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DRUG USE AMONG FEMALE HIGH SCHOOL SENIOR STUDENTS IN
MICHIGAN: AN APPLICATION OF SOCIAL BOND THEORY

by

Halime Unal

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Sociology

Western Michigan University
Kalamazoo, Michigan
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Halime Unal

DRUG USE AMONG FEMALE HIGH SCHOOL SENIOR STUDENTS IN
MICHIGAN: AN APPLICATION OF SOCIAL BOND THEORY

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Western Michigan University, 1997

Drug use is a serious problem affecting the American adolescents today. The focus of this study was the relationship between the elements of social bond and drug use among female high school senior students. The elements of social bond were peer pressure, commitment to school, and the importance of religious belief. Drugs investigated in this study were cigarette, alcohol and marijuana. This study included the total population of female senior students during the 1994-95 academic year in Michigan who participated in the Michigan Alcohol and Other Drugs School Survey (MAOD).

In order to test the relationship between the elements of social bond and drug use, Chi square, gamma and regression analysis were used in this study. The findings revealed that more factors other than the elements of social bond needed to be investigated to get a complete picture of drug use.

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CHAPTER I

INTRODUCTION

An issue of major importance for parents, educators, criminal justice personnel, and students is drug and alcohol use among youth in the U.S. An increasing number of young people are involved in experimenting with drugs in recent years. Today, the American public is "more aware of this problem than before" (Green, 1979, p. 17).

The youngsters' demand for and choice of drugs and their involvement in other types of law violation have become worrisome issues for the society as a whole. "For almost three decades, there has been an upsurge in youth drug participation and other forms of law violation" (Beschner & Friedman, 1986, p. 25).

A large proportion of American youth has been involved with illicit drug use since their early adolescence. This problem is prevalent in all groups of adolescents, particularly those in high school. Among high school students, for example, "marijuana use became apparent in the sixties" (Farley & Santo, 1979, p. 149). It can also be found in the streets, in suburbs and even in rural areas that are assumed to have a low percentage of drug use among the youth. High school students = drug use constitutes one of the most challenging problems facing the American society today.

The illicit drug use among high school students is a problem that influences all sectors of society. Based on the results of

U.S. National Survey on Drug Use (1979), it was estimated that 3-20% of Americans are daily marijuana users. "One out of six youngsters, age 12 through 17 years, used marijuana regularly" (Kozicki, 1986, p. 4). Results from Monitoring the Future indicated that the proportion of daily marijuana smokers among high school seniors was over 10% and was higher than the proportion of daily alcohol users (7%) in 1979. Of the high school seniors in 1979, "23% reported that their first experience with marijuana was at the eighth grade level or earlier" (Lettieri & Lutford, 1989, p. 1). Although buying alcoholic beverages is illegal for high school students, 10% of students reported drinking alcohol at the sixth grade level. According to one survey, 69% of the eighth graders, 82% of tenth graders, and 90% of twelfth graders had experience of using alcohol (Stimmel, 1996, p. 7). In 1990, 57% of American high school seniors stated that they were alcohol drinkers at that time, and 32% stated that they did heavy drinking (five or more drinks in a row) in the two weeks prior to their response to the national survey (Johnston, O'Malley & Bachman, 1991). Indeed, the number of young people involved in drug use continues to increase today. Stimmel (1996) has stated that "every year 1 billion cigarettes are sold to youths under 18 years of age, with 3000 young people a day estimated to become new smokers. This represents two packs of cigarettes each year for every young person aged 12 to 17" (p. 32).

The Inspector General has estimated that "high school students account for \$200 million in revenue following to the beer

industry" (Stimmel, 1996, p. 8). "According to estimates from the Alcohol Drug Abuse, and Mental Health Administration the combined cost of alcohol and other drug abuse in the United States exceeded \$144 billion in 1988 (Hawkins & Catalona, 1992, p. 3).

Purpose of This Study

The sociological data and theories relating to drug abuse among adolescents are numerous. However, a review of literature reveals that most of the studies of drug use among adolescents are focused on males. Researchers have directed their attention to male drug use and have not paid adequate attention to the involvement of female drug use in their studies. The reason was that female drug use is less frequent and less serious than male drug use. Therefore, female drug use was probably considered less interesting or less important than drug use by males.

The central task of this study is an investigation of the relationship between social bonding and drug use among 12th grade female students in the 1994-95 academic year. Specifically, this study will examine the impact of different elements of social bonding on the drug use among 12 th grade female students. In this study, three elements of social bond theory, (1) attachment, (2) commitment, and (3) belief will be tested separately and jointly in order to find out how these elements influence students' drug use.

Chapter II will provide information about the definition of drug and drug abuse. Pattern of drug use and the reasons stated for

taking drugs by the students will be presented. This chapter will also discuss the theoretical approach used in this study. Finally the significance of three sets of variables- peer groups, commitment to school and religion in drug use will be discussed at the end of the chapter.

Chapter III will present the research design, methodology and the variables used in this study. Chapter IV will describe the findings from the analysis of the data. Chapter V will provide conclusions and statement about limitations of this study and suggestions for future research.

CHAPTER II

LITERATURE REVIEW

In this section, first, the different meanings of drug and drug abuse will be reviewed followed by pattern and reasons for drug use among high school students, and the significance of social bonding and other predictive variables, such as peer group, commitment to school and influence of religion in the literature.

Drug and Drug Abuse

A basic definition of a drug as a therapeutic agent is given in Encyclopedia of Drugs and Alcohol "any substance other than food, used in the prevention, diagnosis alleviation, treatment or cure of disease" (Jaffe, 1995, p. 392).

In Narcotics and Drug Abuse A to Z (1983), a drug is defined as

a substance, solid, liquid or gaseous used in medicine in the treatment of disease or abused by drug dependent persons; any chemical substance that affects the mind and/or the body and the living tissues, resulting in bodily or behavioral changes. (pp. 1-18)

Abel (1984) describes drugs in two different ways.

First, although usually thought of as any substance used to treat disease, a more proper definition is any substance that affects bodily function, including any material-plant, powder, fluid, solid, or gas-that can be eaten, drunk, injected, sniffed, inhaled or absorbed from the skin. Second, substance that affects the body and is taken for other than medically prescribed reasons. (p. 54)

Drug abuse has a wide range of different meanings for different people. Drug abuse, in *Narcotics and Drug Abuse A to Z*, is defined as "the nontherapeutic use of any drug or substance to an extent detrimental to the individual. Drug abuse represents the outcome of an interaction between the individual, the drug and his social and physical environment" (Section 1-18). Another definition of drug abuse is "Drug abuse refers to the use, usually by self-administration of any drug in a manner that deviates from the approved medical or social patterns within a given culture" (Macdonald, 1984, p. 52).

Drug abuse implies the misuse of certain substances. Many definitions of drug abuse reflect social values. Other types of definitions refer to the nonmedical use of substance, or to alteration of the mental state, in a manner detrimental to the individual or the community, and the illegal possession of such a substance (Abadinsky, 1993).

Patterns of Drug Use Among High School Students

Drug use is a serious problem that is affecting adolescents and youth today. Almost all the young people in the United States are exposed to illicit drug use, and a high percentage experiment with them during early adolescence. A national survey estimates of drug abuse revealed that from 1972 to 1977 there had been a significant increase in drug abuse, especially of marijuana, among those 12 to 17 years of age (Krasnegor, 1979). By the twelfth grade, more

than half of this group (57%) had tried using marijuana, and 5.5% used marijuana daily. Marijuana experimentation and abuse was only one element of the problem. Among high school seniors surveyed in 1983, for example, 93% had used alcohol, 27% had used stimulants, 16% had used cocaine, 15% had used hallucinogens, including LSD and PCP, 14% had used sedatives or barbiturates, and an equal percentage had used inhalants, 13% had used tranquilizers, 10% had used opiates other than heroin, 9% had used LSD, and 8% had used amyl and butyl nitrites at some time during their lives (Beschner & Friedman, 1986).

Bower points out from a study by Johnson, Marcos and Bahr (1987) about 16% of the high school senior students had tried cocaine "at least once" (Bower, 1985a, p. 38). In addition, the researchers found that marijuana, amphetamines, alcohol, cocaine and other substances were the most commonly used illicit drugs in 1984 (Bower, 1985b). The use of butyl and amyl nitrites, marijuana, cigarettes and PCP increased somewhat during 1984 to 1985. Among seniors, the use of opiates other than heroin had been relatively stable, though annual prevalence increased from 5.2% in 1984 to 5.9% in 1985 (Hymes, 1986).

National surveys--American Drug and Alcohol Survey, National Senior Survey, and National Adolescent Student Health Survey--show that alcohol continued to be the most commonly used drug. Tobacco, the only other legal drug for adults, is the second most common drug, though the use by youth is illegal. The third most widely used drug is marijuana, which almost half of the high school students

have tried at least one time in their life time, even though marijuana use has decreased since 1980 (Oetting & Beauvais, 1990). According to Oetting, the results of American Drug and Alcohol Survey indicated two important patterns of adolescent drug use. First, young children were involved with drugs. Although the rates were low, counselors, teachers and families need to be aware of drug use among the fourth to sixth grade students. Secondly, it seemed that there was considerable increase in drug use from sixth to ninth grade because in these age groups, the developmental changes occurred at the same time they transferred from the elementary school setting to junior, middle and high school settings (Oetting & Beauvais, 1990).

Zucker, 1966, (cited in Wechsler & Thum, 1973) summarizing the research on teenage drinking, concluded that

Among the approximately 80% of adolescents who have had some experience with alcohol, 90 to 95% drink in such a way as to suggest that the consumption of alcoholic beverages represents no problems either for themselves or others. For the other 5 to 10% alcohol consumption is very definitely a problem. (p. 1220).

Kronblum (1992) has stated that "it is estimated that three million people fourteen to seventeen years old have problems related to the use of alcohol" (p. 131). The 1990 national school based Youth Risk Behavior Survey results indicated that 88.1% of all students in grades 9-12, had consumed alcohol in their life time, and 58.6% had consumed alcohol at least once during the past thirty days (Centers for Diseases Control, 1991). Results from Monitoring the Future studies indicated that "in 1995, 73.7% of high school seniors used

alcohol in the last 12 month compared with 72.7% in 1993, and 73.0% in 1994" (Johnston, O'Malley & Bachman, 1996, p. 31).

The Parents' Research Institute for Drug Education (PRIDE), a national drug abuse prevention group based in Atlanta, released survey results of a study conducted in 1993, which indicated that drug use was increasing among junior and senior high school students. The PRIDE study found an increase in the use of marijuana from 4.8% to 5.8%, and a small increase in the use of hallucinogenic drugs, from 1.8% to 1.9% among students in grades (6-8). The rise of drug use among high school students was even higher. The number of high school students reporting marijuana use "rose from 16.4% in 1990-91 to 19% 1992-92, and nearly 12% stated that they had smoked marijuana in the past month" (School Library Journal, 1993, p. 18). In 1995, the results from Monitoring the Future Study showed that 34.7% of high school seniors said that they had tried marijuana at least once in the past year, and the rates for seniors were 26% in 1993, and 30.7% in 1994.

Since the inception Monitoring the Future study in 1975, cigarettes have been the substance most frequently used on a daily basis by high school students. Results from this study in 1985 indicated 69% of high school students had tried cigarettes at some time, and 30% smoked cigarettes during the prior month (Johnston, Bachman & O'Malley, 1986). Among seniors, in 1995, the current smoking rate was 33.5% compared with 31.2% in 1994, 29.9% in 1993 (Johnston et al., 1996).

In terms of gender differences in the use of drugs, traditionally, males are more likely to use most illicit drugs. In 1985, overall, the proportion using marijuana was slightly higher among males than females. However, frequency of daily use of marijuana among males was twice that of females (6.9% vs. 2.8%). Also, the percentage of males who used alcohol daily was higher than that of females (7% versus 3%). In the case of cigarettes, there was not a large difference between males and females. For example, the level of smoking half of a pack or more on a daily basis was 12.0% for females and 12.3% for males (Johnston et al., 1986).

Results of Youth Risk Behavior study indicated that the male students' use of marijuana in their lifetime and in the past thirty days were significantly higher than that of females in 1990. Male students (62.2%) were more likely than female students (55.0%) to have consumed alcohol during the past thirty days (Center for Disease Control, 1991). Results from Monitoring the Future in 1995 supported the previous study results. Overall, the proportion of 12th grades using marijuana was higher among males (38%) than females (31%). Similarly, 6.5% of males reported using marijuana on a daily basis compared to 2.4% of females. There is a substantial gender difference among high school seniors in the prevalence of occasions of heavy drinking (37% for males, 23% for females). Daily use was reported by 5.5% of senior males versus 1.6% of senior females. The rate of cigarette smoking for both sexes has been increasing since 1992. Smoking rates among seniors were similar for

males and females in 1995. Twelfth grade males reported slightly more daily smoking than the females (Johnston et al., 1996).

Reasons for Taking Drugs and Gender Differences

Many researchers have attempted to explain why adolescents and young people engage in drug use because it is very important to understand the nature of drug use. For example, Johnston and O'Malley (1986) examined the reasons for the use of drugs, by American adolescents and youth. The data were drawn from Monitoring the Future survey. The data showed that the most common reasons mentioned for using drugs was "to have a good time with my friends." Sixty five percent of all high school seniors gave this as a reason for the use of drugs. "To feel good or get high" was reported as a reason by 49% of all seniors (Johnston & O'Malley, 1986, p. 32). "To relax or relieve tensions" was mentioned by 41% of students. Researchers also examined the reasons for coping with negative affect, such as "to get away from my problems or troubles" (22%), and "because of anger or frustration" (17%) (Johnston & O'Malley, 1986, p. 34).

The researches also looked at gender differences in the use of drugs. The studies showed that females used drugs less frequently than males. They found similar pattern of reasons for using alcohol for both genders. However, there were large differences in the case of daily alcohol use. Females mentioned more frequently than males that they used alcohol to deal with negative affects such as getting

away from problems, and due to anger and frustration. There were other gender differences for using marijuana. Female who were daily marijuana users reported more often than males "because of anger or frustration" as a reason for using marijuana. In the case of heavy use of marijuana, more males than females cited "to increase the effects of other drugs". Females said more often than males that they used drugs for functional reasons or self-medication. For example 71% of females using amphetamines heavily said that they used them to help lose weight versus 19% of males (Johnston & O'Malley 1986, p. 54).

