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JUVENILE DELINQUENCY AND ADOLESCENT ALCOHOL ABUSE: THE PREDICTIVE POWER OF FAMILY FACTORS

by

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ABSTRACT

JUVENILE DELINQUENCY AND ADOLESCENT ALCOHOL ABUSE: THE PREDICTIVE POWER OF FAMILY FACTORS

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The purpose of this study was to investigate the relationship between juvenile delinquency and adolescent alcohol abuse. In addition, focusing upon the role of the family in the development of both types of misbehavior, an attempt was made to determine common causal factors. The data used in the bivariate and multivariate analyses were obtained from the Cambridge Study in Delinquent Development, a longitudinal study undertaken in London, England.

The results indicated that a relationship exists between juvenile delinquency and heavy drinking, although the strongest association was found to occur between minor forms of misbehavior, rather than more serious criminal activity, and juvenile alcohol abuse. No associations were identified between family relationships or parental supervision and heavy drinking, while relationships were discovered between family factors and the more serious forms of juvenile misconduct. One conclusion was thus that family factors were not accurate predictors of both juvenile delinquency and alcohol abuse.

Dedicated to my husband Paul

and our daughter Caroline

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The data utilized in this study were made available by the Inter-university Consortium for Political and Social Research. The data for the CAMBRIDGE STUDY IN DELINQUENT DEVELOPMENT (GREAT BRITAIN) 1961 - 1981 were originally collected by David P. Farrington of the Institute of Criminology, Cambridge, England. Neither the collector of the original data nor the Consortium bear any responsibility for the analyses or interpretations presented here.

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CHAPTER I

THE PROBLEM

Introduction

In recent years, widespread concern has been expressed by governments, criminal justice agencies, the medical professions and the general public over the use of drugs by juveniles; over the same period of time, however, these sections of society have given relatively little attention to the problem of teenage drinking.

Following a symposium entitled "Alcohol and Young People" held in London in March 1987, Derek Rutherford, Director of the Institute of Alcohol Studies, stated that, compared to the Government-initiated 'Heroin screws you up' and 'Aids' campaigns and the success of the anti-smoking drive, little had been done to raise public consciousness about the dangers of alcohol. In addition, Anders Hansen of the Leicester University Centre for Mass Communication told the same symposium that television in the United Kingdom has consistently failed to make young people aware of the dangers of drinking, and instead has depicted alcohol consumption to be both pleasant and unproblematic (Times Educational Supplement, March 9, 1987).

When discussing drug abuse there has thus been a tendency to neglect consideration of alcohol use, creating the impression that drinking is a less serious problem in young people than is the illicit use of drugs. However, recent statistics published in England would appear to indicate that this is not necessarily the case, but rather that drinking, particularly by teenagers, constitutes a societal problem which should not be ignored.

The Extent of the Problem

The full extent of problem drinking among teenagers in the UK was recently revealed in a 1987 report entitled "Adolescent Drinking" which was commissioned by the Department of Health and Social Security. The report indicated that young people under 21 years of age now account for 1 in 4 drunkenness cases, as compared with 1 in 12 during the 1950s. Approximately 1 out of every 15 drinkers are presently under age, in contrast with 1 out of every 100 three decades ago. Moreover, for the first time this century, 16-year olds are now considered to be more at risk from drunkenness than people in the 30-60 age group. Reported cases of drunkenness among teenagers continue to grow while there is a decrease in numbers among other age groups.

The same report also confirms that more adolescents misuse alcohol than all other drugs combined, and that by the age of 13 more than 3 out of every 4 children in the UK have experienced alcohol in some form.

Other alarming statistics collected recently in connection with research carried out at Exeter University, and published in the Daily Telegraph newspaper in England in February, 1987 indicate that 34% of all 11-year old boys presently drink at least half a pint of shandy (half beer and half lemonade) per week, and that 29% of 15-year old girls are now drinking at least one glass of wine each week, as compared with 20% in 1984.

On a larger scale, alcohol abuse is not of course limited to causing minor discomfort for short periods of time, but it can lead to serious diseases, and ultimately is directly responsible for the deaths of over 500 young people in the UK every year. Additionally, in purely financial terms, the cost to the National Health Service of treating alcohol abuse is estimated to be £95 million ($145 million) annually.

Other Implications of Teenage Alcohol Abuse

The "stepping stone" theory is often used as an argument to emphasize the possible negative and serious consequences of alcohol misuse. The theory was built around the idea that cannabis was the dangerous first step towards heroin addiction, a powerful argument which first

came to light during the debates on the question of the legalization of cannabis in the mid 1960s. The stepping stone theory was further developed during the 1970s when researchers discovered that adolescents were unlikely to use cannabis unless they had first used alcohol. Research during the 1980s has tended to indicate that drug use is not merely sequential but cumulative.

Welte and Barnes (1985) tested the stepping stone theory using a sample of 27,000 students aged from 12 to 17 years in New York State. Data on substance use was obtained via a self-administered questionnaire completed in class. Questions related to six groups of drugs: alcohol, cigarettes, cannabis, over-the-counter, prescription pills, and 'hard' drugs; ever-used dichotomous variables were used rather than basing the variables upon substantial use. Over 22,000 of the students were found to have used alcohol and 4,600 had used hard drugs, yet only 0.1% of respondents reported use of hard drugs without ever using alcohol. Welte and Barnes argued that these findings could not merely be explained by age or individual attributes of the students. Rather, they believed that the pervasiveness of alcohol in society reduced the perceived risk of its use by young people. Thus, based upon the theory that teenagers begin by using the drug which presents the least risk, and that the use of this drug in and of itself makes the use of the next drug in the sequence more likely, it was proposed that alcohol should be viewed as an important first step in the stepping stone process.

Welte and Barnes therefore suggested that alcohol was the 'entry' drug for New York State teenagers; unless alcohol was first used there was very little use of any other drugs, including cigarettes and over-the-counter drugs. Moreover, from their sample, Welte and Barnes had identified a definite pattern of progression from alcohol to cannabis to hard drugs. They concluded that, whilst the majority of the discussion regarding the stepping stone theory has centered upon the implications of cannabis use, it is vitally important to note that alcohol precedes cannabis in the developmental sequence and therefore serves as the gateway to the use of other drugs.

In support of this theoretical supposition, in their earlier study of students in senior and senior schools from grades 6 to 12, Wechsler and Thum (1973) had found that illicit drug use was reported much more frequently by relatively heavy alcohol users than by light users or

non-drinkers. Subsequently, Bloom and Greenwald (1984) reported that experimentation with smoking tobacco and marijuana were both found to be highly correlated with experimental drinking.

Whilst the two studies carried out by Wechsler and Thum and Bloom and Greenwald do not necessarily indicate the existence of a causal relationship between the misuse of alcohol and the misuse of other drugs, they do serve to emphasize the need to be aware that if teenagers abuse alcohol then they are more likely to abuse other drugs as well.

Alcohol and its Association with Crime and Delinquency in Youth

Another major societal problem which has been suggested to result from alcohol abuse is alcohol related crime. Indeed, the belief that crime is one of the direct results of excessive drinking has been held for many centuries. Moreover, it is generally accepted that drinking alcohol can remove inhibitions, thus leading certain people to exhibit antisocial behavior which can ultimately lead to violence and the commission of crimes. This particular aspect of drinking has been the focus of a number of studies. Thus, Heather, Hodge, O'Connor and Wilkes (1977), Hollins (1983) and Fuller (1976) all proposed that crime was a direct result of heavy drinking. However, a major problem with many of these studies has tended to be that the samples used have frequently consisted of incarcerated individuals. This method of sampling precludes analysis of the behavior both of individuals who drink but do not commit crimes, and of individuals who drink, commit crimes but are either not apprehended or, if they are, are not subject to custodial sentences.

Heather, Hodge, O'Connor and Wilkes (1977) surveyed the drinking behavior of convicted young offenders in a Scottish penal institution. The replies from 200 questionnaires indicated that 63% of boys admitted to the institution reported having committed their present offense whilst under the influence of alcohol. Hollins (1983) studied a sample of 100 consecutive admissions to an English young offenders' institution, Feltham Borstal, and after interviewing each offender he discovered that 38% self-reported drinking immediately before offending. This percentage included offenders who reported having committed previous

offenses, and not necessarily their present offense, after drinking. At the time of Hollins' study, Feltham Borstal was unique in England, being the only psychiatric borstal, and consequently it was suggested that it might not be a true representation of the overall borstal population. Nevertheless, other studies in various parts of the U.K. have noted similar rates of drinking prior to offending: Fuller (1976) discovered a rate of 30% at Usk Borstal in Wales, and McMurren (1981) a rate of 40% at Glen Parva Borstal near Leicester.

Despite the problems inherent in the use of a sample consisting of institutionalized individuals, the self-reported percentages of boys admitting carrying out crimes whilst under the influence of alcohol in the above studies does serve to suggest that, at least among some incarcerated youth, there is a link between alcohol consumption and criminality. Even the relatively modest figures of 30% and 38% reported in two of these studies represent one third of the sample and thus create cause for concern.

The stepping stone theory and alcohol related crime are not the only factors which must be considered when examining the further implications for society of alcohol misuse by youth. From an economic point of view, employers have become increasingly aware of the problems invloved in employing teenagers who are heavy drinkers, and of the future problems of continuing to employ them as adults if they do not manage to control their alcohol consumption. Their businesses suffer from an increase in absenteeism and a consequent decrease in efficiency. From the perspective of the teenager's development, it is very difficult to quantify the family disruption which may result from a young person's drinking problem and the loss of education the child may experience.

The serious nature and potential consequences of problem drinking among the younger members of society is thus a cause for concern which should not be ignored.

Purpose and Scope of the Study

A number of research studies have suggested that problem drinking is part of a general pattern of deviant behavior among teenagers (Barron, 1970; Donovan and Jessor, 1978; Barnes, 1984). As one specific example of deviancy, it has been proposed that a relationship exists

between adolescents' drinking habits and other deviant acts such as juvenile delinquency. Furthermore, if such a relationship does exist, then it would appear feasible that certain common causal factors could be discerned which could assist in developing a more detailed understanding of the association between the two variables.

It is not suggested that such an analysis would in any way fully explain the causes of either alcohol abuse by youth nor juvenile delinquency, rather that the interactions between the two behavioral characteristics could be clarified by a treatment which sought to identify common causal factors. Such clarification would potentially add to existing knowledge and understanding of the two problems. It is therefore the purpose of this study to explore the relationship between drinking patterns and juvenile delinquency and to attempt to determine whether the two share any common causes.

Examination of the literature researching the relationship between juvenile delinquency and alcohol misuse not only serves as a body of research support for the existence of the relationship itself, but also acts as a guide for the possible predictors of the two variables. Additionally, in order to gain further insight into causal factors, research studies dealing solely with either alcohol abuse or delinquency are considered separately. Clearly, there are a vast number of possible predictors both of alcohol abuse and of delinquency which are beyond the scope of this study. Consequently, emphasis has been placed upon the possible role of family variables in the relationship between the two.

The family has been stressed by numerous writers as playing an important role in the development of the adolescent:

> "The family is the first and most basic institution in our society for developing a child's potential...It is within the family that the child experiences love, attention, care, supervision, discipline, conflict, neglect, stress, and abuse, depending upon parental and family characteristics and circumstances." (The Black Report, 1979: 6-7)

In addition, social control theory as presented by Glueck and Glueck and by Hirschi emphasizes the role of family relationships in delinquent behavior. The advantage of utilizing this theory of delinquency is that it attempts to assess the effects of both parental discipline and affectional relationships within the family upon the development of delinquent behavior. Given

the generally agreed existence of a relationship between delinquent behavior and problem drinking, it would appear plausible that the same pattern of supervision and affectional relationships may serve a similar function in the development of problem drinking among adolescents. Previous research thus provides considerable support for undertaking an examination of the role of the family in the development of both delinquency and alcohol abuse.

There are, however, a number of weaknesses present in many of the prior research studies concerned with juvenile delinquency and alcohol abuse. These deficiencies will be discussed in some detail in the review of the literature, but generally they revolve around the problems of sampling and of utilizing cross-sectional rather than longitudinal data. It is hoped that through making use of data from an English longitudinal survey carried out over twenty years, a number of these problems will be overcome.

The data for the study were collected as part of the Cambridge Study in Delinquent Development. In 1963, Dr. Donald West and his collaborators at the Institute of Criminology, Cambridge, England, including Dr. David Farrington, systematically surveyed a sample of some four hundred young males, recruited, at the age of eight, from a working class neighborhood in London. These youths were subsequently followed up and data was collected on them up until the age of twenty five. The particular variables to be utilized in this study will be discussed in some detail later.

Overview of the Study

The purpose and scope of the study already having been detailed, the review of the literature is presented in the next chapter. The review is divided into three sections. The first section consists of a review of the literature which has specifically considered the relationship between alcohol abuse and juvenile delinquency. The second section is limited to an examination of those studies which have considered the possible causal factors of alcohol abuse, and the third section deals solely with that research concerned with the role of the family in delinquency prediction.

Chapter III comprises the methodology of this study. Initially a description of the sample and method of data collection is presented, followed by the research questions, an explanation of the variables to be utilized, and a discussion of the types of data analysis to be employed.

The results of the analysis are presented in Chapter IV. Finally, the study findings are discussed in the context of the research questions in Chapter V.

CHAPTER II

LITERATURE REVIEW

Section 1: The Relationship between Alcohol Abuse and Juvenile Delinquency

Over the years there has been a large amount of research carried out concerning the relationship between all types of juvenile delinquency and alcohol use. Some of these studies have focused their attention upon alcohol abuse and its association with serious criminal offences such as homicides and other crimes of violence, whilst others have questioned whether in fact alcohol abuse is more closely linked with victimless offences. Still more studies have concentrated upon alcohol and deviant behaviour wiich is essentially antisocial in nature and does not necessarily involve the commission of crimes.

Alcohol Abuse and Different Types of Crime

A study undertaken by Tinklenberg et al. (1974), found, in support of Wolfgang (1966), that alcohol was involved significantly more often in violent assault cases than in non-assaultive crimes. The subjects of the investigation were male adolescents incarcerated in Karl Halton School, a moderate security facility in northern California, between January 1970 and October 1972. Two groups of adolescents were studied. The first study group of 50 inmates consisted of 50 assaultive adolescents who were randomly selected at monthly intervals from a total population roster of 327 youths. Approximately 20% of the sample was obtained each month, qualification for this group being that the youths selected had been convicted of at least one crime against a person involving either violent or sexual behavior. The second study group of 80 non-assaultive subjects were selected from a second population of 782 youths who had never

been charged with or convicted of any assaults or sexual offenses, but had been convicted of other crimes. The sampling procedure was identical to that used with the assaultive group, except that approximately 10% of the sample was obtained each month. The mean age of the two sample groups was 18.5 years. All subjects voluntarily submitted to a semi-structured private interview with an experienced psychiatrist or a professional clinical interviewer. Interview data was cross validated by concurrent analysis of official documents such as police records and laboratory reports; cross validation results showed that the subjects were generally candid and honest with regard to their use of drugs.

The study groups were compared along two drug use measures: the number of subjects who had used each drug at least once, and the frequency with which specific drugs were used either alone or in combination with other drugs. Drug use was defined as having experienced a period of being continuously "high" under the influence of a drug without "coming down to your usual non-drug self."

The differences found between the two study groups along both of the measures were all in the direction of less drug use for the assaultive group. Only the number of users of alcohol and marijuana was not significantly different between the two groups, although even with respect to those drugs slightly lower percentages of assaultive subjects were users.

Thus, Tinklenberg et al., in their study of incarcerated California juvenile offenders, discovered that subjects who had never been charged with any assaultive or sexual offenses generally reported that they used a greater variety of drugs more frequently than individuals who committed serious assaultive crimes. Nevertheless, when serious assaultive crimes were committed, the youths involved more frequently described themselves as having been under the influence of one or more drugs than in a non-drug state at the time of the offense. Moreover, alcohol was the drug most often linked with violence, and assaults were found to be more likely to be sustained when the assailant was under the influence of drink than when he was sober. No control was made for race and consequently it was not possible to generalize about any racial contribution to drug and crime interaction.

O'Brian (1977), however, attempted to investigate the racial differences in drinking behavior by studying delinquency in Warm Springs Indian Reservation in Oregon. He found that, among the Indians on the reservation,

> "alcoholism has been identified as the greatest single social problem confronting the tribe for adults and juveniles alike." (p. 347)

In addition to abusing alcohol, juveniles on the reservation appeared to be engaging in delinquent activities in increasing numbers -

> "Alcoholism and delinquency appear to have a common source in the need to relieve tensions caused by the basic insecurity of reservation life, the poverty, the hopelessness and the desolation of the reservation life, the conflicts between the two cultures and the apparent absence of means of escape." (p. 347)

The total number of delinquency cases measured by referrals to juvenile court from the reservation increased by 124% between 1972 and 1973. These referrals tended to be for status offenses and other victimless crimes, with very few referrals being made for serious or violent offenses. Consequently, although no statistical analysis was carried out to examine the relationship between alcohol abuse and delinquency on the reservation, it was possible for O'Brian to infer that the connection between drinking and victimless crimes was stronger than that between drinking and violent and serious offenses, thus bringing his results into conflict with the findings of Tinklenberg et al. One problem involved in comparing the results of these two studies, however, is that Tinklenberg et al. used a sample of institutionalized offenders not likely to contain many, if any, status offenders.

A further study, carried out by Schlesinger (1978), casts doubt upon whether alcohol abuse can be considered a correlate of either victimless crimes, in the form of runaways, or more serious crimes including assaults, burglary or larceny. The research sample consisted of 122 juveniles evaluated by a psychiatric clinic attached to a family court between January 1973 and June of the same year. In order to be included in the sample, the juveniles could not be sixteen until on or after July 1st, 1974, the date which marked the end of the one year follow-up period which was built into the study. Schlesinger identified nine previous studies which had used a

total of thirty different factors considered to be statistically related to violent behavior in children. The results of the various studies were deemed to be sufficiently valid to justify the use of this set of thirty variables as predictors of violent behavior. Alcoholism was one of the predictor variables examined. The relationship between the various predictor variables and the juveniles' subsequent behavior during the one year follow-up period was tested using chi-square analysis. Criterion, or follow-up, behaviors were identified from family court files and probation department records, and were divided into five groups: violent offenses, burglary or larceny, persons in need of supervision, runaway, and other. Only seven of the original 122 juveniles committed violent or dangerous offenses during the follow-up period. Moreover, none of the chi-square analysis indicated a systematic relationship among predictor variables and criterion behaviors. There was thus found to be no significant relationship between alcoholism and any of the follow-up behaviors.

In order to attempt to explain such inconsistent findings as those described above, Dawkins and Dawkins (1983) carried out a study examining the relationship between drinking and delinquency whilst taking into account the seriousness of the offense. Additionally, they attempted to assess the extent to which drinking is an important correlate of delinquency relative to other factors. Data was collected via questionnaires from the 342 residents of a public juvenile facility in the United States during the summer of 1979. A number of variables were included in the analysis including race, sex, father's occupation, juvenile's arrest record, association with criminals and association with drug and heroin users. The latter two variables were identified by asking respondents how many friends they had at home who were drug and heroin users or who had juvenile records. The drinking variable was based upon responses to the question, "One year before coming to the training school, how often had you consumed alcoholic beverages: liquor, beer or wine?" Possible responses ranged from nearly every day, and once or twice a week, to once or twice a year, and never. The same question with identical response categories was asked, substituting 'heroin use' for alcoholic beverage, to produce the drug variable. Delinquent offenses were operationally defined through responses to the question, "One year before coming to training school, how many times had you done the following?" followed by a

list of 21 delinquent items. For each offense, possible response categories ranged from five or more times down to never. The delinquent offenses were further categorized as minor and serious offenses. Minor delinquent offences included: taking something not belonging to you worth under $50; going onto someone's land or into someone's house or building when you were not supposed to be there; getting into trouble with the police; taking something from a store without paying for it; and taking an inexpensive part of a car without permission. Serious delinquent offenses included: getting into a serious fight; getting something by telling a person that something bad would happen to them if you did not get what you wanted; hurting someone badly enough to need bandages or a doctor; taking part in a gang fight when your friends are against a gang; taking something not belonging to you worth over $50; and using a gun or a knife or some other object to get something from a person.

Analysis of the data was performed using bivariate correlation. Amonst blacks, drinking was found to be the strongest correlate of delinquent offenses; the other significant correlates included arrest rate, sex, and associations with criminals. Drinking was also found to be the strongest correlate of delinquent offenses amonst whites; additionally, other significant correlates of serious delinquent offenses included arrest rate, sex, and association with drug users, whilst for minor delinquent offenses the significant other correlates were sex and heroin use. Amonst hispanics, drinking was strongly correlated with minor delinquent offenses only; association with criminals was another factor which correlated significantly with both types of delinquent offense.

Upon first sight, Dawkins and Dawkins' findings appeared to suggest that drinking frequency is an important correlate of delinquency. However, when racial factors are taken into consideration, the relationship between drinking and both minor and serious delinquent offenses can be understood more clearly. In simple terms, black and white adolescents tend to be similar in that their behavior exhibits a strong correlation between drinking alcohol and delinquency regardless of the seriousness of their offenses, while among hispanics, drinking is strongly correlated with minor offenses only. O'Brian (1977), in his study of delinquency in Warm Springs Reservation was dealing exclusively with American Indians. His conclusion that drinking is associated with victimless crimes could therefore be partly due to racial factors and

partly due to the pressures exerted upon the juveniles by tribal norms and expectations.

In order to examine the extent to which Dawkins and Dawkins' discovered relationship between drinking and delinquency was influenced by the other environmental factors of sex, father's occupation, arrest rate, association with criminals, and association with drug and heroin users, the researchers used partial correlation coefficients. Amongst blacks, it was found that the other variables had very little influence on the relationship between drinking and delinquency regardless of the offense. The results for whites on the other hand showed that the relationship between drinking and serious delinquency could be accounted for in part by these other variables, whilst the correlation between drinking and minor offenses was stronger and not greatly influenced by other factors. The results for hispanics showed that, rather than explaining away the correlation between drinking and minor delinquency, other factors may in fact slightly suppress the relationship. The partial correlation analysis was therefore seen to provide further support for the strong correlation between drinking frequency and minor delinquent offenses.

To examine the extent to which drinking as an independent variable was a meaningful predictor of delinquency both in terms of its effect in combination with other factors and in terms of its relative impact, multiple regression analysis was employed using the same predictor variables as before. The results of the regression analysis indicated that, when other factors are controlled for, drinking has an important net effect upon minor delinquency within each racial group.

The only consistent results within a particular racial group, however, were for blacks, for whom drinking was the most important single predictor of delinquency relative to other factors, regardless of whether delinquent offenses were serious or minor. For whites, drinking was found to be a significant net predictor of serious crime, but was more important than some other factors and less important than others, for example arrest record and association with drug users, as a predictor variable. Alcohol use tended to be of little importance as a net predictor of serious delinquency among hispanics, after having a strong relative effect on minor delinquency. Again, however, this study utilized a sample of incarcerated youths only, and so the results applied only to individuals who had already been categorized as delinquents and institutionalized.

From Dawkins and Dawkins' analysis, the finding that drinking is related to minor offenses within each racial group studied would appear to add support to the claim that the relationship between alcohol and crime among adolescents is likely to involve victimless offenses. In addition, the results which showed that the relationship between drinking and serious delinquency is strong for some racial groups, blacks and whites, but not for others, hispanics, suggests that other socio-cultural factors must be considered when attempting to assess whether alcohol abuse will lead to serious criminal involvement.

Drinking Patterns among Delinquent and Non-Delinquent Youth

Other studies which have analyzed the relationship between alcohol abuse and delinquency have not concerned themselves with differentiating between different types of criminal offense, but rather have concentrated their analysis upon whether significant differences occur between the drinking behavior of delinquent and non-delinquent youth.

For the purpose of their study, Pearce and Garrett (1970) defined a delinquent as a boy or girl being held in a state detention home at the time of the study; a non-delinquent was a boy or girl enrolled in a secondary school. The delinquent group consisted of 163 youths from the Youth Detention Home in St. Anthony, Idaho and 185 from the Youth Detention Home in Ogden, Utah. This sample represented the total number of students present in the two detention homes on the day of testing. The non-delinquent population was selected from the four secondary schools in Pocatello, Idaho. For logistic reasons it was not possible to test the total high school population or a randomly selected group from each high school. The 466 students in the high school sample were therefore selected by school staff personnel in an attempt to secure a representative cross-section of each student body. Data was obtained from a questionnaire which consisted of twenty six questions focused on drinking behavior, but which also requested information of a demographic nature. A chi-square was computed for each question to determine whether statistically significant differences existed in the drinking behavior of the two groups.

Any differences discovered by Pearce and Garrett between their two groups are necessarily clouded by the possibility of delinquents being present in the non-delinquent sample. Secondary

school children may have been involved in crime and avoided arrest, or may not have been incarcerated following apprehension. In addition, the non-delinquent sample could have contained youth recently released from custody.

Results of the research indicated that a larger percentage of the delinquent group drank alcoholic beverages than the percentage within the non-delinquent group. In addition, it was discovered that the members of the delinquent group began drinking at an earlier age than members of the non-delinquent group, and that they generally took their first drink with someone other than a parent or relative, whilst the majority of non-delinquents took their first drink with either parents or relatives. Having started drinking, the non-delinquents generally continued to drink with parents or relatives and to receive alcohol from them, whilst the delinquents continued to drink predominately with friends and to receive alcohol either from friends, from other people, or through buying it themselves.

Pearce and Garrett stated that in comparing percentages, which they did not specify, there was an indication than drinking was not influenced by family income, the size of the community in which the respondents lived, nor by with whom the respondents lived. Nevertheless, there was found to be a relationship between parental drinking and the drinking behavior of the adolescent male in both the delinquent and non-delinquent group.

Other findings in this study were that beer was the alcoholic beverage consumed most frequently by both groups, but that a higher percentage of delinquents than non-delinquents drank hard liquor. Delinquents were arrested for drinking more frequently than were non-delinquents, and more delinquents passed out or could not remember activities whilst under the influence of alcohol than non-delinquents. Following these findings, Pearce and Garrett concluded that there appeared to be a difference between the drinking behavior of delinquent and non-delinquent youth.

West and Farrington (1977) similarly found significant differences in the drinking patterns of delinquent and non-delinquent youth. Their analysis, however, was part of a longitudinal study of delinquency, and consequently their sample differed from that of Pearce and Garrett in a number of ways.

A longitudinal study can overcome some of the problems of bias and sampling. Thus, by following the behavior patterns of the same large group of boys over a period of time, West and Farrington were able to separate delinquents from non-delinquents gradually, so gaining control groups without having to use matching techniques. The difficulty of possibly having delinquents in the non-delinquent group, as highlighted in Pearce and Garrett's study, could therefore be partially avioded. Although West and Farrington's decision to use official crime statistics in defining delinquency may have resulted in some boys who had committed offenses but had not been arrested being included in the non-delinquent group, no possibility of boys with prior criminal records being included in that group existed.

Moreover, since longitudinal research, rather than comparing groups at a specific point in time, enables comparisons to be made over an extended time period, West and Farrington were able to compare the drinking patterns of non-delinquents, delinquents and recidivists.

The boys in the study sample were originally chosen as research subjects because they were attending six adjacent state primary schools in a working class area of London, England. At that time they were aged between eight and nine years old. The sample was fairly representative of the normal male population in that particular area and generation, and probably was similar to the population of many comparable working class neighborhoods in England.

The part of the study concerned with drinking habits contained a sample of 389 of the original 411 boys, who were then aged 18-19 years old. The analysis was primarily based upon interviews with the 389 youths which were carried out in 1971. 101 of the young men had an official conviction for one or more offenses committed before the date of the interview and were consequently classed as delinquents; the remaining non-delinquent group of 288 had no such conviction. The interviewers consisted of four men in their mid-twenties who were all graduates with qualifications in some area of the social sciences. They were selected not solely upon academic grounds but also with the special requirements of the job in mind, such that primarily consideration was given to social adaptability and tact to handle sensitive topics. The whole interview was tape recorded. No youth refused altogether to allow recording, but a few asked for the machine to be turned off when talking about very sensitive topics. Two of the

interviewers usually noted down everything verbatim whilst the other two interviewers recorded some responses in summary form.

The 101 delinquents were sub-divided into two sub-groups of recidivists, numbering 62, who had more than one conviction, and one-time delinquents, of which there were 39. In view of the generally homogeneous quality of the delinquents' offense histories, in which crimes of dishonesty predominated in nearly all cases, the delinquents were not categorized according to the nature of their offenses. The only exception to this rule was an attempt which was made to identify a sub-group of violent delinquents. A delinquent was considered to be violent if it was stated in official records that he had used physical violence against someone or had threatened to do so. According to this criterion, 22 of the 101 delinquents were included in the violent sub-group.

A number of questions regarding the amount and pattern of drinking were asked during the interviews; frequency of consumption was assessed by asking separately about drinking habits on each day of the week. The 95 frequent drinkers who said that they usually drank either every day or on six out of seven days included a significantly higher proportion who were delinquents, 41.1%, as opposed to 21.6% in the infrequent drinking group. Throughout the entire sample beer was found to be the most popular drink. However, nearly half (46.9%) of the 98 who reported a large weekly consumption of beer, 20 or more pints, were delinquents, whilst of the 121 who drunk less, only 18.9% were delinquents. In addition, delinquency was found to be associated with taking large quantities of drink in one evening. Eighty one boys reported that on their longest drinking evening of the week they usually had six or more pints of beer, and of these 43.2%, in comparison with 21.5% who drank less in an evening, were delinquents. Thus, in each case approximately twice the proportion of delinquents were found to be in the more frequent or greater quantity consumption categories than were evident in the light drinking groups.

Four basic statistics were all significantly inter-correlated: quantity of beer consumed per week, quantity of spirits consumed per week, maximum drink in an evening in an average week, and the number of drinking days per week. Each of these variables was then allocated a score of

1 to 4 points for each respondent, and these scores were subsequently combined by simple addition to produce a global score of drinking habits. The idea was that this combination would provide a more realistic summary measure of drinking habits than any single criterion. Where information in relation to one of the statistics was not available, points were allocated pro rata and the 24 non-drinkers, only two of whom were delinquent, were given the minimum score. Using this cumulative score as a basis, 78 youths were classified as heavy drinkers, with a score of 14 or more points. This group of heavy drinkers was then found to contain 41.0% who were delinquents as compared with only 22.2% in the non-heavy drinking group. Thus, once more there was found to be nearly twice as many delinquents in the heavy drinking group as in the light drinking group. Similarly, recidivists constituted 29.5% of the heavy drinkers but only 12.5% of the light drinkers.

