techniques, such as were used in this study, do permit an analysis of the interrelations among a set of independent variables as well as an assessment of the relative effects each independent variable has on the dependent variable. Thus, variables which seem to be related to a dependent variable through bivariate analyses may have very little relative effect, may be spuriously related, and/or may be mediated by other variables. For example, Table 5 indicates that religious affiliation and family structure are very weak determinants of non-prescribed drug use and the effects of each are mediated by other variables in the model. Similarly, the indirect effect between household occupation and non-prescribed drug use is greatly affected by age, race, and being raised in an urban environment. Hence, it is apparent that bivariate analyses will generally provide inadequate descriptions and inferences regarding the relationship between an independent variable and non-prescribed
or illicit drug use.

While the use of multiple regression analysis and path analysis considerably improves one's understanding of the complex relationships among independent variables and the effects of those variables upon non-prescribed drug use, the use of these analytical techniques requires certain assumptions that may not be warranted. There are, however, several alternative multivariate analysis techniques available which do not require the same assumptions. For example, automatic interaction detection is useful when non-linear relationships and/or interaction effects are suspected, dummy variable analysis can be used to include statistical interaction in a multiple regression technique, and actuarial prediction, cluster analysis, and discriminant function analysis can be used to differentiate among groups of individuals. In addition to utilizing other analysis techniques, future research should also explore non-recursive models and alternative recursive models which include variables excluded in the present study.

Summary

This research has demonstrated the utility of a general social psychological approach which combines structural and processual theories of drug use to the study of non-prescribed drug use. With the exception of the self-concept perspective, each of the theories used in the study were interpreted as being supported by the results. Variables drawn from the social structural perspectives of consensus, conflict, and control were related to non-
prescribed drug use albeit the relationships were generally indirect. The psychodynamic and labeling process perspectives were also interpreted as being supported by the results. The strongest support was for the social learning perspective.

In addition to supporting selected concepts drawn from theories of drug use, the study also indicates that bivariate analyses are generally inadequate procedures for exploring the relationships between independent variables and drug use, misuse, or abuse. Some of the relationships frequently reported in the literature were found to be very weak relative to other relationships and many of the variables included in this study were not directly related to the use of drugs. Thus, the study clearly indicates the need for additional studies using multivariate analysis techniques.

Finally, the results of the study suggest several additional areas of research. Included in the areas of research to be explored are: (a) inclusion of additional variables in the model; (b) using alternative causal orderings among the variables; (c) use of non-recursive (i.e. reciprocal) path models; and (d) the application and comparisons of models of particular types of drug use/abuse (e.g. marijuana) rather than the general use of non-prescribed drugs.
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