Pascale and Evans (1993) and Pascale and Slyvester (1988) also examined gender differences in reasons offered for drug use. They analyzed the results of a large scale drug survey of high school students in northeast Ohio. The studies were conducted at three year intervals beginning in 1977. They concluded that curiosity was the most widely reported reason for the use of alcohol and other drugs in the 1980, 1983, 1986 and 1989 surveys (Pascale & Evans, 1988; Pascale & Slyvester, 1993). For example, in 1989, curiosity was reported by 46.4% males and by 54.8% females. Relaxation and recreation also continued to be reported as reasons for drug use. Recreation was cited by 35.2% of males and by 33.9% of females in 1989 (Pascale & Evans, 1993).

The next section discusses the theoretical approach used in this study, namely, social bonding theory of Travis Hirschi, to explain the nature of drug use among high school students and their

reasons for the involvement of drug use.

Theoretical Approach

The use of drugs among adolescents has been the subject of much research. In the case of illicit drug use, young people are the focus of research most of the times. The surge in illicit drug use during the last decade has proven to be primarily a youth phenomenon, with onset of use most likely to occur during adolescence (Johnston, Bachman & O'Malley, 1984). Many researchers have tried to identify the causes for this problem. They have focused on the relationship between drug use and the structure of the family, ethnicity, social class, and peer groups.

The causes of delinquent behavior among high school youth can be tested using Hirschi's social bonding theory. Hirschi presented his social bonding theory in his book called Causes of Delinquency in 1969. The theory focuses on the social bond that ties people to the normative web of the conventional society. Hirschi pointed out that it is not necessary to explain the motivation for delinquency because humans are inherently aggressive and naturally capable of committing delinquent acts (Pfohl, 1985). The question for Hirschi is why do most young people stay out of serious trouble? Hirschi argued that human conformity is based on a bond that is developed between an individual and society that keeps him or her from violating the rules (Marcos & Bahr, 1986). He explained that deviant behavior is a result of the weakening or severing of one or more of

the social bonds. Hirschi maintained that individuals are free to commit deviant acts when their bonds to conventional groups are weakened (Krohn, Kanduce & Akers, 1984). In other words, when the bond of a person to society is broken or weakened, he or she is free to engage in delinquency (Matsueda, 1982).

Hirschi conceptualized the social bond as consisting of four elements: attachment, commitment, involvement and beliefs.

The first element of the social bond is attachment to others. Attachment refers to affective ties toward other people. For Hirschi, parents, peers and other people close to the adolescent were very important sources of attachment because adolescents were very concerned about the opinions of those close to them (Wiatrowski & Griswold, 1981). For example, Hirschi argued that adolescents who were effectively tied to their peers will be more constrained from committing deviant acts (Krohn & Massey, 1980).

The second element of social bond is commitment. Commitment refers to the persons' actual investment of conventional activities. Commitment to conventional activities dissuades an individual from delinquency because a person who has invested time and energy in the conventional activities--such as getting education, attaining a high status job--will not have enough time and resources to engage in deviant acts (Matsueda, 1982). Commitment also refers to the cost factors involved in delinquent activities. Hirschi (1969) stated that "whenever he considers deviant behavior, he must consider cost of this deviant behavior, the risk he runs of losing the investment he

has made in conventional behavior" (p. 20).

The third element of social bond is involvement. Involvement refers to the proportion of a person's time spent in conventional activities in order to achieve success. The assumption is that a person may be simply too busy doing conventional things to find time to engage in deviant behavior. Therefore, the involvement in conventional activities--such as doing homework, appointments, deadlines, limits the time to engage in delinquent activities (Pfohl, 1985).

Belief, the fourth element of the social bond, is respect for the moral validity of conventional values. People who strongly believe in conventional values and norms of the society are not likely to commit deviant acts. In contrast, people who do not have strong beliefs in conventional values of society will more likely commit deviant acts (Krohn & Massey, 1980). A weakening or severing of any one or combination of elements of the social bond increases the chance for delinquent behavior.

Studies Testing Social Bonding Theory

A number of studies have utilized social bonding theory in examining different types of delinquent behavior. For example, Wiatrowski, Griswold, and Roberts (1981) used attachment, commitment, involvement and belief to test how the four social bond elements operated in relation to delinquency. The data were obtained from the Youth in Transition study. They concluded that parental and

school attachments had strong negative relationship with delinquency. Commitment and involvement were also found to be important. A lack of conventional value orientations was also important in accounting for delinquency. Commitment variable did not show the strongest negative effects as predicted by Hirschi's theory.

Krohn and Massey (1980) examined the relevance of Hirschi's social bonding theory in measuring of deviance. The data were drawn from a sample of 3065 adolescents. One of the important findings was that the social bonding theory gives possibly better explanation for the less serious forms of deviance and was less predictive in the case of more serious forms of deviance. In contrast with the other study discussed above, commitment elements were found to have a strong relationship with deviant behavior. The researchers also found that "the elements of commitment and belief had a higher predictive power in the case of female deviance than for male deviance" (538-542).

Krohn, Massey, Skinner and Lauer (1983) use the social bonding perspective in explaining adolescent cigarette smoking. The analysis was based on data collected in a two wave panel study of 1405 students in grades 7 through 12. They found that bonding elements were successful in explaining adolescent cigarette smoking. Commitment and belief in education were found to have the strongest constraining effects. However, they also found that the elements of attachment to friends were positively related to smoking.

Krohn, Kaduce and Akers investigated the relationship between

social bond and adolescent drug use in an urban and rural comparative context. The data for this study were collected from 3065 high school students. Social bonding variables accounted for more variance in this type community than other types of communities in the case of alcohol use. Social bond variables were found to be relatively less effective in the farm community than in the nonfarm and suburban communities in the case of marijuana. The study concluded that the variation in the bonding elements "appeared to account for the variance in deviant behavior" (Krohn et al., 1984, pp. 360-363). The emphasis in the four illustrative studies described above was on using social bonding theory to account for drug use among the adolescent. However, in a book called Communities That Care, in 1992, Hawkins and Catalano proposed that social bonding theory could be used to prevent alcohol and other drug use in the society. In their research based on prior studies, they showed that healthy bonding with the community was a significant factor in the resistance against crime and drugs by the adolescent. The three important components of a strong social bond were attachment, commitment, and belief. They stated "anti drug attitudes are strengthened by promoting adolescents' bonds," including relationships with non drug users, commitment to the various social groups (families, schools, communities, peer groups), and values and beliefs "regarding what is healthy and ethical behavior" (Hawkins & Catalona, 1992, p. 14). They indicated that studies had demonstrated that young people who were strongly bonded to parents, to school, to non-drug using peers, and their

communities were less likely to engage in delinquent behaviors. These groups would not approve of delinquent behaviors because these behaviors would threaten the social bond.

The main purpose of this section was to provide a conceptual framework and the empirical support to the theoretical approach used in this study. Hirschi (1969) specified that the prospect of delinquent behavior declined as the adolescent was controlled by such bonds as affective ties to peers, success in school, involvement in school activities, high occupational and educational aspirations and belief in the moral validity of conventional norms. The next section will address these issues based on the role of peer groups, commitment to school and religion in drug use.

Peer Group

Peer groups are an important factor in the growing up process. They have form and function even though their functions vary from age to age and from place to place. Hirschi concluded that attachment to peers is related to delinquency.

The literature indicates that peer influence is an important factor in the understanding of adolescent drug use. Because of the nature of peer interaction, a high degree of similarity in drug use among friends can be predicted (Dinges & Oetting, 1993). Many researchers (Dinges, 1993; Johnson, 1979; Hawkins, 1992; Kandel, 1991) have concluded that peer group influence is one of the major reasons adolescent starts to use drugs. Kandel and associates (1975), for

example, suggest peer group association as an important factor in the involvement with drug use, especially marijuana use (McBroom, 1992).

Associating with peers who are more involved in delinquent behavior tends to cause the adolescent to become more accepting of delinquent acts in a general sense, and more often to expect peer approval for committing violations of legal behavior (Johnson, 1979). Youth who associate with peers who are using drugs are much more likely to use drugs themselves. This is one of the most consistent predictors identified by researchers. Even when the youth come from well managed families, simply associating with friends who use drugs greatly increases their risk (Hawkins & Catalona, 1992).

Adolescent alcohol and drug use appears to conform to the behavioral and value structure of the peer groups. It is believed that peers contribute to adolescent drug use both directly and indirectly through several mechanisms; by modeling drug use, and by shaping norms, attitudes and values and support for drug use (Bauman & Ennett, 1996; Nowlis, 1975).

In a longitudinal study designed to test social control theory in the case of drug abuse, Denise Kandel and Mark Davies (1991) found

illicit drug use to be positively associated with intimacy among members of friendship networks, whether intimacy refers to confiding or to interacting with friends. Further, the structure of the networks of illicit users is similar to that of nonusers. The extent that some differences occurred, they tended to indicate closer friendships for drug users than non-users. (p. 459)

McBroom (1994) revealed from a study done by Downs (1985) that

there was a relationship between adolescent alcohol use and peer alcohol use. The results showed that females might be more influenced by peers than males (Mc Broom, 1994). Based on the result of a survey of drinking pattern among teenagers, the impact of peer influence on drinking tendency among teenagers was clear for both urban and rural teenagers. However, the influence of friends who used alcohol was somewhat stronger for urban youth than rural teenagers. It was suggested that the rural teenagers were somewhat more independent and accordingly, peer pressure had somewhat less influence on the rural youth than on the urban youth (Lassey & Carlson, 1979). However, Pruitt, Kingery and Mirzaee (1991) arrived at results different from Lassey's conclusion. They examined peer influence and drug use among adolescents in rural areas. They surveyed 1000 high school students in 23 small Texas communities. The three purposes of this study were to determine the students' perception of the number of friends who use drugs, the amount of information they received about drugs from their friends, and the connection between those perceptions and drug use. The results showed that students who perceived a higher degree of drug use among their friends and those who received more information about drugs from their friends used drugs more frequently than those who did not. Therefore, the researchers concluded that "peer pressure was related to drug abuse, even in rural areas" (p. 3).

Commitment to School

Schools also have an impact on the behavior of youth. Control theory stresses the roles of attachments to teachers, positive experiences in school activities, and desires or plans for future educational success as factors that act to decrease delinquency by increasing adolescents' stake in conformity (Johnson, 1979; Binder, 1988). If students are committed to school, they are unlikely to become involved in delinquent behavior, because for them the risk of involvement is high. If they are involved in such behaviors, they will pay the cost. It means that "they will lose their present and future status and rewards" (Kelly & Pink, 1973, p. 475).

Hirschi (1969) summarizes his view about school:

The boy who does not like school and does not care what teachers think of him is to this extent free to commit delinquent acts. Positive feelings toward controlling institutions and persons in authority are first line of social control. Withdrawal of favorable sentiments toward such as institutions and persons at the same time neutralizes, their moral force. (p. 127)

Examining a population of urban California delinquents, Hirschi (1969) found that they tended to show little commitment to school either in terms of the educational process, or in terms of the social life that centered around it.

Kelly and Pink (1964) examined a population of 234 male sophomores enrolled in high schools of a medium sized county in the Pacific Northwest. Their data supported the argument that "decreasing levels of school commitment will be linked to increasing rates of

youth delinquency" (pp. 480-481). According to Green, spare time activities were related to drug use. He concluded that more the time was spent in unsupervised activities, the more likely it was that the student would use drugs. Generally, drug users have been found to be less interested in formal education and, to be less involved in organized activities than nonusers (Green & Levy, 1976).

According to Friedman, Kandel reported that absentees were more involved in drugs than their classmates who attended school regularly. Poor school performance and school absences were also related to higher rate of drug use among the regular students (Friedman, Glickman, & Utada, 1985). Friedman also examined the relationship between drug use and school failure in a study of 526 high school students in Philadelphia. He concluded that a highly significant relationship was found between drug use and school failure.

Religion

In the social bond theory, Hirschi (1969) ignored religion as a factor that could serve to control deviance. It is asserted in this study that inclusion of religion as a variable strengthens the social bond model, because religious training sometimes begins before children reach school age. Popular opinion has held that there is an inverse relationship between religion and delinquency and that delinquents are religiously less active than nondelinquents.

From the results of the Hellfire and Delinquency Study, Hirschi and Stark (1969) concluded that church attendance had no relation-

ship to delinquency. They stated that "students who attend church every week are as likely to have committed delinquent acts as students who attend church only rarely or not at all" (Binder, 1988, p. 468). However, Burket and White (1974) replicated the study conducted by Hirschi and Stark. They reported that they found a very definite relationship between religious participation and the use of alcohol and marijuana, in contrast to Hirschi and Stark's conclusions (Binder, 1988). Nye found that non delinquents attended church significantly more often than delinquents did. Similarly, Jensen and Rojek indicated that there are some negative relationships between religious factors and delinquency, particularly drugs (Shoemaker, 1984). Adler and Lotacke (1973) concluded that students' drug use also varies negatively with church participation, that is, greater the involvement in church, less the drug use. Johnson, et al. (1987) found that religious belief had a significant direct effect on drug use. Green indicated that religiosity was highly correlated with nonuse of drugs while lack of religious activity was negatively correlated with drug use (Green & Levy, 1976).

The objective of this chapter was to describe the nature and extent of the involvement of high school students in drug use, to explain the theoretical approach used in this study and to account for the role of peer groups, school and religion in drug use. The next section will discuss the research design, methodology and the research variables used in this study.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Data Source

The data utilized in this study were made available by Drs. Thomas Van Valey and Diana Newman. The Michigan Alcohol and Other Drugs School Survey (MAOD) was conducted through the Kercher Center for Social Research, at Western Michigan University. The survey was modeled after the national high school senior substance use survey, Monitoring the Future. The MAOD survey collected data from populations of eighth, tenth, and twelfth grade students in public schools in the state of Michigan that decided to participate in this study. The questionnaire included a number of questions on the use of drugs, opinions on the effects of using drugs, peer group, family background, drug education activities and demographic background. It involved their knowledge, use, and perceptions related to alcohol and other drugs.