West and Farrington suggested that, in addition to the quantity and frequency of consumption, the tendency on the part of certain youths to become aggressive after drinking probably contributed to the link with delinquency. Within the entire sample, more fights took place in public houses than in any other location. Fifty seven youths said that they had been in trouble with the police when they had been drinking, and the majority of these, 56.1%, were official delinquents. Aggressive reactions after drinking were particularly closely associated with recidivism. Of the 53 youths who stated that drinks made them more violent, 34.0% were recidivists, as opposed to only 14.0% of the remaining 336 respondents who denied this effect.

Possible Common Causes of Drinking and Delinquency

A number of other studies have added further support for the existence of a relationship between alcohol abuse and juvenile delinquency (Jessor et al., 1968; Jessor and Donovan, 1978; Bell and Champion, 1979; Levine and Kozak, 1979; Barnes, 1984). However, having found a relationship between deviant drinking and other socially deviant behavior, attempts to further define the relationship in order to discover whether delinquency and problem drinking share any common causal factors have been made with varying degrees of success.

Thus, Jessor et al., Jessor and Donovan, and Barnes all identified a significant positive relationship between heavy drinking and various other forms of deviancy such as lying, stealing, truancy and smoking marijuana. Given this relationship, each of the five studies referred to above tended to stress various aspects of family life as playing a vital role in the development of deviant behavior. Whilst Jessor et al. were able to obtain significant results, Barnes was unable to determine any statistical significance between parental nurturance and deviancy. Bell and Champion's study design precluded a full analysis of the drinking behavior of the delinquent sample and the role of the family. Full analysis of these studies and their results follows.

Jessor et al. (1968) found that, among a sample of high school students, both socially deviant behavior in general, and problem drinking in particular, were related to such factors as mother-child affectional relationship, exposure to deviant models, limited regulations and sanctions, and mothers' feelings of alienation. In a later study, Jessor and Donovan (1978) further developed the analysis and concluded that youthful problem drinking is "systematically related to a multivariate network of personality, environmental and behavioral variables, a network that can account for a significant and sometimes substantial proportion of variation in problem drinking," and that, "the pattern of characteristics that differentiates problem and non-problem drinkers is one that can be conceptualized as a pattern of greater proneness to problem behavior." (Jessor and Donovan, 1978: 1522). Thus, Jessor's two studies emphasized that problem drinking is part of a more general pattern of deviant behavior and that, as such, it may be understood more fully if viewed not as a separate problem but as one consequence of numerous environmental factors and conditions which cause additional forms of misbehavior such as stealing and truancy.

The 1960s study by Jessor et al. was concerned with the Anglo-American, Spanish-American, and Indian populations of a town and its surrounding rural area in South Western Colorado within the boundaries of an Indian Reservation. The sample consisted of the entire local student body in the sophomore, junior and senior classes in the community school, a total of 93 subjects. The age range was from 15 to 21 years. Data was obtained from questionnaires, interviews with the subjects, ratings of behavior from teachers, mothers, the

school principal, other students, and school records. The mothers of the students were focused on especially in order to obtain information on, and to assist in assessing the family situation relative to beliefs, rewards and controls. Interviewing of mothers was carried out by a team of five professionally trained interviewers, all of whom were married women themselves. The approach of the study was to seek multiple measures of deviance in order that the inadequacies of any particular measure would not seriously jeopardize the theoretical tests. With regard to alcohol use, the study attempted to measure the amount consumed, the physical and social context of drinking, the conditions under which drinking was barred, the meaning attached to alcohol by the drinker, and the consequences which followed its use.

Excessive or deviant use of alcohol was defined by the consequences to which it led, that is, by the occurrence of behavior which, in itself was seen as a violation of normative expectations, for example chronic or frequent drunkenness. An effort was made to assess as wide a variety as possible of problem behaviors likely to be associated with alochol use. Whilst any particular behavioral item was seen as perhaps not in itself being of great social concern, the assumption made was that its recurrence, and especially its accompaniment by other problem behaviors, would constitute an adequate definition of deviant behavior linked to drinking.

A student was considered to have had more exposure to deviance if a family member had a court record, if his mother reported that a family member had been in serious trouble, or if the student himself had, according to his mother, engaged in deviant conduct of some kind and himself reported that one or more models of deviance were available in his experience.

In order to establish the amount of control exercised over the student in his home, six items were used in the interview with the mother, each relating to the stability of the control situation or to the degree of control used. The theoretical assumption guiding the selection of these variables was that the more freedom from parental control a student has, the less likely is it that his conformity will be rewarded and his deviance punished. The items used included rules parents imposed, strictness, tolerance of mother, parental harmony, family stability, and training in self-control received by the student in his own home. The measures of affectional interaction between mother and child were also obtained from the interview with the mother, and included

the mother's mode of rewarding the child's conforming behavior and her exercise of regulatory control. Affectional interaction was examined within the context of a parental reward structure. It was considered that affection was not only conveyed by the amount of time each parent spent with the child, but also by the parent's readiness to respond to the child's needs or problems when they arose.

Alienation was measured by a thirteen-item scale which had been established in previous research. The score range was 0-39, with high scores reflecting greater alienation. Maternal alienation was considered to operate as an indirect influence upon the child. The mother's perspective on life, the future, and relations with others, whilst not necessarily taught to the child, could well be sensed by him it was believed.

Exposure to deviant role models particularly proved to have a significant relationship with the number of times of becoming drunk within the group of high school students. Jessor et al. were able to conclude that exposure to deviant models, limited regulation and sanction, mother-child affectional relationship, and mother's alienation influenced the student's personality in a way that made deviance or non-conformity more or less likely, and that alcohol abuse was just one part of general deviant behavior.

The only other family member used in this study apart from the student himself was the mother; the roles played by the father and siblings were ignored. In addition, it was noted that students are exposed to control structures other than those provided by their parents: the formal school system, and informal social control in the form of peer groups. Thus, the later study carried out by Jessor and Donovan (1978), in order to attempt to correct for these omissions, included both analysis of parents' attitudes and the role of friends. However, data for this study was obtained from students themselves via a questionnaire, with no interviews with parents being carried out. Additionally, the sample was much larger, consisting of 13,122 adolescents in grades seven through twelve. A problem drinking group was identified from the joint criteria, frequency of drunkenness and frequency of alcohol-related negative consequences, thus making the classification similar to that in the previous study.

The notion of problem drinking as a part of a more general pattern of behavior was reinforced by the fact that other problem behaviors, such as deviance and the use of marijuana were equally well accounted for by the same set of variables, mother-child affectional relationship, limited regulation and sanction, and mother's alienation. Deviance was measured using a 12-item scale concerned with involvement in stealing, fighting, property destruction, truancy, and other normative or legal violations during the preceding year. The problem drinkers' proneness to delinquent behavior was revealed by less involvement in or committment to conventional activities, church and schoolwork, and more involvement with other drugs such as marijuana and with pro-delinquent activities such as lying, stealing and aggression.

Recently, in 1984, Barnes argued along similar lines to both Jessor et al. and Jessor and Donovan, by suggesting that problem drinking in adolescents is a multivariate syndrome in which alcohol use is completely intertwined with other psychosocial variables, and that a high degree of parental nurturance may be a significant deterrence to alcohol abuse and more general deviant behaviors. Barnes indicated that problem drinking appears to covary with a complex network of deviant behaviors, thus leading to the suggestion that problem drinking and antisocial activities represent alternative pathways for the expression of similar need systems. Thus, if problem drinking is integrally linked with other problem behaviors, both phenomena may have common causal conditions.

Barnes' study builds upon socialization theory and research which has shown the family unit to be crucial for childhood development, and has indicated that parental support and nurturance are positively related to a range of childhood outcomes. Recognizing the limitations of not consulting parents directly with regard to questions such as control by parents and closeness to parents, Barnes arranged for face-to-face interviews to be carried out with family members. It could be argued that studies such as that undertaken by Jessor and Donovan which utilized the school survey method of research, whilst giving a degree of support to the theory that excessive drinkers are less likely to feel very close to their families and are more likely to feel loosely controlled, may not accurately reflect the true situation since the adolescents' answers could be biased. On the other hand, studies utilizing parents' own perceptions of these two

variables are less open to such criticism. The family member interviews in Barnes' research took place independently and in the family home whenever possible. Interviews were part spoken and part in the form of self-administered questionnaires when answers were sought to the more sensitive questions. The sample of 124 families was selected by random digit telephone dialling, the only constraints being that to be included in the eventual sample, the family had to have at least one adolescent between 12 and 17 years of age and at least one parent. Subsequent analysis of the 124 family structures obtained through this sampling method indicated that they were closely representative of the general population according to 1980 U.S. Census data.

The survey of the adolescents and their parents obtained extensive information on sociodemographic factors, drinking behaviors, youthful deviance, relationships between family members, and parental socialization practices of nurturance and support. This information was then used to construct five variables: alcohol consumption, alcohol-related problems, problem drinking, deviancy, and parental nurturance.

Alcohol consumption was divided into a three-point, high, medium and low scale; parental nurturance was similarly divided into a three-level scale, for each parent (mother and father) separately, in such a way that approximately one third of each group fell into each category. The scale was derived by assigning numerical values to such items as receiving praise or encouragement, relying on parents for advice or guidance, and getting hugged or kissed by each parent. The alcohol-related problem score was obtained by adding the frequency of occurrence within the past year of five specific alcohol-related problems: trouble with teachers or principal at school because of drinking, difficulties with friends because of drinking, driving after having a 'good bit' to drink, criticism by girlfriend or boyfriend because of drinking, and getting into trouble with the police because of drinking. Problem drinking was defined as having been drunk at least six times during the past year, or having experienced negative consequences two or more times in the past year in at least three of the five areas mentioned above, or both.

The deviance scale was developed and condensed based upon previous work. Adolescents were required to indicate the frequency at which they had done a series of ten problem behaviors ranging from running away from home to beating up someone on purpose during the previous

year. The items were then divided into one group of five major offenses and another group of five minor offenses. The two sets of five variables were then used to test whether heavy drinking is positively associated with alcohol-related problems and other social deviance, and whether parental socialization factors, specifically parental nurturance/support, are negatively associated with both alcohol abuse and other problem behaviors.

Using the range of variables as defined above, Barnes' study was able to arrive at a number of interesting conclusions. A significant positive relationship was discovered between adolescent drinking and the frequency of deviance for a number of individual problem behaviors, including staying out later than parents said, missing days of schools, using marijuana and running away from home. The highest and most significant correlation found was between total alcohol consumption and deviance during the previous 12 months. There were less significant correlations between both alcohol and deviance taken separately and age, alcohol-related problems and school grades. In order to investigate this particular relationship more closely, multiple regression was carried out with total deviance as the dependent variable. Total amount of alcohol consumed was shown to account for 30% of the variance of total deviance, and once this had been taken into account, age and school grades were not found to add any predictive power. A similar result was obtained using total alcohol consumed as the dependent variable; in this case, deviance was found to be the best predictor.

Given that alcohol abuse and deviance were found to be related to one another, the next step was to examine whether they both had common linkages to other background family factors. The problem-drinking variable (as discussed earlier) was cross-tabulated against parental nurturance/support, taken separately for both mother and father. Whilst there was a striking contrast between the two lower nurturance groups and the high nurturnace group with respect to both parents and adolescent problem drinking, chi-square statistics did not reach statistical significance because of the similarity of the two groups low and medium nurturance to one another. Despite this non-significance, it was concluded that the raw data lent support for the influence of high parental nurturance/support on the development of non-problematic drinking behavior. Mean deviance scores calculated within levels of each mother and father nurturance

variable gave very similar results for each parent, indicating that adolescents who have highly supportive nurturance relationships with their parents have a significantly lower prevalence of problem behaviors. Barnes therefore suggested that parental support serves as a good social control against deviance.

Levine and Kozak (1979) suggested in the conclusions of their study of students from the fifth to twelfth grade in a middle class suburb in Illinois that lack of self-control contributed to the frequency of self-reported antisocial behavior, particularly in younger students. They further argued that this lack of self-control could be in part attributed to poor parental example and influence in rule setting and behavior control. These conclusions would appear to add credence to the work of Barnes, Jessor et al., and Jessor and Donovan. However, a major methodological problem with Levine and Kozak's study was that there was no attempt made to cross-categorize students with respect to behavioral traits, and consequently cross-tabulations could not be made.

Data was obtained, once again, from self-administered questionnaires completed by a random sample of 796 students in four different schools. Responses to the questions concerning frequency of alcohol use indicated a strong correlation between age and frequency and were therefore suggestive of habit formation. The relatively high incidence of alcohol use discovered indicated that its use has become acceptable among many high school students who then serve as role models for younger children.

Responses to questions regarding parental control over the students' leisure time activities, such as how frequently they were allowed to go out with friends, who they were allowed to go out with, where they should go, and so on, indicated a negative correlation with age: the older the student, the less the control. This result on its own is not surprising, however what was perhaps a surprising finding was that there was very little control and frequently marked disinterest exhibited by parents of 5th and 6th grade students with respect to how their children should spend their leisure time. The majority of students in this age range, both male and female, consistently reported not being subject to any parental rules regarding how often they could go out with friends, where they could go, and with whom. As previously pointed out, however, these results were based solely on responses given by the students themselves and may therefore

have not been accurately reflective of the true situation. Nevertheless, the research results did imply that normative pressures ensure that younger students tend to follow the trends set by older ones.

Bell and Champion (1979), rather than investigating the relationship between alcohol use and delinquency by consideration of social control factors, concentrated their research upon the effects of parental separation or divorce upon youthful deviancy. Theirs was a comparative study carried out in Australia which was concerned with a range of drugs, including alcohol, and their use by both deviant and non-deviant groups. Comparisons were effectively made on two levels. First, frequency and quantity of use were compared between the deviant (risk) and non-deviant (general) groups; second, correlates of drug and alcohol use were sought using the general group alone, by asking them to provide self-reported data regarding their own deviancy. This method was utilized in preference to seeking correlates within the risk group since, by definition, the risk group would have the highest rates of all forms of deviance and antisocial behavior, and consequently any relationship which could be discovered within the general group would potentially be much more satisfying and conclusive.

The risk group comprised prisoners, delinquents and probationers; the general group was made up of school and technical college students and trainee nurses. When comparisons were made between the two groups, the age groups of the samples were matched by comparing the school students with the delinquents and the college students and trainee nurses with the prisoners and probationers. Data was collected via multiple choice questionnaires which were completed anonymously.

The deviants in the risk group were found to have a significantly higher prevalence of alcohol use than the members of the general group, the difference being particularly marked in the younger age groups, in which use was approximately twice as prevalent in the delinquents as in the school students.

A three-point antisocial deviance scale was then created to subdivide the members of the general group into non-deviant, moderately deviant, and highly deviant sub-groups. Deviancy was defined in terms of minor offenses such as truancy, traffic offenses, and riding in stolen

vehicles. Alcohol use was divided into a two-point scale of moderate and heavy use; heavy use involved a combination of frequency and amount of drinking. No significant relationship was found between members of this general group who were moderate alcohol users and their self-reported delinquency levels. However, among those who admitted heavy alcohol use, the relationship was strong, significant, and positive.

Parental marital status was then examined for any effect upon drinking behavior. Within the general group, no significant relationship was discovered between present marital status of parents and alcohol consumption, but the potential for discovering such a relationship was restricted by two important factors. First, the sample size of respondents whose parents were either separated or divorced was very small compared with the number of parents who were still married. Second, and perhaps more important, no differentiation was made in this part of the study between moderate and heavy alcohol use. The combining of the two types of usage into one single classification which effectively asked the question, "Have you ever used alcohol?" could have had the effect of masking any underlying trend, such as that discovered with respect to heavy drinkers and self-reported antisocial behavior in the general group.

It would have been more interesting, and perhaps more useful at this stage to have analyzed alcohol use in the deviant (risk) group with respect to parental marital status, since this group reported much greater variance in this variable than did the general group - 28% of parents either divorced or separated as opposed to 8%. Unfortunately, this was not done.

Methodological Problems

Few studies dealing with both delinquency and alcohol abuse have attempted to account for the many variables which might reasonably be expected to be influencing the determination of drinking behavior in delinquents. Perhaps this is not surprising since such an undertaking would clearly be extremely lengthy and complex. Dawkins and Dawkins (1983) and Jessor et al. (1968) are two studies which have, to some extent, succeeded in achieving this objective. However, the lack of consistent research dealing with this study area led Vingilis (1981) to conclude that "the literature on the association between delinquency and alcohol consumption

seems to be tenuous," (p. 28).

In addition, there are a number of other methodological problems frequently encountered in research literature on alcohol use and delinquency. The definitions of problem or heavy drinkers are often variable and ambiguous, making comparisons among studies and the generalization of results difficult. There is also variability in the measurement of frequency and quantity of current and past use of alcohol. When taking a straight cumulative count of the total number of times the respondent has used the substance in question (Dawkins and Dawkins, 1983; Pearce and Garrett, 1970; West and Farrington, 1977), patterns of use tend to be ignored. The former heavy user, the longstanding moderate user, and the current abuser may all produce similar totals, thus making it impossible to differentiate between individuals who no longer drink heavily and those who have just recently started to abuse alcohol. In order to define a problem drinker some studies not only take frequency of use into account but also resultant alcohol-related problems (Barnes, 1984). However, once again these measures are arbitrary and vary from study to study.

Another methodological problem is the lack of specificity of certain variables, such as the age of delinquents, which could affect the determination of drinking patterns. A statement by an eleven year old delinquent that he drank one pint of beer per week during the last year for example, is a different problem from that identified if an eighteen year old were to make the same statement. However, in a number of studies it is found to be the case that all ages, which might individually have shown great variance in drinking behavior, are collapsed into one mean score (Pearce and Garrett, 1970; Dawkins and Dawkins, 1983). The validity of using this procedure for estimating problem drinking among juveniles may result in misleading conclusions.

In addition, when sampling, two major different approaches are generally taken. In the first, researchers sample from populations defined by school or age grade level (Welte and Barnes, 1985; Jessor et al., 1968; Levine and Kozak, 1979). The second approach involves sampling teenagers from households (Barnes, 1984) or juvenile corrections institutions (Schlesinger, 1978; Dawkins and Dawkins, 1983). The comparisons of rates across studies is thus impeded. The population of 12 to 17 year olds is not, for example, the same as grade levels

five to ten. Given the strong relationship between age and substance abuse (Radosevich et al., 1979) the age grade difference between the respective populations cannot simply be dismissed. School samples also exclude school dropouts. There are some indications that school dropouts are prone to substance use (Hughs et al., 1973; Johnston, 1973) which makes the results of school-based studies ambiguous unless some attempt has been made to allow for missing data.

One of the most serious methodological flaws of many studies on juvenile delinquency and alcohol abuse is the lack of an appropriate control group. Many studies do not use control groups, and often in those which do the only factor controlled for is delinquency. Pearce and Garrett (1970), for example, used a sample from a detention home and a control group from a high school, making satisfactory comparisons between the two groups concerning drinking behavior difficult. Other factors would appear to be relevant in choosing an appropriate control: age, sex, socioeconomic status, education, race, and the interviewer and his place of interview. The differences existing between the two groups over these variables could partially account for the variations which are identified with regard to drinking behavior; the non-delinquent high school group might drink less simply because of their greater education or socioeconomic status.

Those studies which do not use a control group often analyze the drinking habits of incarcerated youth (Tinklenberg et al., 1974; Dawkins and Dawkins, 1983). In such studies, no comparisons can be made with the drinking habits of either delinquents who avoid incarceration or non-delinquents.

The advantage of longitudinal studies of the type carried out by West and Farrington (1977) is that such variables can be controlled for when analysis of the data is performed. The delinquent and non-delinquent groups in West and Farrington's study developed gradually over time from the same original sample, thereby overcoming the problems of attempting to match control to delinquent groups over a number of factors.

Of course, there is even a problem in controlling for delinquency, particularly if the term delinquency refers to the committing of a crime as in the West and Farrington study. Not all crimes are detected; undetected delinquents may therefore not be analyzed, resulting in measurement error and biased results. Moreover, whilst attempting to carry out a crime, the

likelihood of detection could well be increased if the individual concerned has been drinking. The implication is that proportionately more drinking delinquents could be detected and apprehended than non-drinking delinquents. From this point of view therefore, self-reported delinquency, as used in the majority of other studies, would appear to be a preferable measure of delinquency and deviance. The major problem with self-reported data obtained through either interviews or questionnaires, however, concerns its reliability and validity and the extent to which personal responses give a true picture of the situation. Some delinquents have undergone such extensive testing and intitutionalization that conditioning might have occurred whereby accurate answers may not be given to direct questions. In addition, questions concerning drinking behavior may well be regarded by some to be of such a personal nature as to inhibit true responses (Pearce and Garrett, 1970). One important consideration in this area, which has previously been noted, is the need to consult parents of respondents in order to obtain a clearer picture both of the adolescents and of their familial relationships, rather than merely relying upon the responses of the adolescents themselves.

A further problem is that, when studies do not involve a longitudinal aspect, care must be taken in analyzing the data. Specifically it is invalid to infer that the differences between students of different ages are developmental in nature, since in reality they are more likely to be indicative of individual personal differences than anything else. Validity of results may also be a function of sample size. Whilst a number of studies have utilized large sample sizes, a number of others have failed to do so. Jessor et al. (1968), in many ways considered a classic piece of research in its particular field, only used a sample of 93 students, for example. Whilst it is acknowledged that sample size is only one concern regarding validity of research results, nevertheless it is an important consideration.

Certain literature concerned with both delinquency and alcohol abuse concentrates largely upon alcohol-related crimes. The major problem with this literature is that the term is not necessarily descriptive of the event. On one hand a crime might be defined as being alcohol-related if the use of alcohol is part of its legal definition, for example driving whilst intoxicated and drunkenness. On the other hand, the "alcohol-related" definition might be used

simply because the use of alcohol was an accompanying feature to the commission of the crime, for example assaulting someone in a bar after having had too much to drink. The lack of consistency in the definitions is clearly apparent.

Summary and Conclusion

The research carried out to investigate the relationship between drinking and different types of crimes appeared at first sight to present conflicting findings. O'Brian, when studying delinquency in Warm Springs Indian Reservation, discovered that the majority of referrals to juvenile court for status offenses and other victimless crimes was increasing at the same time as alcohol abuse among the teenagers tended to be rising. These two characteristics of the youth led O'Brian to conclude that the strength of the relationship between victimless crimes and drinking was stronger than that between drinking and violent serious offenses. In contrast with this result, Tinklenberg et al. reported that, among male adolescents in Karl Halton School, alcohol was involved to a significantly greater extent in violent assault cases than in non-assaultive crimes.

Two possible reasons which may partially account for these contradictory findings were suggested. First, O'Brian's study relied heavily upon the inclusion of status offenders in the determination of a connection between drinking and victimless crimes whilst Tinklenberg et al. used a sample of incarcerated youth containing few if any status offenders. The absence of status offenders in the latter sample clearly prohibited the finding of any relationship between drinking and status offenses, and reduced the probability of finding a relationship between drinking and victimless crimes in general. Second, Dawkins and Dawkins' conclusion that racial factors play an important role in understanding the relationship between drinking and both minor and serious delinquent offenses provided additional information to assist in the explanation of O'Brian's and Tinklenberg et al.'s contrasting results. O'Brian's study was concerned solely with the delinquent behavior of American Indians. The tribal norms and expectations of the Indians may have exerted certain pressures upon the juveniles resulting in delinquent behavior in the form of status rather than violent or more serious offenses.

Dawkins and Dawkins' analysis of the behavior of juveniles in a public juvenile facility lent weight to the hypothesis that adolescent abuse of alcohol is related to victimless crimes. Nevertheless, their finding that the relationship between drinking and more serious crime is significant for some racial groups and not for others emphasized the needs to include other sociocultural factors when examining the extent to which alcohol abuse is linked with criminal involvement.

Schlesinger's study, which failed to discover a relationship between alcoholism and either victimless or violent crime, used a much more stringent measure of alcohol misuse. Alcoholism is not necessarily the same as drinking heavily or frequently, although of course it may be the eventual consequence of such action.

Thus, in those studies concerned with the relationship between drinking behavior and different types of crime, there were a number of different approaches taken to defining the subject population. O'Brian's sample solely included American Indians, whilst Dawkins and Dawkins collected data from various different racial groups; Schlesinger concentrated his analysis upon identified alcoholics, whilst O'Brian, Dawkins and Dawkins, and Tinklenberg et al. all attempted to define measures of heavy or frequent drinking. These variations in sample characteristics both make true comparisons between the studies difficult, and explain in part the conflicting findings.

Moreover, with the exception of O'Brian's study, the research reviewed selected samples from convicted and incarcerated youth. The results of these studies can therefore only be applied to juveniles who have been officially labeled as delinquent and placed in an institution. Many other juveniles commit crimes and avoid capture or are convicted and receive sentences other than placement in a juvenile facility. These members of the delinquent population were therefore excluded from most of the research. The use of samples of incarcerated youth is a problem which occurred throughout the literature which was reviewed. It was not simply a weakness of those studies which concentrated upon different types of crimes committed by delinquents and their drinking behavior.

The research undertaken by Pearce and Garrett together with the study undertaken by West and Farrington, both of which involved a sample of delinquent youth and a non-delinquent

control group, highlighted the problems involved in selecting a suitable comparison group in addition to some of the advantages of undertaking longitudinal research.

Pearce and Garrett's control group consisted of youth from a high school population while the delinquent group was selected from youths in custody in a detention home. The finding that a larger percentage of the delinquents drank alcoholic beverages as compared with the percentage of non-delinquents failed to take into account differences in the backgrounds of the two groups. Racial or other sociocultural factors, for example, might well have given rise to the variation in drinking habits. Moreover, the non-delinquent comparison group could possibly have contained undetected delinquents or convicted but not incarcerated offenders.

West and Farrington's longitudinal study overcame the problem of identifying a suitable control group by the natural and gradual separation of delinquents from non-delinquents over time. Nevertheless, the use of official statistics rather than self report data by the researchers ran the risk of excluding boys from the delinquent group who had committed crimes but avoided apprehension. Barnes indicated an additional advantage of longitudinal research when she found that her cross-sectional data analysis was unable to determine whether, in her discovered relationship between problem drinking and deviant behavior, problem drinking led to deviance or vice versa. This clearly is a critical problem in the analysis of the relationship between juvenile delinquency and heavy drinking, and, rather surprisingly, with the exception of Barnes' research, no other study reviewed even mentioned it. Longitudinal research, by collecting data over a long time period, provides an opportunity to compare drinking and delinquency over a number of years, and thus can potentially assist researchers in determining which occurs first, or indeed whether they both occur simultaneously.

Despite its inability to determine the direction of the relationship, the literature dealing with both delinquency and alcohol abuse was in general agreement that a relationship between the two variables existed. O'Brian, Dawkins and Dawkins and Tinklenberg et al., whilst disagreeing over the type of crime most often associated with alcohol misuse, all discovered a basic relationship between drinking and delinquency. In addition, those studies which attempted to identify common causal factors of drinking and delinquency first dicovered there to be a

relationship, prior to searching for causal links.

Relatively few studies have addressed the task of seeking common underlying causal factors for alcohol misuse and delinquency. Nevertheless those which have, appear to agree upon the importance of family relationships and the family environment upon youngsters' behavioral patterns.

Barnes, Jessor et al. and Jessor and Donovan all concluded that alcohol abuse was part of a general pattern of deviant behavior, and, as such, suggested that it could be accounted for by similar environmental factors. In particular, Jessor et al.'s study of an entire school in south west Colorado, found excessive use of alcohol to be just one aspect of general deviant behavior influenced by exposure to deviant models, limited regulation and sanction, mother-child affectional relationship and mother's alienation. However, the research failed to include in its analysis the effect of the formal school system and informal social control, in the form of peer groups, upon the youths' behavioral patterns. The later study carried out by Jessor and Donovan corrected these omissions but obtained data solely from the students themselves. The importance of obtaining data from a variety of sources was documented in the previous section concerned with methodological problems, but again serves to highlight one of the many differences that occurred in relation to the collection of data throughout the literature reviewed. Other differences included variation in sample ages and choices of populations from which to select samples, and differing definitions of dependent and independent variables.

Thus, in contrast to Jessor and Donovan, Barnes used self report data from a variety of family members to determine a significant positive relationship between the drinking habits of adolescents aged 12 to 17 years and a number of problem behaviors, including staying out later than parents said, missing days from school and running away from home. However, her analysis was unable to distinguish a significant relationship between problem drinking and lack of parental nurturance/support.

Levine and Kozak argued that the lack of self-control manifested by the students in their study, which contributed to the problem of antisocial behavior, was partly due to poor parental example and influence in rule setting and behavior control. However, no statistical analysis was

undertaken to determine if such parental inaction resulted in deviant behavior amongst adolescents. Similarly, Bell and Champion's study design reduced their ability to determine the effect of parental marital status upon alcohol consumption and deviancy in youth, although a positive relationship was discovered between deviancy and alcohol use.

Thus, while a number of studies have suggested that family variables play an important role in the development of deviant behavior among juveniles, their results have been somewhat confusing. Jessor et al. did find that imperfect family relationships contributed significantly to the development of deviant behavior, whereas Barnes failed to find significant results. In addition, Levine and Kozak's and Bell and Champion's study designs precluded such an analysis from being undertaken.

In order to arrive at a deeper understanding of the effect of family variables upon the relationship between alcohol abuse and juvenile delinquency, it is therefore appropriate to review literature concerned with family relationships and alcohol consumption, and literature concerned with family relationships and juvenile delinquency. A discussion of these two areas of literature comprises the next two sections of this review.

Section 2: Alcohol Abuse by Youth and its Relationship with Family Variables

The two most significant predictor variables in teenage drug and drinking behavior are parental influence and peer influence. Almost without exception, all research agrees that the best predictors of an adolescent's abstinence or use, his frequency or pattern of use, and his attitudes towards use, are the patterns of use and the attitudes displayed within his family and his peer group. This finding would appear to be one of the very few, if not the only, unequivocal findings from numerous teenage drug and drinking studies (Radosevich et al., 1980: 147).

Many studies have been carried out in which the relative influence of parents and peers on adolescent drinking has been contrasted. Whilst some (Biddle et al., 1980) have chosen measures for parental pressure which are not comparable with those for peer pressure, the majority have used comparable measures which, interestingly enough, have led to differing conclusions being drawn.

Thus, Jessor and Jessor (1977) found parental norms to be more influential than peer norms with respect to adolescent drinking, whilst Harford (1976) and Smart et al. (1978) both showed peer modelling to have more influence than parental modelling. These apparently conflicting results perhaps suggest that parents may have more influence through normative standards, whilst peers may be more likely to influence through behavior modelling. Biddle et al.'s study supported this theory and suggested that it reflected the different type of relationship which an adolescent has with parents and with his peers. Parents were seen to constitute the major authority figures for most adolescents and to represent the standards of the adult world.