The MAOD survey was first administered during the 1989-90 school year. A total of 93 school districts were surveyed during the first year, involving 42,450 students. Since, then the number of districts and students surveyed has increased. Nearly 150 school districts and more than 81,00 students were surveyed in 1993-94. At the end of the 1993-94 academic year, approximately 74% of Michigan's K-12 public schools had been surveyed at least once during the

span of the project. Three districts had participated in four of the five years, 27 had conducted the survey three times, 73 were surveyed two different years, and 230 had established baseline data and 41 districts participated for the first time in 1993-1994. Overall, 388 of the state school districts had been surveyed, totaling nearly 335,000 students.

To collect the data, the MAOD team first made a contact with a representative of the district which was interested in participating in the study to schedule a date for the study. After the date was scheduled, an information packet was sent to the school. The packet explained responsibilities of the school contact person, teachers, students and parents of participants. The packet contained an informational letter, a description of the informed consent process, a message to all relevant school personnel describing the survey process and a copy of the MAOD survey.

A self-report questionnaire was administered to students in the high schools. The researchers used multiple measures to maintain confidentiality and reliability of data during data collection. Students were told not to put their names on the questionnaires, so that they would feel free to answer the questions honestly and frankly without fear of identification. Then, trained research associates were sent to school districts to handle the survey administration. Teachers and the school personnel were not involved in the distribution or collection of questionnaires. This provided absolute anonymity for the student respondents.

In this study, data collected from 12th grade females during the 1994-95 academic year will be used to examine the impact of social bond on adolescent drug use. The social bonding theory of Hirschi will be used to understand and explain the drug behavior of these youth. As female deviance has been given less attention than male deviance in the literature, this study will undertake that research.

Hypothesis

Hirschi's (1969) theory contends that social bond is a strong predictor of whether or not an individual will engage in delinquent acts such as drug use. As indicated in the literature review above, Hirschi assumed that all people had the potential to violate the law. However, all people kept their fear under control because their delinquent action could cause harm to the relationship with others. Hirschi assumed that delinquent acts result when the bond of an individual to society is weak or broken. In this study, the social bonding theory will be used to account for female youth drug use. Hirschi's theory is chosen for this study because it has been empirically tested in various social contexts.

Taking into consideration the variables used in the larger study in 1994-95 academic year, this study focuses on the following hypotheses as they relate to 12th grade female students in Michigan who responded in the MAOD questionnaire.

1. If higher attachment to peers then higher rates of drug

use.

2. If higher commitment to school then lower rates of drug use.

3. If higher perception of the importance of religious beliefs then lower rates of drug use.

4. If higher level of social bonding then lower rates of drug use.

To test this hypothesis, a composite scale, which includes all the three elements of social bonding stated above, is used.

Research Variables

Measurement of Dependent Variables

As indicated earlier, this study is an attempt to understand the involvement of female youth with drugs from the perception of social bonding theory. Thus, in order to test the four hypotheses about drug use listed earlier, three types of drug use namely, (1) alcohol, (2) marijuana, and (3) cigarette use were chosen as the dependent variables. Drug use is a composite scale based on these three variables. In case of alcohol and marijuana used, the scales were made on the basis of how many times the students had used in the past 12 months. In the case of cigarette use, the scale was made on basis of how many times the students had used in the past 30 days.

Alcohol and Marijuana Use

The responses were divided into 4 categories. They were as follows:

1. Students who had never used alcohol were called non users and categorized as none.
2. Students who had used alcohol 1 through 5 times were called low users and categorized as low.
3. Students who had used alcohol 6 through 19 times were called moderate users and categorized as moderate.
4. Students who had used alcohol 20 or more times were called high users and categorized as high (see Appendix A).

The same categories and frequencies were used in the case of marijuana.

Cigarette Use

The use of cigarettes in the past 30 days was chosen because smoking behavior is more frequent than alcohol and marijuana use. The literature review also revealed that many researchers chose cigarette use in the past 30 days to measure the frequency of smoking behavior. The question on cigarettes in this study was also worded in the same way. Like alcohol and marijuana, the scale was made for cigarette on the basis of how often the students had smoked cigarettes during the past 30 days.

Responses were divided into 4 categories, 1-4. They were as follows:

1. Students who had never smoked cigarettes were called non-users and categorized as none.
2. Students who had smoked less than one through five cigarettes per day were called low users and categorized as low.
3. Students who had smoked one half pack through one pack per day were called moderate users and categorized as moderate.
4. Students who had smoked more than one pack per day were called high users and categorized as high (see Appendix A).

Drug Use

To test the impact of the elements of social bonding on drug use, a composite scale was made up from the use of alcohol, marijuana, and cigarettes. The scale values were 3 through 12. These values were divided into two categories in the chi square and gamma analysis. The mid point was used to divide the low and high categories as the cutting point. In the case of regression analysis, the original scores were retained and the total scores were not divided into categories (see Appendix A).

Measurement of Independent Variables

To test Hirschi's (1969) social bond theory, three components of bonding, namely, (1) attachment, (2) commitment, and (3) belief were used in this study. Involvement which was the fourth component in the theory was not chosen for this study because considerable conceptual and empirical overlap exists between involvement and

commitment. In addition, there were not any questions in the questionnaire to test involvement (such as time spent on homework).

Operationalization of Attachment

Since most of the literature review reveals that peer influence encourages drug use among young people, attachment to peers is investigated by examining level of peer pressure among female high school senior students. Three items from one question in the MAOD questionnaire will be used to measure peer pressure. The survey included a question with 3 sub points, "How much pressure do you feel from your friends and schoolmates to (1) smoke cigarettes, (2) drink alcoholic beverages and (3) use marijuana?"

Peer pressure to use cigarette, alcohol and marijuana will be examined individually. Then, to test the impact of peer pressure to use drugs, a composite scale made up from peer pressure to use cigarette, alcohol and marijuana will be used. The scale values were from 3 through 12. The scale values were divided into low and high categories (see Appendix A).

Operationalization of Commitment

Four items were chosen from the MAOD questionnaires which constitute the commitment scale. GPA was chosen as one of the commitment variables to test the theory. The students were asked "Which of the following best describes your average grade in the most recent grading period or semester?" Possible responses were A, B, C, and D.

The second item was the number of days the student missed classes. The question was "During the last four weeks, how many whole days of school have you missed because you skipped or cut?" Possible responses were from none to 11 or more. The third item was college aspiration. The question was "How likely is it that you will graduate from a four year college?" There were 4 possible responses from definitely won't, probably won't, probably will and definitely will. The last item was try to do the best work in school. The students were asked "How often did you try to do your best work in school?" There were 4 possible responses which were never, seldom, sometimes, often, and almost always.

First, the impact of four items described above cigarette, alcohol and marijuana use was separately examined. Then, a composite scale was made up of all four items to test the impact of commitment on drug use. To build the commitment scaling, scores 1 through 4 for each of the above four items were added up to create a scale for commitment. The scale was then divided into low and high categories (see Appendix A).

Operationalization of Belief

The female high school senior students' perception of the importance of religion in their life is used to operationalize the belief elements of social bond. An item on the MAOD survey was chosen to test the belief elements. The survey included a question "How important is religion in your life?" There were four possible re-

sponses from not important through very important. This variable will be used individually as no other items about beliefs were included in this study (see Appendix A).

Operationalization of Social Bond

In order to test the impact of social bond on drug use, a composite scale was made up from attachment, commitment and belief elements. When the scale was constructed, attachment element was recoded. The scale included low attachment, high commitment and high belief at one end of the score. For chi square and gamma analysis, the scale was divided into low and high categories, but in the case of regression analysis, the original scale scores were used (see Appendix A).

Analysis

In this section, the association between the independent variables and the degree of drug use among the female high school students will be investigated. First, frequency and percentage distributions will be used to describe the population of respondents. Descriptive analysis will provide useful information in determining the number of observations in each response category.

Cross tabulation and chi-square analysis will be used to test the strength and significance of the relationships between dependent variables and independent variables. Thus, the relationships between attachment, and alcohol, marijuana and cigarettes will be tested.

The relationships between commitment to school, and alcohol, marijuana, and cigarettes will be examined next. The relationships between alcohol, marijuana and cigarettes and the importance of religious belief will be tested last. These procedures will test the impact of the social bond upon drug use as reported by the students. The statistical level of significance is set at the .01 level. In addition to chi square analysis, gamma was used to determine the direction of the relationship between the dependent and independent variables.

The combined impact of peer pressure, commitment to school and the importance of religious belief on alcohol and cigarettes and marijuana use individually will be examined through linear regression statistics. In addition to this, the combined impact of the social bond on drug use will be tested with regression statistics.

In the next section, the findings obtained from analysis of data used in this study will be presented. The chapter includes results of frequency distribution of variables, chi square test, gamma test, and regression analysis.

CHAPTER IV

FINDINGS

The purpose of this chapter is to present and discuss the findings in this study as they relate to cigarette, alcohol and marijuana use of female high school seniors in Michigan. The first section will describe the dependent and independent variables and it also includes a presentation of frequency and percentage distribution of these variables. The next section will describe the impact of the independent variables on dependent variables. In order to this, the elements of social bonds, attachment, commitment to school and belief and their association with drug use are tested. Chi square test is used to test the relationship between the dependent and independent variables. Gammas are used to test the direction of relationship and the proportionate reduction in error in predicting the second variables based on the first variable. In the last section, the combined impact of the elements of social bond is tested with cigarette, alcohol and marijuana use. Linear regression analysis is used to test the strength and significance of the relationship as interval data are available for this analysis.

Frequency and Percentage Distribution of Variables

In this study, cigarette, alcohol and marijuana use are used as dependent variables. The independent variables are attachment as

measured by peer pressure, commitment as measured by grade average, school absences, college aspiration and the effort in the school, and belief as measured by the variable importance of religion.

Table 1 presents the data on cigarette use in 30 days prior to administering the survey. The majority of female high school seniors in this study indicated that they had not smoked in the last 30 days. Of the seniors, 63.2% reported that they had not smoked in the last 30 days. Additionally, over 20% of female seniors stated that they smoked less than 1 to 5 cigarettes, while close to 13% indicated that they smoked about one-half to one pack per day in the last 30 days. Only a small percentage (1.6) of the seniors reported smoking about one and one-half or more packs per day.

Table 1
Frequency and Percentage Distribution of Respondents
by Cigarette Use in the Last 30 Days

Cigarette use in the past 30 days	Frequency	(%)
None	3985	63.2
Less than 1 to 5	1306	22.4
About ½ to 1 pack	750	12.9
About 1-1/2 or more	83	1.6
Total	5834	100

Table 2 shows the data on alcohol and marijuana use in the last 12 months. Results from current study indicate that of the female seniors included in the study, 9.9% reported that they had not

used alcohol in the past 12 months. Over a third (38.3%) of the respondents recorded that they had used alcohol 1 to 5 times. The percentage of those who used alcohol 6 to 19 times was 31.4 while the percentage of those who used alcohol 20 or more times during that period was 20.4.

Table 2
Frequency and Percentage Distribution by Respondents by
Alcohol and Marijuana Use in the Last 12 Months

	Frequency	(%)
Alcohol use		
last 12 months		
None	509	9.9
1 to 5	1974	38.3
6 to 19	1618	31.4
20 or more	1051	20.4
Total	5152	100
Marijuana use		
last 12 months		
None	3562	61.9
1 to 5	912	15.8
6 to 19	618	10.7
20 or more	666	11.6
Total	5758	100

Table 2 shows that the largest percentage of responses was in the category of those who had not used marijuana in the last 12 months (61.9%). Close to 16% of female high school seniors stated that they used marijuana 1 to 5 times during that period. Those who

responded according to peer pressure is shown in Table 3.

Table 3
Frequency and Percentage Distribution of Respondents by Peer
Pressure Pertaining to Cigarette, Alcohol and Marijuana Use

	Frequency	(%)
<hr/>		
Cigarette		
None	4909	84.4
A little	599	10.3
Some	234	4.0
A lot	71	1.2
Total	5813	100
Alcohol		
None	3545	61.0
A little	1355	23.3
Some	653	11.2
A lot	259	4.5
Total	5812	100
Marijuana		
None	4531	77.9
A little	779	13.4
Some	329	5.7
A lot	174	3.0
Total	5813	100
<hr/>		

Table 4 shows grade point average distribution of the respondents. Almost half of the respondents had a B average in their academic work, 48.5%. Over a third (33%) of the respondents had an A average. In addition, 17.1% reported having a C average and 1.4% reported having a D average.

Table 4 indicates that the largest number of the respondents had not missed school during the four weeks prior to the study.

Close to a fourth of respondents reported missing 1-2 days of school.

Table 4
Frequency and Percentage Distribution of Respondents by
Grade Point Average, School Absences, College
Aspiration, and Try to Do the Best Work
in School

	Frequency	(%)
<hr/>		
Grade point average		
A (100-90)	1918	33.0
B (89-80)	2823	48.5
C (79-70)	993	17.1
D (69 or below)	83	1.4
Total	5817	100
School absences		
None	3762	64.5
1-2	1240	21.2
3-5	6421	1.0
6 or more	192	3.3
Total	5836	100
College aspiration		
Definitely won't	201	3.5
Probably won't	434	7.6
Probably will	1207	21.1
Definitely will	3884	67.8
Total	5726	100
Try to do the best work in school		
Never	21	0.4
Sometimes	1319	22.6
Often	2115	36.3
Almost always	2377	40.8
Total	5832	100
<hr/>		

The percentage of the respondents who missed 3 to 5 days of school was 11 while the percentage of those who missed 6 or more days of school was 3.3. Table 4 reveals that the educational aspiration of

2/3rd of the female high school seniors (67.8) was to graduate from a four-year college. Over 20% reported that they probably will graduate from a four-year college. Only 7.6% of the respondents indicated that they probably will not graduate from a four-year college while only a small percentage (3.5%) reported that they definitely will not graduate from a four-year college.

Table 4 depicts that approximately 40% of respondents reported that they almost always tried to do their best work in the school. Concerning of those who often tried to do their best work, the percentage was 36.3% compared to 22.6% of those who stated that they sometimes tried to do their best work in the school. Only a very small percentage (0.4%) of female students in grade 12 stated that they had never tried to do their best work in the school.

Table 5 reveals that 16.6 of female senior students indicated religion as not important, while over a third (31.6%) of the respondents thought of religion as a little important. Those who expressed religion as pretty important constituted 29% of the sample. Those who saw religion as very important in their life constituted 22.8% of the sample.

The main purpose of the rest of this chapter is to investigate the impact of independent variables on cigarette, alcohol and marijuana individually. In this study, the attachment, commitment and belief elements of social bond are used as independent variables. In order to test the attachment element, peer pressure to use cigarettes, alcohol and marijuana were used. Commitment elements

was tested by grade point average, school absence, college aspiration and try the best work in school. The perception of the importance of religion was used to test the belief elements of social bond.

Table 5
Frequency and Percentage Distribution of Respondents
by Religious Importance

	Frequency	(%)
Religious Importance		
Not important	963	16.6
A little important	1837	31.6
Pretty important	1689	29.0
Very important	1327	22.8
Total	5816	100

Peer pressure was often seen as one of the strongest predictors of adolescent drug use. Commitment to school was seen as a protective factor against drug use. The literature review also revealed that religion had an impact on drug use.

Frequency analysis is based on a single variable in order to test the hypothesis the relationship between two or more variables needs to be analyzed. Chi square and Gamma statistics were used to test the hypothesis. Only if both the chi square and gamma values were statistically significant at the .01 level, it was concluded that the analysis supported the hypothesis. However, if the Chi square test was statistically significant and the gamma value was

not, it was decided that the analysis did not adequately support the hypothesis. Thus, this procedure was used as a safety measure in decision making as large numbers tend to give statistically significant findings in chi square tests.

Results of Chi Square and Gamma Analysis

Peer Pressure and Use of Cigarette, Alcohol and Marijuana

Peer pressure among female high school seniors to use cigarette, alcohol and marijuana was examined in this section. Table 6 presents a cross tabulation between peer pressure and cigarette use of the female high school seniors. Table 6 reveals that the percentage of cigarette use of female seniors showed a consistent decrease in category of none through high level of cigarette use in all categories of peer pressure to use cigarettes. For example, the largest percentage of the respondents (64.5) who had not felt any pressure to use cigarettes did not smoke compared to 20.4% of those who were at the low level, 13.4% of those who used cigarette at the moderate level and only 1.8% of those who were in the high level. The same pattern was also seen in the categories of peer pressure.

The expected pattern that the percentage of cigarette use increased as the level of peer pressure to use cigarette increased was not revealed in Table 6. It was expected that a large difference would exist between those seniors who did not feel any peer pressure and those who felt a lot of peer pressure to use cigarette in the case of those with a high level of cigarette use. However, Table 6

showed that there was only 1 percentage difference in high level of cigarette use among the respondents who felt "a lot" of pressure and those who did not feel any pressure from their friends (2.8% versus 1.8%).

Table 6
The Impact of Peer Pressure on Cigarette Use

Cigarette Use	Peer Pressure			
	None	A little	Some	A lot
None	3157 (64.5)	338 (56.4)	128 (54.7)	40 (56.3)
Low	1000 (20.4)	212 (35.4)	72 (30.8)	21 (29.6)
Moderate	655 (13.4)	45 (7.5)	33 (14.1)	8 (11.3)
High	86 (1.8)	4 (0.7)	1 (0.4)	2 (2.8)
Total	4898 (100)	599 (100)	234 (100)	71 (100)

N = 5802

The value of chi-square was 92.7 with 9 degree of freedom. The chi square value was statistically significant at the .01 level. The value of gamma was (.096). There was a weak positive relationship between level of pressure and the cigarette use of female seniors and this value was not statistically significant at the .01 level. Because both of these tests were not statistically significant at the .01 level, it was decided that the finding did not sup-

port hypothesis 1 that students with higher level of peer pressure will report high level of cigarette use.

Table 7 shows the cross tabulation between the impact of peer pressure on the respondents' alcohol use. Regardless of level of peer pressure, a higher percentage of respondents for all groups were in the category of low level of alcohol use.

Table 7
The Impact of Peer Pressure on Alcohol Use

Alcohol Use	Peer Pressure			
	None	A little	Some	A lot
None	307 (9.9)	122 (10.2)	48 (8.1)	29 (12.6)
Low	1021 (32.9)	549 (45.8)	290 (49.1)	99 (42.9)
Moderate	987 (31.9)	373 (31.1)	185 (31.3)	69 (29.9)
High	787 (25.4)	154 (12.9)	68 (11.5)	34 (14.7)
Total	3102 (100)	1198 (100)	591 (100)	231 (100)

N = 5122

The expected pattern of alcohol increase in use as the level of peer pressure increased was not found in Table 7. Table 7 also depicted that there was not too much variability in each level of alcohol use regardless of level of peer pressure. For example, it was an unexpected findings that the percentage of those who had not

felt pressure reported a relatively higher level of alcohol use than the percentage of those who felt "a lot of" pressure to use alcohol (25.4% versus 14.7%). Overall, it seemed that there was a nonlinear relationship between peer pressure and alcohol use.

The chi-square was 162.18 with 9 degree of freedom. The chi square value was significant at .01 level. There was a statistically significant relationship between variables. The gamma value was (-.194). The gamma value showed that there was a low level of negative relationship between peer pressure and alcohol use. These findings did not support hypothesis 1 that student with high peer pressure will use high level of alcohol.

Table 8 presents a cross tabulation between the impact of peer pressure and marijuana use of the respondents. The percentage of marijuana use of respondents decreased from the category of none through high level of marijuana use, regardless of level of peer pressure to use marijuana. For example, more than half of the female seniors who felt a lot pressure did not use marijuana, 21% used low levels of marijuana. Almost 15% were in the moderate use category and 8.8% used high levels of marijuana. Similar pattern was seen in the other groups.

The expected pattern of increased use of marijuana as the level of peer pressure increased was not evidenced in Table 8. For example, it was rather an unexpected finding that the percentage of female seniors who did not feel pressure and used high level of marijuana was slightly higher than that of those who felt a lot of

pressure to use marijuana from their friends (11.9% versus 8.8%).

Table 8
The Impact of Peer Pressure on Marijuana Use

Marijuana Use	Peer Pressure			
	None	A little	Some	A lot
None	2928 (65.7)	349 (45.3)	168 (51.5)	96 (56.1)
Low	592 (13.3)	210 (27.3)	71 (21.8)	35 (20.5)
Moderate	409 (9.2)	124 (16.1)	59 (18.1)	25 (14.6)
High	530 (11.9)	87 (11.3)	28 (8.6)	15 (8.8)
Total	4456 (100)	770 (100)	171 (100)	71 (100)

N = 5726

The value of chi-square was 196.11 with 9 degree of freedom. The chi square value was statistically significant at the .01 level. The level of peer pressure seemed to be positively related the level of marijuana use based on the value of gamma (.208). The Gamma value was significant at the .01 level. There was a weak positive relationship between peer pressure and marijuana use. Therefore, the findings supported hypothesis 1 that students with higher peer pressure will report higher rates of marijuana use.

Commitment Variables, Cigarette, Alcohol and Marijuana Use

In this section, the impact of the commitment variables on cigarette, alcohol and marijuana use was tested. In order to test this relationship, grade point average, school absence, college aspiration and the variables try to do the best work in school were used as commitment variables. Chi square and Gamma analysis were used to test the significance of the relationship and direction and strength of relationship between these variables.

Grade Point Average

Table 9 shows the cross tabulation between the respondents' grade point average and their involvement in cigarette use. In terms of self reporting, grade point average and cigarette use, the respondents showed a consistent decline from the category of none through high level of cigarette use in each category of grade point average. For example, close to 78% of those with A average had not smoked while 16.3% engaged in low levels of cigarette use, and close to 6% used moderate levels of cigarette use, and only 0.6% were in the category of high level of cigarette use. Similar patterns were seen among students with B, and C average grade point. On the other hand, there was little variability in the case of seniors who reported having a D average. It was unexpected to find out, in the case of seniors with D average, that over third of respondents did not use cigarettes, while only 7.3% seniors indicated high level of cigarette use.

Table 9
The Impact of Grade Point Average on Cigarette Use

Cigarette Use	Grade Point Average			
	A(100-90)	(B(89-80)	C(79-70)	D(69 or below)
None	1487 (77.7)	1673 (59.3)	477 (48.1)	29 (35.4)
Low	311 (16.3)	728 (25.8)	246 (24.8)	17 (20.7)
Moderate	104 (5.4)	375 (13.3)	235 (23.7)	30 (36.6)
High	11 (0.6)	43 (1.5)	33 (3.3)	6 (7.3)
Total	82 (100)	991 (100)	2819 (100)	1913 (100)

$N = 5805$

Table 9 supported the expected pattern of decreased use of cigarettes as the grade point average increased. For example, in the case of moderate and high levels of cigarette use, the percentage of seniors with D average was higher than the percentage of the others. Overall, Table 9 revealed that there was a negative linear relationship between grade point average and the cigarette use of female seniors.

The chi square test value was 423.55 with 9 degree of freedom. The chi square value was statistically significant at the .01 level. In addition, the value of gamma was (-.386) indicating that grade point average was moderately negatively related to cigarette use of

female seniors students. The findings support hypothesis 2 that students with higher a grade point average report lower rates of cigarette use.

Table 10 shows the cross tabulation between the female high school seniors' grade point average and their alcohol use in the last 12 months. Table 10 reveals that the majority of female seniors who reported having A, or B, or C grade point average was in the category of low and moderate alcohol use.

A different pattern was revealed in the case of seniors who reported having D average. The percentage of alcohol use of seniors increased from the category of none through high level usage. For example, in the case of those with D average 7.9% did not use alcohol, 21.1% reported using low levels while 31.6% were in moderate use category and 39.5% reported high levels of alcohol use.

The expected pattern of level of alcohol use decreasing as grade point average increased was revealed in the case of high level of alcohol use. Overall, there was a nonlinear relationship between grade point average and alcohol use of seniors.

The value of chi-square was 94.996, with 9 degree of freedom. The chi square value was statistically significant at the .01 level. The value of gamma was (-.170). It meant that there was a low negative relationship between grade point average and alcohol use. The gamma value was not statistically significant at the .01 level. Thus, the findings did not support hypothesis 2 that student high level of grade average will have low rate of alcohol use.

Table 10
The Impact of Grade Point Average on Alcohol Use

Alcohol Use	Grade Point Average			
	A(100-90)	(B(89-80)	C(79-70)	D(69 or below)
None	200 (12.5)	231 (9.1)	69 (7.6)	6 (7.9)
Low	696 (43.4)	950 (37.3)	304 (33.6)	16 (21.1)
Moderate	471 (29.4)	813 (32.0)	302 (33.4)	24 (31.6)
High	237 (0.6)	550 (1.5)	230 (3.3)	30 (7.3)
Total	76 (100)	905 (100)	2544 (100)	1604 (100)

N = 5129

Table 11 examines the relationship between grade point average and marijuana use variables. In the case of those who reported having a D grade point average, it seemed that there was a nonlinear relationship in marijuana use because the percentage of those with D average went first down and then up. For example, the percentages decreased from none through moderate, and then substantially increased in the high level of marijuana use.

The percentage of marijuana use decreased as the grade point average increased. It was expected that the percentage of seniors who reported having D average to have substantially higher levels of marijuana usage than those students with higher grade point averages.

For example, over a third of seniors with D average indicated high level of marijuana use compared to close to 7% of seniors with an A average. However, there was a little variability in the case of moderate marijuana use. The percentage of those with a C average with moderate cigarette use was slightly higher than that of those with a D average (15.3% versus 13.4%).

Table 11
The Impact of Grade Point Average on Marijuana Use

Marijuana Use	Grade Point Average			
	A(100-90)	(B(89-80)	C(79-70)	D(69 or below)
None	1426 (75.6)	1637 (58.7)	458 (47.0)	25 (30.5)
Low	214 (11.3)	489 (17.5)	190 (19.5)	17 (20.7)
Moderate	122 (6.5)	330 (11.8)	150 (15.3)	11 (13.4)
High	125 (6.6)	333 (11.9)	177 (18.2)	29 (35.4)
Total	1887 (100)	1789 (100)	975 (100)	82 (100)

N = 5733

The chi square test was found to be 320.7 with 9 degree of freedom. The chi square value was statistically significant at .01 level. The gamma value was (-.335) and the value was statistically significant at .01 level. The gamma value revealed that there was a moderate negative relationship between grade point average and mari-

juana use. Thus, these findings supported hypothesis 2 that students with higher a grade point average report lower rates of marijuana use.

School Absences

Table 12 includes a cross tabulation between days of school absences and cigarette use. When school absences and cigarette use were examined, a few expected patterns were revealed. There was a consistent decrease from the category of none through high level of cigarette use in each category of school absences. For example, in the case of seniors who did not miss a single day of school, close to 72% of the seniors did not smoke while 19% indicated a low level and 8.4% reported using a moderate level and a very small percentage (0.7) indicated a high level of cigarette use. The same holds true of other categories.

As expected, the percentage of cigarette use increased as the days of school absences increased. For example, in the case of moderate cigarette use, the percentage of seniors who did not miss a day of school was substantially smaller than the percentages of the others.

The value of chi-square was 582.31 with 9 degree of freedom at a .01 significance level. It meant that there was a statistically significant relationship between variables. The value of gamma was found to be (.424) and the value was statistically significant at .01 level. The value showed that the school absences were seen as

moderately positive related to female high school seniors' cigarette use. Thus, the findings supported hypothesis 2 that students with low rate of school absences will have lower rates of cigarette use.

Table 12
The Impact of School Absences on Cigarette Use

Cigarette Use	School Absences			
	None	1 to 2	3 to 5	6 or more
None	2694 (71.7)	658 (53.1)	259 (40.4)	70 (36.6)
Low	718 (19.1)	378 (30.5)	171 (26.7)	39 (20.4)
Moderate	317 (8.4)	185 (14.9)	183 (28.5)	62 (32.5)
High	27 (0.7)	18 (1.5)	28 (4.4)	20 (10.5)
Total	3756 (100)	1239 (100)	641 (100)	191 (100)

N = 5827

Table 13 depicts the cross tabulation between the respondents' school absences and their alcohol involvement. As indicated in Table 13, there was an increase from none through high level of alcohol use in each category of school absences, except in category of none (no school absence). However, it was unexpected to find out that of seniors who did not miss a day of school had the modal group in the low level of alcohol use.

It was expected that the respondents' alcohol usage would

increase as the level of school absences increased. Table 13 did not show this pattern consistently. In the case of moderate uses of alcohol the use of alcohol is low, in the none (no school absence) and 6 days or more categories than absence of 1-2 days or 3 to 5 days.