Whilst accepting that peer influence on adolescent alcohol use is a very important variable, this literature review is mainly confined to consideration of pressures exerted on the adolescent by his family, and in particular by his parents.

Numerous studies have found parental use of alcohol to be predictive of their children's use. Conversely, Biddle et al. (1980) suggested that parents who express normative standards against drinking are less likely than those who do not to have adolescents who drink. They argued (p. 235) that the positive correlation often discovered between generations of a family in drinking behavior may occur "because parents and their children are likely to be subjected to similar demographic influences, because of weak though positive correlations between parental norms and behavior, or because parental behavior may serve to influence styles of drinking that adolescents will adopt when they become adults." The researchers therefore implied that adolescent drinking may be predicted from somewhat different factors than solely parental drinking. Taking up this point, whilst recognizing that the literature has frequently found a relationship between parental and adolescent alcohol abuse, the major focus of attention of the remainder of this review will be upon the predictive power of other familial factors.

Internal Family Relationships

One particular factor which has been found to be related to the existence and pattern of adolescent alcohol abuse is the quality of internal family relationships (Gantman, 1978; Babst et al., 1978; Bloom and Greenwald, 1984; Globetti, 1972; Reeves, 1984; and Wechsler and Thum,

1973). The samples used, the method of obtaining data, and the definition of the variables have, not surprisingly, varied between the particular studies.

Gantman's study was conducted at a mental health/mental retardation center servicing a suburban township area in Pennsylvania. Thirty families were selected on the criteria that they had to be intact and have children between the ages of 14 to 18. This sample produced ten families with drug (including alcohol) abusing adolescents, ten with emotionally disturbed adolescents, and ten with normal adolescents. The ten families with the drug abusing children were selected from families applying for treatment at the local outpatient drug and alcohol clinic.

Abuse was defined as the individual level of substance use which inhibited the adolescents from coping with the demands of their daily routines. The adolescents used in the study were mostly poly-drug users, utilizing a variety of drugs including cocaine, alcohol, amphetamines, barbiturates and LSD. The level of use exceeded two times per week and resulted in the adolescents being unable to assume the responsibilities assigned to them by either their schools, families or friends. The adolescents were not, however, psychologically addicted, nor was the administration of the drugs by injection. The determination regarding drug abuse was made by the referral source, either their family, a school official, the police, or the court system. The parents of the adolescents were not in treatment at the time of contact with the treatment facility.

In order to be included in the normal control group, an adolescent had to be free from any overt signs of psychopathy and to have had no referral for treatment since he was twelve years old. In addition, he had to be free from drug abuse. In other words, use of alcohol or marijuana was limited to no more than two occasions per week. This level of use was the level which the drug and alcohol specialists at the clinic believed would not interfere with the adolescents' abilities to cope with the demands of their daily routines. The families in this control group were selected from volunteers from the local community schools.

Information for the study was obtained through a one hour interview with the father, mother and the adolescent together. The interview was carried out in a large room equipped with a one-way mirror and a sound system. All family members were informed of this and were made aware of the fact that they were being observed. During the hour interview the families were

instructed to work together as a family unit on four assigned verbal tests. Observers of the interviews rated and recorded the verbal behavior of each family without prior knowledge of which children were drug abusers and which were members of the control group.

Normal families were found to differ significantly from the families with a drug/alcohol abusing adolescent in many forms of interaction, including freedom of expression, co-operation, clarity of communication, teaching techniques, and making the adolescent the scapegoat for problems. From this result, one of the conclusions of the study was that the family was the medium through which adolescent problems emerge. The power and potential of family influence were further underlined, it was argued, by the finding that the families with the normal adolescents interacted in a pattern clearly distinguishable from the families with the drug abusing adolescents.

Gantman's study was unusual in its use of observation of family interactions as a means of data collection. The advantages of interviewing a variety of family members in order to obtain a clear picture of the true family situation have been mentioned previously in this review, as have been the disadvantages of relying solely on the adolescents' responses to either interviews or questionnaires. Nevertheless, it is fair to say that the majority of research studies undertaken concerning family factors and alcohol or drug abuse still do rely on this latter technique. Indeed all of the following studies which are to be reviewed obtained their data solely from the adolescents themselves.

The research conducted by Babst et al. (1978) was based on a sample of 8,553 students from 102 public schools in New York State. A survey was administered by the participating schools during the 1974/1975 school year among seventh through twelfth grade students, using guidelines provided by the New York State Office of Drug Abuse Services. The questionnaire was divided into several major sections: demographic and background items, attitudes towards and knowledge of prevention programs, risk taking, family affinity, and peer drug and alcohol intake. Six items which appeared in the questionnaire were used in calculating a family affinity index. It was found that in general the majority of students expressed positive feelings towards their families. However, as they grew older, the adolescents became more independent, felt less

affinity with their parents, and at the same time substance abuse increased. The conclusion was therefore made that as family affinity decreases, substance abuse increases. Clearly the comparisons were slightly suspect as the study was dealing with different children at different ages, but nevertheless it was believed that a definite pattern of affinity and use had emerged.

Bloom and Greenwald (1984) were primarily concerned with describing alcohol use by early adolescents, 10 to 13 year olds, and by exploring the relationship between this usage and attitudes towards and knowledge about the effects of alcohol. One of their results, the finding that drinking took place within the family context, led to the tentative conclusion that parental relationships with the child from birth to middle childhood are some of the most significant factors in determining a child's drinking behavior.

Bloom and Greenwald used a sample intermediate in size between that of Babst et al. and Gantman, utilizing 600 children in the fifth to seventh grades of four schools in Pennsylvania. The schools were in city and suburban locations and the children were mainly from low middle and middle class white families. The mean age of the sample was 11 years. Data were obtained from a self-administered questionnaire completed in class. Anonymity was maintained and confidentiality was enhanced by asking teachers to leave the classroom during questionnaire completion. The questionnaire included 71 items measuring self-reported demographic information, drinking behavior, attitudes concerning drinking, and factual knowledge of the effects of alcohol use. A model adapted from Jessor et al. (1968) was used to develop a scale of early adolescent drinking classifications. However, since the number of drinkers was limited, rather than subdividing into the more usual light, moderate, and heavy drinking categories, a scale involving regular drinkers, experimental drinkers and non-drinkers was designed.

Categories were defined by a combination of frequency and intensity of drinking, although a non-drinker was defined as an individual who had never consumed alcoholic beverages. A drinking attitude scale was developed by asking respondents to choose one of four possible responses - definitely true, probably true, probably false, and definitely false - to attitudinal statements such as "Drinking alcohol makes you look cool". Responses which were the most anti-drinking were rated as 4; those which were the most pro-drinking were rated as 1. The

alcohol knowledge scale was constructed by seeking a number of true/false responses to questions regarding the effect of alcohol use on the body. The scale was scored on the percentage of correct answers.

Contrary to the findings of the study by Babst et al., no significant variance was found on drinking behavior with age. In addition, there was no variation with regard to sex or ethnicity. These findings allowed the research results to be described in terms of the entire sample. A chi-square analysis was performed on drinking behavior with respect to attitudes and knowledge concerning alcohol by combining the regular drinkers with the experimental drinkers in order to produce a simple dichotomous variable of drinkers and non-drinkers. Non-drinkers were found both to have more knowledge about the effects of drinking and to have more anti-drinking attitudes than drinkers. This finding, together with that concerning the influence of parents upon the drinking development of adolescents, were the two most important conclusions of the study.

The study performed by Globetti (1972) focused upon the drinking practices of a sample of high school students in two relatively small Mississippi communities. The sample included 639 students drawn randomly from grades 9 to 12. The respondents were interviewed in a large conference room in groups of twenty five. They were not permitted to discuss amongst themselves and complete anonymity was assured. On the basis of the interviews, it was considered that the students were being truthful in their answering of the questions. Using an interviewing technique rather than a questionnaire has the advantage of obtaining information through interaction with the subjects; questionnaires allow no contact with the respondents and also to some extent limit the type of answers which subjects are allowed to give. On the other hand, it could well be argued that on such a sensitive topic as adolescent drinking, respondents will be inhibited in their answers when face to face with an adult.

Problem drinkers in Globetti's study were categorized by asking the adolescents a series of questions which, in previous research, had been identified as being warning signs of approaching alcohol abuse. Examples included questions regarding the individual's increased consumption of alcohol and their worry or concern about their drinking habits. Rather than asking the questions directly, five items were developed to measure responses to them, and

responses were subsequently combined to create a problem drinking index by use of a previously validated scaling technique. These items were: "Do you ever drink in cars or alleys?", "Do you sometimes drink alone?", "Do you usually drink in order to get high or drunk?", "Do you drink whenever you get the chance?", and "Do you ever worry about your drinking?" Three classifications of users were developed: students who replied that they did not drink were classified as non-users, those who were assigned scale scores of either 0 or 1 as non-problem users, and those who were assigned scale scores of between 2 and 5 as problem users.

It was discovered that the students who drank usually did so under surreptitious conditions and tended to be at variance with family norms. Factors of socioeconomic status and racial affiliation were found to have little influence on problem use of alcohol. Problem users were found to be predominantly males over the age of 16 who drank without parental approval or supervision. They had generally been introduced to alcohol outside the home environment, and they usually drank in uncontrolled situations. It was therefore suggested that problem users appeared to be circumventing the social control mechanisms of significant primary groups including the home and family.

In addition, Globetti concluded that the needs of the alcohol users were not being met by their families who, in general, lacked adjustment to those needs. A parent-child relationship scale, previously developed by Dynes in 1956, was employed to discover the situation in the homes of users and non-users. Answers to such questions as "How frequently have you felt that you were unwanted by your mother or father?", and "How close are you to your parents?", were classified as either favorable or unfavorable. It was discovered that as parent-child relationships improved from poor to good, the percentage of problem users decreased. In general, Globetti's study found problem alcohol users to be problem teenagers. Misuse of alcohol was seen to be a symptom of a more basic problem which, in order to be overcome would need changes in the socialization process. It was predicted that the young problem drinkers in the study would continue to experience difficulties in their personal and social lives unless some form of intervention occurred. The findings thus re-affirmed the important role of the family in the control of alcohol use by adolescents.

Similar to Babst et al. and contrary to Bloom and Greenwald, Globetti found that misuse of alcohol was a function of age, primarily in children over sixteen years of age. One suggested reason for this was that, as an individual approaches adult age he needs to test the adult world in order to assert his independence, and at the same time he is less likely to show strong attachment to the family. Using this argument, it was further proposed that problem alcohol use would actually decrease with maturity. Nevertheless, it was also possible that some of the young problem drinkers were beginning what would eventually become an adult problem.

Reeves (1984), in his study of alcohol use by adolescents, was concerned with the effects of parental power on teenage drinking. Parental power, defined as the ability of a parent to control the adolescent's behavior, was studied together with adolescent drinking patterns to test the hypothesis that the greater the parental power, the greater the likelihood of adolescents not becoming problem drinkers. The sample for the study was a group of 191 eighteen and nineteen year old college freshmen who were asked to complete a self-administered questionnaire concerned with their drinking habits and their perceptions of their parents' parental power over them. Each variable was trichotomized into low, medium and high levels. Chi-square tests of significance indicated that there was a significant relationship between mothers' power and adolescents' drinking habits, but that there was no significant relationship between those habits and fathers' power. The lack of significance between fathers' power and adolescents' drinking was unexpected and in response to this, it was suggested that perhaps a larger sample would have yielded a significant relationship.

Wechsler and Thum (1973) took their sample from two cities in East Massachusetts. "A" was a small semi-industrial city with a predominantly lower-middle and middle class population; "B" was a middle and upper-middle class residential town community. Students in junior and senior schools were sampled including 1,300 city A students in grades 7 to 12 and 700 town B students in grades 6 to 12. Anonymous questionnaires were used and were designed to provide self-reported data on personal use of alcohol and illicit drugs, personal and social characteristics, and perceptions of the extent of drinking amongst friends. The sample was divided into two groups according to their reported use of alcohol during the year preceding the study. Abstainers

and light drinkers consisted of students who reported that they had not drunk beer, wine or hard liquor during the year, and drunk wine or beer only, and those who reported using distilled spirits on one or more occasions during the year but had not been drunk on any alcoholic beverages during that same period. Heavy drinkers consisted of students who regularly drank distilled spirits, and those who reported having been drunk during the past year on either beer, wine or distilled spirits. Chi-square comparisons were made to evaluate differences between the two groups, and tests of significance were carried out separately on the junior and senior high school students in each community.

In both communities, senior high school students were about twice as likely as the younger students to report relatively heavy alcohol use. Additionally, compared to students who used alcohol moderately, if at all, heavy drinkers were less likely to feel very close to their families. It was thus concluded that teenagers who drink fairly heavily tend to be alienated from their parents. The actual direction of this discovered relationship, however, was not at all clear. It is certainly conceivable that teenagers who drink fairly heavily, through their drinking problems become alienated from their parents, but it is equally possible that teenagers who initially are not close to their parents express this alienation in the form of heavy drinking. The data presented by Weschler and Thum precludes the formulation of a solution to this dilemma. One major advantage of a longitudinal study in this situation would be to provide information concerning the drinking patterns of teenagers and family relationships at various points in time, thus enabling a determination to be made of whether problem drinking or alienation occurs first, or indeed whether they both occur simultaneously.

All of the above studies found that the types of family relationships which existed in various different samples of teenagers homes had a significant association with adolescents' drinking behavior, although each study tended to emphasize slightly different aspects of family life. Gantman was concerned with the interaction between family members; Globetti more with parental control, as was Reeves. Babst et al. examined family affinity, whilst Bloom and Greenwald found that parents played an integral part in the development of the drinking behavior of teenagers, although the exact role which they played was not clearly defined.

Family Characteristics

In addition to studying the impact of family relationships upon adolescent drinking habits, Wechsler and Thum also discovered that alcohol use by adolescents tends to be associated with certain family characteristics. Students with only one parent present in the home were found to be somewhat more likely than those living with both parents to report that they had regularly used distilled spirits or had been drunk. Heavy drinking also tended to be reported more frequently by only children. No systematic differences were found according to the student's birthplace, family birth order, father's occupation, or whether or not their mother was employed.

A recent study carried out by Amoeteng and Barr (1986) utilized a comparable sample size and examined similar family characteristics to those considered by Wechsler and Thum, but found slightly different results. Seventeen thousand high school seniors were selected from 125 public and private schools in such a way as to provide an accurate cross-section of high school seniors in the USA. Data was collected from a questionnaire completed by the children in class.

Three family variables were used in the study: employment status of mother, single parent family, and parental education. Employment status of mother was included since it was considered that an important social change which has occurred during the past two decades has been an increase in the employment of married mothers. The suggestion was that, if a mother works, the child might not be supervised as closely as when one parent is at home, and this could increase the chance of involvement in deviant behavior including alcohol use. To assess this variable, responses were sought to the question, "Did your mother have a paid job (half-time or more) during the time you were growing up?" Family fragmentation in the form of physical loss or separation of parents had previously been noted in the family backgrounds of adolescent drug and alcohol users in earlier research, and it was felt that there might be a significant relationship to be discovered relating this family characteristic to teenage drinking. The single parent variable was a simple dichotomous variable based upon whether or not an adolescent lived with both of his or her parents. Parental education was included as the third family variable since the social class of parents, especially the father, had been previously cited as a correlate of drug use and other delinquent acts. Additionally, it was believed that parental education affects parent-child

interactions and might therefore have an influence upon adolescent alcohol use. The theory was that if the parents have education and status, the costs of deviant behavior are potentially greater for the child, and this situation may consequently deter them from participating in deviant acts. Again, a rather simplistic, but nevertheless reasonable measure of this variable was obtained by adding together the years of schooling of both father and mother.

Alcohol use was calculated by relating current use to frequency of use and by combining frequency and amount. The frequency of use variable had a range of seven possible responses; the frequency/amount variable had a range of three possible responses which reflected low frequency/low amount persons, low frequency/high amount and high frequency/low amount persons, and high frequency/high amount persons. Multiple regression analysis was used to estimate the effects of each independent variable upon alcohol use without the influence of the other variables. Perhaps surprisingly, the effects of mother's employment status, the number of parents at home, and parental education were all found to be small and not statistically significant.

This result was comparable with the conclusions drawn in an earlier study by Kane and Patterson (1972) following their examination of the drinking habits of high school and junior school students in seven northern Kentucky towns. In this study, in which heavy drinkers were defined as being students who reported drinking alcoholic beverages several times per week, the parental situation, in the sense both of the number of parents at home and the father's and mother's occupations, amongst heavy drinkers closely resembled that amongst non-drinkers.

Methodological Problems

The methodological problems encountered in the literature dealing with alcohol use by adolescents and their family environments are very similar to those described previously in the review of literature relating alcohol abuse and juvenile delinquency. In addition, although many studies stress the importance of family relationships in the healthy development of teenagers, particularly with regard to their drinking habits, they fail to define correlations in a systematic manner. Moreover, the theory behind the association between adolescent drinking and family factors is in general either not mentioned, or discussed only briefly and in an unclear way.

Summary and Conclusion

Whilst accepting the important role that peer pressure and parental drinking habits and attitudes have upon an adolescent's drinking behavior, the preceding literature review directed attention towards the contribution which family relationships and family characteristics make towards whether or not a teenager abuses alcohol.

Those studies which concentrated their efforts upon examining the association between the types of family relationships which exist in teenagers' homes and adolescent drinking patterns not only tended to stress different aspects of family life but they also differed in their definitions of alcohol misuse and methods of collecting data. Direct comparisons between studies were therefore difficult.

Thus, although Babst et al., Bloom and Greenwald, Reeves and Wechsler and Thum all collected their data from school students via a questionnaire, Bloom and Greenwald, Wechsler and Thum and Reeves designed drinking scales in order to classify the drinking behavior of their subjects, whereas Babst et al. attempted to determine under what conditions alcohol consumption increased, rather than defining certain levels of drinking as being either problem or non-problem. Moreover, drinking behavior was trichotomized into regular, experimental and non-drinkers by Bloom and Greenwald, high, medium and low by Reeves, and was simply dichotomized into heavy and light drinkers by Wechsler and Thum. The exact amount of alcohol which it was necessary for a subject to consume in order to be included in a problem drinking category therefore tended to vary from study to study.

Globetti, rather than using a questionnaire, collected information from his subjects through interviews. It was felt that interaction with the students in an informal atmosphere would both increase their understanding of the questions and at the same time elicit better responses. However, young people tend to regard their drinking behavior as a personal issue, and consequently Globetti's adult interviewers, who may have represented figures of authority to their adolescent subjects, could well have run the risk of inhibiting honest answers. Gantman's study attempted to overcome some of the problems involved in obtaining data via a questionnaire or an interview solely directed at the adolescent by undertaking observations of family

interactions. The mother, father and adolescent were all interviewed simultaneously and their behavior towards each other noted.

The results of the various studies reviewed provided slightly different information concerning which particular aspects of family life influence an adolescent's drinking behavior. Nevertheless, they were all basically in agreement that family relationships have a significant association with juvenile drinking patterns.

Babst et al. discovered that, as family affinity decreases, substance abuse increases. Bloom and Greenwald concluded that parental relationships with a child from birth to middle childhood cannot be ignored when attempting to determine the reasons for a child's problem drinking. Both Globetti and Reeves emphasized the importance of the family as a social control mechanism in the prevention of deviant drinking. Wechsler and Thum concluded that students who use alcohol moderately are less likely than heavy drinkers to feel very close to the family.

Once again, in all of the above studies the direction of the relationship remained undetermined. It is arguably equally possible for problem drinking by teenagers to lead to poor family relationships as it is for poor family relationships to result in adolescents drinking.

Each of the studies used cross-sectional data, thus prohibiting any analysis of the same students over time. Babst et al. did suggest that as the students grew older they became more independent and less close to their families, resulting in their experimentation with alcohol. However, since the study relied upon data obtained from different children at different ages, rather than from the same children at different ages, this conclusion clearly cannot be relied upon.

Wechsler and Thum and Amoeteng and Barr both examined similar family characteristics of high school students using data collected via questionnaires, but obtained slightly different results. Wechsler and Thum reported that students with only one parent present in the home were more likely than those living with both parents to have been drunk or to regularly have used distilled spirits. They additionally found only children to exhibit drinking problems more frequently than those with siblings. Amoeteng and Barr, on the other hand, discovered that the number of parents in the home did not have a significant effect upon the juvenile's drinking behavior. This result supported the earlier work of Kane and Patterson who concluded that the

number of parents in the home appeared to be the same both for heavy and for light drinkers. The major area of disagreement between the various studies reviewed thus appeared to concern the significance of broken homes as a contributory factor in the development of problem drinking among adolescents.

Studies examining the relationship between alcohol abuse and delinquency and those concerned with alcohol abuse by adolescents both tend to indicate that alcohol abuse is part of a general deviant pattern of behavior. It would thus appear possible that the same pattern of family relationships and characteristics which tend to be indicators of the potential for problem drinking amongst adolescents could be predictors of the onset of other general forms of delinquent behavior. Consequently, a study of family interactions and their effects upon the development of general deviance amongst adolescents may help to provide greater insight into the role of the family in teenage drinking.

Section 3: Juvenile Delinquency and its Relationship with Family Variables

Broken Homes

Analysis of the literature concerning the possible causal factors of alcohol abuse among juveniles yielded the tentative suggestion that broken homes could be predictors of excessive drinking by adolescents. However, very few studies actually proposed that such a relationship existed, and those that did produced contradictory results. Research dealing with the relationship between broken homes and juvenile delinquency has been undertaken more frequently, and the literature is consequently considerably more extensive. Nevertheless, in a similar way the results of these various studies have not always been in complete agreement with one another.

Historically, the relationship between broken homes and juvenile delinquency was widely accepted from the beginning of the twentieth century until 1932, after which it was rejected for a period of time. The lack of support for the existence of a relationship, which commenced in the 1930s can amost exclusively be attributed to the results of a classic piece of research carried out by Shaw and McKay in 1932. Their study questioned the significance of the apparent differences in the proportion of broken homes in the backgrounds of delinquents and

non-delinquents. By controlling for age and ethnicity, they were able to find the differences between the two groups to be non-significant. They concluded that, although the family might well be an influential factor with respect to juvenile delinquency, influence must be sought "in the more subtle aspects of family relationships rather than in the formal break in the family organization." (p. 524).

Although Shaw and McKay's study attempted to correct certain methodological deficiencies of previous studies, it too was criticized for a number of flaws in its design, including the use of a control group which contained delinquents as well as non-delinquents and the use of a delinquent sample which only contained serious gang offenders. Nevertheless, these methodological criticisms did not prevent widespread acceptance of the study and the resultant temporary rejection of the importance of the broken home factor as a predictor of juvenile delinquency.

During the past few decades however, there has been a revival of interest in the "broken homes" theory. Both Wilkinson (1975) and Wells and Rankin (1986) suggest that the variation in the amount of interest taken in the theory could be due to a number of considerations and not simply the direct result of scientific evidence providing apparently conclusive grounds for either accepting or rejecting broken homes as a predictive factor. According to this argument, changing cultural conditions and ideologies have been seen to have had a significant impact upon theorists' choices of important variables in their attempts to explain the causes of delinquency.

The renewed attention given to the "broken homes" theory occurred at a time when there were demographic shifts in the structure of the family away from its traditional form, together with an increase in officially recorded rates of both crime and delinquency. In addition, at the same time there occurred an ideological shift towards more conservative values which re-emphasized the importance of the nuclear family both as a basic element of social order and as a policy focus for handling social problems. Competing theoretical perspectives appeared to be failing to provide an adequate explanation of the causes of delinquency, while social control theory, first expounded by Hirschi in 1969, was beginning to emerge together with its emphasis on the importance of the family structure (Wells and Rankin, 1986).

The result of the various historical developments is that today, in contrast with the widespread acceptance of the broken homes factor as a major cause of delinquency which was held in the early part of the twentieth century, there is considerable controversy over its relative importance. Thus, whilst Monahan considers it to be a strong factor (Monahan, 1957), Carter (1982), Hennessey et al. (1978), Rosen (1969) and Rosen and Nielson (1982) all disagree. Even when significant relationships have been found between broken homes and delinquency, the sizes of the correlations have tended to be small (Rankin, 1983). In reviewing and re-analyzing data from fifteen studies in this area, Rosen and Nielson found that

> "despite the variation in time, locale, sample size, nature of popoulation, definitions of both delinquency and broken home, and in basic research design, the conclusion is clear: the strength of the relationship is very small (even though in nine studies a significant level of at least 0.05 was reached)." (p. 128).

In order to achieve a deeper understanding of the relationship between broken homes and juvenile delinquency, if indeed one exists, certain studies have analyzed the effects of a broken home on delinquency with regard to age and sex of juveniles.

Toby (1957) found a higher relationship between the two variables amongst younger adolescents. His argument was that parental controls are slowly taken over by peer pressures and influences as an adolescent grows older. The younger adolescent, who is therefore more subject to parental influence and control, would thus be more affected by a broken home (Rankin, 1983).

Chilton and Markle (1972) also found a slightly higher proportion of broken homes among delinquents aged 10 to 13 years than among those aged from 14 to 17. Conversely, West and Farrington (1973) found no significant differences in the incidence of broken homes among delinquents by age.

Of the studies which have investigated the effect of broken homes on officially recorded delinquency with regard to the adolescent's sex, Datesman and Scarpitti (1975) and Chilton and Markle (1972) both found significantly higher proportions of broken homes among delinquent girls than among delinquent boys. However, the study carried out earlier by Weeks and Smith

(1939), who argued that the sex differential in the relationship between broken homes and delinquency based upon official statistics was merely a reflection of the differing types of delinquency for which boys and girls are referred to juvenile court, casts doubt upon the validity of these results. Since broken homes were a direct cause of delinquency in the form of family offenses including running away from home and ungovernability, for which traditionally a greater proportion of girls have been referred to court than boys, then Weeks and Smith argued that official statistics would appear to indicate that girls from broken homes would be more predisposed to becoming delinquent than would boys. If this argument is to be persuasive, then any difference in the significance of the relationship with respect to gender would be expected to disappear if self-reported delinquency measures were used. Using this approach, Carter (1982) indeed found that, using self-reported data, the impact of broken homes upon delinquency was similar for boys and girls.

It is useful at this stage to consider in rather more detail the methodological variations and the differing conclusions of a number of these studies concerning delinquency and broken homes and the age and sex of the respondent adolescents.

West and Farrington's longitudinal study of delinquency, in which they considered the association between drinking and delinquency, also included an analysis of the relationship between broken homes and delinquency. The study, which has previously been described in detail in Section 1 of this literature review, was based upon a sample of 411 boys who lived in a working class area of London. One of the advantages of collecting data regarding the boys over a number of years was that the relationship between broken homes and official delinquency could be studied at different ages.

It was discovered that there was no evidence that homes broken at an early age were any more closely associated with future delinquency than were those broken in later years. Moreover, broken homes did not occur very frequently in the survey sample, and they were only significantly associated with delinquency when they were due to either parental divorce or separation rather than due to death. Nevertheless, West and Farrington were able to discover that, when all permanent breaks from a natural parent up to a boy's fifteenth birthday were

considered, and using as delinquents all of those boys who had been convicted of any offense committed before their twenty fifth birthday, compared with the remainder of the sample the delinquents included proportionately more than twice as many boys from homes broken by circumstances other than death.

One of the conclusions of the study was therefore that, since broken homes due to death were not significantly related to delinquency, family discord was the main reason for the link between broken homes and delinquency.

Rankin (1983) analyzed the 1967 and 1972 National Surveys of Youth, which in 1967 had asked a sample of children aged 13 to 16 years, and in 1972 asked a sample of children aged from 11 to 18 years, to respond to the same questions regarding a number of items including sex, age and various types of juvenile misconduct. Although it was hoped to be able to investigate the relationship between race and delinquency by utilizing this data, only four black runaways from intact homes and seven from broken homes were found in the combined data from both surveys, too few for any valid study to be carried out.

A total of 2,242 respondents were interviewed during the two survey years, and although the 1972 sampling procedure differed from that used in 1967, the two samples were considered to be comparable and to be representative of the national youth population. Interviewers asked the children in both samples a number of questions relating to juvenile misconduct including such items as how many times during the past three years they had run away from home, or hurt or injured someone on purpose. The respondents were dichotomized into delinquent if they reported at least one incident and non-delinquent if no incidents were reported. Measurement of the family context of children was carried out by first asking them who they were living with at that time. Children who were living with both biological parents were classified as living in an intact home; those not living with both biological parents were classified as living in a broken home. Further questions were then asked to construct a more comprehensive picture of family context. By incorporating responses about the children's mothers, fathers and step parents into one single measure, nine theoretically possible combinations of family context emerged. Children were also asked the reason why they were not living with either their father or mother.

Possible responses included death, divorce or separation. Other responses, such as those from children who stated that they were illegitimate or that their parents had been institutionalized contained too few cases for analytical purposes.

No research prior to Rankin's had attempted to compare the effects of the absence of either mother or father, nor had there been any previous research controlling for such variables as the addition of a step parent into a previously broken home. In these two respects, therefore, Rankin's study was genuinely unique.

Clearly, one major problem in the analysis was the ordering of delinquency and broken homes, since the questions referring to with whom the children were living were concerned with the present, whilst those questions regarding delinquency were concerned with a time period including the three previous years. In order to attempt to avoid this problem, examination of the data revealed that 73% of the currently broken homes reported in the surveys had in fact been broken prior to the three year response period for delinquent acts. Rather than exclude the other 27% of cases, a decision was made to include them in the analysis whilst recognizing that the temporal ordering was questionable.

Another threat to the validity of results of the analysis was that it was possible that the five year time period between the two surveys had in itself introduced differences in the relationship between juvenile misconduct and broken homes. One suggestion was that, regardless of the family context, a greater concern over being drafted into the Vietnam War may have caused an increase in the number of runaways between 1967 and 1972. Interestingly enough, through careful examination of the data, Rankin was able to satisfy himself that there were no time period effects.

Whilst the results of Rankin's analysis indicated a significant relationship between broken homes and delinquency, the size of the correlation was small when broken homes were analyzed on a global scale. However, further analysis indicated that three types of juvenile misconduct, running away from home, truancy, and auto theft were strongly related to a broken home in which both biological parents were missing. The implication was thus that broken homes may be differentially related to specific types of deviant behavior, and that the relationship may be even

stronger when the types of broken home are defined more explicitly. Neither age nor sex, despite both being related to an adolescent's decision to run away from home, were found to differentially affect the relationship between family context and running away. In addition, no clear patterns emerged regarding which specific reason for parental absence had the greatest effect upon delinquency. Whilst a greater proportion of the sample were found to have run away from homes in which the mother had died, when examining those instances in which the father was missing, the greatest proportion was found to have run away from homes in which the father's absence was caused by either divorce or separation.