Table 13
The Impact of School Absences on Alcohol Use

Alcohol Use	School Absences			
	None	1 to 2	3 to 5	6 or more
None	398 (12.5)	78 (6.7)	27 (4.4)	5 (2.6)
Low	1413 (44.5)	372 (32.0)	144 (23.5)	56 (23.3)
Moderate	915 (28.8)	425 (36.5)	218 (35.5)	56 (29.6)
High	451 (14.2)	382 (24.8)	225 (36.6)	84 (44.4)
Total	3177 (100)	1164 (100)	614 (100)	189 (100)

$N = 5144$

The chi-square for this table was 377.58 with 9 degree of freedom. The chi square value was significant at the .01 level. The value of gamma was .363, which was a moderate positive relationship. Therefore, the school absences were seen as positively related to female 12 th grade students' alcohol use. Thus, hypothesis 2 that students who reported low rate of school absences indicate lower

rates of alcohol use was supported by findings.

Table 14 shows the cross tabulation between the respondents' school absences and their marijuana involvement. Table 14 reveals that the percentages of marijuana use of respondents went down sharply from the category of none through high level of marijuana use in each category of school absences with a few exceptions. One of the exceptions was that the percentage of students increased from moderate to high level of marijuana use in the case of senior who missed 6 or more days of school. A similar pattern was observed for seniors who missed 3 to 5 days of school.

Table 14
The Impact of School Absences on Marijuana Use

Cigarette Use	School Absences			
	None	1 to 2	3 to 5	6 or more
None	2650 (71.6)	640 (52.4)	210 (33.1)	58 (30.4)
Low	512 (13.8)	234 (19.2)	135 (21.3)	28 (14.7)
Moderate	289 (7.8)	181 (14.8)	116 (18.3)	32 (16.8)
High	252 (6.8)	166 (13.6)	174 (27.4)	73 (38.2)
Total	3703 (100)	1221 (100)	635 (100)	191 (100)

N = 5750

The obtained value of chi-square was 640.1 with 9 degree of

freedom. The chi square value was statistically significant at the .01 level. The gamma value of .453 indicated a moderate positive relationship between the variables and the value was statistically significant at .01 level. Thus, the findings supported hypothesis 2 that students with lower level of school absence will report lower rates of marijuana use.

College Aspiration

Table 15 indicates the cross tabulation between female high school seniors' college aspiration and their cigarette involvement in the last 30 days. As depicted Table 15, there was a negative linear relationship between college aspiration and cigarette use. The percentages of cigarette use of seniors decreased from the category of none through high levels of cigarette use in each category of college aspirations. And the largest percentage of respondents for all groups reported that they did not use cigarette in the last 30 days. However, it was unexpected to find out that almost a half of the seniors who were definitely not planning to graduating from a four year college did not use cigarettes. Additionally, only small percentage (7%) of the senior engage in a high level of cigarette use.

Table 15 revealed the expected pattern of cigarette use decreased as the level of college aspiration increased. On the other hand, in the case of low level of cigarette use, of those who definitely won't graduate from a four year college, the percentage was

slightly smaller than that of other categories. As depicted in Table 15, there was a very big difference (18.6%) in moderate cigarette use between the female seniors who definitely won't and who definitely will graduate from a four year college (27.4% versus 8.8%). The chi square value was 250.65 with 9 degrees of freedom. The chi square value was statistically significant at .01 level. The value of gamma was -.276. Therefore, there was a weak negative linear relationship between college aspiration and cigarette use. Gamma was significant at the .01 level. Hypothesis 2 that students with higher college aspiration have lower rates of cigarette use was supported by the findings.

Table 15
The Impact of College Aspiration on Cigarette Use

Cigarette Use	College Aspiration			
	Definitely Won't	Probably Won't	Probably Will	Definitely Will
None	95 (47.3)	220 (50.8)	682 (56.6)	2626 (67.8)
Low	37 (18.4)	102 (23.6)	268 (22.2)	871 (22.5)
Moderate	55 (27.4)	102 (23.6)	226 (18.7)	341 (8.8)
High	14 (7.0)	9 (2.1)	30 (2.5)	37 (1.0)
Total	201 (100)	433 (100)	1206 (100)	3875 (100)

N = 5715

Table 16 presents the cross tabulation between the respondents' college aspiration and their alcohol involvement in the last 12 months. Almost one of third of the respondents for all four categories reported moderate level of alcohol use. It was rather an unexpected finding that the analysis did not reveal a substantial difference (2.7%) in the high level of alcohol use, between two groups who said definitely will and who said definitely won't graduate from a four year college. The figures were 18.8%, and 21.5% respectively. Overall, there was a nonlinear relationship between college aspiration and alcohol use.

Table 16
The Impact of College Aspiration on Alcohol Use

Alcohol Use	College Aspiration			
	Definitely Won't	Probably Won't	Probably Will	Definitely Will
None	20 (11.3)	25 (6.4)	99 (9.0)	357 (10.5)
Low	59 (33.3)	153 (38.9)	380 (34.7)	1343 (39.7)
Moderate	60 (33.9)	142 (36.1)	343 (31.4)	1047 (30.9)
High	38 (21.5)	73 (18.6)	272 (24.9)	638 (18.8)
Total	177 (100)	393 (100)	1094 (100)	3385 (100)

N = 5049

The value of chi-square was 32.9 with 9 degree of freedom. The chi square value was statistically significant at .01 level. The value of gamma was -.087. The gamma value was not statistically significant at the .01 level. There was a very low negative relationship between variables. Thus, the findings did not support hypothesis 2 that students with higher college aspiration have lower rates of alcohol use.

Table 17 shows the cross tabulation between the respondents' college aspiration and their marijuana involvement. All groups generally showed a similar pattern in marijuana use.

Table 17
The Impact of College Aspiration on Marijuana Use

Marijuana Use	College Aspiration			
	Definitely Won't	Probably Won't	Probably Will	Definitely Will
None	110 (55.6)	227 (52.9)	659 (55.5)	2510 (65.6)
Low	26 (13.1)	73 (17.0)	212 (17.8)	580 (15.1)
Moderate	24 (12.1)	61 (14.2)	141 (11.9)	377 (9.8)
High	38 (19.2)	68 (15.9)	176 (14.8)	362 (9.5)
Total	198 (100)	429 (100)	1188 (100)	3829 (100)

N = 5644

The percentage of all for groups decreased from none through moderate level of marijuana use and then the percentages slightly increased.

Table 17 also indicated that there was not a substantial difference in the level of marijuana use among the groups. As expected marijuana use by seniors decreased as the level of college aspiration increased was reflected in this data except in the low category.

The chi square value was 80.73 with 9 degree of freedom. The chi square value was statistically significant at .01 level. The value of gamma was -.185. There was a weak negative linear relationship between variables, and it was significant at the .01 level. Therefore, the findings did not support hypothesis that students with higher college aspiration will have lower rates of marijuana use.

Try to Do the Best Work in School

Table 18 shows the cross tabulation between the response to try to do the best work in school and cigarette use of female seniors. When the variables to try to do the best work in school and cigarette use were examined, a few expected patterns were emerged. In all the categories, there was a drop from the category of none through high level of cigarette use, regardless of the degree of trying to do the best work in the school. The majority of female senior who always tried, who often tried, and who sometimes tried to

do their best work reported that they did not use cigarettes.

Table 18

The Impact of Try to Do the Best Work in School on Cigarette Use

Cigarette Use	Try to do Best Work in School			
	Never	Sometimes	Often	Always
None	6 (28.6)	619 (47.0)	1269 (60.1)	1780 (75.1)
Low	5 (23.8)	385 (29.2)	523 (24.8)	392 (16.5)
Moderate	8 (38.1)	274 (20.8)	290 (13.7)	177 (7.5)
High	2 (9.5)	39 (3.0)	30 (1.4)	22 (0.9)
Total	21 (100)	1317 (100)	2112 (100)	2371 (100)

N = 5821

Table 18 showed that the level of cigarette use significantly decreased from the never to always categories try to do the best work in school. Additionally, there was a substantial difference in moderate and high level of cigarette use between female seniors who never tried to do their best work and who always tried to do their best work in the school (38.1% versus 7.5%, and 9.5 versus .9 respectively).

The value of chi-square was 344.6 with 9 degree of freedom. The chi square value was statistically significant at the .01 level. The gamma value (-.352) was obtained to define the direction of

significant relationship between variables. There was a negative moderate linear relationship between to try to do the best work in school and cigarette use. The gamma value was significant at the .01 level. Therefore, these findings supported hypothesis 2 that female students who tried to do their best work in the school will have low cigarette use.

Table 19 shows the cross tabulation between to try to do the best work in the school and alcohol use. Table 19 reveals that the majority of respondents had low and moderate level of drug use. Only a small percentage of female seniors in each of the groups reported that they did not use alcohol. It was not expected that a very high percentage of seniors who always tried to do their best work in the school reported low or moderate alcohol use (72.7%). The expected pattern that the level of alcohol use decreased as the level of try to do the best work in school increased was supported in these data. The data indicated that the level of alcohol use decreased as the level of try to do the best work in school increased. Table 19 also revealed that there was a major difference in high level of alcohol use between respondents who never tried and who always tried to do their best work in the school (63.2% versus 13.1) and it decreased in the same direction. Overall, it seems that there was a nonlinear relationship between variables.

The value of chi square was 258 with 9 degree of freedom. The chi square value was statistically significant at the .01 level. To determine the direction of the relationship between variables, the

gamma value obtained (-.277) was significant at the .01 level. The gamma value revealed that there was a weak negative relationship between try to do the best work in the school and alcohol use. The findings supported hypothesis 2 that students who tried to do their best work will have low alcohol use.

Table 19

The Impact of Try to Do the Best Work in School on Alcohol Use

Alcohol Use	Try to do Best Work in School			
	Never	Sometimes	Often	Always
None	1 (5.3)	58 (4.7)	172 (8.8)	276 (14.2)
Low	4 (21.1)	382 (31.2)	702 (36.0)	883 (45.3)
Moderate	2 (10.5)	421 (34.4)	659 (33.8)	534 (27.4)
High	12 (63.2)	364 (29.7)	418 (21.4)	255 (13.1)
Total	18 (100)	1225 (100)	1951 (100)	1948 (100)

N = 5143

Table 20 depicts the cross tabulation between the two variables try to do the best work in the school and marijuana use. A large proportion of seniors reported that they had not used marijuana except in the case of those who were in the never try to do their best work in school category.

Those who never tried to do the best work in school had the

highest level of marijuana use (42.9%) and the level of use diminished consistently in the other categories from sometimes to always.

Table 20

The Impact of Try to Do the Best Work in School on Marijuana Use

Marijuana Use	Try to do Best Work in School			
	Never	Sometimes	Often	Always
None	6 (28.6)	572 (44.2)	1199 (57.3)	1776 (76.0)
Low	3 (14.3)	369 (20.8)	376 (18.0)	262 (11.2)
Moderate	3 (14.3)	204 (15.8)	262 (12.5)	148 (6.3)
High	9 (42.9)	250 (19.3)	256 (12.2)	150 (6.4)
Total	21 (100)	1295 (100)	2093 (100)	2336 (100)

N = 5745

It was revealed in high level of marijuana use that the percentage of those who never tried to do their best work was much higher than that of others. However, there was a little variability in the case of low marijuana use. The proportion of seniors who sometimes tried to do the best work in the school was relatively higher than that of seniors who never tried to do the best work in school.

The value of chi square was 427.5 at 9 degree with freedom. The chi square value was statistically significant at the .01 level. The gamma value was -.378 and there was a moderate negative rela-

tionship between try to do the best work in the school and marijuana use. The gamma value was significant at the .01 level. Therefore, these findings supported hypothesis 2 that female senior who tried to do the best work in the school will have lower rates of marijuana use.

The Importance of Religion in Cigarette, Alcohol and Marijuana Use

Table 21 examines the cross tabulation between the respondents' report of importance of religion and their cigarette use. The percentage of cigarette use of female seniors showed a consistent decrease from none through high level of cigarette use in each respondent categories of the perception of the importance of religion. It seems that there is a negative linear relationship between the importance of religion and cigarette use. The expected pattern of decreased cigarette use as the level of the importance of religion increased was noted in Table 21. In addition, there was a gradual decrease in exposure to the use of cigarette among the categories of respondents who saw religion as not important through who saw religion as very important in their life.

It was rather surprising that there was only a 2.5% difference in high level of cigarette use between seniors who saw religion as not important and those who saw religion as very important (3.3% versus 0.8%).

The chi square value was 231.41 with 9 degree of freedom. The chi square value was significant at the level .01. The gamma value

was $-.239$ and indicated a mild negative relationship which was significant at the $.01$ level. These findings supported hypothesis 3 that female seniors with higher perception of the importance of religious beliefs have lower rates of cigarette use.

Table 21

The Impact of the Importance of Religion on Cigarette Use

Cigarette Use	The Importance of Religion			
	Not Important	A little Important	Pretty Important	Very Important
None	528 (54.9)	1065 (58.1)	1032 (61.3)	1041 (78.6)
Low	213 (22.1)	475 (25.9)	424 (25.2)	190 (14.3)
Moderate	189 (19.6)	261 (14.2)	210 (12.5)	83 (6.3)
High	32 (3.3)	32 (1.7)	18 (1.1)	11 (0.8)
Total	962 (100)	1833 (100)	1684 (100)	1325 (100)

$N = 5804$

Table 22 is a cross tabulation between importance of religion and alcohol use. It seemed that there was a nonlinear relationship between the variables as alcohol use increased from none to low level and then dropped from moderate to high level.

Table 22 does not demonstrate the expected patterns of alcohol use decreased as the level of the importance of religion increased.

Table 22
The Impact of the Importance of Religion on Alcohol Use

Alcohol Use	The Importance of Religion			
	Not Important	A little Important	Pretty Important	Very Important
None	65 (7.3)	114 (6.7)	131 (8.7)	193 (18.8)
Low	298 (33.6)	614 (36.2)	581 (38.4)	466 (45.6)
Moderate	280 (31.5)	591 (34.9)	483 (31.9)	258 (25.1)
High	245 (27.6)	376 (22.2)	319 (21.2)	109 (10.6)
Total	888 (100)	1695 (100)	1514 (100)	1026 (100)

N = 5123

The chi square value of 222.1 with 9 degree of freedom was obtained. The chi square value was statistically significant at the .01 level. A gamma value of -.203 defined the direction of the relationship. There was a statistically significant negative relationship between these variables based on the gamma analysis. Thus, these findings supported hypothesis 3 that female senior with higher perception of the importance of religious belief report lower rates alcohol use than the others.