Two earlier studies, by Chilton and Markle (1972) and Datesman and Scarpitti (1975) disagree with a number of the findings of Rankin's 1983 study. Chilton and Markle obtained data from the Juvenile County Courts of Florida on a form developed by the United States Children's Bureau. One copy of the form was to be submitted for each child referred to court during the first four months of 1969. In the event, 52 of the State's 67 juvenile courts, representing those counties which contained 96% of the State's population, submitted the forms. Of the total of 8,944 children concerning whom the forms were submitted, information on the living situation of 5,376, or 60%, of the children was also provided. This proportion was constant for both sexes and major age categories, and fairly constant for races. A broken home was defined as one in which either one or both of the parents were missing. Unlike the study carried out by Rankin, however, no account was taken of the reason for absence. Similarly, a broken home in Datesman and Scarpitti's analysis referred to a family situation other than a husband and wife family, whilst an intact home was operationally defined as one in which both biological parents were present. Datesman and Scarpitti did, however, classify absence by separation, divorce or death.

Chilton and Markle's definition of delinquents included those children in their sample who had been charged with offenses in Florida which would be crimes if committed by adults, and those children charged with offenses which referred to juveniles alone. The information obtained from the sample was then compared to a control group of children obtained through census information for the entire US population in 1968. A comparison by age group of the living

arrangements of children charged with delinquent offenses and those in the general population suggested that the proportion of younger children, those in the 10 to 13 age range, charged with delinquency who were not living with both parents was much larger than the comparable proportion of children in the general population. In addition, the comparison for 14 to 17 year olds showed that the difference between the juvenile court population and the general population was not so great for this older age group, although it was accepted that the interpretation of this subclassification by age was complicated by the fact that most seventeen year olds in Florida are referred to adult courts. When the children charged with delinquency were subclassified by sex, it was discovered that the family situation was less important among boys than among girls in generating serious (adult) offenses.

Datesman and Scarpitti (1975) derived their data from court records and from questionnaires administered to 1,103 juveniles appearing before the family Court in New Castle County, Delaware from July 1st 1968 to January 31st 1969 who agreed to participate in the study. The marital status of parents was found to be weakly related to the adolescent's sex when the type of offense was not controlled for, such that female delinquents tended to come from broken homes more frequently than did male delinquents. However, controlling for type of offense revealed a much stronger relationship between marital status of parents and sex of adolescents for public policy offenses, but revealed no relationship for person and property offenses. In other words, females referred to court for public policy offences were more likely to come from broken homes than were their male counterparts.

Ungovernability and running away accounted for approximately two thirds of the public policy offenses with which females in the sample were charged, as compared with only slightly more than one quarter of the public policy charges for the males. The data indicated that males who were charged with ungovernability and running away were about as likely to live in incomplete families as were males offending against persons or property. In contrast, females referred to juvenile court for ungovernability and running away were more likely to come from broken homes than were females charged with other delinquent offenses.

Datesman and Scarpitti suggested that the finding that females charged with ungovernability and running away tended to come from broken homes could be interpreted in two ways, both of which they considered valid. Running away from home and ungovernability are primarily reactions to an unstable home environment. One argument was thus that the data was generally consistent with the idea that the effects of family disruption are more felt by female adolescents than by male adolescents, since males tend to experience less supervision and management by parents. The other argument was that the focal concerns of female adolescents are more closely linked to the family situation than are those of male adolescents, and consequently this predisposes females rather than males to run away from home during times of family crises.

The results obtained by both Chilton and Markle and Datesman and Scarpitti indicating a greater impact of broken homes upon female delinquents as compared with male delinquents were contradicted by the findings of research carried out by Carter (1982), who found broken homes to have a comparable effect upon self-reported delinquency in both females and males. In fact, if anything Carter's research indicated a greater impact upon males, at least with regard to the status offenses of runaways and truancy, thus completely contradicting the findings of Datesman and Scarpitti. In defense of his finding, Carter proposed that status offenses comprise those behaviors which reflect lack of parental supervision or control most clearly. Thus, broken homes which inevitably lead to reduced parental supervision can be expected to increase involvement in delinquency, particularly among males.

Carter used the first five annual interviews with the sample of 1,725 adolescents, aged from 11 to 17, who had been interviewed as part of the National Youth Survey, a longitudinal study of delinquent behavior, for his data. The interviews, which were one hour long and were performed by trained interviewers in a private setting, obtained information regarding respondents' attitudes, values, general behavior, and delinquent and drug-taking activities during the previous year. Each respondent was paid $5 for his or her participation. A measure of self-reported delinquency was developed containing 47 items which spanned a wide range of deviant behavior ranging from socially disapproved but not illegal acts through to felony

offenses. Those respondents who listed only the natural mother and father as living in the home were classified as being from intact homes; all other family compositions were classified as broken homes.

All four of the above studies suggested that there was some relationship between broken homes and delinquency, but each one varied in its interpretation of the significance of the relationship and the extent to which age and sex of the adolescent increased or reduced the strength of the relationship. In addition, it was clear from the analysis of all four articles that the type of delinquency which might result from a broken home was an important factor which should be taken into consideration when the effect of a broken home on adolescent behavior was being studied.

Rankin (1983) went so far as to suggest that the quality of the relationships is not necessarily good in intact homes, nor poor in broken homes. He intimated that homes which are intact but in a state of marital conflict may be more harmful to a child than homes in which parental relationships are completely severed; separation or divorce could possibly restore peace and end parental conflict in some homes. Thus, although broken homes were found to be significantly related to specific types of delinquency in some studies, the question of whether or not this relationship resulted from the quality of the parent-child relationship was not addressed.

Relationships within the Family

Even when juveniles from single parent families have been found to be more likely to be involved in delinquency than juveniles from intact homes, a number of studies have considered various other family attributes to account for the apparent association between broken homes and delinquency. Jensen and Rojek (1980), for example, suggest family characteristics such as social class, family size, material deprivation, and family relationships to be alternative or related explanations for delinquency; Thornton et al. (1982) proposed that conflict in the family, parental affection, parental social control, maternal employment, and the quality of parent-child relationships may also impinge on family socialization in a manner which is significant for illegal antisocial behavior.

Farnworth (1984) in her analysis of 99 black fifteen year olds (59 males and 40 females) obtained results which appeared to support the hypothesis that it is the relationships within the family unit, rather than the structure of the family itself, resulting from family disorganization in single parent families that tend to lead to delinquency. The data used by Farnworth was collected as part of the Ypsilanti Perry Preschool Project, a longitudinal study carried out in Michigan which was commenced in 1962 using an original sample size of 123 black children and their families.

The data was collected when the children were aged 15, and the sample included those who responded to interview items regarding illegal behaviors they had committed prior to reaching that age. It was felt that the virtually equal distribution of the sample into children from broken homes and from intact homes offered a unique opportunity to assess the impact of a father's absence on delinquency among low-income black adolescents.

Five sets of independent variables were measured: family structure variables when the child was of preschool age, family structure variables when the child was 15 years old, the home environment and family mobility, the child's perception of his or her interactions with parents and the family, and the parents' perceptions of the child's potential and their interactions with the child. A sixth set of variables consisted of four types of delinquency self-reported by the child at age 15: dishonesty, aggression (including offenses committed against property as well as against people), escape (including running away from home and drug use), and gang activity.

The analysis was carried out by combining the five independent variable sets to create a series of ten reduced form models, each of which was constructed to represent a particular concept of family structure, environment, or social relationships between parents and their children. These ten family models were then correlated with each of the four delinquency dependent vairable outcomes, for the two sub-sets of male and female adolescents separately. For male adolescents, of the ten models of family attributes estimated, at the 0.05 level of significance none were significant for the two delinquency outcomes reflecting dishonesty and aggression. Only the attribute variable based on father's presence and mother's employment at the time was significant for the escape outcome, whilst the two attributes relating to family

mobility and family size were both found to be significant in predicting the gang activity outcome. For female adolescents, family structure was not significantly related to any of the four delinquency outcomes. The only family-related variables found to be significant were those based on parents' expectations and perceptions of the parent-child relationship.

These results led Farnworth to conclude that "the importance of family structure for delinquency has been highly exaggerated in the popular thesis linking broken homes to delinquency." (p. 362). It should be remembered, however, that Farnworth's findings were based exclusively upon black youths and their families. A study by Rosen (1984) found discrepancies between black and white subjects, and therefore caution should be exercized in generalizing Farnworth's results.

Rosen discovered that, in general, measures of father-son interaction were more important for youths in determining delinquency traits than were structural measures based upon the father's absence. For blacks, higher delinquency rates were found for lower social class boys with relatively low father-son interaction and coming from a smaller family. The combination of doing things with father, talking to father, social class, number of siblings, and presence of father accounted for approximately 12% of the delinquency variance in this sub-group. For whites, father-son interaction exhibited very little relationship to delinquency. Higher delinquency rates were found for lower class boys with three or more siblings, whilst lower delinquency rates were found for those reporting a father present in the household and coming from a middle or working class family. The combination of social class, number of siblings, and presence of father accounted for almost 6% of the delinquency variance in this sub-group.

Overall, the findings therefore suggested that a complex mix of variables were related to delinquency in black youths, whereas only structural variables appeared to be of importance for the delinquency of white youths. The analysis should be viewed with a certain degree of caution, however, since there are a number of inherent problems involved in the Automatic Interaction Detection (AID) technique which was used by Rosen.

The sample used was derived from a longitudinal study of black and white boys aged 13 and 14 residing in Philadelphia between 1970 and 1971. The sample of black youths was

obtained from all 13 year old males attending Philadelphia public schools in 1970. A comparable sample of white boys was drawn in the second year of the study by selecting one out of every ten 14 year old white male students who were attending one particular Philadelphia public school in 1971. A broken home was defined as the absence of at least one parent; the measure of family size included step-brothers and step-sisters residing in the household at the time of the interview. Two items were employed as a measure of father-son interaction: one question asking the respondent how often he talked to his father about the things that bothered him, such as school and problems with friends, and one question asking how often he and his father did things together, such as play cards or go to baseball games. These two items were asked of the respondents even if their father was not living at home. Delinquency was defined as having a police and/or juvenile record.

No analysis was undertaken by West and Farrington, in their study of juvenile delinquency, to determine the relative importance of broken homes and family relationships in the development of delinquency. However, a number of variables were included in the study in order to define both the relationship between a boy and his parents and the level of marital harmony which existed between a boy's parents.

When the boys were either eight or nine years old, psychiatric social workers interviewed their parents within the marital home in order to obtain information regarding both parents' attitudes towards their son, and the extent of the authority, supervision and discipline they each exercised over him. The required information was often given reluctantly or not at all, and consequently the social workers experienced difficulties in placing the parents in certain categories. It was found that if the parents were rated as poor by the social workers in one area of the boy's upbringing, then they tended to receive similar ratings in other areas. These problems experienced in obtaining useful data again highlight the difficulties inherent in interviewing subjects about sensitive topics.

West and Farrington also administered a questionnaire to the parents in order to determine their child rearing attitudes. A twelve item authoritarianism scale was derived from responses to the mothers' questionnaire and a twenty item scale from responses to the fathers' questionnaire.

The social workers repeated their assessment of parents at various ages of the boys, and it was found that an overall rating of maternal and paternal attitudes, produced by combining data obtained at ages 8-9, 10-11, and 14-15 was more closely correlated with official delinquency than any other single attitude rating.

West and Farrington thus found a number of family variables, including maternal and paternal attitudes, parental discipline and supervision, conflict between parents, and a boy's adjustment at home all to be related to delinquency. Moreover, since they collected data over a long period, it was possible for them to determine the predictive nature of certain family variables. It was discovered, for example, that poor parental supervision and poor parental behavior were both equally effective predictors of future delinquency exhibited by the boys.

The Social Control Theory Approach

Biron and Le Blanc (1977) and Gove and Crutchfield (1982) both employed social control theory as a framework for their studies of the effects of broken homes upon juvenile delinquency. A social control approach tends to view the family as providing a buffer against deviant influences, behavior and situations. The family, by encouraging basic ties and commitments to conventional social order and conventional activities offers an ongoing source of motivation to conform, in addition to providing normative definitions of what is considered valuable and appropriate in that culture. The family also has an important coercive function, supervising, punishing and surveilling children. Various versions of social control theory have been offered (Nye, 1958; Hirschi, 1969; Naroll, 1983), but they all emphasize the importance of the family as a source of social attachment and normative regulation. The suggestion is therefore that, when family structure breaks down and adults are not available to accomplish needed activities, the family tends to lose its ability to motivate, supervise, and discipline its children (Wells and Rankin, 1986).

The social control theory utilized by both Biron and Le Blanc and Gove and Crutchfield relies heavily upon that formulated by Hirschi (1969), in which a delinquent act is the consequence of a breach or rupture of the ties which unite individuals to society, or, in the family

context, those ties which an adolescent maintains with his own family. Biron and Le Blanc based their perspective upon whether the structural aspects of the family are influential upon both the quality of ties between parents and children and the methods of socialization. In their view, broken homes offer only a partial image of family life, and consequently they included in their analysis the quality of the ties between child and parent, measured through communication and affection, and the methods of socialization, measured through supervision and discipline. In addition, this approach allowed them to investigate whether methods of socialization were in fact the foremost causes in explaining delinquency.

A self-report questionnaire was administered in public schools belonging to the French section of the Catholic school board of Montreal, Canada in May, 1973 as a means of data collection for the study. The sampling was carried out in eight high schools within which certain classes were selected because of their adequate sex and age ratios. The consequence of this was that the final sample consisted of 326 subjects whose ages ranged from 12 to 13 years, and who were numerically equally divided between male and female. Structural aspects of the family were measured by an index composed of three indicators: mother's employment, number of children, and family cohesion. A score of 0 was given if the subject's mother was a housewife, if there were less than three children, and if the parents lived together. A maximum score of 3 was attributed to the subjects who had none of these attributes. One hundred and twenty nine subjects, or 39.6%, obtained a score of 0, whilst eighty eight, 27%, scored a maximum of 3. A total of 27 items were used to measure the psycho-sociological aspects of family environment, and these were then regrouped using factor analysis into the two dimensions of supervision and discipline and communication and affection. Home-based delinquency was defined in terms of five items ranging from a refusal to do as told by parents to running away from home for a period of more than twenty four hours.

Biron and Le Blanc's analysis showed that the structure of the family had an indirect effect upon home-based delinquency, whilst supervision and communication had a more immediate impact on this form of deviancy. A preliminary analysis of age and sex differences indicated that there were no changes in the results when age variations were taken into account, and whilst

there were slightly different results obtained for males and females when controlling for sex, these differences were not large enough to be statistically significant.

Hirschi's findings that delinquency is negatively related to the degree of parental-child attachment led Gove and Crutchfield (1982) to emphasize the importance of this attachment in their analysis. According to Hirschi, attachments between parents and children are manifest in a number of dimensions with regard to juvenile delinquency.

First, attached children are more likely to spend time in the presence of their parents, thus allowing little time to take part in delinquent activities (Hirschi, 1969: 85). Second, parents of these children are more likely to be 'psychologically present' at other times, causing the child to ask "What will my parents think?" (p. 88). Third, intimacy of communication is an important dimension of parent-child attachment; the attached child is used to sharing his or her life with parents as a result of a history of intimate communications, which in turn enhances communications in the future (p. 96). Within this context, the degree to which a child cares what his parents think of his behavior is pivotal. The social control functions afforded by the three dimensions of parent-child attachment will therefore tend to diminish in the absence of a child's love and respect for his parents.

The study carried out by Gove and Crutchfield differed from many others with respect to data collection, since data was obtained from parents in a systematic manner rather than from the adolescents themselves. Households were chosen randomly in Chicago from census tracts, and the resultant sample was considered to be fairly accurately respresentative of the entire Chicago population, numbering some 620 families. Interviews were then carried out with the parents in each household, and the majority of the questions about their children dealt with a specific selected child, namely the child in the home who was closest to 13 years old. By focusing on one child it was felt that more exact information could be obtained, and the years around the age of 13 were believed by the researchers to be crucial for parent-child interactions.

The range of independent variables utilized in the analysis included race, socioeconomic status, marital status, nervous breakdowns in the past year, space for child, parents' knowledge of child's friends, the degree to which parents felt "hassled" by their children, the parents'

supportive behavior, good marital interaction, poor marital interaction and the parents' interaction with the pre-selected child. A juvenile was classified as a delinquent if the parents answered yes to any of six questions relating to deviant activities, including such items as running away from home and getting into trouble with the police.

In addition to collecting the data from interviews with the parents, a further innovation in Gove and Crutchfield's study was their attempt to control for the possiblity that the interaction effect could be either from parent to child or from child to parent. The most serious limitation of the study, however, was its lack of an objective measure of delinquency and its reliance upon parents' perceptions and their willingness to report instances of deviant behavior exhibitied by their children. Virtually all of the studies examined so far in this review have been based upon either self-report data or official delinquency statistics.

Results of the analysis showed that the way in which the parent experienced the child was by far the strongest predictor of delinquency. This relationship was interpreted as meaning two things. First, parents who tend not to get along with their children and who are dissatisfied with how their children behave probably act in ways which promote misbehavior. Second, children who misbehave tend to promote negative feelings and actions on the part of their parents. Furthermore, the strength of the relationship was believed to suggest that the way in which parents feel about their children does have an effect upon whether those children will become delinquents. Moreover, the delinquency variables were found to be different for boys and girls. For boys, those coming from single-parent households were found to be much more likely to be delinquent than those from intact homes, in which delinquency was found to be fairly strongly related to poor marital interaction. The father having a nervous breakdown was positively related to delinquency, whilst if the mother had a nervous breakdown delinquency tended to be inhibited. In intact households, the parents' feelings towards their children was the variable most strongly related to delinquency, yet this relationship was not found in households with a single parent. Physical punishment was also found to be strongly related to delinquency, but it was unclear in which direction the relationship was.

The pattern for girls was different. Whilst broken homes tended to be correlated with delinquency, in intact homes the characteristics of marital interaction had little effect upon delinquency. Parents having a nervous breakdown in single-parent households tended to increase the likelihood of delinquency, whereas for girls from intact homes it tended to decrease delinquency. The parents' feelings towards their children was again the variable most strongly related to delinquency. Overall, the relationship between physical punishment and misbehavior was similar for boys and girls. Among intact families, the relationship was much stronger for girls than boys however, and for girls with single parents the relationship was not as strong as it was for boys.

In general, it was concluded that the characteristics of the parents' marriage appeared to play a more important role for boys than for girls, whilst in contrast girls appeared to be more reactive to variables reflecting parent-child interaction and parental control. Negative variables such as broken homes, poor marital interaction, lack of parental control, physical punishment, and poor parent-child interactions were found to be associated with juvenile delinquency; positive variables, such as good marital interaction and being supportive of the child were found to be unrelated to misbehavior. Overall, whilst revealing that the relationships between the variables in this particular area are very complex, the research was felt to have provided fairly strong support for the view that the family plays a key role in the determination of adolescent deviancy, and to have provided further evidence agreeing with social control theorists' assertions that the emphasis should be placed on examining parent-child attachment.

Methodological Problems

There are numerous problems experienced in attempting to compare research studies which examine the relationship between broken homes and juvenile delinquency. Some studies (Chilton and Markle, 1972; Datesman and Scarpitti, 1975) have relied upon official statistics to provide information regarding adolescents' misbehavior. The problems involved in utilizing such an approach have been well documented in the past. Such measures, rather than recording the actual amount of deviance, simply reflect the authorities' reactions to certain types of illegal

behavior. In addition, many offenses remain undetected by juvenile authorities (Sellin and Wolfgang, 1964).

The problem of bias in the use of official statistics has been found to be particularly great with regard to the relationship between broken homes and juvenile delinquency. Juveniles from broken homes are more likely to be referred to the police by neighbors, school officials, welfare workers, and parents in cases of deviant behavior than adolescents from intact homes (Nye, 1958; Datesman and Scarpitti, 1975). In addition, the courts' attitude has tended to be one which reflects the philosophy that children from broken homes need the protective environment of the justice system more than children from intact homes (Hennessy et al., 1978; Thomas and Severdes, 1975). Thus, studies using official delinquency measures generally find a stronger relationship between broken homes and delinquency than do studies examining self-reported data (Johnstone, 1980; Rankin, 1983). However, knowledge of a child's family situation may influence the perception of their behavior not only by the police but also by their teachers and even their parents. Hence, studies which have collected data from teachers' and parents' ratings of delinquent behavior should similarly be treated with caution (Wells and Rankin, 1986; Gove and Crutchfield, 1982).

Moreover, the term delinquency itself can be used to refer to a wide variety of illegal or antisocial behavior. Broken homes may be found to be correlated with only certain types of delinquency rather than being a significant predictor of all types. Whilst some studies (Rankin, 1983; Gove and Crutchfield, 1982; Farnworth, 1984; Datesman and Scarpitti, 1975; Chilton and Markle, 1972) assess the relationship between broken homes and various types of delinquency, others (Biron and Le Blanc, 1977) concentrate on one specific type of behavior, for example running away from home. Since problem homes could be positively related to certain delinquent acts and negatively associated with others, the study of delinquency as a general concept could result in the possible suppression of a significantly large association between specific types of delinquent behavior and broken homes (Rankin, 1983).

Similarly, many studies differ in their definition of what constitutes a broken home. The majority define a broken home as being one in which at least one of the parents is absent due to

death, separation, desertion or divorce, whilst certain studies make the distinction of which parent is missing, based upon the suggestion that the effects are not equivalent for mother absence and father absence since the two parents play different roles in the child's upbringing. Nye (1958) argues that the ties to the father have a greater inhibiting effect upon delinquency than those to the mother; Hirschi, on the other hand suggests that the attachment to one parent is as effective as the attachment to both parents in preventing delinquency, and therefore that the differences in the impact of one parent or the other on delinquency are probably negligible (Hirschi, 1969). Other studies include a working mother in the analysis of broken homes (Farnworth, 1984; Biron and Le Blanc, 1977).

The problem of defining a broken home as the loss of at least one biological parent is that the added difficulty in raising the child might not be the same for all types of breaks (Wilkinson, 1974; Rankin, 1983). Whilst the death of a parent might remove a role model for the child and introduce economic hardship, it does not usually involve the conflict, friction and breakdown of relationships normally associated with divorce, separation or desertion.

Most of the studies use cross-sectional data, and even the longitudinal study carried out by Gluek and Gluek (1950) drew its sample from officially listed delinquents. The relationships generally reported are therefore those which exist after the juvenile has established a pattern of misbehavior and delinquency, a fact which calls into question the direction of the relationships. Thus, poor parent-child relationships, for example, could be a product of juvenile misbehavior, rather than vice versa.

Summary and Conclusion

This section of the literature review has shown that, in contrast with the widespread acceptance of broken homes as a major cause of delinquency during the early part of the twentieth century, today there is disagreement among researchers over its relative importance. In addition, the methodological problems discussed above once again highlight the many differences which exist in the designs of studies and hinder their comparability. The true association of broken homes with delinquency is therefore very difficult to determine from the literature reviewed.

Toby, Chilton and Markle, and Datesman and Scarpitti concluded that the relationship between delinquency and broken homes was stronger for younger children and/or females than for older children and/or males. When controlling for the type of offense, Datesman and Scarpitti's results indicated an even stronger relationship between the marital status of parents and the sex of the adolescent for ungovernability and running away. Thus, whilst males who were charged with these two offenses were about as likely to live in incomplete families as were males who offended against persons or property, females who were referred to court for the former two offenses were more likely to come from broken homes than were females charged with other more serious delinquent offenses.

These differences in the strength of the relationship with regard to the age and sex of the juvenile in part provided an explanation for the initial inconsistencies which appeared to exist between research results. Even then, however, not all researchers were in agreement since West and Farrington and Biron and Le Blanc both found no significant differences in the incidence of broken homes among delinquents by age, and Carter's study indicated that broken homes had a greater impact upon males, at least with regard to status offenses and truancy, than females.

An earlier study carried out by Weeks and Smith argued that any discovered differences in the strength of the relationship between broken homes and delinquency according to gender which relied upon official statistics, as did the work of both Chilton and Markle and Datesman and Scarpitti, were simply reflections of the different types of delinquency for which boys and girls were sent to court. Weeks and Smith further pointed out that broken homes were more likely to be related to such delinquent offenses as ungovernability and running away from home, for which referrals to court were more frequent for girls than for boys. The argument was thus that if self-reported delinquency measures were used, as was the case in Carter's study, then the gender differential in the relationship between broken homes and delinquency would disappear.

Nevertheless, although most of the studies reviewed placed different emphasis upon the effect of age and sex on the strength of the relationship between broken homes and juvenile delinquency, they were in general agreement that the type of delinquency exhibited was of critical importance in defining the relationship.

Rankin's study was unusual in the sense that he attempted to compare the effects of the absence of either a mother or father, and the addition of a step-parent into a previously broken home, upon juvenile misconduct. It was discovered that running away from home, truancy, and autotheft were all strongly related to a broken home in which both biological parents were missing. No clear patterns emerged, however, regarding which specific reasons for parental absence had the greatest effect upon delinquency. Rankin suggested, however, that one of the problems which exists in the research analyzing the relationship between broken homes and delinquency is that broken homes have tended to be considered in isolation from other family variables. Clearly it is simplistic to assume that family relationships are necessarily good in intact homes and poor in homes in which at least one natural parent is missing.

A number of studies of the studies reviewed considered a variety of family factors which might supply alternative or related explanations of delinquency. Jensen and Rojek discovered that social class, family size, and family relationships all had a part to play in the development of deviant behavior. Similarly, Thornton et al. proposed that problems within the family, including poor parental-child relationships and lack of affection were related to delinquency.

Farnworth went so far as to say that it was the quality of relationships within the family, rather than the family structure, which led to delinquency. However, his study was based solely upon data concerning black youths and consequently generalization of the results is difficult. Moreover, Rosen's analysis found differences in the strengths of the relationships between both family structure and delinquency and family relationships and delinquency for black youths as compared with white youths. West and Farrington found a number of family variables, including relationships between parents and parents' attitudes towards and supervision of their sons, to be predictors of delinquency.

Biron and Le Blanc and Gove and Crutchfield relied heavily upon the social control theory formulated by Hirschi to provide a framework for their studies. Based upon the idea that a delinquent act is the result of a break in the ties which unite the adolescent with his or her own family, Biron and Le Blanc included in their analysis of the relationship between broken homes and delinquency both the quality of the ties between the parent and child, measured through

communication and affection, and the methods of socialization through supervision and discipline. Gove and Crutchfield emphasized the importance of the degree of parental-child attachment in the development of the adolescent. Hirschi had stated that attachments between parents and children are three dimensional, a theory which provided the basis of their arguments.

Biron and Le Blanc found that, while the structure of the family had an indirect effect upon home based delinquency, supervision and communication had a direct effect. Gove and Crutchfield discovered very definite differences in delinquency characteristics for boys and girls. Relationships between parents were more important predictors of delinquent behavior for boys than for girls, and girls appeared to be more affected than boys by parental-child relationships and parental control. Their analysis found broken homes to be associated with juvenile delinquency.

Gove and Crutchfield differed from the other studies in their means of data collection, in that they obtained data from parents rather than from the adolescents themselves. Reliance upon parents as the sole source of information regarding the misbehavior of their children clearly may lead to severe inaccuracies in the data. All of the other studies reviewed relied upon either self-report delinquency data or official statistics. Each method of data collection has its own particular weaknesses, however, since both parents and children could be guilty of providing biased information, particularly regarding sensitive issues such as internal family relationships, and official delinquency statistics are generally acknowledged to underestimate the true situation.

None of the studies reviewed adequately addressed the direction of the relationship, if indeed a relationship exists, between broken homes and juvenile delinquency. Do broken homes lead to juvenile delinquency, or does adolescent deviancy give rise to poor family relationships which ultimately result in broken homes? Most of the researchers seemed to assume that the former chain of events was more realistic, although no evidence was provided to indicate that this was the case. Indeed, the majority of studies utilized cross-sectional data which measured family and delinquency variables at the same point in time thus precluding any conclusions being drawn about the direction of the relationship. Rankin's was the only study which attempted to avoid this problem, being designed in such a way that questions relating to family structure were

concerned with the present while delinquency was measured three years previously.

Overall, therefore, the literature concerned with broken homes, family relationships, and juvenile delinquency provided rather conflicting findings. The major common conclusion appeared to be that both family structure and internal relationships were potentially powerful predictors of juvenile delinquency. However, because various family factors tended to exhibit differential influence depending upon the gender, race, and age of the subject adolescents, any strong concensus upon which factors were the most important in defining the relationship between family variables and juvenile delinquency was effectively ruled out.

Section 4: Overall Summary and Conclusion

The literature reviewed has provided considerable support for the existence of a relationship between alcohol abuse and juvenile delinquency. Pearce and Garrett (1970), West and Farrington (1977) and Barnes (1984) found significant differences in the drinking patterns of delinquent and non-delinquent youth. In addition, the studies by Barnes and by Jessor et al (1968) suggested that, as problem drinking among adolescents covaries with deviant behavior, both problem drinking and antisocial activities represent alternative ways of expressing similar needs in young people. Common causal conditions may therefore possibly be found.

Barnes' study also pointed out the problem of determining the direction of the relationship. Does problem drinking lead to delinquency or vice versa? This is an extremely difficult problem to solve, especially when examining cross-sectional data collected at a particular point in time. For example, if both problem drinking and deviance are found to exist in a group of 12 to 17 year olds, as was the case in Barnes' study, it remains unclear which form of problem behavior occurred first. It seems quite plausible to suggest that a teenager, for a number of reasons, began to abuse alcohol and then subsequently became involved in wider forms of antisocial behavior. However, if no positive information is available to determine this ordering of behaviors, it is equally likely that a teenager first became involved in deviant behavior and only later did he or she begin drinking heavily. This problem of direction in the relationship does not negate the fact that a relationship, either associational or causal, exists, but it does bring to light an issue which

must be recognized when examining the relationship between heavy drinking and juvenile delinquency. It also makes it possible to argue that the association between problem drinking and juvenile delinquency occurs not because one type of behavior causes the other, but rather because they both have a common cause (Trojanowicz and Morash, 1983).

Relatively few studies have attempted to assess possible underlying causes for both heavy drinking in young people and juvenile delinquency. However, those studies which have undertaken such an analysis appear to have emphasized the important role the family plays in the development of a child's behavior. Thus, Jessor et al. (1968) found that exposure to deviant models, limited sanctions, mother-child affectional relationships and mother's alienation all influenced the probability of a school student exhibiting deviant behavior. Similarly, Barnes (1984) suggested that problem drinking and delinquency could have such common causal factors as problem relationships between family members, and lack of parental nurturance and support. Bell and Champion (1979) investigated the relationship between alcohol use and delinquency by emphasizing the effects of parental separation. These studies met with varying degrees of success. Barnes was unable to find statistical significance between different types of parental nurturance and support and problem drinking; Bell and Champion failed to analyze alcohol use in the risk group with respect to parental marital status. Nevertheless, taken together the studies did suggest the possible effect of family variables upon the relationship between alcohol abuse and juvenile delinquency.

Research literature which considers the various types of crimes which appear to be associated with heavy alcohol use has provided differing results. Thus, Tinklenberg et al. (1974) and Wolfgang (1966) found that alcohol was involved significantly more often in violent assaultive cases than in non-violent crimes, whilst O'Brian (1977) inferred that the connection between drinking and victimless crime was stronger than that between drinking and violent serious offenses. To add to the confusion, Schlesinger (1978) suggested that alcohol abuse cannot be considered a correlate either of victimless crimes or of more serious offenses. Some explanation of these conflicting findings was suggested by Dawkins and Dawkins (1983) whose research indicated that in order to fully understand the relationship between alcohol abuse and

different types of crime and deviant behavior, racial factors must also be taken into consideration. Thus, for example, O'Brian's study, which was based upon a sample of American Indians, could simply have reflected pressures exerted upon juveniles by tribal norms and expectations. Dawkins and Dawkins' study additionally suggested that other sociocultural factors should be considered when assessing whether alcohol abuse is related to serious or victimless crime. Their findings thus further emphasized the importance of common causal factors in the relationship between heavy drinking and juvenile delinquency.

One major problem in the work carried out by both Tinklenberg and by Dawkins and Dawkins, and indeed a problem which afflicts a number of other research studies in this area, is the use of a sample of youths who have already been convicted and incarcerated. The use of this type of sample precludes a comparison of the drinking habits of non-delinquent with delinquent youth. In addition, there are many delinquents who are convicted but not incarcerated, and a large number of youths who have committed crimes but have not been apprehended. The appropriateness of utilizing a sample drawn from an incarcerated population is therefore dubious at best if generalizations of any kind regarding drinking behavior are to be made.

Closely aligned with the problem of selecting a suitable sample of delinquents for the studies was the difficulty encountered in identifying a suitable control group. The problems involved in comparing a sample of incarcerated youths and a group of children in a high school (Pearce and Garrett, 1970) are clear. The two groups in all probability will have had dissimilar, if not very dissimilar, backgrounds and comparisons will result in retrospective bias.

By using a longitudinal study, some of the problems of bias and sampling may be overcome. Glueck and Glueck (1950), for example, carried out a fifteen year follow up study of 500 Boston delinquents and a matched group of non-delinquents. Use of matching techniques, however, meant that their work was based upon contrasts between well established delinquents and specially selected non-delinquent controls. The advantage of the longitudinal research performed by West and Farrington was that a fairly representative sample of urban working class youths were followed up rather than merely two extreme groups of delinquent and non-delinquents, thus allowing for all degrees of delinquency to be present. Furthermore, over

time the delinquents became gradually separated from the non-delinquents so that control groups could be identified with relative ease rather than having to rely upon using matching techniques. In addition, many of the variables were measured before the youths became delinquent, thus avoiding the problem of retrospective bias. A longitudinal study such as West and Farrington's therefore enables many possible causal factors of drinking and delinquency to be compared over a long period of time, rather than simply allowing for time-specific comparisons. Furthermore, individuals who have gradually separated into delinquent and non-delinquent groups by a process of development can be compared, a situation which is proferable to that of utilizing two groups which the researchers have themselves chosen by the application of some selection method.

The literature concerned with identifying causal factors of alcohol abuse gave further weight to the important role of the family in determining the drinking habits of teenagers. Numerous studies have found parental use of alcohol to be predictive of their children's drinking habits. Biddle et al. (1980), however, concluded that adolescent drinking may be predicted by somewhat different factors than solely parental drinking. Due to the lack of data available on parental drinking behavior for this study, other family factors have been emphasized in reviewing the literature. In addition, certain studies have suggested that peer pressure and peer influence could have an important effect upon both alcohol abuse and juvenile delinquency. For the same reason, lack of available data to analyze, peer influence has not been considered in any detail in reviewing the literature.

Much of the research on patterns of adolescent alcohol abuse has emphasized the importance of the quality of internal family relationships (Globetti, 1972; Babst et al., 1978; Gantman, 1978; Bloom and Greenwald, 1984). These studies, however, all tended to use slightly different measurements of problem drinking and different variables to assess the role of family relationships in child development. Thus, Gantman concluded that the families of drug abusing children could be distinguished from normal families in a number of forms of interaction, including freedom of expression, co-operation, and communication techniques. Babst et al. found that, as family affinity decreases, substance abuse increases, whilst Bloom and Greenwald made the tentative conclusion that parental relationships with the child from birth to

middle childhood are some of the most important factors in determining the child's drinking behavior. Globetti suggested that problem drinkers were circumventing the social control mechanisms including the home and the family. Similarly, Reeves (1984) emphasized the importance of parental control. Gantman used a sample of mainly polydrug users and a selected control group, whilst the remainder of the studies used samples of school students. Babst et al. looked at the level of substance use, whilst Bloom and Greenwald used a scale of regular drinkers, experimental drinkers, and non-drinkers. Problem drinkers in Globetti's study were categorized by asking the adolescents a series of questions which, in previous research, had been identified as indicators of the warning signs of approaching alcohol abuse.

With the exception of Gantman's work, all of the above studies relied for their data solely upon adolescents' own responses to interviews or questionnaires. Clearly, when attempting to obtain a clear picture of the true family situation, there are a number of advantages to be gained in interviewing a variety of family members. Each member of the family will have their own particular prejudices and biases which can, to an extent, be negated by analyzing their responses together with those from the other family members. Furthermore, a student completing a questionnaire on one particular day may be experiencing strong feelings of opposition towards his or her parents due to incidents which have occurred within the family environment in the recent past. The responses obtained in such a situation will not be representative of the normal family relationships.

Nevertheless, despite the differences in the variables studied and the problems inherent in the interviewing techniques used, the studies all provide general support for the argument that family relationships play an important role in the development of adolescents' drinking habits.

A number of other studies emphasized structural rather than interpersonal family variables in the development of alcohol abuse among children (Weschler and Thum, 1973; Kane and Patterson, 1972; Amoeteng and Barr, 1986). While Weschler and Thum found that a relationship existed between the number of parents in the home and the drinking behavior of adolescents, both Kane and Patterson and Amoeteng and Barr concluded that there was no significant difference between the drinking habits of adolescents with a variety of family

structures and parental occupations. Another finding of Weschler and Thum's study was that students with only one parent present in the home were somewhat more likely than those with both parents at home to self-report excessive alcohol use.

There is thus clearly some disagreement over the role of structural family variables in the development of adolescent alcohol misuse, suggesting the need for further research in this area. It could well be argued that structural variables, taken together with family relationships, are related to alcohol misuse in teenagers, rather than considering the effect of structural variables alone. This consideration is further developed in the research concerning juvenile delinquency where it is proposed that structural family variables are interwoven with parental behavior in the relationship of the family with delinquency.

Prior to summarizing this literature, however, it is necessary to indicate the problems inherent in assuming the direction of the relationship between the role of the family and the onset of any form of deviant behavior, problem drinking and juvenile delinquency included. When examining cross-sectional data relating to family relationships and drinking behavior at a particular point in time, it would be perfectly possible to argue that the relationship exists because the drinking behavior of the children led to a breakdown in family communication or an alienation among family members, rather than the other way round. Similarly, in cross-sectional research involving delinquency and family variables, the delinquent behavior of the child could give rise to poor parental relationships, or vice versa. The advantage of longitudinal research is that, through analysis of both the family and the child's development over a period of time, it proves easier to distinguish which of two factors appeared to occur first, or indeed whether in fact they occurred simultaneously. Parental separation, for example, might occur prior to the onset of manifestations of deviancy, or subsequent to them. Cross-sectional data will not indicate which was the case. Additionally, in some longitudinal research it is possible to assess from an early age parental attitude and discipline towards the child, and thereafter to identify whether this behavior altered at all when the child began to show the first signs of antisocial behavior. West and Farrington's study, for example, was unusual in its ability to determine the predictive nature of parental behavior and supervision for juvenile delinquency.

The review of the literature concerned with the role of family variables in the onset of delinquency helped further to define those family variables worthy of consideration. In particular, there has been a great deal of controversy concerning the existence or otherwise of a relationship between broken homes and delinquency. Rankin (1983), Datesman and Scarpitti (1975), Chilton and Markle (1972), Carter (1982) and West and Farrington (1973) all suggested that there is some relationship between broken homes and delinquency, but they tended to vary in their interpretation of the significance of the relationship and in their opinions of the role that the child's age and sex plays in reducing or increasing the strength of the relationship. Thus, the results obtained by Chilton and Markle and by Datesman and Scarpitti indicated a greater impact of broken homes upon female delinquents as compared with male delinquents, whilst Carter found broken homes to have a comparable effect upon self-reported delinquency in both males and females. Perhaps more importantly, each of these studies suggested that broken homes might be related to different types of delinquency in varying degrees. Even so, their findings were largely incompatible. Carter found that broken homes had a greater impact upon males with regard to status offenses, such as running away from home and truancy, findings which completely contradicted those of Datesman and Scarpitti. Carter argued that status offenses comprise behavior which best reflects lack of parental supervision and control.

Rankin suggested that the quality of relationships between parents is a factor which can not be ignored. Clearly, it is unrealistic to simply assume that the quality of relationships between parents is necessarily good in intact homes and poor in broken homes. There might, for example, be a great deal of conflict in intact homes while broken homes might be more stable in the sense that relationships between parents have been severed, thus reducing conflict.

The problem of the interaction of other family variables and broken homes was addressed more explicitly in further studies of delinquency. Jensen and Rojek (1980), for example, suggested that alternative or related explanations of delinquency might be social class, family size, and family relationships. Thornton et al. (1982) proposed that conflict in the family, parents' social control, maternal employment, and the quality of parent-child relationships might account for the development of delinquency in addition to the predictive value of broken homes.

In summary, delinquency research therefore appears to suggest that structural family variables such as broken homes and family size are somehow interwoven with certain family behavioral variables including parental supervision and parent-child relationships in predicting delinquency. Given the generally agreed relationship between juvenile delinquency and alcohol abuse, the implication is that similar results could possibly be found with regard to alcohol abuse among adolescents.

The review of the literature concerned with juvenile delinquency suggested a theoretical approach which could be taken in researching the role of the family in the development of deviant behavior, namely social control theory. Biron and Le Blanc (1977) and Gove and Crutchfield (1982) both used social control theory as a framework for their studies of the effects of broken homes upon juvenile delinquency. The two studies particularly emphasized the work of Hirschi (1969), who argued that delinquency is the result of the separation of individuals from the ties which unite them to society or, in the context of the family, those ties which the adolescent maintains with his or her own family. Biron and Le Blanc regarded broken homes as offering only a partial image of family life and consequently they included in their analysis the quality of the ties between the child and parent, measured through communication and affection and through supervision and discipline.

Existing research concerned with the relationship between drinking behavior and delinquency has been seen to provide very little conclusive evidence regarding possible common causal factors of the two behavioral traits in young people. Whilst the literature dealing with alcohol abuse alone has suggested a number of possible predictive variables, as has the literature dealing with juvenile delinquency alone, very few attempts have been made to bring these two bodies of knowledge together in order to suggest common causal factors of both.

In attempting to do just that, this review of the literature has emphasized the role of the family in representing a possible source of common causal links between delinquency and problem drinking. It has been possible to identify a number of family variables which may be useful in increasing the understanding of the development of alcohol abuse and juvenile delinquency, and the relationship between the two. Family structure, including size and

completeness, parental attitudes, supervision by parents, and the relationships between parents and children within families have all been suggested in the literature as being potentially useful for explaining the development of all types of deviant behavior.

The various methodological probelms identified in much of the work already carried out in this area suggest the necessity for further research to be undertaken in order to add to the existing knowledge concerning the role of the family in the development of problem drinking and delinquency in adolescents.

The choice of samples and controls has been particularly emphasized as creating a number of problems for researchers. Many of the studies have used samples of delinquents who had already been convicted and incarcerated, which not only prevented any study of delinquent youth who had not been institutionalized, but also created problems in finding suitable control groups. It is entirely possible that the control groups used, which were usually drawn from high school students, contained youths who had committed crimes but who had not been apprehended, or even youths who were on probation.

The relative advantages and disadvantages of utilizing self-report data of delinquency and problem drinking as opposed to official statistics are many and complex. Nevertheless, the problems inherent in interviewing or collecting data solely from the adolescents themselves has been discussed in this review. The possibility of bias being introduced into a study through adopting that particular approach has suggested the value of obtaining information from as many family members as possible when family variables are being investigated. The necessity of clearly defining the variables to be used has also been stressed throughout the review of the literature. Differing definitions of broken homes, problem drinking, and delinquency have created problems in comparing the frequently very different findings.

A number of the difficulties involved in sampling can be overcome with the use of longitudinal data, which enables control and delinquent groups to develop naturally, and which measures the whole range of variables to be used in analysis at various points in time. Commencing to measure variables at a very young age in the subjects of the study can assist in the determination of the direction of experimentally discovered relationships.

It is therefore proposed that the current study will adopt a longitudinal approach to examining the relationship between problem drinking and delinquency in adolescents, and will explore the role played by certain family variables in the establishment of that relationship.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

The previous chapter of this study identified various family factors as being possible common causal factors in the development of both problem drinking and delinquency. In addition, the employment of longitudinal data was suggested as representing one method of overcoming a number of methodological problems previously experienced by other researchers in this area.

The present chapter opens with a description of the sample used and the method of data collection, followed by a statement of the research questions to be examined. The variables employed in investigating the relationship between juvenile delinquency and heavy drinking are then discussed. A full description of the statistical techniques used precedes the final section of the chapter which analyzes the extent to which those methodological weaknesses present in earlier studies have been avoided.

Survey Sample and Data to be Used

The data to be used in this study has been obtained from an English longitudinal survey which took nearly twenty years to complete between 1961 and 1981. The survey was directed throughout by Dr. D.J. West of the Institute of Criminology, Cambridge. A number of other people worked on the project, which was known as the Cambridge Study in Delinquent Development, although Dr. West's chief collaborator was Dr. D.P. Farrington, who devised and carried out most of the statistical analysis of the material.

The Sample

The Cambridge Survey was based upon a group of boys from an ordinary school population, the study sample including all of the males on the register of six state primary schools who were old enough to be in the fourth year classes in 1961. In addition to these 399 boys, 12 boys from a local school for the educationally subnormal were included in the cohort in an attempt to make it more representative of the true population of boys living in the area. The boys were either eight or nine years old when first contacted. The six primary schools were situated within a one mile radius of the research office, which was located in a crowded urban area of London. No boy of the correct age attending any of the schools in the sample was left out.

Two consecutive classroom generations were included in order to spread the work of intake-interviewing over a reasonable period of time. A majority of the cohort belonged to the first generation and were taken from all six schools. A smaller number, recruited from four of the six schools were a year younger. In addition, one whole class from one of the schools taken from the year previous to the main group, provided what originally was intended to be a small pilot sample, but was subsequently incorporated into the study cohort. Thus, the total cohort consisted of 231 boys born between 1st September 1952 and 31st August 1953, 157 born between 1st September 1953 and 31st August 1954, and 23 born between 1st September 1951 and 31st August 1952. The age groups and classroom groups did not exactly coincide, since one or two of the boys were not in the classes expected from their dates of birth. The cohort included 14 pairs of brothers so that the actual number of families involved was 397.

The reason for excluding girls from the survey was that since relatively few girls become officially delinquent, the size of the cohort would have to be greatly increased in order to include a sufficient number of them. It was considered that this would be too difficult to achieve. The neighborhood of the study was chosen because it had a reasonably high delinquency rate, migration was low, and because a convenient office was located in the local social center from which it was possible to direct all of the research throughout the survey. The nearby primary schools were allocated by the education authority and were typical of most local schools.

It was felt that the cohort obtained was fairly representative of the schoolboy population in the neighborhood, a typically working class residential area where families generally were housed in local authority accommodation and rarely moved. There were few immigrants in the area and so the boys were almost all white caucasian in appearance. Only 12, most of whom had at least one parent of West Indian origin, were black. The vast majority of the boys, 371 were brought up by parents who had themselves been reared in the United Kingdom or Eire. Judged on their fathers' occupations, 93.7% could be described as being from working class families (categories III, IV or V on the Registrar General's Scale of Occupational Prestige), as compared with the national figure of 78.3% at that time. The cohort could therefore be described as a traditional white, urban working class sample of British origin. The findings in this study therefore could be generalized to similar areas in the south of England, but they provide no information on deviant behavior in the middle classes, or among girls or immigrant groups.

Data Collection

Whilst the boys were at school, psychologists were employed to visit the schools, contact the boys and their teachers, and administer tests and questionnaires. Between the ages of eight and nine, all 411 boys were seen as a result of repeated visits to the schools in order to catch some of the persistent absentees. Nearly all were seen between the ages of ten and eleven, during their last year at primary school, and again between the ages of fourteen and fifteen, shortly before the earliest age permitted for leaving school.

Between the ages of sixteen and seventeen and also between the ages of eighteen and nineteen the cohort was interviewed by young male social workers. The interviews carried out between the ages of eighteen and nineteen took place in the research office, were tape recorded and, on average, were two hours long. Both open-ended enquiries, designed to encourage the boys to talk, and a large number of specific questions were posed. Between the ages of twenty one and twenty two, the interviews were repeated along similar lines to those conducted three years earlier, but whilst all of the delinquents were interviewed, only a quota sample of non-delinquents were seen. Between the ages of twenty three and twenty four only certain

particular sub-groups were interviewed, including persistent recidivists, former recidivists who had been free from convictions for five years, men from deprived backgrounds who had not become delinquent, and a random selection of non-delinquents for comparison purposes.

The youths were offered a small fee for attending the interviews at the age of sixteen and above. At the age of sixteen, 96.8% of the original 411 boys were traced and interviewed; at the age of eighteen, the figure was 94.7%. Of the 22 boys who were not seen at the age of eighteen, 14 refused to co-operate, 6 had gone abroad, 1 was untraceable, and 1 had died. From a target sample of 241 men at the age of 21, 218 or 90.5% were successfully interviewed.

Up to the age of twenty four there was a very low attrition rate due to the efforts of the researchers in tracking down the boys. The higher attrition rate at the age of twenty four, it has been suggested, could well have been as a result of the reduced level of spending on the project at that time, which reduced the time and resources available to track down the youths.

At most ages, the majority of the boys were interviewed between five and eleven months after their birthdays. For example, for the interviews carried out at age fourteen, 211 of the 406 seen were aged between 14 years and 7 months and 14 years and 11 months, while 97 were younger and 98 were older. The median age at interview was 14 years and 9 months. For the interview at age eighteen, the median age was eighteen years and seven months, and for the interview at age twenty one it was 21 years and 5 months. The largest age variability occurred for the interview at age twenty four when the median age was 24 years and 11 months. Of the 85 young men interviewed at that stage of the survey, 11 were twenty three, 34 were twenty four, 23 were twenty five, and 17 were twenty six.

It was particularly important that the boys were interviewed as close as possible to their 14th, 16th and 18th birthdays, since the gap between each of these ages is only two years. Thus, if interviewee age had been allowed to vary too much at each stage of the study, the situation might have arisen whereby, for example, some 15-year old boys could have been interviewed and included in the 14-15 year old group, whilst others of almost the same age could heve been included in the 16-17 year old group. Given this condition, the results of any analysis would not accurately reflect the true differences in behavior of the boys at the two ages. The main age

discrepancies which occurred in the 24-year old group resulted from the inclusion within it of individuals older than 24 years. Since this was the final age at which the young men were interviewed for the study, incorporation of these older subjects in this particular group does not present a problem.

In addition to the interviews and tests with the boys, whilst they were still of school age experienced female psychiatric social workers were employed to interview the parents, talking whenever possible to the father as well as the mother. It was believed that the psychiatric social workers' experience and training would be of help in establishing and maintaining the necessary rapport with the parents so as to successfully elicit information about sensitive issues, detect and circumvent evasive responses, and identify signs of disturbances in family relationships.

In order that the social workers might obtain the maximum amount of information possible whilst being allowed to work in ways to which they were accustomed, they were provided with a schedule of topics to be covered in interviews, but it was left to their personal discretion as to the manner in which information should be sought and the order in which the topics should be dealt with. Interviews were conducted in an informal, conversational manner, in order to take advantage of every possible opportunity to alter the tone of individual interviews depending upon the interviewee's mood and their levels of intelligence and co-operativeness. Although a few written notes were sometimes taken during interviews, in the main the psychiatric social workers relied upon dictating their impressions into portable tape recorders as soon as possible after visits. Each social worker had her own group of families to work with, so that each family was always seen by the same interviewer, except in a few cases of very reluctant parents when a change of visitor was made in the hope of improving their co-operation.

No stipulation could be made concerning which members of the family should be present at any given interview, but every effort was made to ensure that at least one of the family interviews in each household was held with the mother alone. Whilst mothers tended to be the primary informants, the study was unusual in that it considered fathers' as well as mothers' attitudes, and, to this end, fathers were also interviewed whenever they could be persuaded. Out of the entire sample of 411 boys, a father was interviewed in 70.8% of the cases, although in

nearly half of these the father was not seen except in the mother's presence. Mothers were sometimes reluctant for fathers to provide information, with the result that they themselves provided the stumbling block for the interviewers. In such cases, if the psychiatric social workers were able to talk to the fathers on their own, they were frequently found to be very willing to give information, often leading to changes being made in the original family assessments. The few fathers who happened to have been interviewed first before their wives were found to be particularly informative, possibly because they were not inhibited by the thought that they might contradict what the psychiatric social workers had already been told.

Over all, most of the parents were co-operative and the interviews ranged over a large number of topics including the boys' health and development, conduct and habits, parental disciplinary methods, attitudes to their children, and their financial and marital situation. During three or four interviews with the parents, each lasting approximately one hour, the social workers recorded an assessment of the home with respect to over 50 items such as maternal attitude, paternal attitude, child's separations from his parents, parental vigilance, parental inconsistency and mother's job record. Each item was categorized according to previously defined criteria, maternal attitudes, for example, being categorized as either cruel, passive, neglecting, loving, anxious, or overprotective. Previous research by McCord et al. (1959) was used to obtain definitions of these descriptors. These assessments were first completed and recorded by the time the boys were ten years old, and the parents were then re-interviewed approximately once a year until the boys were either fourteen or fifteen. The parents of 22 of the boys totally refused to be interviewed and in a further 21 cases parental co-operation was very reluctant and gave rise to unreliable information.

This relatively unstructured method of obtaining information from parents, utilizing social workers as interviewers, gave rise to a number of specific problems. Interviewers were given a great deal of scope in their assessment of parents, which allowed for many subjective opinions to creep into the data. Thus, for example, when one or two items were found to be unfavorable by social workers, most of the other items tended to be similarly assessed. In addition, if the parents happened to be communicative and were happy to talk to someone about their troubles

then they were generally regarded as having a large number of family problems, although in reality they may have had no more, or indeed may even have had less problems than parents were not so communicative or willing to talk. Nevertheless, it was found that the parents generally preferred the open approach to interviewing rather than being asked to answer a standard questionnaire.

The interviews with the boys at eighteen and later ages were more structured, utilizing prepared questions to which replies could usually be recorded directly in the form of pre-arranged numerical codes. Exceptions were questions regarding delinquency, violence, and sexual experiences, all sensitive topics which, it was believed, necessitated unstructured discussion. Self-report questionnaires administered to the boys at various ages measured not only the commission of delinquent and violent acts, but also attitudes, for example towards the police, and delinquent behavior of friends. The questionnaires completed by the parents provided information about their own health and their child rearing attitudes.

A number of problems are involved in obtaining information from interviews. The interviewers themselves must be selected with care so that they not only report responses accurately, but also are able to extract relevant information from interviewees without intimidating them or indicating their own personal attitudes and judgements. In addition, when dealing with very sensitive issues, individuals not only are often reluctant to give personal information, but they may also tend to distort their true positions in order either to be viewed favorably or to provide those responses which they believe are expected of them. With these problems in mind, West and Farrington made numerous attempts to verify as much of the information received from the interviews as possible, and they found that the interviewees were generally being frank and honest. For example, information provided concerning family circumstances, school work or careers at different times throughout the survey was generally consistent; similarly, when compared with the same information provided by other individuals it nearly always agreed on the essential points. Different accounts of the same incident provided by different youths were compared, as were responses given at age eighteen with those given by the same youth at age sixteen. In addition, responses in one part of the interview could be compared with those given

elsewhere in the same interview. Differences between interviewers was also investigated, but none of these checks provided any suggestions that the information obtained from the interviews was either incorrect or invalid. Data concerning the boys' conviction records was obtained from the Criminal Records Office and other official sources such as local police or court records.

No attempt was made to determine the effects of the survey upon the boys or their families over a sustained period of time. However, it was generally believed that the occasional intrusion of the researchers into their lives probably had little effect upon either. The interviewers did not interfere in the lives of the subjects, although occasionally they would provide information advising individuals where to go for help with regard to financial, housing or health needs.

Research Questions

The data collected by West and Farrington will be used in the context of this study to answers the following research questions, each of which was developed from previous research findings reported in the literature review:

1) Is heavy drinking among adolescent males positively related to delinquency?

   Many researchers (for example Barnes, 1974; and Donovan and Jessor, 1978;) have suggested that heavy drinking constitutes one distinct form of deviant behavior. If indeed problem drinking is part of a more general pattern of deviancy, it would be expected that a relationship would exist between adolescent drinking habits and juvenile delinquency.

2) Is heavy drinking among adolescent males more closely associated with certain types of delinquency than others?

   The literature review clearly demonstrated the possibility that the relationship between heavy drinking and delinquency is stronger when delinquency is categorized into different types of crime. Those individuals who commit public nuisance offenses are not necessarily the same type of people as those who commit more serious offenses. Consequently, different results may be obtained in the analysis of the relationship between juvenile delinquency and heavy drinking if this fact is taken into consideration than would be obtained were all delinquent acts to be considered equivalent.

3) Is family structure in the form of family size and broken homes related to heavy drinking and to delinquency among adolescent males?

4) Do inter-parental relationships exhibit an association with heavy drinking and with delinquency in adolescent males?

5) Do parent-child relationships exhibit an association with heavy drinking and with delinquency in adolescent males?

The above three questions are based upon the theory that disturbed inter-parental and parent-child relationships provoke deviant behavior in some children. Social control theory emphasizes the family as an important source of social attachment and normative regulation. Thus, when a family structure breaks down, it is to be expected that the family will tend to lose its ability to motivate its children to actively avoid deviancy (Biron and Le Blanc, 1977; Gove and Crutchfield, 1982).

6) Does parental control and authoritarianism imposed upon male adolescents show a relationship with their drinking habits and their delinquency? Specifically, are both low and high levels of discipline or supervision associated with higher levels of drinking and delinquency than are average levels of discipline or supervision?

High levels of discipline may create rebellious behavior amongst adolescents, and this behavior will tend to lead to a weakening of the ties which adolescents maintain with their families. In a slightly different way, those ties may be perceived to be already weak by a child whose parents exercise minimal supervision over him. Social control theory would therefore suggest that average or moderate levels of discipline or supervision will tend to be the most effective in controlling all forms of deviant behavior.

7) Are family structure, inter-parental relationships, parent-child relationships, and parental supervision more closely associated with certain types of delinquency than others?

Based upon the arguments presented in support of Research Question 2 above, individuals who commit minor acts of delinquency might be expected to come from different home backgrounds than those who are responsible for more serious crimes.

Variables to be Used

Those variables available from the Cambridge Study in Delinquency Development which are relevant for the examination of the seven research questions are described below.

Delinquency variables

Many arguments exist concerning the relative merits of using either official statistics or self report data as measures of delinquency. West and Farrington, in their analysis of the relationships between drinking and delinquency and between delinquency and family factors, employed official statistics rather than the boys' own self reported offenses as an indication of delinquent behavior. However, in the present study, greater emphasis is placed upon self report data in the examination of the various relationships under consideration. The following discussion therefore includes a full description of both the official and self report delinquency variables together with the reasons for the inclusion and perceived importance of the self report data over the official statistics.

Juvenile convictions, adult convictions, total convictions, and a delinquency scale developed by West and Farrington provide the delinquency variables measured by official statistics to be used in the present study. Juvenile convictions were defined as "proved convictions for any offense of sufficient seriousness to belong to categories routinely reported by the police to the Criminal Records Office, or conviction for any offense invloving personal aggression" (West and Farrington, 1977: 6).

In order to obtain accurate information concerning the boys' official conviction records, repeated searches at the Criminal Records Office (CRO) and the relevant Local Authority Childrens' Departments were made. In the few cases when information obtained from the boys or elsewhere did not agree with that in the CRO files, discrepancies were resolved by reference to local police or court records. Six boys spent over one year of their juvenile lives outside England and Wales. In their cases, approaches were made to the appropriate authorities and, as a result, one of the six was counted as a delinquent.

Juvenile convictions concern offenses committed between an offender's tenth and seventeenth birthdays. The age of criminal responsibility was raised to ten from eight on February 1, 1964, on which date most of the younger boys were nine years old. The consequence was that only the older boys ran the risk of conviction for the full period between their eight and tenth birthdays, and, in the event, the three convictions which occurred under the age of ten were discounted. On their seventeenth birthday, the boys were legally defined as adults. The date of an offense committed rather than the date of appearance in court was therefore used to decide whether to classify an offense as juvenile or adult.

The decision to define juvenile convictions as those findings of guilt for offenses normally registered in the CRO resulted in court appearances for minor non-indictable traffic offenses, breaches of regulations, non-payment of fines, and non-attendance at school resulting in care and protection preceedings being excluded from the study data. The added exclusion of breaches of conditional discharges, probation orders, and attendance center orders avoided the problem of exaggerating recidivism statistics by counting one criminal offense as two.

With respect to juvenile offenders, any finding for assaultive or disorderly behavior, such as common assault or insulting behavior, were counted as delinquency convictions regardless of whether or not they were recorded at the CRO. Adult convictions, however, were strictly defined according to entries made in the CRO, since for adults, other sources of information such as social services department juvenile records were not available. These adult convictions included findings of guilt for offenses committed between the boys' seventeenth and twenty fourth birthdays.