Table 23 is a cross tabulation between the responses about the importance of religion in their life and marijuana involvement of the respondents. Table 23 reveals that there was a consistent de-

cline from the category of none through high level of marijuana use in each category of the importance of religion.

It was expected that the seniors' marijuana use would decrease as the perception of the importance of religion increased. Table 23 showed this pattern consistently in categories of marijuana use. For example, it was found that there was almost 13% percentage difference in high level of marijuana use between respondents who saw religion as not important and those who saw religion as very important. Overall, it seems that there was a linear relationship between the importance of religion and marijuana use.

Table 23

The Impact of the Importance of Religion on Marijuana Use

Marijuana Use	The Importance of Religion			
	Not Important	A little Important	Pretty Important	Very Important
None	478 (50.1)	1005 (55.4)	1049 (63.1)	1014 (78.1)
Low	169 (17.7)	327 (18.0)	278 (16.7)	131 (10.1)
Moderate	133 (13.9)	235 (13.0)	173 (10.4)	74 (5.7)
High	175 (18.3)	247 (13.6)	163 (9.8)	79 (6.1)
Total	955 (100)	1814 (100)	1663 (100)	1298 (100)

N = 5730

The value of chi-square was 255.7 with 9 degree of freedom at the .01 significant level. Therefore, there was a statistically significant relationship between variables. The gamma value was -.270 and the gamma value was statistically significant at the .01 level. Thus, the level of the perception of the importance of religion was negatively related to the level of marijuana involvement. The findings supported hypothesis 3 that female students with higher perception of importance of religious belief had lower rates of marijuana use.

In this section, the impacts of the independent variables on dependent variables were tested individually. In the next section, the relationship between the elements of social bond and drug use will be explained. As indicated earlier, social bond and drug use are composite variables. First, the relationship between each element of social bond namely, attachment to peer, commitment to school and belief and drug use is tested. Drug use is a composite variable made up cigarette, alcohol, and marijuana use. In the second part, the relationship between drug use and social bond is tested. Again as indicated above, social bond is a composite variable made up attachment to peer, commitment to education, and belief.

The Elements of Social Bond and Drug Use

In this analysis, drug use, a composite scale of cigarette, alcohol, and marijuana use is used as a dependent variable. First, to explain the impact of attachment element, the combined impact of

peer pressure on marijuana, alcohol and cigarette is tested on drug use. Secondly, the combined impact of grade point average, school absences, college aspiration and try to do the best work in school on drug use is tested. Finally, to test the impact of belief element of social bond, the importance of religion on drug use is tested.

Table 24 reveals the relationship between peer pressure and drug use. The analysis did not reveal a strong relationship between peer pressure and drug use. The percentage of female seniors who felt high pressure in drug use was slightly higher than that of seniors who felt low peer pressure (79.2 versus 73.8). It was rather an unexpected finding that the proportion of respondents who felt low pressure in the high drug use category was relatively higher than the percentage of those who felt high pressure from their friends. The expected pattern of drug use increase as the level of peer pressure increased was not revealed in these findings.

The value of chi square was 4.7 with 1 degree of freedom. The chi square value was statistically significant at the .032 level. The gamma value was -.151. There was not a strong relationship between attachment to peers and drug use. Therefore, hypothesis 1 that female seniors with higher peer pressure will have higher rates drug use was not supported.

Table 25 depicts the relationship between commitment to school and drug use. The analysis revealed a strong relationship between commitment and drug use. Of the female seniors who reported high

commitment to school, 76.3% reported low drug use. Similarly, over half of female seniors who reported low commitment reported high rate of drug use (56.1%). The expected pattern of decreased drug use as the level of commitment to school increased was revealed in this analysis.

Table 24

The Impact of Peer Pressure on Drug Use

Drug Use	Low	High
Low	3504 (73.8)	252 (79.2)
High	1244 (26.2)	66 (20.8)
Total	4728 (100)	318 (100)
<u>N</u> = 5066		

Table 25

The Impact of Commitment to School on Drug Use

Drug Use	Low	High
Low	123 (43.9)	3579 (76.3)
High	157 (56.1)	1110 (23.7)
Total	280 (100)	4689 (100)
<u>N</u> = 4969		

The value of chi square was 146 with 1 degree of freedom. The chi square value was statistically significant at the .01 level. Based on gamma value (-.609), there was a significant moderate neg-

ative relationship between commitment to education and drug use. Drug use was clearly related to level of commitment to education. The commitment elements of social bond had a negative impact on drug use. Thus, hypothesis 2 that female students with higher commitment to school have lower rates of drug use was supported.

Table 26 shows the relationship between the importance of religion and drug use. Among those who attached high importance to religion in their life, almost 80% had low drug use. Close to 69% of female seniors who had a low perception of the importance of religion reported low drug use while almost a third reported high drug use. The expected pattern of decreased drug use as the level of the perception of the importance of religion increased was observed in this analysis.

Table 26

The Impact of the Importance of Religion on Drug Use

Drug Use	Low	High
Low	1761 (68.6)	1998 (79.7)
High	805 (31.4)	510 (20.3)
Total	2566 (100)	2508 (100)
<u>N</u> = 5074		

The value of chi square was 80.47 with 1 degree of freedom. The chi square value was statistically significant at .01 level. The gamma value was -.283. It indicated a low level of negative

relationship between the importance of religion and drug use and it was significant at the .01 level. The findings supported hypothesis 3 that female students with higher perception of the importance of religious belief have lower rates of drug use. Therefore, it can be stated that belief elements of social bond had a negative impact on drug use of female high school seniors.

Social Bond and Drug Use

Table 27 shows the relationship between social bond and drug use.

Table 27

The Impact of Social Bond on Drug Use

Drug Use	Low	High
Low	177 (54.6)	3480 (75.8)
High	147 (45.4)	1111 (24.2)
Total	324 (100)	4591 (100)
<u>N</u> = 4915		

Among those who reported high level of social bond, 75.8% reported low drug use compared to 24.2% of female seniors who reported high drug use. Similarly, over half of female seniors who reported low social bond reported low rate of drug use compared to 45.4% of female seniors who reported high level of drug use. The expected pattern that drug use decreased as the level of social bond increased

was revealed in this analysis.

The value of chi square was 71.23 with 1 degree of freedom. The chi square value was statistically significant at the .01 level. The value of gamma was -.445 which was a moderate negative relationship between social bond and drug use. Thus, the overall hypothesis 4 that students with higher social bond have lower rates of drug use was supported.

The next section consists of correlation and regression analysis of these data. This analysis was conducted in order to estimate the variance in the drug use explained by each of the elements and the social bond.

Results of Regression Analysis

This section includes a regression analysis of the elements of social bond by cigarette, alcohol and marijuana use individually. The impact of peer pressure, commitment to school and the importance of religion was examined individually in the case of cigarette use. Linear regression analysis revealed that all the elements showed a statistically significant relationship but the variables had explained variance from .00 to .14. Commitment to school had more explanatory power (explained variance) in cigarette use than peer pressure and the importance of religion. Table 28 showed that 14% of the variance of cigarette use was explained by the variable commitment to school.

Table 29 shows that the impact of peer pressure, commitment

to school, and the importance of religion was examined individually in the case of alcohol use.

Table 28

Regression Analysis: Elements of Social Bond and Cigarette Use

Elements of Standardized Social Bond		Beta	t	p	r	R2
<hr/>						
Peer Pressure		.060	4.61	.001	.060	.004
Commitment to School		-.376	-30.55	.001	.376	.14
The importance of religion		-.173	-13.37	.001	.173	.030

Table 29

Regression Analysis: Elements of Social Bond and Alcohol Use

Elements of Standardized Social Bond		Beta	t	p	r	R2
<hr/>						
Peer Pressure		.055	3.95	.001	.055	.003
Commitment to School		-.265	-19.44	.001	.265	.07
The importance of religion		-.177	-12.84	.001	.177	.031

As indicated in Table 29, all the linear regression analysis values were statistically significant. However, the variables had explained variance from .00 to .07. Commitment to school in predicting alcohol

use had slightly more explanatory power in alcohol use than the others. Seven percent of the variance in alcohol use was explained by commitment to school.

The impact of peer pressure, commitment to school and the importance of religion was examined in the case of marijuana use of female 12th grade students. Results in Table 30 indicated that all the elements showed a statistically significant relationship with marijuana use. However, the variables had explained low level of variances from .01 to .11. Again, commitment to school had more explanatory power than the other elements of the social bond. Eleven percent of the variance in marijuana use was explained by commitment to school.

Table 30

Regression Analysis: Elements of Social Bond and Marijuana Use

Elements of Social Bond	Standardized Beta	t	p	r	R ²
Peer Pressure	.099	7.54	.001	.099	.010
Commitment to School	-.338	-26.88	.001	.338	.114
The importance of religion	-.197	-14.74	.001	.197	.037

The Elements of Social Bond and Drug Use

In this section cigarette, alcohol and marijuana are combined

into a scale called drug use. The details of the scaling procedure were explained earlier in the methodology section. When the impacts of peer pressure, commitment to school and the importance of religion were examined in the case of drug use in Table 31, the results revealed that all the elements had statistically significant relationships with drug use. The variance was from .01 to .14. Again, the commitment element had more explanatory power in drug use than the others. Commitment to school explained 15% of the variance in drug use.

Table 31

Regression Analysis: Elements of Social Bond and Drug Use

Elements of Standardized Social Bond Beta t			p	r	R ²
Peer Pressure	.110	7.84	.001	.110	.012
Commitment to School	-.381	-29.04	.001	.381	.145
The importance of religion	-.205	-14.94	.001	.205	.042

Social Bond and Cigarette, Alcohol and Marijuana Use

In this section, peer pressure, commitment to school, and the importance of religion were combined into a social bond scale variable. The impact of the social bond was examined individually for cigarette, alcohol and marijuana use. Regression analysis revealed

that social bond had statistically significant relationship with all the dependent variables. However, the variances were from .04 to .08. Social bond had slightly more explanatory power in cigarette use than in alcohol and marijuana use (see Table 32).

Table 32

Regression Analysis: Elements of Social Bond and Cigarette,
Alcohol and Marijuana Use

Drugs	Standardized Beta	t	p	r	R ²
Cigarette Use	-.286	-22.35	.001	.286	.082
Alcohol Use	-.218	-15.70	.001	.218	.042
Marijuana Use	-.244	-18.72	.001	.244	.059

Social Bond and Drug Use

In this section, drug use, a combined scale of cigarette, alcohol, and marijuana use, was used as a dependent variable. Social bond, a combined scale of peer pressure, commitment to school and the importance of religion, was used as the independent variable. The impact of the social bond on drug use was examined. Regression analysis in Table 33 revealed that there was a statistically significant relationship between the two variables. Result showed that 8% of the variance in drug use was explained by social bond.

All the regression tests also showed a statistically signi-

ficant relationship among the dependent and independent variables as they did in the chi square tests.

Table 33

Regression Analysis: Social Bond and Drug Use

	Standardized Beta	t	p	r	R ²
Social Bond	-.277	-20.21	.001	.277	.077

All the hypothesis 1-4 were also supported in this part of the analysis. However, because the variance explained was low in most cases and the highest explained variance is .15, the hypotheses need to be modified. Those relationships though statistically significant have low levels of the variance explained. Similarly, the composite scale variables social bond and drug use are statistically significant but they have an explained variance of .08 which is low. This study indicated that in the case of drug use, there are one or more factors other than social bond which are needed to explain the behavior of senior female students more satisfactorily. This issue is discussed more fully in the concluding chapter.

CHAPTER V

SUMMARY AND CONCLUSION

The main objective of this study was to investigate the relationship between the elements of social bond and drug use among female students. In order to test this relationship, Hirschi's social bond theory was used in this study. In particular, attachment, commitment and belief elements were tested in order to find out how these elements influence female students' drug use.

The data utilized in this study were chosen from the Michigan Alcohol and Other Drug School Survey of 12th grade female students in 1994-95 academic year. The following four hypotheses were addressed to test the impact of the elements of social bond on self reported drug use.

First hypothesis was higher attachment to peers then higher drug use. Peer pressure to use cigarette, alcohol and marijuana was used in order to test this hypothesis. This hypothesis was not supported in the case cigarette and alcohol use. In the case of marijuana use, a low positive relationship was found between peer pressure and marijuana use. The hypothesis was supported in the case of marijuana use. However, this hypothesis was not supported for the composite drug use variable.

Second hypothesis was higher commitment to school then the lower rates of drug use. Grade point average, school absences, col-

lege aspiration and try to do the best work in the school were used to test the commitment element of social bond. In the case of grade point average, this hypothesis was supported for cigarette and marijuana use. Analysis revealed that grade point average had negatively moderate relationship to cigarette and marijuana use of female 12th grade students. When alcohol use was examined as a dependent variable, there was a very weak relationship between grade point average and alcohol use. This hypothesis was not supported in the case of alcohol use.

In the case of school absences, the hypothesis was supported. Analysis showed that school absence was seen positively related to female high school seniors' cigarette alcohol and marijuana use. In terms of college aspiration, the hypothesis was supported in the case of cigarette but the hypothesis was not supported in the case of alcohol and marijuana use. Analysis revealed that the negative relationship between college aspiration and alcohol use and marijuana use was very weak. Finally, in the case of try to do the best work in the school, the hypothesis was supported. Try to do the best work in the school had a negatively moderate relationship to cigarette, alcohol and marijuana use. In addition, when commitment to school and drug use was examined, analysis showed that there was a significant moderate negative relationship between variables and the hypothesis higher commitment to school then lower rates of drug use was supported.

Third hypothesis was higher perception of the importance of

religious belief then lower rates of drug use. Analysis showed that there was a low negative relationship between the independent and dependent variables. This hypothesis was supported for cigarette, alcohol and marijuana use after analysis. Similarly, hypothesis was supported when the importance of religion and drug use were examined.

The fourth hypothesis was the higher level of social bond then lower rates of drug use. The results showed that all the elements of social bond had significant relationships with dependent variables. However, commitment to school had more explanatory power in drug use than peer pressure and the importance of religion. Because of the large number of the population size in the analysis, there were significant relationships between independent and dependent variables. The last hypothesis was supported.