West and Farrington found that official convictions were very largely the result of police action against stealing, while other forms of delinquent behavior such as causing bodily harm or arson occurred only occasionally. They therefore concluded that the number of convictions was the best available index of severity of delinquency. Nevertheless, in order to investigate borderline delinquents, a group of 56 boys were isolated from the rest of the non-delinquents (in other words those with no convictions), and were described as 'police contact' cases. Those included in this group had experienced some form of official police action resulting from their

misbehavior, although they had not received a court conviction. In more detail, police contact cases consisted of boys who had been involved in:

a) Any finding of guilt for a minor offense not normally recorded in the CRO

b) Police prosecutions which either failed or were not fully proceeded with

c) Misconduct notified by the police to a Childrens' Department or dealt with by the police juvenile bureau without prosecution

d) Official cautions or serious warnings from the police involving a summons to the police station or a visit to the parents.

Each of these incidents were counted only when the information was obtained from official sources or when a report by a boy was corroborated by his parents. Nevertheless, the problem of failing to identify all of the boys who could have been included in the police contact group proved unavoidable.

Making use of this police contact group, West and Farrington were able to create a scale of official juvenile delinquency. Recidivists (37 boys) consisted of those youths who had received two or more convictions for juvenile offenses, whilst one-time delinquents (47), by definition had been convicted only once as juveniles. The remaining non-delinquents were then separated into those with no police record (271) and police contact cases (56). Those in the police contact group included 33 who had been dealt with for acts which, had they appeared in court and been convicted would have resulted in their inclusion in the delinquent group. The other 23, who had been involved in more minor incidents, included 14 who had been found guilty by the courts of traffic offenses. Although they created these four sub-groups, most of West and Farrington's analysis consisted of comparing those boys who were recorded at the Criminal Records Office, in other words the official delinquents, with the remainder of the sample, the non-delinquents.

One of the main problems involved in the use of official statistics is that, in addition to the uncertainty introduced by the chances of being caught, the acquisition of a juvenile criminal record depends upon the willingness of neighbors, parents and schoolteachers to report children's deviant acts. Official statistics may also reflect the amount of time children spend on the streets where their misbehavior is visible and the local police policy regarding the prosecution

of juveniles (West and Farrington, 1973:186).

In the simplest of terms, youths who are involved in criminal activity but who are clever enough to manage to avoid capture or conviction are excluded from a delinquent group based upon official statistics. West and Farrington's study took place at a time when, unlike the present, it was police policy to prosecute as many arrested juveniles as possible, such that known delinquents acquired a police record. Nevertheless, a number of delinquent boys would inevitably fail to receive convictions for crimes committed, even when their identity was known to the police, thereby creating the problem of including delinquents in the non-delinquent group and biasing the results. Moreover, samples of official delinquents run the risk of being biased in the direction of over-representation of juveniles who obviously come from unfavorable backgrounds. Young people who attract the attention of the police frequently come from poor areas or have known criminals already in their family (Hood and Sparks, 1970). It is possible that the authorities may tend to view children who come from a stable environment, with both parents at home, a reasonable family income and no history of criminal convictions as simply having strayed temporarily into crime and deserving of another chance. On the other hand, children from broken homes, with a father or mother in jail and little family income, may receive much stricter treatment, resulting in prosecution and conviction (Black, 1980). Clearly, the distinctions made here are rather overstated, but they assist in highlighting the problem of bias in the use of official criminal statistics as a measure of delinquency.

In addition to collecting official statistics, West and Farrington obtained a self report measure of delinquency by giving the boys a self report delinquency questionnaire which had previously been developed by Gibson based upon the unpublished work of H. D. Willcock of the Government Social Survey (West and Farrington, 1973: 153). The questionnaire consisted of thirty eight descriptions of acts, each one set out on a separate card. The cards were shuffled into a random order and then each boy was required to sort them out into four piles to indicate whether they had frequently, sometimes, once or twice, or never committed each act. Questionnaires were completed by 405 boys at age 14-15 and by 397 boys at age 16-17. The thirty eight acts, together with the percentages of boys admitting each act at the two ages the

questionnaire was administered are displayed in Appendix I.

The problem of accuracy of self report data as compared with official delinquency statistics was considered by West and Farrington. One common source of error in self report data, that of non-response bias, or the effect of failing to include the less willing or more elusive clients, who frequently tend to be the most delinquent, was largely avoided in the Cambridge study. Virtually every member of the cohort was questioned on one or more occasions. In addition, the researchers compared the 80 boys with the highest self report scores, that is, the boys who admitted at least twenty one of the thirty eight acts, with the 84 official delinquents. It was found that 41 boys were characterized as delinquents on both the official and self report scores, 39 were self reported delinquents but not official, and 43 were official but not self reported. The conclusion drawn from these findings was that, since the two measures of delinquency did not always pick out the same boys, they were probably subject to different types of bias. Thus, the 39 self reported but not official delinquents could have resulted from the boys exaggerating the number of delinquent acts they had committed. An alternative explanation, however, could have been that this group of boys were genuine delinquents but that, because of the selectivity of official processes towards labelling as delinquents those individuals who possess certain characteristics, these self report delinquents were not processed by the police. West and Farrington discovered that the boys who were self reported but not official delinquents were a deviancy prone group. Despite not having juvenile conviction records, 19 of the 39 boys later had either police contact or adult convictions. The conclusion was subsequently drawn that this group of boys probably avoided official convictions not because their delinquent conduct was unknown to the police, but rather because their background characteristics failed to fit the stereotype of a juvenile delinquent.

The problem of the 43 boys who were official but not self reported delinquents is harder to explain, but nevertheless fits into the general pattern the researchers found of the boys tending to minimize the number of delinquent acts they had committed. The interviewers knew the boys and had been involved with their families when the self report data was collected, a situation which may have resulted in attempts by the boys to put themselves in a good light.

If admissions from the self report questionnaire were to be trusted as accurate, then the proportion of boys claiming to have committed a particular deviant act at some time in the past should always have been at least as large at the age of sixteen as at the age of fourteen. In addressing this particular aspect of the data, West and Farrington found that responses proved to be consistent for nearly all of the 38 acts. Some of the minor acts, such as riding a bicycle without lights or trespassing did not increase greatly between the two ages (an increase of 1.8% was recorded for the former act and 3.3% for the latter), whilst some of the more serious acts, such as using any kind of weapon in a fight and buying cheap or accepting as a present anything known or suspected of being stolen, increased by at least 5%. These results supported the theory that delinquent boys, as they grow older, become more involved in serious crime rather than simply continue to commit an increasing number of nuisance offenses. Items of minor misconduct tended to be admitted by the great majority of boys at both ages, very few in the sample claiming always to have behaved with near-perfect conformity to the law.

The validity of the self report scores was further confirmed by the finding that self report delinquents had also frequently been reported troublesome in a variety of ways in their school classes. Correlations between self report delinquency and "troublesomeness" were found to be significant, with 34% of the boys assessed as being troublesome also being self reported delinquents, compared with only 15% among the remainder of the cohort.

In conclusion, a number of specific reasons exist why, in the context of this study, employing self reported data as a measure of delinquency offers advantages over the use of official statistics:

a) Not all crimes are detected; undetected delinquents may therefore not be considered in the analysis if official statistics are utilized. Additionally, the data will only tend to be representative of either the most serious delinquents or those who possess certain background characteristics.

b) When perpetrating a crime, the likelihood of apprehension could well be increased if the individual concerned has been drinking. The implication is thus that proportionately more drinking delinquents could be arrested than non-drinking delinquents and that this bias may be reflected in official data. The use of self reported delinquency statistics would appear to be one way of avoiding this inbuilt bias.

c) A similar problem of bias in official statistics occurs with respect to the relationship between broken homes and delinquency. Not only are children from broken homes more likely to be referred to the police by schools and neighbors than are juveniles from intact homes, but also the courts tend to view them as being in need of greater care and protection.

d) In order to achieve consistency, since the only data available for use concerning drinking habits is self reported, it would seem logical to also use self reported delinquency measures.

e) When examining their data for internal validity, West and Farrington found that the self reported data collected during their survey was generally consistent and honest when compared with other independent measures.

f) The inclusion of 38 different acts in the self report delinquency variable introduces the possibility of creating several different categories of crime based upon these acts. These categories may then be examined separately in the analysis of the relationship between drinking and delinquency, thereby helping to identify more clearly those offenses most strongly associated with drinking in young offenders. Similarly, the determination of different categories of crime enables any possible variations in the importance of family relationships upon the development of different types of delinquency to be discovered.

Self Report Delinquency Measures Used in this Study - Rather than isolating different types of delinquency, West and Farrington simply obtained a final self report score for each boy. In the present study, however, the 38 self report delinquency acts are divided into four separate categories of offense: public nuisance, minor property, serious property, and personal. Details of the four categories and the 38 delinquent acts which are contained within them are presented in Appendix II. The division of the self report data into four categories represents an attempt not only to differentiate between types of offenses, but also between levels of delinquency.

A large number of the acts consisted of behavior constituting borderline delinquency. Examples were such things as going to see X-rated (adult) films under the age of eighteen, letting off fireworks in the street, and travelling without a ticket or paying the wrong fare on a bus. Perhaps not surprisingly, the percentage of the cohort admitting to such minor examples of misconduct (80% at the age of sixteen in the three examples mentioned above) tended to be high. It was therefore considered appropriate that these minor forms of misbehavior should be

separated from the more serious types of crime, particularly offenses against the person, committed by only a small proportion of the cohort.

In addition, the self report questionnaire included a variety of property offenses, which constituted a distinct category, but which in themselves were very diverse, ranging from breaking windows of empty houses and stealing a bicycle to breaking into a small shop. It was therefore considered necessary to introduce a division between minor and serious property offenses.

Thus, four categories of self reported delinquency were created. The public nuisance group includes 13 acts of minor misconduct, while the personal offense category, including delinquency involving the use of violence against others or the carrying of a weapon with the intention of committing violence, consists of 5 acts. The serious property group represents 4 breaking and entering offenses, with the remaining 14 crimes against property constituting the minor property category. The four categories were then used to provide a measure of the diversity of the boys' delinquent behavior in each category. To create this measure, once any act had been committed on one occasion, the commission of the same act on a subsequent occasion was disregarded. In this way, percentage scores were obtained of the proportion of boys in the sample who had committed either none or any specific number of deviant acts in each of the four categories public nuisance, minor property, serious property, and personal. For example, an admission of having broken into houses on three occasions and a garage on one occasion would be classified as the commission of two of the acts in the serious property group, rather than the commission of a serious property offense on four separate occasions. The 'diversity' variable was thus intended to reflect variety rather than frequency of deviant conduct. (See Appendix II).

At the age of 14-15 years, the self report delinquency data was manipulated so as to provide three additional self report delinquency variables in each of the four categories: 'ever done', 'sometimes', and 'frequently'. At the age of 16-17 years, because of the method of data collection utilized, it was only possible to introduce the 'ever done' variable.

The 'ever done' variable was created by isolating from the rest of the sample those boys who had refrained from engaging in any deviant behavior in each of the four categories. In reality however, so few boys (1.2% of the sample at age 14-15 years) reported never having

committed public nuisance offenses that the creation of an 'ever done' variable in this category would have been meaningless. Similarly, at the age of 16-17 years, it was possible to divide the different types of delinquency, with the exception of public nuisance offenses, into a group of boys who had never committed the acts and another group who had admitted to at least one offense in the category. The self report delinquency data collected by West and Farrington at 16-17 years simply asked the boys to indicate those acts which they had been involved in rather than enquiring how frequently they had done them , and any further development of the four self report categories at this age was thus precluded. However, at age 14-15 years, the boys' responses had been separated into never, once or twice, sometimes or frequently, a categorization which enabled the additional variables 'sometimes done' and 'frequently done' to be developed within each of the groups of offense types.

The 'sometimes' variable consisted of two groups of boys, one consisting of those boys who had either never committed any of the offenses in a particular category, or had done so once or twice, while the second group contained boys who had admitted to carrying out the acts either sometimes or frequently. The 'frequently' variable similarly consisted of two groups, the first consisting of those boys who never, once or twice, or sometimes engaged in any of the acts in a particular category, and the second consisting of those who had frequently been involved.

In summary, therefore, at the age of 14-15 years the self report data was used to categorize four distinct categories of offense, each of which then gave rise to the four variables 'diversity', 'ever done', 'sometimes', and 'frequently'. At the age of 16-17 years, the four delinquency categories merely provided for the 'diversity' and 'ever done' variables. For ease of reference, the four types of offense variable, together with their possible values and short definitions are presented in Table 3.1 below.

This extensive development of the self report delinquency scores by no means suggests that the data collected concerning the boys' admissions of misconduct were without problems or bias. West and Farrington discovered, in analyzing the self report responses, that the boys tended to underestimate their involvement in illegal activity. In addition, the very large number of public nuisance offenses admitted to resulted in an over-representation of boys in this category.

Nevertheless, these disadvantages to no extent outweigh the numerous advantages outlined above concerning the use of self reported delinquency data.

Table 3.1 - Types, values and definitions of offense variables to be used in each offense category in the present study.

Variable type	Possible levels	Definition
Diversity	Continuous	Number of different types of offense committed (Public nuisance, 0-13; Minor property, 0-11; Serious property, 0-4; Personal, 0-5).
Ever	Yes	Committing any number of offenses
	No	Never having committed an offense
Sometimes	Yes	Sometimes or frequently committing offenses
	No	Never or once or twice committing offenses
Frequently	Yes	Frequently committing offenses
	No	Never, once or twice, or sometimes committing offenses

Drinking Variables

Those drinking variables described in the literature review section of this study indicated the problem of determining a true measure of levels of drinking. An individual who consumes a certain amount of alcohol per week may be classified as a heavy drinker by some definitions, and not by others. The decision as to what level or frequency of consumption constitutes alcohol abuse is to some extent an arbitrary one. Whilst some levels of drinking, for example fifteen pints of beer per day each day of the week, are excessive according to everyone's standards, other levels near the borderline of acceptability are open to differences of opinion. Societal standards may change with time such that the levels of consumption considered excessive in the past may be viewed as acceptable today, or vice versa. Similarly, in different sections of society

patterns of drinking tend to vary. Working class areas in England, for example, are characterized by beer drinking, while in more middle and upper class areas wine or spirits are favored. Whilst this statement may be considered by some an over generalization, it is consistent with West and Farrington's finding that the boys' most popular drink at the age of 18-19 years was beer. Only 19 youths (4.9% of 389 respondents) reported that they never drank beer, whereas 110 (28.4%) never drank spirits and 265 (68.3%) never drank wine. The relative prices of the three types of drink is also an important factor since boys with little money could rarely afford the more expensive drinks including spirits (West and Farrington, 1977: 45).

The data collected concerning the drinking variables did not differentiate between types of drinks at the age of 14-15 years nor at 16-17 years. At these two age groups, as part of the self report delinquency the boys were asked whether they had drunk alcohol in pubs under the age of eighteen. The possible responses in the 14-15 age group included 'never', 'once or twice', 'sometimes', and 'frequently', whilst at 16-17 years the boys were simply asked to answer 'yes' or 'no'.

The legal drinking age for drinking alcohol in pubs in England is 18 years, therefore one interpretation of the data could be that those boys who responded in the affirmative to the above questions were the more serious drinkers. However, although 298 of the boys when responding at the 14-15 year age group reported never having drunk alcohol in pubs, this number reduced to only 83 at the age of 16-17 years. An alternative interpretation of the data was therefore that, rather than the vast majority of the boys at the later age being serious drinkers, as they grew older and drew nearer to the legal drinking age, consuming alcohol in pubs became a more acceptable pastime for them. Nevertheless, despite the possible differing interpretations of the data and the rather arbitrary nature of the two variables, they do represent measures of drinking for the boys at early ages.

At the age of 18-19 years, the interviewers asked the boys a number of questions concerning their drinking patterns. Frequency of consumption was assessed by asking separately about drinking habits on each day of the week, while quantity consumed was simply determined by recording the most drunk in any one evening. In the present study however,

rather than using one single criterion, West and Farrington's global drinking score will be employed in order to obtain a more comprehensive summary measure of drinking behavior.

The global score was created by combining four drinking variables, all of which were significantly inter-correlated: quantity of beer consumed per week, quantity of spirits consumed per week, maximum drink in an average week, and number of drinking days per week (West and Farrington, 1977: 45). Each of the four variables were individually allocated a score ranging from one to four points, and then a summary total was obtained by simple addition. Where information in relation to one of the variables was not available, points were allocated pro-rata, the 24 non-drinkers being given the minimum score. The new 'drinking combined' variable was then trichotomized so as to identify low, average and heavy drinkers.

Although it is known that the heavy drinkers scored at least fourteen points out of a maximum possible score of sixteen, West and Farrington unfortunately provide no information as to the number of points necessary to be included in either the average or low groups. Nevertheless, the result of the points classification was that 20.0% of the 411 boys were categorized as heavy drinkers, 51.2% as average and 28.8% as low. The number of drinking days per week is no longer coded as a separate item. Although this prohibits the exact amount of alcohol consumed by the heavy drinkers to be determined, the other variables included within the global score do give some indication as to the general level of drinking by those boys who obtained high scores. Thus, those respondents who scored sixteen points reported drinking at least 20 pints of beer and more than 6 single spirits per week, with the most drunk in one particular evening being 13 units or more, one unit being the equivalent of either half a pint of beer or cider, a glass of wine, or a single spirit.

The global score of drinking provides an acceptable measure of the drinking behavior of boys in the sample. Whilst the quantity of alcohol consumed by the heavy drinkers is not precisely known, from the information available it would appear to be well in excess of the amount drunk by an average youth.

The Cambridge Study data therefore provides the following three measures of drinking behavior which will be used to examine the research questions previously stated: drinking in

pubs under 18 years (measured at age 14-15), drinkiing in pubs under 18 years (measured at age 16-17), and drinking combined (measured at age 18-19).

Family Factors

In the context of the present study, an assessment of the role of the family in the development of delinquency and heavy drinking will be achieved through employing and analyzing a number of variables which describe family structure and family relationships, and which were initially created from the data collected by West and Farrington.

Family income - Although the entire sample for the Cambridge Study was taken from a single neighborhood in which the range of occupations was limited, it was discovered that family income provided a realistic measure of variations in life style. Life style supplies evidence concerning the general environment and upbringing of the boys, since children who live in homes where there is a shortage of money may experience tension and arguments between parents due to financial difficulties. Therefore, whilst recognizing the lack of emphasis placed upon income as an important factor in the relationship between juvenile delinquency and drinking in the literature review, since it provides some relevant information concerning the background of the boys, income is included as an independent variable in the present research.

The psychiatric social workers (PSW) experienced some difficulties in categorizing family income. The boys' parents were often reluctant to discuss such a sensitive issue, and many mothers were either vague about their husbands' total earnings or they simply did not know what they were.

The case record forms completed by the PSWs included spaces for recording father's earnings, mother's earnings, contributions from other members of the household, mother's housekeeping allowance, amount of family allowances and national assistance, in addition to regular financial committments such as rent or any other special payments. The presence or absence of specified items of household equipment was noted by the PSWs on a printed list which included car, refrigerator, television, telephone, washing machine, carpets, plentiful toys,

and a cocktail cabinet (a local status symbol). The less co-operative familes were often reluctant to show visitors very much of their homes, which made this particular part of the PSWs task difficult.

Information obtained was used by the PSWs to make an impressionistic rating of each family's financial situation as being either comfortable, adequate, or inadequate. In general, families with a total income of £15 per week or less for two adults and four children were assigned an 'inadequate' income rating, while those believed to have £20 or more net to spend each week were classed as being financially comfortable. At first sight, the difference of £5 between inadequate and comfortable income may not appear substantial, but the family income data was collected in the early 1960s, at which time £5 represented considerable spending power. When the information volunteered by the parents was insufficient or unreliable, the PSWs judged the family income by taking into account their style of living, number of visible possessions, and general appearance. In this way, 22.8% of the boys were found to come from families which were struggling on inadequate incomes, while 21.3% lived in financially comfortable homes.

The data on family income was collected when the boys were 8 or 9 years old, in either 1962 or 1963, and the three categories developed therefore reflect the relative standards of living at that time. Most of those families classified as having inadequate incomes were existing at a level little different from that of families which qualified for or were actually receiving National Assistance at that time, so their degree of material deprivation was relatively severe.

As a check on consistency of standards, all records were read and reclassified by other members of the research team and discrepant cases were referred back to the PSWs for confirmation or reconsideration. Sixteen cases left as unclassified by the PSWs were later allocated classifications on the basis of data concerning the boys' situations at age 8-9 years obtained from outside agencies and subsequent enquiries.

Broken Homes and Family Size - The literature review emphasized broken homes and family size as being two family structural variables worthy of consideration in analyzing the relationship between juvenile delinquency and heavy drinking. Previous research has, however,

provided conflicting results concerning the importance of these variables in the development of deviant behavior. One factor contributing to the problem of comparing findings is that a number of differing interpretations of what constitutes a broken home have been used.

West and Farrington similarly experienced difficulties in precisely defining a broken home. At the age of 9 years, 44 boys (10.7% of the cohort) were living in incomplete families, the father having died in ten cases and the mother in four. In the other 30 families, the natural father was permanently away due to divorce, separation or desertion in 21 cases, the mother in 6, and both parents in 3 cases. The family breaks did not automatically mean that boys were permanently deprived of parental care, however, since some were very well settled with step-parents or foster parents. Nevertheless, the Cambridge Study researchers decided to define a broken home as being a permanent separation from one or both natural parents due to either death, desertion, separation or divorce, without making any provision for the addition of a step-parent to the family. By the time the boys had reached the age of 15, 76 boys (18.5%) were permanently separated according to this definition. The present study utilizes the same definition of a broken home as that proposed by the Cambridge researchers.

The family size variable obtained from the Cambridge data is defined as the number of children in the family when the boys were either 8 or 9 years old. This definition includes the number of children surviving for at least one year born to the parents before the boys' tenth birthdays, and siblings living away from home. In the case of uncooperative families or illegitimate births it is possible that siblings existed who were unknown to the researchers.

Family Relationships - The psychiatric social workers (PSWs) who collected data from the boys' parents in the Cambridge Study often experienced problems in appraising such variables as maternal conflict, maternal discipline, and marital harmony. A true description of the kinds of relationships which exist between family members is extremely difficult to achieve, and almost inevitably involves subjective judgements. The creation of variables describing family relationships and family affinity therefore met with varied success.

When the subjects were 8 years old the PSWs categorized the attitudes of the mothers towards their sons as being either 'loving normal', 'loving anxious', 'over-protective', 'cruel', 'passive', or 'neglecting'. These categorizations formed the basis of a 'maternal attitude' variable. At the same age, paternal attitudes were assessed by the PSWs as being either 'warm', 'passive', or 'cruel'. Their judgements concerning parental attitudes were repeated at later ages.

In a similar way, the PSWs attempted to categorize the mothers' and fathers' operative discipline styles as being either 'normal', 'lax', 'strict', 'very strict' or 'erratic', and their quality of discipline as being either 'spoilt', 'harsh', 'disinterested', or none of these three. These different ratings were primarily attempts to measure the nature and severity of methods of control and punishment.

It was discovered that a considerable overlap existed between the various ratings of parental attitude and discipline. For example, 36 of the 43 boys assessed as having been exposed to maternal discipline of a harsh quality, and 27 of the 42 described as having experienced cruel, passive or neglecting maternal attitudes also figured among the minority who had received either 'erratic' or 'very strict' maternal discipline styles. Whilst it could be argued that this overlapping simply reflected the family situations, such that parental attitudes were genuinely inter-linked, West and Farrington discovered that the inter-correlations among the PSWs' ratings were much higher with regard to those factors which required subjective judgements than those which derived from more direct and objective observations. This suggested that, as mentioned previously in this chapter, that the overlap between the attitude and the two discipline rating was largely due to the tendency of the PSWs to view each parent either positively or negatively and to rate them accordingly on all three scales.

A more meaningful score for each boy at the age of 8-9 years was therefore developed based upon two combined scales, one reflecting maternal attitude and discipline, and the other paternal attitude and discipline.

In view of the potential disturbing effects of parental conflicts upon children, the PSWs were asked to pay particular attention to marital harmony in their interviews, to ask specifically about marital difficulties, and to record any indications of conflict. Originally, the PSWs record

forms included a four-point rating scale of parents' marital adjustments, but this proved difficult to complete. The rating standards of the interviewers at different times with the same parents proved so discrepant that a simple dichotomous division into satisfactory marriage or disharmonious marriage was all that could be obtained.

Disharmony between parents was often found to be associated either with inconsistency between the father and mother in the handling of their children or with an undue dominance by one parent in family matters. The PSWs therefore also tried to assess both of these aspects of family life. Inconsistency between parents in their handling of the boys was defined as 'sufficient to be confusing to the child or to permit him to play off one parent against the other or to enable him to avoid conforming with either (West and Farrington, 1973: 73). If the parents claimed complete agreement between themselves, if there appeared to be no more than a normal amount of disagreement between the parents' standards, or if the parents concealed their disagreements from the child, the rating was 'not inconsistent'. A parent was characterized as being dominant if he or she took the lead in the organization of family life, excluding the other partner from decisions or leaving the partner with very little to say. The rating of 'neither dominant' indicated that the parents discussed their plans together and arrived at joint decisions.

Since the PSWs assessments of marital disharmony, parental inconsistency, and parental dominance were all closely inter-related, the three were merged into a combined scale of parental conflict measured when the boys were 8-9 years old.

When discussing all of the above family characteristics with parents, the psychiatric social workers were dealing with very sensitive issues. Even when the parents are highly motivated to give truthful reports, problems of communication, faulty recollections, and confused emotions all interfere with the accuracy of the measures. In the end, the result was that maternal attitude, paternal attitude, parental discipline, marital harmony, parental inconsistency, and parental dominance were all found to be closely inter-correlated and reflective of the PSWs general opinions of whether or not the parents exhibited good management styles. The researchers further discovered that no one single item from the above list could be identified as being more important than the rest. Their conclusion that the psychiatric social workers had found it

impracticable to rate all aspects of family life independently led to the combining of all of the items in this cluster into a single score representing a global rating of parental behavior.

Details of the scoring systems used in the creation of the four combined variables described above, maternal attitude and discipline, paternal attitude and discipline, parental conflict, and parental behavior are indicated in Appendix III.

One aspect of parental behavior which did not seem to be closely associated with any of the above variables was parental supervision. When the boys were 8-9 years old, their parents were rated according to their vigilance and their rules by the PSWs. 'Vigilance' referred to parental watchfulness, concern and closeness of supervision, while 'rules' referred to whether parents were rigid or lax in their application of rules of behavior and penalties for non-conformity (West and Farrington, 1969: 73-74).

The ratings of rules and vigilance were found to overlap considerably, just one example being that 25 out of the 41 boys classified as having under-vigilant parents were among the 66 whose parents were considered to be lax in rules. Due to this overlap, the two assessments were subsequently combined into one single measure of parental supervision. Within this variable, the standard of behavior which parents attempted to enforce and the consistency with which they applied their rules were measured as being either 'good', 'average', or 'poor'. Appendix III indicates the scoring system under which these sub-classifications of parental supervision were made.

In order to assess the boys' attitudes towards their parents, a number of questions were designed for inclusion in the interviews at age 18. The vast majority of boys, 87.8% of 389, named the home of a parent or guardian as their usual place of abode. The remaining youths were either living in lodgings, hostels, servicemens' quarters, sharing accommodation with others, or, in 6 cases, were living in their own marital home. All of the youths were asked if they would prefer to live with their parents or elsewhere. The 249 boys who answered in the affirmative were asked to give their reasons and these were subsequently placed in one of the following four non-mutually exclusive categories: financial convenience and home comforts, good relationships with parents, security of the parental home, and companionship of parents.

Financial convenience and home comforts, reported by 62.2% of the cohort, were the most popular reasons, followed by good relationships with parents which accounted for a further 26.5%. The security of the parental home and the companionship of parents were less frequently reported, being specified by only 10.0% and 8.8% respectively. Of the remaining 116 who would rather live away from their parents, 60.3% mentioned either a desire for independence, a wish for a less restricted life, or a need to cope with their own problems without help as being major reasons for their preference.

In a rather more direct question, the youths were asked how they related to their parents, either 'very well', 'OK', or 'not so well'. A further indication of home circumstances was obtained by asking the boys whether they felt happy about bringing friends or girls home. By utilizing all of this data, West and Farrington were able to create a combined variable which described the boys' relationships with their parents as falling into one if three categories: 'good', 'average', or 'poor'. According to this classification, 86 boys were identified with evident parent-son discord. These tended to be youths who either were living away from home because of having experienced tension with their parents, had mentioned tension as being a major reason why they wanted to live away from home, or reported not getting on so well with one or both parents.

In summary, the three combined variables defining the relationships between members of the boys' families which are to be included in the analysis of the relationship between drinking and delinquency are parental behavior, measured at 10-11 years, parental supervision, measured at 8-9 years, and boy's relationship with parents, measured at the age of 18. Since the latter variable represents emotions which are built up over a long period of time it is appropriate that it is measured at 18 years rather than at an earlier age. In addition, eighteen year old youths' responses concerning such sensitive issues are more likely to be meaningful than answers obtained from young children. The problems experienced in attempting to obtain realistic measures of the boys' attitudes towards their parents at earlier ages are highlighted by their responses at age 16 to a question concerning arguments with their parents. Ninety six boys replied that they had never even had a minor disagreement with their parents, and a further 262

had no unfavorable comment to make about their adjustment at home. Clearly, one would have expected the vast majority of the youths to have indicated that arguments had occurred at home. The boys' responses would therefore appear to be indicative of their attempts to create an impression of good behavior with their interviewers.

West and Farrington employed both the structural and behavioral family variables outlined above in their study of the development of delinquency. The present study additionally attempts to determine the role of the family in the onset of drinking problems. If the two types of deviant behavior are found not only to be positively related to one another, but also both to be associated with problems in the family, then this information will assist in understanding in more depth the relationship between juvenile delinquency and alcohol abuse.

Analysis

The analysis undertaken in this study provided an opportunity to increase the existing knowledge and understanding of the link between delinquency and heavy drinking, the main purpose of the investigation being to provide answers to the seven research questions by using some of the data collected in connection with the Cambridge Study in Delinquent Development.

A variety of bivariate relationships were explored in the analysis with the use of the Chi-square statistic and Gamma, since each variable was based upon at least ordinal level data. While Chi-square indicates whether or not a relationship exists, Gamma describes the strength and direction of a discovered relationship on a scale ranging from -1 to +1. Gamma provides a proportional reduction in error measure of association for ordinal scales, and is particularly appropriate for use with ordinal variables which have, for the sake of analysis, been subdivided arbitrarily into categories (Mendenhall, Ott and Larson, 1974).

The bivariate analysis began with the determination of an association between the array of self reported delinquency variables, created from the boys' responses to the delinquency questionnaire, and the three drinking variables, drinking in pubs under 18 years (measured at 14-15 years), drinking in pubs under 18 years (measured at 16-17 years), and drinking combined (measured at 18-19 years).