This study reveals that the relationship between the elements of social bond and drug use may be viewed differently by female 12th grade high school students. Results appear to depict that the relationship between commitment element and dependent variables was stronger than that of attachment to peers and belief. Commitment element was a leading explanatory power in the variance of all three drugs. In particular, commitment element had stronger impact in cigarette and marijuana use than in the case of alcohol use. It was not surprising to find that the commitment elements had a higher explanatory power than the others, because commitment element was combined of grade point average, school absences, college aspira-

tion and the best work in the school. The other elements of attachment and belief had only one variable. In the commitment variables, 3 of the 4 variables were behavioral in nature unlike the other variables which were perceptual and attitudinal in nature. And, as indicated in the literature review, Krohn and Massey (1980 and 1983) also concluded that commitment element had a higher predictive power for female deviance than for male deviance.

This study indicated that attachment to peers did not have a strong explanatory power in the variance of drug use. It may be concluded that students might not be willing to admit peer pressure to use drugs.

It appears that the relationship between social bond and drug use was weak. One of the reasons for this weak relationship may be that drugs more easily available than before. Another reason for this weak relationship may be the price of drug is now lower than before. Even high school students can afford to buy cigarette, alcohol, may be even marijuana.

In this study, only cigarette, alcohol and marijuana were chosen as dependent variables. And these drugs are the most commonly used drugs among the adolescents. In particular, cigarette and alcohol are more socially acceptable drugs than the other drugs. Students may see that it is permissible to use cigarette and alcohol.

Limitations of This Study

One of the limitations of this study was that the chi square

scores were very high because the number of sample population used in this study was large. Therefore, the significant relationship between the variables should be interpreted cautiously. Another limitations was that since the data were complex, the data could be interpreted in many different ways and the same variable could be used the number of various ways and purposes. Finally, this study focused only on female senior students' drug use. Male senior students were not included in the sample. The researcher did not have a chance to compare the results of this study. Similarly, the study would have been strengthened with inclusion of 8 th and 10 th grade students as well.

Recommendations

It is recommended that, the future studies should include male student population. Expanding this research to include the male student population and 8 th and 10 th grade students would provide an opportunity for comparative analyses of the impact of social bond on drug use based on gender and age differences.

Finally, the future studies examining the social bond theory on drug use of female senior students may also include one of the other theoretical approaches for a comparative reason, because this study showed that the social bond alone was not enough to define the causal factors for engaging in drug use. There are other factors which are needed to explain to understand the nature of drug use among female senior students such as bonds with family members.

Appendix A

Scales

Scales for Dependent Variables

Alcohol and Marijuana categories

0 times, 1-2 times, 3-5 times, 6-9 times, 10-19 times,
20-39 times, 40 or more times

Frequency	Code
0 times=	1
1-5 times=	2
6-19 times=	3
20-or more times=	4

1 represents non users
2 represents low users
3 represents moderate users
4 represents high users

Cigarettes categories

1) not at all
2) less than one cigarettes per day
3) one to five cigarettes per day
4) about one half pack per day
5) about one pack per day
6) about one and one half packs per day
7) two packs or more packs per day

1	= 1	1 represents "non users"
2 to 3	= 2	2 represents "low users"
4 to 5	= 3	3 represents "moderate users"
6 to 7	= 4	4 represents "high users"

Drug Use Scale

Marijuana	1	2	3	4
Alcohol	1	2	3	4
Cigarette	1	2	3	4
	3	6	9	12
	4-5	6-7	10-11	

In this scale 3 means the score of students who never used drug, and 12 represents very high frequency of drug use. To divide low and high frequency of drug use, the mid point was used as a cutting point.

3 to 7= low drug use
8 to 12= high drug use

For Regression Analysis

Marijuana	1	2	3	4	5	6	7
Alcohol	1	2	3	4	5	6	7
Cigarette	1	2	3	4	5	6	7
	3	6	9	12	15	18	21
	4-5	7-8	10-11	13-14	16-17	19-20	

N. B: In the regression analysis, the scores were not divided into any categories.

Peer Pressure Scaling

46) How much pressure do you feel from your friends and schoolmates to

None = 1 A little = 2 Some = 3 A lot = 4

- a. smoke cigarettes 1 2 3 4
- b. drink alcoholic beverages 1 2 3 4
- c. use marijuana 1 2 3 4

In this scale, 3 indicates the score of students who never had peer pressure, and 12 means the score of students who have very high peer pressure. To decide low and high peer pressure, the mid-point was used as the cutting point.

3 to 7 = low peer pressure
8 to 12 = high peer pressure

For regression analysis, the scores of peer pressure were used from 3 through 12. When the score were recoded, the highest value for peer pressure was given the lowest score.

Commitment Scaling

4) How often did you try to do your best work in school?

- 1 - never
- 2 - seldom
- 3 - sometimes
- 4 - often
- 5 - almost always

1 = never
2 to 3 = 2 low
4 = 3 moderate
5 = 4 high

5) GPA Which of the following best describes average grade in the most recent grading period or semester?

1. A (93-100)
2. A- (90-92)
3. B+ (87-89)
4. B (83-86)
5. B- (80-82)
6. C+ (77-79)
7. C (73-76)
8. C- (70-72)
9. D (69 or below)

1-2 = A = 4 very high

3-5 = B = 3 high

6-8 = C = 2 moderate

9 = D = 1 low

6) During the last four weeks, how many whole days of school have you missed because you skipped or cut?

1. None
2. 1 day
3. 2 days
4. 3 days
5. 4 to 5 days
6. 6 to 10 days
7. 1 or more

1 = 4 none

2 to 3 = 3 low

4 to 5 = 2 moderate

6 to 7 = 1 high

34) How likely is it that you will do each of the following things after high school?

Graduate from college

1. definitely won't
2. probably won't
3. probably will
4. definitely will

Scale of commitment to school

Try best	1	2	3	4
GPA	1	2	3	4
Cut days	1	2	3	4
College bound	1	2	3	4
	4	8	12	16
	5-6-7	9-10-11	13-14-15	

In this scale 4 represents the score of students who have very low commitment to school, and 16 means the score of students who have very high commitment to education. To decide low and high categories, the mid point is found.

4-9 will indicate "low commitment" to school
10-16 will indicate "high commitment" to school

1 represents low commitment
2 represents high commitment

For regression analysis, the scores were not divided any categories.

38) How important is religion in your life?

- 1) Not important
- 2) A little important
- 3) Pretty important
- 4) Very important

Social Bond Scale

The score of peer pressure was recoded for this scale. The lowest score is peer pressure was recoded in the highest score, because social bond included low peer pressure, high commitment to school and high religious belief.

Peer pressure

Original score - 12 11 10 9 8 7 6 5 4 3 -
highest through lowest

Recoded score - 3 4 5 6 7 8 9 10 11 12 -
lowest through highest

Peer pressure	3	4	5	6	7	8	9	10	11	12			
Commitment to school	4	5	6	7	8	9	10	11	12	13	14	15	16
The importance of religion	1	2	3	4									

When these numbers were added, the range was from 12 through 32. For Chi square analysis, the scores were divided into low and high categories based on the mid point which was 22. In the case of regression analysis, the original added scores were used.

Appendix B
Questionnaire

MICHIGAN

ALCOHOL AND OTHER DRUGS SCHOOL SURVEY



This questionnaire was developed for use in secondary schools throughout the state of Michigan to help increase our understanding of a number of important behaviors of students--but in particular, their use of cigarettes, alcohol, and other drugs. It is designed to parallel closely the questionnaire used in the nationwide school surveys conducted each year by the University of Michigan.

This is not a test; the questions simply ask for your experiences and attitudes in a number of areas. It is important that you answer each question as thoughtfully and honestly as you can. If you have trouble understanding a question, raise your hand for assistance. If you do not always find an answer which fits exactly, use the one that comes closest. If a question does not apply to you, leave it blank.

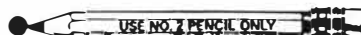
This study is completely voluntary. Also, if there is any question that you or your parents would find objectionable for any reason, just leave it blank.

This questionnaire contains nothing which identifies you. Nobody ever knows who filled out any questionnaire. After you and your classmates complete your questionnaires, they will be taken directly to Western Michigan University where an optical scanner will be used to read the answers onto a computer tape for analysis. All results will be reported in group form--never for individuals or classrooms.

Other students have said that they have found this questionnaire interesting, and that they enjoy filling it out. We hope you will too.

MARKING INSTRUCTIONS

- USE A NO. 2 PENCIL ONLY.
- DARKEN THE CIRCLE COMPLETELY NEXT TO THE ANSWER YOU CHOOSE.
- ERASE CLEANLY ANY MARKS YOU WISH TO CHANGE.
- DO NOT MAKE ANY STRAY MARKS ON THIS FORM.



These kinds of markings
will work: ● ● ●

These kinds of markings
will NOT work: ⊗ ⊗ ⊗

PART A

BEFORE BEGINNING BE SURE YOU READ THE INSTRUCTIONS ON THE COVER.

1. How happy are you with your life these days?

☐ 1 Very unhappy
☐ 2 Unhappy
☐ 3 Mixed feelings
☐ 4 Happy
☐ 5 Very happy

2. During a typical week, on how many evenings do you go out for fun and recreation? (Don't count things you do with your parents or other adult relatives.)

☐ Less than one ☐ Three
☐ One ☐ Four or five
☐ Two ☐ Six or seven

The next questions are about your experiences in school.

3. What is your grade level in school?

☐ 7th grade ☐ 10th grade
☐ 8th grade ☐ 11th grade
☐ 9th grade ☐ 12th grade

4. Now, thinking back over the past year in school, how often did you...

a. Enjoy being in school? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 b. Hate being in school? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 c. Try to do your best work in school? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 d. Find the school work too hard to understand? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 e. Fail to complete or turn in your assignments? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 f. Get sent to the office, or have to stay after school, because you misbehaved? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

5. Which of the following best describes your average grade in the most recent grading period or semester?

☐ 1 A (93-100) ☐ 2 B (83-86) ☐ 3 C (73-76)
☐ 4 A- (90-92) ☐ 5 B- (80-82) ☐ 6 C- (70-72)
☐ 7 B+ (87-89) ☐ 8 C+ (77-79) ☐ 9 D (69 or below)

6. During the LAST FOUR WEEKS, how many whole days of school have you missed because you skipped or "cut"?

☐ None ☐ 4 to 5 days
☐ 1 day ☐ 6 to 10 days

7. Have you ever had to repeat a grade in school?

☐ 1 No ☐ 2 Yes

The next questions ask for your opinions on the effects of using certain drugs and other substances.

8. How much do you think people who do these things risk harming themselves (physically or in other ways): (Mark one circle for each line.)

a. Smoke one or more packs of cigarettes per day ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 b. Use smokeless tobacco regularly (chewing tobacco, snuff, plug, dipping tobacco) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 c. Try marijuana once or twice ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 d. Smoke marijuana occasionally ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 e. Smoke marijuana regularly ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 f. Try LSD ("acid") once or twice ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 g. Take LSD regularly ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 h. Try heroin once or twice ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 i. Try amphetamines (uppers, pep pills, bennies, speed) once or twice ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 j. Take amphetamines regularly ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 k. Try cocaine in powder form once or twice ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 l. Take cocaine powder occasionally ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 m. Take cocaine powder regularly ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 n. Try "crack" cocaine once or twice ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 o. Take "crack" cocaine occasionally ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 p. Take "crack" cocaine regularly ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 q. Take one or two drinks of an alcoholic beverage (beer, wine, liquor) nearly every day ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 r. Take four or five drinks nearly every day ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

8. CONTINUED...

s. Have five or more drinks once or twice each weekend 1 2 3 4 5

t. Take steroids to increase athletic performance or muscle development 1 2 3 4 5

9. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some? (Mark one circle for each line.)

a. Marijuana (pot, grass) 1 2 3 4 5

b. LSD ("acid") 1 2 3 4 5

c. Amphetamines (uppers, pep pills, bennies, speed) 1 2 3 4 5

d. Barbiturates (downers, reds, yellows, etc.) 1 2 3 4 5

e. Tranquilizers (like Valium) 1 2 3 4 5

f. "Crack" cocaine 1 2 3 4 5

g. Cocaine in powder form 1 2 3 4 5

h. Heroin 1 2 3 4 5

i. Some other narcotic (methadone, opium, codeine, paregoric, etc.) 1 2 3 4 5

j. Steroids (anabolic steroids) 1 2 3 4 5

k. Alcoholic beverages (beer, wine or liquor) 1 2 3 4 5

l. Cigarettes 1 2 3 4 5

PART B

The following questions are about tobacco, alcohol and drug use:

10. Have you ever smoked cigarettes?

- 1 Never
2 Once or twice
3 Occasionally but not regularly
4 Regularly in the past
5 Regularly now

11. How often have you smoked cigarettes during the past 30 days?

- 1 Not at all
2 Less than one cigarette per day
3 One to five cigarettes per day
4 About one-half pack per day
5 About one pack per day
6 About one and one-half packs per day
7 Two packs or more per day

12. Have you ever taken or used smokeless tobacco (chewing tobacco, snuff, plug, dipping tobacco)?

- 1 Never
2 Once or twice
3 Occasionally but not regularly
4 Regularly in the past
5 Regularly now

13. How often have you taken smokeless tobacco during the past 30 days?

- 1 Not at all
2 Once or twice
3 Once or twice per week
4 Three to five times per week
5 About once a day
6 More than once a day

14. Next we want to ask you about drinking alcoholic beverages, including beer, wine, wine coolers, and liquor. Have you ever had any beer, wine, wine coolers, or liquor to drink?

- 1 No— **GO TO QUESTION 18**
2 Yes— **CONTINUE WITH QUESTION 15**

15. On how many occasions have you had alcoholic beverages to drink... (Mark one circle for each line.)

- a ...in your lifetime? 0 Occasions 1-2 Occasions 3-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More
b ...during the last 12 months? 0 1 2 3 4 5 6 7 8 9
c ...during the past 30 days? 0 1 2 3 4 5 6 7 8 9

16. On occasions that you drink alcoholic beverages, how often do you drink enough to feel pretty high?

- 1 On none of the occasions
2 On few of the occasions
3 On about half of the occasions
4 On most of the occasions
5 On nearly all of the occasions

17. Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row? (A "drink" is a glass of wine, a bottle of beer, a wine cooler, a shot glass of liquor, or a mixed drink.)