It was decided that the diversity variables, which described the number of public nuisance, minor property, serious property, and personal offenses committed by the boys would be better handled for cross-tabulation purposes if they were each reduced in size by creating sub-classifications of certain numbers of acts. Therefore, for example, while still measuring the diversity of the boys delinquent behavior, the public nuisance variable at both 14 and 16 years was divided into four groups containing 0-4, 5-6, 7-8, and 9-13 acts. Similar divisions were also carried out with respect to minor property, serious property, and personal offenses (Appendix IV).

This manipulation meant that it proved possible to determine whether the drinking behavior of the boys in pubs under the age of 18 years and heavy drinking at the age of 18 were more closely associated with certain types of delinquency measured at 14 and 16 years than with others. In addition, the development of the variables 'ever done', 'sometimes done', and 'frequently done' enabled a comparison of the degree of association between the drinking patterns of the boys and contrasting levels of delinquency to be undertaken.

Public nuisance offenses were not categorized into 'ever done' due to the very small proportion of boys who who responded that they had never committed such minor acts. Furthermore, the delinquency self report variables measured at 16 years only include 'diversity' and 'ever done', resulting from the limitations of the data collection at that age, when boys, rather than being asked to specify the number of occasions on which they had committed certain acts, were merely asked whether they had committed them or not.

In recognition of the limitations of the self report data, both in the sense of including too many minor offenses and underestimating the crimes committed by the boys, the statistical analysis includes an investigation of the relationship between the three drinking variables and juvenile convictions, adult convictions, convictions between 10 and 24 years, and final official juvenile coding.

The inclusion of official statistics in the analysis stage of the study increases the information available concerning the relationship between juvenile delinquency and heavy drinking, thus assisting in the formation of sound conclusions. However, as had been the case

with the self report data, the large number of categories recorded in each conviction variable forced the aggregation of categories into groups, as indicated in Appendix V.

The results of the bivariate analysis thus include numerous cross-tabulations which describe the zero-order relationships between drinking, measured at 14, 16, and 18 years, and both self reported delinquency, measured at 14 and 16 years, and official delinquency.

The bivariate analysis further includes an investigation of the relationships between all of the delinquency data, both official and self report, and the family variables which describe family income, family size, broken home before the age of 15, behavior of parents, supervision of parents, and relationships within the family. Again, cross-tabulations are computed to describe the associations which exist. In addition, the final stage of the bivariate analysis examines the relationship between family factors and drinking by employing the three drinking variables as dependent variables.

Several multivariate analyses were also undertaken in order to examine the separate effects of each family and drinking variable upon delinquency whilst controlling for other independent variables. Regression analysis was employed with the 'diversity' self report and conviction variables as the dependent variables and family factors and the three measures of drinking as the independent variables. The dependent diversity and conviction variables were used in their original form rather than employing the categories developed for the bivariate analysis.

Multiple regression applies best to an analysis in which both the dependent and independent variables are normally distributed interval measures. Nevertheless, despite past controversies surrounding the use of regression for ordinal level data, in general it has been found to be a robust procedure, providing reasonable results despite the violations of its underlying assumptions (Kerlinger and Pedhazur, 1973). Thus, ordinal variables have commonly been used in regression analysis.

Multiple regression can not, however be used effectively when the dependent variable is dichotomous since a number of assumptions concerning the error term in the regression equation are violated. If the dependent variable is restricted to two values, for example 0 and 1, the error term can also only take on two values and as such cannot be normally distributed. The violation

of the assumption of normally distributed error terms results in the R-squared and t-statistics used with the Ordinary Least Squares (OLS) procedure failing to be meaningful (Bynum, 1982). In addition, when the dependent variable only takes on two values, the assumption of equal variance of the error term is also violated (Palmer and Carlson, 1976). In such a situation an OLS technique would result in inefficient estimators.

A solution to the problems involving the distribution of the error term is the use of a Generalized Least Squares (GLS) technique. However, this procedure does not overcome the problem of using a linear solution to an equation involving a dichotomous dependent variable.

Consequently, in order to investigate the seperate effects of the independent variables upon the 'ever done' dichotomous delinquency variables, loglinear regression analysis was used. The loglinear technique surmounts both of the difficulties presented by the violation of the OLS assumptions concerning the error term and the problems of a linear functional form. Multiple regression minimizes the distance between observed and expected values, while loglinear analysis maximizes the probability of obtaining the observed data given a set of independent variables. The two types of multivariate analysis, although different in their methods of solution, are very similar in use and interpretation with the statistical significance of individual variables being computed in similar ways.

Summary of Methodological Advantages and Limitations

A number of the methodological problems encountered in previous research analyzing both juvenile delinquency and alcohol abuse were outlined in the literature review. The employment of longitudinal data obtained from the Cambridge Study helps to overcome some of the more serious methodological flaws which afflicted earlier research, but cannot eradicate certain other limitations of the present study.

One of the main considerations to be made during any research involving juvenile delinquency is whether official statistics or self-report data should be relied upon as a measure of deviant behavior. The reasons for the heavy emphasis upon self report data in the present study were discussed in some detail earlier in this chapter. Of particular importance is the need to avoid

the bias which may occur in the use of official statistics, resulting from the uneven actions both of the police and the courts in their dealings with children who come from unfavorable backgrounds (Hood and Sparks, 1970; Black, 1980). Frequently, these youngsters may live in broken homes, low income families, or homes where there is marital disharmony. Additionally, official statistics possibly reflect the fact that children who are heavy drinkers tend to be apprehended more frequently than do youths who either abstain, or drink very little, simply because they are often under the influence of alcohol at the time they commit crimes. In both of the above examples of bias, the use of official statistics tends to result in over-representing in the delinquent group the number of boys who experience the very problems being investigated.

Broken homes and drinking were found in some studies described in the literature review to be correlated with only certain types of delinquency. The classification of the self report data into four separate categories undertaken in the present study enable both the association between different types of delinquency and drinking and the association between different levels of deviant behavior and family relationships to be determined.

The self report data is not, however, without problems. The reliability and validity of the subjects' responses cannot completely be assured. West and Farrington discovered that the boys were prone to underestimate the number and type of offenses thay had committed, resulting in some discrepancies between the self report and official delinquency statistics. Moreover, the self report data contains a large number of infringements admitted to by a high proportion of the sample, and consequently it suffers from bias in the direction of over-representation of public nuisance offenses.

Nevertheless, despite the tendency of the boys to understate their delinquent behavior, the Cambridge researchers generally found that, when compared with information obtained from independent sources, for example schools, the boys' responses were valid. In contrast therefore with the boys' conviction records, which represent only the most severe delinquents, the self reported delinquents, which include a wide range of offender types, constitute a group of boys some of whose crimes remain undetected.

One of the considerable advantages of using the data collected by West and Farrington is that it encapsulates the natural development of control and delinquent groups whose drinking behavior can then be contrasted. As the boys grew older they either remained law abiding or committed delinquent acts. The problems of matching techniques are thus avoided since all of the members of the two groups are derived from the same original sample. A number of previous studies in this area have failed to use a control group, and those which have frequently only controlled for delinquency in the sense of comparing a school population with a convicted delinquent sample, thereby running the risk of including undetected delinquents, individuals on probation, or those recently released from correctional institutions in the non-delinquent group. The analysis employed in the present study, utilizing self report longitudinal data completely overcomes these difficulties. Even the additional use of the Cambridge official statistics simply poses the single problem of whether undetected delinquents are included within the control group.

The use of a sample of boys selected from a school population presents a number of threats to the validity of results. School samples tend to exclude school dropouts, and often data is simply categorized as missing when, in reality, the information is difficult to obtain from certain pupils due to their regular truancy. Moreover, those children who are heavy drinkers or who engage in delinquent activities are often the very individuals who play truant from school and thus are omitted from the research. The repeated efforts on the part of the research team in the Cambridge Study in Delinquent Development to see the boys if at all possible enabled the whole sample to be interviewed at the age of 8-9 years, and 96.8% of the original boys to be traced and interviewed at age 16. Although the study was longitudinal, taking twenty years to complete, the attrition rate was extremely low.

The definitions of the variables to be used in investigating the relationship between drinking and delinquency are also not without problems. The drinking variables measured at ages 16 and 18 years do not describe specific amounts of alcohol consumption, but rather reflect the frequency with which the boys drank alcoholic beverages in pubs under age. The classification of heavy, moderate and light drinkers at 18 years was determined by a cumulative

count of both the total amount of beer and spirits respondents reported consuming per week and the frequency of their drinking. The patterns of alcohol use by the boys are therefore largely ignored. Consequently, it is impossible, for example, to determine or differentiate between those individuals who were originally heavy drinkers but who then reduced their alcohol consumption, and those who only later started to abuse alcohol.

Nevertheless, the three drinking variables represent assessments of the boys' drinking habits at three different ages and describe to some extent the change in their drinking behavior over time. The inability to obtain the original codings of all of the variables which made up the global score of drinking prohibits a complete calculation of the amount of beer and spirits consumed by those boys included in the heavy drinking group. This group however includes boys who drank at least 20 pints of beer per week and 6 single spirits, which suggests that the heavy drinkers are representative of boys whose alcohol consumption is well above normal, even when the heavy beer consumption which tends to occur within working class areas is taken into account.

West and Farrington's separation of broken homes' classifications into either the loss of one biological parent due to death or due to separation or divorce takes into account the fact that the death of a parent may not involve the conflict, friction and tension which a child frequently experiences in a home in which the parents separate. A child does not necessarily receive better parental care in an intact home as compared with a broken home, and so the present study incorporates into its analysis an examination of three global scores representing parental behavior, parental supervision, and the boys' own descriptions of their relationships with their parents.

A discussion of the difficulties involved in collecting data regarding such sensitive issues was presented in the section of this chapter which described those variables to be used. The psychiatric social workers (PSWs) were expected to make subjective judgements about items such as marital disharmony, mother's attitude, or father's discipline quality, which clearly some of the parents would be reluctant to discuss. The result was that, while the distribution of the more objective items, such as number of children in the family, overall did not vary from one

social worker to another, the frequencies with which they located such items as physical neglect of boys or erratic paternal discipline were very different.

Despite their efforts to do so, the PSWs appeared unable to produce comparable ratings. The global scores therefore represented the researchers' attempt to join together a number of highly inter-correlated items so as to produce a general picture of parental care and supervision and the boys' own attitudes towards their parents.

An alternative to personal interviews with the parents would have been formal questionnaires. However, it was found that the parents were extremely reluctant to divulge information which was immediately placed upon impersonal forms, and consequently the interviews with the PSWs were considered to be the best method of eliciting useful data. The interviews with the boys to determine the type of relationships they had with their parents were undertaken when they were 18 years old since it was felt that they were more likely to give accurate responses at that age than they would have been if questioned when younger.

One of the major advantages of longitudinal data is that the variables can be measured over a long period of time, so enhancing the researcher's ability to determine the direction of any relationship discovered to exist between the variables being studied. West and Farrington collected information concerning home backgrounds when the boys were very young. The combined score of supervision of parents, together with information regarding family income and size were all measured before the boys' ninth birthdays, and behavior of parents before their eleventh birthdays. Juvenile delinquency variables indicating their deviant behavior were assessed at the later ages of 14-15 and 16-17 years. However, the drinking variables were also measured when the boys were teenagers, thus prohibiting an accurate determination of the direction of any relationship discovered to exist between juvenile delinquency and alcohol abuse.

The problem of whether juvenile delinquency leads to alcohol abuse or vice versa cannot therefore be clearly ascertained in the present study. If a relationship does indeed exist, it could be argued either that frequent drinking by the boys resulted in their commission of offenses, or alternatively that their involvement in crime led to alcohol abuse. The question of which form of deviant behavior cannot easily be answered unless it is known at what age drinking began and

how old the boys were when they first became involved in criminal activity. In a similar way, although information concerning the boys' families was obtained when they were young, it is possible that those who admitted to the commission of offenses at 14-15 or 16-17 years were referring to offenses committed when they were much younger, or even when they were below the age of criminal responsibility. Thus, whilst early measurement of the family variables can help to give some indication of the direction of the relationship, it is not possible, for example, to state that poor supervision or poor parental behavior always occurred prior to the boys' involvement in delinquent conduct.

Moreover, interpretations of correlations as constituting a chain of causation are always problematic. Clearly, certain other variables, such as patterns of parental drinking and peer group pressure are possibly contributory factors in the development of alcohol abuse and even delinquency, but due to the lack of availability of data describing these variables, they have necessarily been excluded from this investigation. Nevertheless, any findings which result from examining data collected at different ages potentially can provide insights into the role of family variables in the development of drinking and delinquency.

CHAPTER IV

RESULTS

Introduction

The previous chapter introduced seven general research questions and defined the independent and dependent variables to be employed in their investigation. In this chapter, the findings of the study are presented. First, bivariate relationships are examined with the use of Chi-square to determine the existence of a relationship and Gamma to indicate the strength of the association between dependent and independent variables. The second section of the chapter presents multivariate analyses. These analyses explore the relative importance of the three drinking and six family variables upon different types of delinquency. Multiple regression and loglinear regression are used in the multivariate analysis phase. Self report delinquency data, in the form of the 'diversity' variables, and the official conviction rates of the boys provide suitable continuous measures for multiple regression. However, the development of the 'ever done' self report delinquency variables, which only permitted either a 'yes' or a 'no' response resulted in the need to employ a model which could provide satisfactory results using dichotomous variables, hence the inclusion of loglinear regression in the multivariate analysis.

The analysis and findings are presented within the framework of the research questions.

Bivariate Analysis

In this section a variety of bivariate relationships are examined. Reviewed first are the associations between drinking and self report delinquency. Examined next are the relationships between drinking and official delinquency. Throughout the bivariate analysis, the delinquency

variables are considered as the dependent variables with the drinking variables as the independent variables. In a third section, bivariate analysis between delinquency and family factors is undertaken with both self report and official delinquency variables being considered dependent variables and the family factors representing the independent variables. Finally, the associations between the drinking variables, now considered to be dependent, and the independent family variables are considered. Definitions and full descriptions of all of the variables included in the bivariate analysis are included in the previous chapter.

Self Report Delinquency and Drinking

This phase of the analysis was undertaken with the intention of providing information concerning whether drinking and different types of delinquency are related.

Self Report Delinquency at 14-15 years - The delinquency variables used at this stage were measured at 14-15 years, while the drinking variables consisted of drinking in pubs under 18 years measured at 14-15 years, drinking in pubs under 18 years measured at 16-17 years, and drinking combined measured at 18-19 years.

The results of the investigation of the bivariate relationship between the three drinking variables and the self report delinquency data categorized into public nuisance, minor property, serious property, and personal offenses are presented in Tables 4.1 to 4.12. The analysis was performed with each type of offense having been further developed into 'diversity', 'ever' done, 'sometimes' done and 'frequently' done variables. The 'diversity' variable described the proportion of boys who had committed either one or any specific number of deviant acts in each of the four categories of offense, whilst the 'ever' done variable was created by isolating from the rest of the cohort those boys who had refrained from engaging in any deviant behavior in each of the four categories. The 'sometimes' variable divided the boys into two groups, one consisting of those who had either never committed any of the offenses in a particular category or had done so once or twice, and the other comprising those who had admitted to involvement in the acts either sometimes or frequently. The 'frequently' variable again consisted of two groups, the first including those boys who had never, once, twice or sometimes committed any of the acts in a

particular category, and the second those boys who had frequently been involved. The drinking variables will be considered chronologically and will be related to each delinquency variable in turn.

Tables 4.1, 4.4, 4.7 and 4.10 indicate that, when using the Chi-square test as the indicator for the presence or absence of an association, at the .05 level of significance a relationship exists between drinking in pubs under 18 years, measured at 14-15 years and all of the self report delinquency variables measured at the same age, with the single exception of the 'frequently' variable in the minor property category. Moreover, the majority of the relationships are significant at the .001 level.

The use of the Chi-square statistic in this manner does not, however indicate the strength of the relationship. Gamma, used as a measure of the strength of an association takes on a value of 1 or -1 when a perfect relationship exists between the two variables under consideration and 0 (zero) when the two variables are independent. The strengths of the relationships in the present analysis as indicated by the values obtained for Gamma suggest a reasonably strong association between the variables with Gamma generally being around the .4 or .5 levels. The highest values of Gamma occur in the public nuisance offense categories, as indicated in Tables 4.1 to 4.3, providing evidence that drinking among the boys at the younger age of 14-15 years is most closely associated with minor types of misbehavior. In particular, Gamma takes on the value of 1 for the 'sometimes' variable in the public nuisance category (See Table 4.1) which, at first sight, implies a perfect relationship between drinking in pubs under 18 years of age and sometimes committing public nuisance offenses. On a closer examination of the Table, the reason for the unusually high value of Gamma can be determined. The only boys who do not commit public nuisance offenses either sometimes or frequently are those same boys who do not drink, 8.1% of the sample of 405. In all of the drinking cells of the Table, whether they relate to drinking once or twice, sometimes, or frequently, 100% of the boys who commit public nuisance offenses report doing so either sometimes or frequently, with no boys drinking and admitting to never or only once or twice being involved in this type of behavior.

Although drinking in pubs under 18 years measured at 16-17 years and drinking combined measured at 18-19 years are both measures of the drinking behavior of the boys at a later age than the delinquency measures under present consideration, their inclusion in the bivariate analysis provides further evidence for a relationship between drinking and delinquency. The tables show that, similar to drinking in pubs measured at 14-15 years of age, drinking in pubs measured at the later age of 16-17 years appears to be more strongly associated with the public nuisance offense categories, Chi-square being significant for all of the public nuisance variables at at least the .01 level. However, while relationships exist between drinking in pubs measured at 16-17 years and all of the minor property together with most of the personal offense variables at the .05 level of significance, there is no association indicated between the same drinking variable and the commission of serious property offenses at the age of 14-15 years (Table 4.8).

Similarly, the most systematic results in the bivariate analysis between drinking combined (18-19 years) and self report delinquency (14-15 years) were obtained for the public nuisance offense categories. Thus, heavy drinking at 18-19 years appears to be more closely associated with committing minor rather than serious offenses at 14-15 years (Tables 4.3 and 4.6).

On examination of those relationships between drinking combined and self report delinquency which were significant at the .05 level, Gamma took on its highest values, .628 and .401, within the 'sometimes' and 'frequently' committing public nuisance offenses cells of the tables (Table 4.3). Whilst Chi-square was significant in other cases, for example for sometimes committing minor property and personal offenses, at the .001 level, Gamma was no higher than .3 indicating that the strengths of the relationships between those variables and drinking combined were not very great (Tables 4.6 and 4.12).

Table 4.1 - Self reported public nuisance offenses (at 14-15 years) by drinking in pubs under 18 years (at 14-15 years). (N = 405)

	Public Nuisance (14-15 yrs)			
Drinking in pubs under 18 yrs (14-15 yrs)	**Diversity**			
	0-4	5-6	7-8	9-13
Never	41.6	31.5	21.5	5.4
Once or twice	11.1	33.3	38.9	16.7
Sometimes	12.5	22.9	39.6	25.0
Frequently	4.9	12.2	34.1	48.8
	Chi-square = 99.74***			
	Gamma = .648			

Drinking in pubs under 18 yrs (14-15 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Never	91.9	8.1	64.8	35.2
Once or twice	100	0.0	83.3	16.7
Sometimes	100	0.0	91.7	8.3
Frequently	100	0.0	97.6	2.4
	Chi-square = 9.16*		Chi-square = 31.45***	
	Gamma = 1		Gamma = .733	

*p<.05; **p<.01; ***p<.001

Table 4.2 - Self reported public nuisance offenses (at 14-15 years) by drinking in pubs under 18 years (at 16-17 years). (N = 393)

	Public Nuisance (14-15 yrs)			
Drinking in pubs under 18 yrs (16-17 yrs)	**Diversity** 0-4	5-6	7-8	9-13
No	53.1	33.3	9.9	3.7
Yes	26.9	27.9	30.1	15.1
	Chi-square = 30.96*** Gamma = .519			

Drinking in pubs under 18yrs (16-17 yrs)	**Sometimes** Yes	No	**Frequently** Yes	No
No	82.7	17.3	58.0	42.0
Yes	97.4	2.6	76.9	23.1
	Chi-square = 26.65*** Gamma = .776		Chi-square = 10.72** Gamma = .414	

*p<.05; **p<.01; ***p<.001

Table 4.3 - Self reported public nuisance offenses (at 14-15 years) by drinking combined (at 18-19 years). (N = 387)

	Public Nuisance (14-15 yrs)			
Drinking combined (18-19 yrs)	**Diversity** 0-4	5-6	7-8	9-13
Low	48.2	25.5	16.4	10.0
Average	31.7	32.7	27.1	8.5
Heavy drinker	12.8	24.4	35.9	26.9
	Chi-square = 42.43*** Gamma = .374			

Drinking combined (18-19 yrs)	**Sometimes** Yes	No	**Frequently** Yes	No
Low	88.2	11.3	61.8	38.2
Average	95.0	5.0	71.9	28.1
Heavy drinker	100	0.0	89.7	10.3
	Chi-square = 12.02** Gamma = .628		Chi-square = 18.01*** Gamma = .401	

*p<.05; **p<.01; ***p<.001

Table 4.4 - Self reported minor property offenses (at 14-15 years) by drinking in pubs under 18 years (at 14-15 years). (N = 405)

	Minor Property (14-15 yrs)					
Drinking in pubs under 18 yrs (14-15 yrs)	**Diversity**				**Ever**	
	0	1	2-4	5-11	Yes	No
Never	19.1	29.5	36.6	14.8	80.9	19.1
Once or twice	5.6	16.7	50.0	27.8	94.4	5.6
Sometimes	6.3	16.7	50.0	27.1	93.8	6.3
Frequently	2.4	12.2	39.0	46.3	97.4	2.4
	Chi-square = 40.23*** Gamma = .476				Chi-square =12.95** Gamma = .641	

Drinking in pubs under 18yrs (14-15 yrs)	Sometimes		Frequently	
	Yes	No	Yes	No
Never	58.7	41.3	27.9	72.1
Once or twice	77.8	22.2	38.9	61.1
Sometimes	81.3	18.8	31.3	68.8
Frequently	80.5	19.5	46.3	53.7
	Chi-square = 16.17*** Gamma = .451		Chi-square = 6.43 Gamma = .226	

*p<.05; **p<.01; ***p<.001

Table 4.5 - Self reported minor property offenses (at 14-15 years) by drinking in pubs under 18 years (at 16-17 years). (N = 393)

	Minor Property (14-15 yrs)					
Drinking in pubs under 18 yrs (16-17 yrs)	**Diversity**				**Ever**	
	0	1	2-4	5-11	Yes	No
No	25.9	30.9	35.8	7.4	74.1	25.9
Yes	11.5	24.4	40.4	23.7	88.5	11.5
	Chi-square = 18.98*** Gamma = .398				Chi-square = 9.61** Gamma = .457	

Drinking in pubs under 18yrs (16-17 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
No	48.1	51.9	21.0	79.0
Yes	69.2	30.8	33.0	66.7
	Chi-square = 11.63*** Gamma = .416		Chi-square = 4.04* Gamma = .306	

*p<.05; **p<.01; ***p<.001

Table 4.6 - Self reported minor property offenses (at 14-15 years) by drinking combined (at 18-19 years). (N = 387)

	Minor Property (14-15 yrs)					
Drinking combined (18-19 yrs)	Diversity 0	1	2-4	5-11	Ever Yes	No
Low	20.9	31.8	32.7	14.5	74.1	25.9
Average	13.6	25.6	43.2	17.6	86.4	13.6
Heavy drinker	9.0	17.9	37.2	35.9	91.0	9.0
	Chi-square = 22.07** Gamma = .276				Chi-square =5.61 Gamma = .287	

Drinking combined (18-19 yrs)	Sometimes Yes	No	Frequently Yes	No
Low	55.5	44.5	24.5	75.5
Average	62.3	37.7	30.7	69.3
Heavy drinker	82.1	17.9	42.3	57.7
	Chi-square = 14.81*** Gamma = .323		Chi-square = 6.78* Gamma = .233	

*p<.05; **p<.01; ***p<.001

Table 4.7 - Self reported serious property offenses (at 14-15 years) by drinking in pubs under 18 years (at 14-15 years). (N = 405)

	Serious Property (14-15 yrs)				
Drinking in pubs under 18 yrs (14-15 yrs)	**Diversity** 0	1	2-4	**Ever** Yes	No
Never	89.6	7.7	2.7	10.4	89.6
Once or Twice	88.9	5.6	5.6	11.1	88.9
Sometimes	87.5	6.3	6.3	12.5	87.5
Frequently	70.7	9.8	19.5	29.3	70.7
	Chi-square = 22.82*** Gamma = .351			Chi-square =11.69** Gamma = .341	

Drinking in pubs under 18yrs (14-15 yrs)	**Sometimes** Yes	No	**Frequently** Yes	No
Never	5.7	94.3	1.0	99.0
Once or twice	5.6	94.4	5.6	94.4
Sometimes	8.3	91.7	0.0	100
Frequently	29.3	70.7	17.1	82.9
	Chi-square = 26.22*** Gamma = .529		Chi-square = 37.17*** Gamma = .760	

*p<.05; **p<.01; ***p<.001

Table 4.8 - Self reported serious property offenses (at 14-15 years) by drinking in pubs under 18 years (at 16-17 years). (N = 393)

	Serious Property (14-15 yrs)				
Drinking in pubs under 18 yrs (16-17 yrs)	**Diversity** 0	1	2-4	**Ever** Yes	No
No	92.6	4.9	2.5	7.4	92.6
Yes	85.9	8.7	5.4	14.1	85.9
	Chi-square = 2.64 Gamma = .339			Chi-square =2.02 Gamma = .345	
Drinking in pubs under 18yrs (16-17 yrs)	**Sometimes** Yes	No		**Frequently** Yes	No
No	3.7	96.3		1.2	98.8
Yes	9.6	90.4		2.9	97.1
	Chi-square = 2.20 Gamma = .469			Chi-square = .197 Gamma = .408	

*p<.05; **p<.01; ***p<.001

Table 4.9 - Self reported serious property offenses (at 14-15 years) by drinking combined (at 18-19 years). (N = 387)

Drinking combined (18-19 yrs)	Serious Property (14-15 yrs)				
	Diversity			Ever	
	0	1	2-4	Yes	No
Low	91.8	6.4	1.8	8.2	91.8
Average	87.4	8.5	4.0	12.6	87.4
Heavy drinker	78.2	9.0	12.8	21.8	78.2
	Chi-square = 13.26*			Chi-square =7.53*	
	Gamma = .334			Gamma = .328	
Drinking combined (18-19 yrs)	Sometimes			Frequently	
	Yes	No		Yes	No
Low	5.5	94.5		0.9	99.1
Average	7.5	92.5		2.5	97.5
Heavy drinker	16.7	83.3		6.4	93.6
	Chi-square = 7.90*			Chi-square = 5.16	
	Gamma = .365			Gamma = .530	

*p<.05; **p<.01; ***p<.001

Table 4.10 - Self reported personal offenses (at 14-15 years) by drinking in pubs under 18 years (at 14-15 years). (N = 405)

	Personal (14-15 yrs)					
Drinking in pubs under 18 yrs (14-15 yrs)	Diversity 0	1	2	3-5	Ever Yes	No
Never	75.5	11.7	7.7	5.0	24.5	75.5
Once or twice	66.7	5.6	22.2	5.6	33.3	66.7
Sometimes	45.8	22.9	20.8	10.4	54.2	45.8
Frequently	41.5	22.0	17.1	19.5	58.5	41.5
	Chi-square = 38.90*** Gamma = .458				Chi-square =31.90*** Gamma = .515	

Drinking in pubs under 18yrs (14-15 yrs)	Sometimes Yes	No	Frequently Yes	No
Never	17.8	82.2	7.7	92.3
Once or twice	27.8	72.2	5.6	94.4
Sometimes	43.8	56.3	8.3	91.7
Frequently	46.3	53.7	29.3	70.7
	Chi-square = 27.77*** Gamma = .503		Chi-square = 19.39*** Gamma = .416	

*p<.05; **p<.01; ***p<.001

Table 4.11 - Self reported personal offenses (at 14-15 years) by drinking in pubs under 18 years (at 16-17 years). (N = 393)

	Personal (14-15 yrs)					
Drinking in pubs under 18 yrs (16-17 yrs)	Diversity 0	1	2	3-5	Ever Yes	No
No	82.7	8.6	6.2	2.5	17.3	82.7
Yes	63.8	15.4	12.2	8.7	36.2	63.8
	Chi-square = 10.95* Gamma = .437				Chi-square =9.69** Gamma = .462	
Drinking in pubs under 18yrs (16-17 yrs)	Sometimes Yes	No			Frequently Yes	No
No	13.6	86.4			7.4	92.6
Yes	27.6	72.4			10.9	89.1
	Chi-square = 6.03* Gamma = .415				Chi-square = .51 Gamma = .209	

*p<.05; **p<.01; ***p<.001

Table 4.12 - Self reported personal offenses (at 14-15 years) by drinking combined (at 18-19 years). (N = 387)

	Personal (14-15 yrs)					
Drinking combined (18-19 yrs)	Diversity 0	1	2	3-5	Ever Yes	No
Low	75.5	8.2	9.1	7.3	24.5	75.5
Average	71.9	14.1	10.1	4.0	28.1	71.9
Heavy drinker	48.7	23.1	12.8	15.4	51.3	48.7
	Chi-square = 23.36*** Gamma = .274				Chi-square =17.55*** Gamma = .322	

Drinking combined (18-19 yrs)	Sometimes Yes	No	Frequently Yes	No
Low	19.1	80.9	10.9	89.1
Average	20.1	79.9	7.0	93.0
Heavy drinker	39.7	60.3	14.1	85.9
	Chi-square = 13.79*** Gamma = .289		Chi-square = 3.56 Gamma = .062	

*p<.05; **p<.01; ***p<.001

Self Report Delinquency at 16-17 years - Undertaking a bivariate analysis of the relationship between the early drinking variable, drinking in pubs measured at 14-15 years, and self report delinquency measured at 16-17 years made possible the study of whether a relationship exists between the early drinking habits of the boys in the sample and their subsequent delinquent behavior a few years later. However, it did not prove possible from the data to distinguish those boys who engaged in delinquent activity only at the age of 16-17 years from those who committed delinquent acts also at the age of 14-15 years, or indeed from those boys who reported delinquent behavior at 14-15 years and then reformed. Therefore, while providing evidence concerning which types of delinquency are more closely related to early drinking, the analysis did not make it possible to conclude that, where relationships exist, drinking frequently in pubs at 14-15 years necessarily leads to delinquency at 16-17 years, since a number of the delinquent boys at this age may also have committed offenses at 14-15 years.