☐ None
☐ Once
☐ Twice
☐ Three to five times
☐ Six to nine times
☐ Ten or more times

The next major section of this questionnaire deals with various other drugs. There is a lot of talk these days about this subject, but not enough accurate information. Therefore, we still have a lot to learn about the actual experiences and attitudes of people your age.

We hope that you can answer all questions, but if you find one which you feel you cannot answer honestly, we would prefer that you leave it blank.

Remember that your answers are anonymous; they cannot be connected with your name.

18. On how many occasions (if any) have you used marijuana (grass, pot) or hashish (hash, hash oil) ... (Mark one circle for each line.)

a. ...in your lifetime? 0 Occasions 1-2 Occasions 3-5 Occasions 6-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More
 b. ...during the last 12 months? .. 0 Occasions 1-2 Occasions 3-5 Occasions 6-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More
 c. ...during the past 30 days? 0 Occasions 1-2 Occasions 3-5 Occasions 6-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More

19. On how many occasions (if any) have you used LSD ("acid")...

a. ...in your lifetime? 0 1-2 3-5 6-9 10-19 20-39 40+
 b. ...during the last 12 months? .. 0 1-2 3-5 6-9 10-19 20-39 40+
 c. ...during the past 30 days? 0 1-2 3-5 6-9 10-19 20-39 40+

20. On how many occasions (if any) have you used psychedelics other than LSD (like PCP, mescaline, peyote, psilocybin)...

a. ...in your lifetime? 0 1-2 3-5 6-9 10-19 20-39 40+
 b. ...during the last 12 months? .. 0 1-2 3-5 6-9 10-19 20-39 40+

21. On how many occasions (if any) have you taken "crack" cocaine (cocaine in chunk or rock form)...

a. ...in your lifetime? 0 1-2 3-5 6-9 10-19 20-39 40+
 b. ...during the last 12 months? 0 1-2 3-5 6-9 10-19 20-39 40+
 c. ...during the past 30 days? 0 1-2 3-5 6-9 10-19 20-39 40+

22. On how many occasions (if any) have you taken cocaine in any other form...

a. ...in your lifetime? 0 1-2 3-5 6-9 10-19 20-39 40+
 b. ...during the last 12 months? 0 1-2 3-5 6-9 10-19 20-39 40+
 c. ...during the past 30 days? 0 1-2 3-5 6-9 10-19 20-39 40+

23. Amphetamines have been prescribed by doctors to help people lose weight or give people more energy. They are sometimes called uppers, ups, speed, bennies, dexies, pep pills, and diet pills. Drugstores are not supposed to sell them without a prescription from a doctor.

Amphetamines do NOT include any non-prescription drugs, such as over the counter diet pills (like Dexatrim®) or stay awake pills (like No-Dox®), or any mail-order drugs.

On how many occasions (if any) have you taken amphetamines on your own—that is, without a doctor telling you to take them...

a. ...in your lifetime? 0 Occasions 1-2 Occasions 3-5 Occasions 6-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More
 b. ...during the last 12 months? 0 Occasions 1-2 Occasions 3-5 Occasions 6-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More
 c. ...during the past 30 days? 0 Occasions 1-2 Occasions 3-5 Occasions 6-9 Occasions 10-19 Occasions 20-39 Occasions 40 or More

24. Barbiturates are sometimes prescribed by doctors to help people relax or get to sleep. They are sometimes called downs, downers, goofballs, yellows, reds, blues, rainbows.

On how many occasions (if any) have you taken barbiturates on your own--that is, without a doctor telling you to take them...

- a. ...in your lifetime? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

25. Tranquilizers are sometimes prescribed by doctors to calm people down, quiet their nerves, or relax their muscles. Librium, Valium, and Miltown are all tranquilizers.

On how many occasions (if any) have you taken tranquilizers on your own--that is, without a doctor telling you to take them...

- a. ...in your lifetime? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

26. On how many occasions (if any) have you used heroin (smack, horse, skag)

- a. ...in your lifetime? ☐ 0 Occasions ☐ 1-2 Occasions ☐ 3-5 Occasions ☐ 6-9 Occasions ☐ 10-19 Occasions ☐ 20-39 Occasions ☐ 40 or More
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

There are a number of narcotics other than heroin such as methadone, opium, morphine, codeine, demerol, paregoric, talwin, and laudanum. These are sometimes prescribed by doctors.

27. On how many occasions (if any) have you taken narcotics other than heroin on your own--that is, without a doctor telling you to take them...

- a. ...in your lifetime? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

28. On how many occasions (if any) have you sniffed glue, or breathed the contents of aerosol spray cans, or inhaled other gases or sprays in order to get high...

- a. ...in your lifetime? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

29. Steroids, or anabolic steroids, are sometimes prescribed by doctors to promote healing from certain types of injuries. Some athletes, and others, have used them to try to increase athletic performance or muscle development.

On how many occasions (if any) have you taken steroids, on your own--that is, without a doctor telling you to take them...

- a. ...in your lifetime? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

30. On how many occasions (if any) have you taken any of these drugs (like heroin, cocaine, amphetamines or steroids) by injection with a needle... (Do not include anything you took under a doctor's orders.)

- a. ...in your lifetime? ☐ 0 Occasions ☐ 1-2 Occasions ☐ 3-5 Occasions ☐ 6-9 Occasions ☐ 10-19 Occasions ☐ 20-39 Occasions ☐ 40 or More
- b. ...during the last 12 months? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+
- c. ...during the past 30 days? ☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-9 ☐ 10-19 ☐ 20-39 ☐ 40+

PART C

These next questions ask for some background information about yourself.

31. How old are you?

- ① 11 years old or less ⑤ 15 years old
② 12 years old ⑥ 16 years old
③ 13 years old ⑦ 17 years old
④ 14 years old ⑧ 18 years old or more

32. What is your sex?

- ① Male ② Female

33. How do you describe yourself?

- ☐ 1 American Indian
- ☐ 2 Black or Afro-American
- ☐ 3 Mexican American or Chicano
- ☐ 4 Puerto Rican or other Latin American
- ☐ 5 Oriental or Asian American
- ☐ 6 White or Caucasian
- ☐ 7 Other

34. How likely is it that you will do each of the following things after high school? (Mark one for each line.)

- a. Graduate from a two-year college..... ☐ 1 ☐ 2 ☐ 3 ☐ 4
- b. Graduate from college (four-year program) : ☐ 1 ☐ 2 ☐ 3 ☐ 4

The next two questions ask about your parents. If you were raised mostly by foster parents, step-parents, or others, answer for them. For example, if you have both a step-father and a natural father, answer for the one that was the most important in raising you.

35. What is the highest level of schooling your father completed?

- ☐ 1 Completed grade school or less
- ☐ 2 Some high school
- ☐ 3 Completed high school
- ☐ 4 Some college
- ☐ 5 Completed college
- ☐ 6 Graduate or professional school after college
- ☐ 7 Don't know, or does not apply

36. What is the highest level of schooling your mother completed?

- ☐ 1 Completed grade school or less
- ☐ 2 Some high school
- ☐ 3 Completed high school
- ☐ 4 Some college
- ☐ 5 Completed college
- ☐ 6 Graduate or professional school after college
- ☐ 7 Don't know, or does not apply

37. How often do you attend religious services?

- ☐ 1 Never
- ☐ 2 Rarely
- ☐ 3 Once or twice a month
- ☐ 4 About once a week or more

38. How important is religion in your life?

- ☐ 1 Not important
- ☐ 2 A little important
- ☐ 3 Pretty important
- ☐ 4 Very important

Next are some questions about your experience as a driver, or as a passenger in a car.

39. During the LAST TWO WEEKS, how many times (if any) have you been a passenger in a car...

- a. ...when the driver had been drinking? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
- b. ...when you think the driver had 5 or more drinks? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

40. During the LAST TWO WEEKS, how many times (if any) have you driven a car, truck, or motorcycle after...

- a. ...drinking alcohol? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Don't Drive
- b. ...having five or more drinks in a row? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Don't Drive

41. When you drive a car, how often do you wear seat belts?

- ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Don't Drive

42. When you are riding in the front passenger seat of a car, how often do you wear a seat belt? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

PART D

43. In what grade did you FIRST do each of the following things? Don't count anything you took because a doctor told you to; and mark "never" if you have never done it. (Mark one circle for each line.)

- a. Smoke your first cigarette ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never
- b. Smoke cigarettes on a daily basis..... ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never
- c. Try smokeless tobacco (snuff, plug or chewing tobacco) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never
- d. Try an alcoholic beverage more than just a few sips ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never
- e. Drink enough to feel drunk or very high ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never
- f. Try marijuana or hashish ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never
- g. Try LSD ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ Never

- h. Try any psychedelic other than LSD 1 2 3 4 5 6 7 8 9 10 11 12
- i. Try amphetamines 1 2 3 4 5 6 7 8 9 10 11 12
- j. Try barbiturates 1 2 3 4 5 6 7 8 9 10 11 12
- k. Try tranquilizers 1 2 3 4 5 6 7 8 9 10 11 12
- l. Try "crack" cocaine 1 2 3 4 5 6 7 8 9 10 11 12
- m. Try any other form of cocaine 1 2 3 4 5 6 7 8 9 10 11 12
- n. Try heroin 1 2 3 4 5 6 7 8 9 10 11 12
- o. Try any narcotic other than heroin 1 2 3 4 5 6 7 8 9 10 11 12
- p. Try inhalants (sniff glue, aerosols, etc.) 1 2 3 4 5 6 7 8 9 10 11 12
- q. Try steroids 1 2 3 4 5 6 7 8 9 10 11 12
- r. Try injecting some drug with a needle (without a doctor's orders) 1 2 3 4 5 6 7 8 9 10 11 12
44. Do you think that in the future you will ever...
- a. ...smoke cigarettes 1 2 3 4
- b. ...drink alcoholic beverages 1 2 3 4
- c. ...try or use marijuana 1 2 3 4
- d. ...try or use cocaine 1 2 3 4
- e. ...try or use any other illegal drug 1 2 3 4
45. How do you think your CLOSE FRIENDS feel (or would feel) about YOU doing each of the following things?
- a. Smoking one or more packs of cigarettes per day 1 2 3
- b. Trying marijuana once or twice 1 2 3
- c. Smoking marijuana occasionally 1 2 3
- d. Smoking marijuana regularly 1 2 3
- e. Trying LSD once or twice 1 1 2

- f. Trying an amphetamine (upper, pep pill, bennie, speed) without a doctor's orders once or twice 1 2 3
- g. Trying "crack" cocaine once or twice 1 2 3
- h. Taking "crack" cocaine occasionally 1 2 3
- i. Trying cocaine powder once or twice 1 1 2
- j. Taking cocaine powder occasionally 1 1 2
- k. Taking one or two drinks nearly every day 1 2 3
- l. Taking four or five drinks nearly every day 1 2 3
- m. Having five or more drinks once or twice each weekend 1 2 3
- n. Using smokeless tobacco regularly 1 2 3
- o. Taking steroids 1 2 3
46. How much pressure do you feel from your friends and schoolmates to...
- a. ...smoke cigarettes 1 2 3 4
- b. ...drink alcoholic beverages 1 2 3 4
- c. ...use marijuana 1 2 3 4
- d. ...use other illegal drugs 1 2 3 4
47. During the past 30 days, how often (if ever) have you used alcohol in each of the following places?
- a. At your home 1 2 3 4
- b. At friends' houses 1 2 3 4
- c. At a school dance, a game, or other event 1 2 3 4
- d. At school during the day 1 2 3 4
- e. Near school 1 2 3 4
- f. In a car 1 2 3 4
- g. At a party 1 2 3 4

48. During the past 30 days how often (if ever) have you used marijuana or any other drugs (like cocaine, amphetamines, etc.) in each of the following places?

- a. At your home ① ② ③ ④
- b. At friends' houses ① ② ③ ④
- c. At a school dance, a game, or other event ① ② ③ ④
- d. At school during the day ① ② ③ ④
- e. Near school ① ② ③ ④
- f. In a car ① ② ③ ④
- g. At a party ① ② ③ ④

More or All
1-2 Times
3-5 Times
6 or more Times

49. If you ever found yourself "hooked" on drugs, or otherwise needed help related to your drug or alcohol use, would you be likely to turn to any of the following sources for help? (Mark one circle for each line.)

- a. Members of your family ① ② ③
- b. Friends ① ② ③
- c. A teacher ① ② ③
- d. A school counselor ① ② ③
- e. A doctor ① ② ③
- f. A drug clinic ① ② ③
- g. A minister, priest, or rabbi ① ② ③

No
Maybe
Yes

The next questions are about any drug education activities you may have had in school.

50. Have you had any drug education courses, films, or lectures in school?

① No— GO TO QUESTION 54

② Yes— CONTINUE WITH QUESTION 51

51. Would you say that the information about drugs that you received in school classes or programs has...

- ① Made you less interested in trying drugs.
② Not changed your interest in trying drugs.
③ Made you more interested in trying drugs.

52. How many of the following drug education experiences have you had in school? (Mark all that apply.)

- ① A special course just about drugs
② A part of a health course
③ Films, lectures, or discussions in one of my other regular courses
④ Films or lectures, outside of my regular courses
⑤ Special discussions ("rap" groups) about drugs

53. Overall, how valuable were these experiences to you?

- ① Little or no value
② Some value
③ Considerable value
④ Great value

These final questions concern your school rules.

54. Do you know what your school's policy is for dealing with students caught doing the following things on school property...

- a. ...smoking cigarettes ① ② ③
- b. ...using (or possessing) alcohol ① ② ③
- c. ...using (or possessing) an illegal drug ① ② ③
- d. ...selling an illegal drug ① ② ③

No
1 Time
2 Times
3 Times
4 Times
5 Times
6 Times
7 Times
8 Times
9 Times
10 Times
11 Times
12 Times
13 Times
14 Times
15 Times
16 Times
17 Times
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90 Times
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92 Times
93 Times
94 Times
95 Times
96 Times
97 Times
98 Times
99 Times
100 Times

55. If a student is caught doing each of the following things on school property by a teacher, how likely is it that something will be done (like punishment, notification of parents, referral to treatment, etc.)?

- a. ...smoking cigarettes ① ② ③
- b. ...using (or possessing) alcohol ① ② ③
- c. ...using (or possessing) an illegal drug ① ② ③
- d. ...selling an illegal drug ① ② ③

Not at all likely
Somewhat likely
Very likely

THANK YOU AGAIN FOR YOUR HELP.

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