Nevertheless, it can be seen from Tables 4.13 to 4.24 that when Chi- square is employed to test the existence of a relationship, the only significant relationships which are discovered are those between drinking in pubs at 14-15 years and the 'diversity' public nuisance variable (see Table 4.13) together with both the 'diversity' and 'ever' done personal offense variables (see Table 4.22). The Gamma values for these relationships are not very large, being approximately 0.3. However, the results do suggest that those boys who drink illegally in pubs at age 14-15 years tend to be involved in minor and personal offenses at age 16-17 years. Thus, while only 37.2% of those boys who do not drink engage in personal offenses, 64.1% of the frequent drinkers do (see Table 4.22). In contrast, the drinking behavior of the boys at 14-15 years has very little effect upon whether or not they engage in serious property offenses (see Table 4.19).

The results therefore provide evidence that, while early drinking among the boys was associated with their committing minor crimes and crimes against persons, it did not appear to be related to their criminal involvement in property offenses.

A slightly different pattern emerged when the results of the bivariate analysis between drinking in pubs under 18 measured at 16-17 years and the self report delinquency variables measured at the same age are considered. Once again, employing the Chi-square statistic, a significant relationship is

discovered at the .05 level between drinking in pubs at 16-17 years and all of the delinquency variables with the exception of the serious property 'diversity' variable (Tables 4.14, 4.17, 4.20 and 4.23). Gamma reaches its highest values for public nuisance and minor property offenses (Tables 4.14 and 4.17). Similarly, significant relationships at the .05 level occur between drinking combined (18-19 years) and all levels and types of delinquency, with Gamma tending to be approximately at the .3 level, thus suggesting that, although relationships exist, they are not very strong (Tables 4.15, 4.18, 4.21 and 4.24).

Table 4.13 - Self reported public nuisance offenses (at 16-17 years) by drinking in pubs under 18 years (at 14-15 years). (N = 393)

	Public Nuisance (16-17 yrs)			
Drinking in pubs under 18 yrs (14-15 yrs)	**Diversity** 0-4	5-6	7-8	9-13
Never	16.7	23.6	31.9	27.8
Once or twice	11.1	11.1	50.0	27.8
Sometimes	4.2	16.7	45.8	33.3
Frequently	5.1	15.4	30.8	48.7
	Chi-square = 18.77*			
	Gamma = .286			

*p<.05; **p<.01; ***p<.001

Table 4.14 - Self reported public nuisance offenses (at 16-17 years) by drinking in pubs under 18 years (at 16-17 years). (N = 397)

	Public Nuisance (16-17 yrs)			
Drinking in pubs under 18 yrs (16-17 yrs)	Diversity 0-4	5-6	7-8	9-13
No	38.6	26.5	25.3	9.6
Yes	7.6	19.7	36.6	36.0
	Chi-square = 63.30***			
	Gamma = .618			

*p<.05; **p<.01; ***p<.001

Table 4.15 - Self reported public nuisance offenses (at 16-17 years) by drinking combined (at 18-19 years). (N = 385)

	Public Nuisance (16-17 yrs)			
Drinking combined (18-19 yrs)	Diversity 0-4	5-6	7-8	9-13
Low	23.9	25.7	33.0	17.4
Average	10.6	21.1	36.7	31.7
Heavy drinker	9.1	15.6	31.2	44.2
	Chi-square = 24.33***			
	Gamma = .307			

*p<.05; **p<.01; ***p<.001

Table 4.16 - Self reported minor property offenses (at 16-17 years) by drinking in pubs under 18 years (at 14-15 years). (N = 393)

	Minor Property (16-17 yrs)					
Drinking in pubs under 18 yrs (14-15 yrs)	Diversity 0	1	2-4	5-11	Ever Yes	No
Never	10.1	16.2	45.5	28.1	89.9	10.1
Once or twice	0.0	22.2	44.4	33.3	100	0.0
Sometimes	4.2	10.4	47.9	37.5	95.8	4.2
Frequently	5.1	20.5	25.6	48.7	94.9	5.1
	Chi-square = 14.41 Gamma = .208				Chi-square =4.36 Gamma = .429	

*p<.05; **p<.01; ***p<.001

Table 4.17 - Self reported minor property offenses (at 16-17 years) by drinking in pubs under 18 years (at 16-17 years). (N = 397)

	Minor Property (16-17 yrs)					
Drinking in pubs under 18 yrs (16-17 yrs)	Diversity 0	1	2-4	5-11	Ever Yes	No
No	19.3	24.1	43.4	13.3	80.7	19.3
Yes	5.7	14.3	43.6	36.6	94.3	5.7
	Chi-square = 28.97*** Gamma = .483				Chi-square =13.70** Gamma = .594	

*p<.05; **p<.01; ***p<.001

Table 4.18 - Self reported minor property offenses (at 16-17 years) by drinking combined (at 18-19 years). (N = 385)

	Minor Property (16-17 yrs)					
Drinking combined (18-19 yrs)	Diversity 0	1	2-4	5-11	Ever Yes	No
Low	15.6	19.3	45.9	19.3	84.4	15.6
Average	7.5	16.1	40.7	35.7	92.5	7.5
Heavy drinker	2.6	11.7	46.8	39.0	97.4	2.6
	Chi-square = 19.30** Gamma = .274				Chi-square =10.33** Gamma = .482	

*p<.05; **p<.01; ***p<.001

Table 4.19 - Self reported serious property offenses (at 16-17 years) by drinking in pubs under 18 years (at 14-15 years). (N = 393)

	Serious Property (16-17 yrs)				
Drinking in pubs under 18 yrs (14-15 yrs)	Diversity 0	1	2-4	Ever Yes	No
Never	88.5	5.2	6.3	11.5	88.5
Once or Twice	77.8	5.6	16.7	22.2	77.8
Sometimes	85.4	6.3	8.3	14.6	85.4
Frequently	74.4	10.3	15.4	25.6	74.4
	Chi-square = 8.01 Gamma = .289			Chi-square =7.05 Gamma = .297	

*p<.05; **p<.01; ***p<.001

Table 4.20 - Self reported serious property offenses (at 16-17 years) by drinking in pubs under 18 years (at 16-17 years). (N = 397)

	Serious Property (16-17 yrs)				
Drinking in pubs under 18 yrs (16-17 yrs)	**Diversity**			**Ever**	
	0	1	2-4	Yes	No
No	94.0	2.4	3.6	6.0	94.0
Yes	84.1	6.7	9.2	15.9	84.1
	Chi-square = 5.39 Gamma = .482			Chi-square =4.59* Gamma = .494	

*p<.05; **p<.01; ***p<.001

Table 4.21 - Self reported serious property offenses (at 16-17 years) by drinking combined (at 18-19 years). (N = 385)

	Serious Property (16-17 yrs)				
Drinking combined (18-19 yrs)	**Diversity**			**Ever**	
	0	1	2-4	Yes	No
Low	91.7	4.6	3.7	8.3	91.7
Sometimes	87.4	5.5	7.0	12.6	87.4
Frequently	76.6	9.1	14.3	23.4	76.6
	Chi-square = 9.79* Gamma = .345			Chi-square =9.14* Gamma = .351	

*p<.05; **p<.01; ***p<.001

Table 4.22 - Self reported personal offenses (at 16-17 years) by drinking in pubs under 18 years (at 14-15 years). (N = 393)

	Personal (16-17 yrs)					
Drinking in pubs under 18 yrs (14-15 yrs)	Diversity 0	1	2	3-5	Ever Yes	No
Never	62.8	16.0	11.5	9.7	37.2	62.8
Once or twice	44.4	33.3	5.6	16.7	55.6	44.4
Sometimes	43.8	22.9	14.6	18.8	56.3	43.8
Frequently	35.9	30.8	15.4	17.9	64.1	35.9
	Chi-square = 19.18* Gamma = .303				Chi-square =15.70** Gamma = .391	

*p<.05; **p<.01; ***p<.001

Table 4.23 - Self reported personal offenses (at 16-17 years) by drinking in pubs under 18 years (at 16-17 years). (N = 397)

	Personal (16-17 yrs)					
Drinking in pubs under 18 yrs (16-17 yrs)	Diversity 0	1	2	3-5	Ever Yes	No
No	68.7	24.1	6.0	1.2	31.3	68.7
Yes	54.1	17.5	13.4	15.0	45.9	54.1
	Chi-square = 17.21*** Gamma = .362				Chi-square =5.09* Gamma = .300	

*p<.05; **p<.01; ***p<.001

Table 4.24 - Self reported personal offenses (at 16-17 years) by drinking combined (at 18-19 years). (N = 385)

Drinking combined (18-19 yrs)	Personal (16-17 yrs)					
	Diversity				Ever	
	0	1	2	3-5	Yes	No
Low	68.8	18.3	7.3	5.5	31.2	68.8
Average	60.3	17.6	12.1	10.1	39.7	60.3
Heavy drinker	35.1	23.4	18.2	23.4	64.9	35.1
	Chi-square = 28.16*** Gamma = .350				Chi-square =22.22*** Gamma = .375	

*p<.05; **p<.01; ***p<.001

In conclusion, from the above results of the bivariate analysis between the three drinking variables and self reported delinquency measured both at 14-15 years and at 16-17 years, overall it can be stated that a relationship between self report juvenile delinquency and drinking has been identified. The strength of the relationship appears to vary when different types of delinquency are taken into consideration. The analysis suggests that minor public nuisance offenses are more closely related to drinking than the more serious property offenses. These findings are consistent with the theory that drinking is a form of deviancy distinct from criminal behavior, for the boys who appear to be the more frequent drinkers in the sense of drinking in pubs under the age of 18 also engage in a wide variety of misconduct.

The serious property offenders, who tend to have planned their criminal activities in advance, drink less frequently. The association between drinking and committing personal offenses could reflect the violence which often erupts among drinkers, although it is not possible to tell whether the personal offenses were committed whilst the boys were under the influence of alcohol.

Official Delinquency and Drinking

Tables 4.25 to 4.36 which present the results of the bivariate analysis between the official delinquency variables, considered as the dependent variables, and the three independent drinking variables supply further evidence for the existence of a relationship between juvenile delinquency and drinking.

The dependent variables are represented by juvenile convictions (10-16 years), a juvenile delinquency scale (10-16 years), adult convictions (17-24 years), and the final total number of convictions (10-24 years). These four variables have each been further developed into a 'diversity' (number) and 'ever' done variable as described earlier, with 'ever' done consisting of two categories: never having received a conviction and having one or more convictions.

The analysis of the associations between the drinking variables and the 'ever' done official delinquency variables utilizing the Chi-square statistic indicate that both drinking in pubs at 14-15 years and drinking combined (measured at 18-19 years) are related to all of the 'ever' done variables, Chi-square being significant at at least the .05 level in all cases (Tables 4.25, 4.27, 4.28, 4.30, 4.31, 4.33, 4.34 and 4.36). In other words, those boys who drink more frequently in pubs under age at 14-15 years or who are heavy drinkers at 18-19 years, are more likely to have official conviction records at any age than those boys who abstain from alcohol or only drink in moderation. Thus, for example, only 24.6% of the boys who do not drink in pubs at 14-15 years have 1 or more adult convictions compared with 46.2% of boys who frequently drink in pubs at the same age (Table 4.31). Gamma for all of the relationships outlined above is relatively low, around .3, which suggests that the association between these particular variables is not very strong. Moreover, there can be seen to be very little difference between the strength of the relationships between the various drinking variables and each different official conviction variable when the respective values of Gamma are compared, although the indication is perhaps that the Gamma values are slightly higher when they are describing the drinking behavior at 18-19 years than they are at 14-15 years.

Drinking in pubs at 16-17 years is only significantly related at the .05 level to the 'ever' done category of the final total number of convictions variable (10-24 years) (Table 4.35).

Table 4.25 - Official juvenile convictions (10-16 years) by drinking in pubs under 18 years (at 14-15 years). (N = 405)

Drinking in pubs under 18 yrs (14-15 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
Never	82.2	11.1	6.7	82.2	17.8
Once or twice	77.8	5.6	16.7	77.8	22.2
Sometimes	79.2	10.4	10.4	79.2	20.8
Frequently	61.0	19.5	19.5	61.0	39.0
	Chi-square = 13.11*			Chi-square = 10.02*	
	Gamma = .286			Gamma = .290	

*p<.05; **p<.01; ***p<.001

Table 4.26 - Official juvenile convictions (10-16 years) by drinking in pubs under 18 years (at 16-17 years). (N = 397)

Drinking in pubs under 18 yrs (16-17 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
No	85.5	6.0	8.4	85.5	14.5
Yes	78.0	12.7	9.2	78.0	22.0
	Chi-square = 3.12			Chi-square = 1.84	
	Gamma = .221			Gamma = .250	

*p<.05; **p<.01; ***p<.001

Table 4.27 - Official juvenile convictions (10-16 years) by drinking combined (at 18-19 years). (N = 389)

Drinking combined (18-19 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
Low	86.6	8.0	5.4	86.6	13.4
Average	78.9	13.6	7.5	78.9	21.1
Heavy drinker	67.9	12.8	19.2	67.9	32.1
	Chi-square = 14.82**			Chi-square = 9.62**	
	Gamma = .318			Gamma = .320	

*p<.05; **p<.01; ***p<.001

Table 4.28 - Juvenile delinquency scale (at 16-17 years) by drinking in pubs under 18 years (at 14-15 years). (N = 405)

Drinking in pubs under 18 yrs (14-15 yrs)	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
Never	70.1	12.1	11.1	6.7
Once or twice	50.0	27.8	5.6	16.7
Sometimes	58.3	20.8	10.4	10.4
Frequently	48.8	12.2	19.5	19.5
	Chi-square = 19.76*			
	Gamma = .285			

*p<.05; **p<.01; ***p<.001

Table 4.29 - Juvenile delinquency scale (at 16-17 years) by drinking in pubs under 18 years (at 16-17 years). (N = 397)

	Juvenile delinquency scale (16-17 yrs)			
Drinking in pubs under 18 yrs (16-17 yrs)	No police record	Police contact	Convicted once only	Recidivist
No	69.9	15.7	6.0	8.4
Yes	64.3	13.7	12.7	9.2
	Chi-square = 3.15 Gamma = .126			

*p<.05; **p<.01; ***p<.001

Table 4.30 - Juvenile delinquency scale (at 16-17 years) by drinking combined (at 18-19 years). (N = 389)

	Juvenile delinquency scale (16-17 yrs)			
Drinking combined (18-19 yrs)	No police record	Police contact	Convicted once only	Recidivist
Low	74.6	9.5	9.5	6.3
Average	67.9	15.4	9.6	7.1
Heavy drinker	52.3	10.5	19.8	17.4
	Chi-square = 19.20** Gamma = .282			

*p<.05; **p<.01; ***p<.001

Table 4.31 - Official adult convictions (17-24 years) by drinking in pubs under 18 years (at 14-15 years). (N = 392)

	Official adult convictions (17-24 yrs)					
Drinking in pubs under 18 yrs (14-15 yrs)	Number				Ever	
	0	1	2-3	4-10	0	≥1
Never	75.4	11.9	6.1	6.5	75.4	24.6
Once or Twice	80.0	6.7	6.7	6.7	80.0	20.0
Sometimes	71.1	6.7	15.6	6.7	71.1	28.9
Frequently	53.8	15.4	15.4	15.4	53.8	46.2
	Chi-square = 14.85 Gamma = .242				Chi-square =8.58* Gamma = .250	

*p<.05; **p<.01; ***p<.001

Table 4.32 - Official adult convictions (17-24 years) by drinking in pubs under 18 years (at 16-17 years). (N = 384)

	Official adult convictions (17-24 yrs)					
Drinking in pubs under 18 yrs (16-17 yrs)	Number				Ever	
	0	1	2-3	4-10	0	≥1
No	78.8	5.0	7.5	8.8	78.8	21.3
Yes	71.1	13.8	8.2	6.9	71.1	28.9
	Chi-square = 4.96 Gamma = .143				Chi-square =1.52 Gamma = .203	

*p<.05; **p<.01; ***p<.001

Table 4.33 - Official adult convictions (17-24 years) by drinking combined (at 18-19 years). (N = 379)

Drinking combined (18-19 yrs)	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
Low	81.7	6.4	8.3	3.7	81.7	18.3
Average	73.7	13.4	8.2	4.6	73.7	26.3
Heavy drinker	57.9	14.5	7.9	19.7	57.9	42.1
	Chi-square = 26.84*** Gamma = .318				Chi-square =12.93** Gamma = .333	

*p<.05; **p<.01; ***p<.001

Table 4.34 - Official total convictions (10-24 years) by drinking in pubs under 18 years (at 14-15 years). (N = 392)

Drinking in pubs under 18 yrs (14-15 yrs)	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
Never	69.6	13.0	9.9	7.5	69.6	30.4
Once or twice	80.0	0.0	13.3	6.7	80.0	20.0
Sometimes	68.9	8.9	15.6	6.7	68.9	31.1
Frequently	43.6	15.4	28.2	12.8	43.6	56.4
	Chi-square = 17.55* Gamma = .215				Chi-square =11.84** Gamma = .226	

*p<.05; **p<.01; ***p<.001

Table 4.35 - Official total convictions (10-24 years) by drinking in pubs under 18 years (at 16-17 years). (N = 384)

	Official total convictions (10-24 yrs)					
Drinking in pubs under 18 yrs (16-17 yrs)	Number				Ever	
	0	1	2-4	5-14	Yes	No
No	78.8	3.8	6.3	11.3	78.8	21.3
Yes	63.8	14.8	14.5	6.9	63.8	36.2
	Chi-square = 13.19** Gamma = .251				Chi-square =5.72* Gamma = .355	

*p<.05; **p<.01; ***p<.001

Table 4.36 - Official total convictions (10-24 years) by drinking combined (at 18-19 years). (N = 379)

	Official total convictions (10-24 yrs)					
Drinking combined (18-19 yrs)	Number				Ever	
	0	1	2-4	5-14	Yes	No
Low	76.1	9.2	11.0	3.7	76.1	23.9
Average	67.5	12.4	14.4	5.7	67.5	32.5
Heavy drinker	52.6	15.8	10.5	21.1	52.6	47.4
	Chi-square = 29.93** Gamma = .288				Chi-square =11.25** Gamma = .300	

*p<.05; **p<.01; ***p<.001

The most systematic results concerning the number of official convictions are to be found in the bivariate analysis of 'drinking combined' (measured at 18-19 years) with the delinquency variables. This drinking variable is significantly related with all of the conviction variables, with Chi-square significant at least at the .05 level (Tables 4.27, 4.30, 4.33 and 4.36). Drinking at the late age of 18-19 years is thus associated within the sample with both adult and juvenile convictions, suggesting that those boys who drink heavily at the older age have, through their deviant acts, attracted the attention of the authorities when younger.

Thus, while the bivariate analysis using official delinquency statistics tends to support the results of the examination of the relationship between drinking and self report juvenile delinquency, in the limited sense of discovering a relationship between the two types of deviancy, the data provides only limited additional information concerning the effects of drinking at different ages upon the development of delinquency.

Chi-square is significant at the .05 level in the analysis of the relationship between drinking in pubs under 18 years measured at 14-15 years and the number of adult convictions for both the 'diversity' and 'ever' done variables. Thus, it is possible to conclude from this particular result that those boys who drink frequently in pubs at 14-15 years are more likely than those who either seldom or never drink illegally at that age to have a conviction later in life. Whilst 75.4% of those boys who do not drink illegally at age 14-15 years have no adult convictions, for example, only 53.8% of those who drink frequently are unconvicted as an adult by the age of 24 (Table 4.31). However, the bivariate analyses concerned with conviction rates ignore those variations in the strengths of the relationship between delinquency and drinking which are due to the boys being involved in different types of crime.

The existence of an array of variables which measured the number of official convictions for offenses committed between a variety of ages provided sufficient data for a variable to be created which described the ages at which boys acquired their first convictions. It was therefore possible to determine the percentages of boys who were first convicted early in life (prior to age 13), and those first convicted later (between age 14 and 20). In addition, through the manipulation of the variables 'drinking in pubs under 18 years (14-15 years)' and 'drinking in

pubs under 18 years (16-17 years), a variable describing the onset of drinking was developed. Those boys who began drinking prior to age 15 were regarded as being early drinkers, whilst the later drinkers were those who began to drink between the ages of 16 and 17. Through the bivariate analysis of these two newly-created variables, a greater understanding of the effects of early drinking behavior, as compared with later drinking, upon delinquency was obtained. The results showed that 48% of the early delinquents drank later as opposed to 61% of the late delinquents, and that 36% of the early delinquents drank early in comparison with 32% of the late delinquents. These findings suggest that early drinking tends to lead to early delinquency and that later drinking tends to lead to late delinquency.

Self Report Delinquency and Family Factors

Bivariate analysis between the six independent family variables, as defined in the previous chapter, and self report delinquency was undertaken with the intention of discovering those family factors which appear to be related to or to contribute towards the development of deviant behavior amongst the sample of boys.

To assist in the understanding of the large number of crosstabulations presented in the following pages, the outcome of the investigation concerning whether or not each of the family factors are associated with self report delinquency will be discussed by considering the respective independent family variables in the order in which they appear in the tables.

Self Report Delinquency at 14-15 years - Tables 4.37, 4.43, 4.49 and 4.55 indicate that family income is related only to serious property offenses, with Chi-square being significant at the .05 level for the 'sometimes' variable and at the .01 level for the 'ever' done and 'diversity' variables (Table 4.49). Gamma is approximately .4 for all three associations, signifying a moderate relationship. These results suggest that boys who come from low income families attempt to compensate for their poor life styles and lack of material goods by involving themselves in crimes through which they can acquire those items they covet and wish to possess. However, since the more minor types of crime, or those involving violence aganist persons do not necessarily result in any great material gain, family income does not play a significant role in

the commission of these offenses.

Family size, although having a significant relationship with at least one variable included in each of the public nuisance ('diversity'), serious property ('diversity' and 'sometimes'), and minor property ('diversity' and 'sometimes') categories, consistently exhibits a significant association with personal offenses (Table 4.56). Chi-square is significant for all four personal offense variables at least at the .05 level, albeit Gamma varies around .2 and .3 implying that the relationship between family size and personal offenses is not very strong. Nevertheless, these findings do provide some evidence that, as family size increases, the boys at the age of 14-15 years are more likely to become involved in violent types of crime than in minor or property offenses.

The family structural variable 'broken home' only has a significant relationship at the .05 level with frequently committing serious property offenses (Table 4.51) and personal offenses (Table 4.57). The strengths of both relationships are moderate with Gamma taking on values of .476 and .356 respectively. Whilst 8.5% of those boys who do not come from broken homes admit to involvement in personal offenses at 14-15 years, compared with 7.4% of boys whose homes are broken due to death, the much larger figure of 20.8% of boys whose homes are broken due to separation or divorce admit to the same type of activity (Table 4.57). These percentages suggest that the reason for the broken home is a factor which must be taken into account when analyzing the relationship between broken homes and delinquency. A similar pattern emerges when the results of the analysis between broken homes and the commission of serious property offenses are considered. Thus, whilst 2.1% of boys from intact homes and none of those from homes broken by death admit to serious property offenses, 8.3% of boys whose parents are either separated or divorced have had some involvement in these types of crimes (Table 4.51).

Previous research outlined in the literature review of this study indicated that disagreement between parents, and their attitudes towards their children both play a role in the development of juvenile delinquency. In the present study, the variable 'behavior of parents combined' provided an early indication of such parental conduct, being measured when the boys were only 10-11

years old. However, from the results displayed in Tables 4.40, 4.46, 4.52 and 4.58, it can be seen that behavior of parents exhibits no systematic relationship with any type of self report delinquency. Indeed, the only one variable found to be associated with parental behavior at the .05 level of significance is the 'frequently' committing category of serious property offenses (Table 4.52).

In contrast, according to the Chi-square test the variable 'supervision by parents' is associated at the .05 level of significance with the majority of the self report delinquency variables included in the study. Gamma tends to vary around the .3 level indicating very moderate relationships (Tables 4.41, 4.47, 4.53 and 4.59). Nevertheless it is clear from the results that, as supervision by parents decreases in quality, the boys become more vulnerable to involvement in every type of crime. Serious property offenses are the only category in which only one variable, 'ever' done, is significantly related to parental supervision (Table 4.53), whilst for all other types of offenses, the association involves at least two variables in each category.

The commission of serious property offenses is the one type of juvenile delinquency which exhibits a systematic relationship with the variable which describes the boys' attitides towards their parents: 'relationship with parents combined' (Table 4.54). From this table it can be seen that the proportion of boys who indicated that they had a poor relationship with their parents at 18-19 years and that they had committed serious property offenses at 14-15 years (23.3%), is considerably higher than the proportion who had been involved in the same type of crime at the younger age but who reported a good relationship with their parents at 18-19 years (6.3%). The only other variable for which Chi-square is significant at the .05 level in describing associations between the boys' relationships with their parents and other factors is the 'diversity' minor offense category.

Table 4.37 - Self reported public nuisance offenses (at 14-15 years) by family income (at 8-9 years). (N = 405)

	Public Nuisance (14-15 yrs)			
	Diversity			
Family income (8-9 yrs)	0-4	5-6	7-8	9-13
Comfortable	32.8	26.4	28.0	12.8
Adequate	34.6	29.3	27.1	9.0
Inadequate	30.4	30.4	19.6	19.6
	Chi-square = 7.86			
	Gamma = .015			

	Sometimes		**Frequently**	
Family income (8-9 yrs)	Yes	No	Yes	No
Comfortable	94.4	5.6	69.6	30.4
Adequate	94.1	5.9	71.3	28.7
Inadequate	93.5	6.5	77.2	22.8
	Chi-square = .08		Chi-square = 1.63	
	Gamma = -.048		Gamma = .109	

*p<.05; **p<.01; ***p<.001

Table 4.38 - Self reported public nuisance offenses (at 14-15 years) by family size (at 8-9 years). (N = 405)

	Public Nuisance (14-15 yrs)			
Family size (Number of siblings) (8-9 yrs)	**Diversity** 0-4	5-6	7-8	9-13
None	43.2	31.8	18.2	6.8
One	36.0	28.0	31.0	5.0
Two	38.0	27.0	26.0	9.0
Three	20.6	28.6	33.3	17.5
Four	20.0	28.6	25.7	25.7
Five or more	33.3	30.2	14.3	22.2
	Chi-square = 31.49** Gamma = .160			

Family size (Number of siblings) (8-9 yrs)	**Sometimes** Yes	No	**Frequently** Yes	No
None	93.2	6.8	65.9	34.1
One	94.0	6.0	67.0	33.0
Two	96.0	4.0	73.0	27.0
Three	93.7	6.3	74.6	25.4
Four	94.3	5.7	68.6	31.4
Five or more	92.1	7.9	82.5	17.5
	Chi-square = 1.21 Gamma = -.044		Chi-square = 6.00 Gamma = .159	

*p<.05; **p<.01; ***p<.001

Table 4.39 - Self reported public nuisance offenses (at 14-15 years) by broken home before 15 years. (N = 405)

	Public Nuisance (14-15 yrs)			
	Diversity			
Broken home before 15 years	0-4	5-6	7-8	9-13
Not broken	33.9	29.4	26.1	10.6
Broken by death	29.6	22.2	25.9	22.2
Broken otherwise	29.2	27.1	22.9	20.8
	Chi-square = 6.66 Gamma = .148			

	Sometimes		**Frequently**	
Broken home before 15 yrs	Yes	No	Yes	No
Not broken	93.6	6.4	71.2	28.8
Broken by death	96.3	3.7	81.5	18.5
Broken otherwise	95.8	4.2	72.9	27.1
	Chi-square = .62 Gamma = .228		Chi-square =1.33 Gamma = .106	

*p<.05; **p<.01; ***p<.001

Table 4.40 - Self reported public nuisance offenses (at 14-15 years) by behavior of parents combined (at 10-11 years). (N = 390)

Behavior of parents combined (10-11 yrs)	Public Nuisance (14-15 yrs) Diversity 0-4	5-6	7-8	9-13
Good	32.0	32.0	28.0	8.0
Good average	37.6	24.7	27.1	10.6
Poor average	33.0	27.3	22.7	17.0
Poor	30.4	29.3	23.9	16.3
	Chi-square = 7.30 Gamma = .057			

Behavior of parents combined (10-11 yrs)	Sometimes Yes	No	Frequently Yes	No
Good	93.6	6.4	70.4	29.6
Good average	91.8	8.2	68.2	31.8
Poor average	94.3	5.7	72.7	27.3
Poor	95.7	4.3	76.1	23.9
	Chi-square = 1.60 Gamma = .111		Chi-square =1.53 Gamma = .083	

*p<.05; **p<.01; ***p<.001

Table 4.41 - Self reported public nuisance offenses (at 14-15 years) by supervision by parents (at 8-9 years). (N = 377)

	Public Nuisance (14-15 yrs)			
Supervision by parents (8-9 yrs)	**Diversity**			
	0-4	5-6	7-8	9-13
Good	48.9	30.7	12.5	8.0
Average	27.5	31.7	29.4	11.5
Poor	28.2	21.1	29.6	21.1
	Chi-square = 24.82***			
	Gamma = .286			

Supervision by parents (8-9 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Good	93.2	6.8	61.4	38.6
Average	93.6	6.4	71.4	28.4
Poor	95.8	4.2	88.7	11.3
	Chi-square = .554		Chi-square =14.92***	
	Gamma = .126		Gamma = .386	

*p<.05; **p<.01; ***p<.001

Table 4.42 - Self reported public nuisance offenses (at 14-15 years) by relationship with parents combined (at 18-19 years). (N = 387)

	Public Nuisance (14-15 yrs)			
Relationship with parents combined (18-19 yrs)	**Diversity**			
	0-4	5-6	7-8	9-13
Good	38.1	31.7	20.6	9.5
Average	31.9	28.6	26.9	12.6
Poor	30.2	27.9	26.7	15.1
	Chi-square = 2.67 Gamma = .098			

Relationship with parents combined (18-19 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Good	90.5	9.5	65.1	34.9
Average	94.5	5.5	73.5	26.5
Poor	95.3	4.7	75.6	24.4
	Chi-square = 1.80 Gamma = .218		Chi-square =2.28 Gamma = .137	

*p<.05; **p<.01; ***p<.001

Table 4.43 - Self reported minor property offenses (at 14-15 years) by family income (at 8-9 years). (N = 405)

	Minor Property (14-15 yrs)					
	Diversity				**Ever**	
Family income (8-9 yrs)	0	1	2-4	5-11	Yes	No
Comfortable	16.8	28.0	36.8	18.4	83.2	16.8
Adequate	18.1	23.4	41.0	17.6	81.9	18.1
Inadequate	7.6	27.2	38.0	27.2	92.4	7.6
	Chi-square = 8.86 Gamma = .120				Chi-square = 5.54 Gamma = .194	

	Sometimes		**Frequently**	
Family income (8-9 yrs)	Yes	No	Yes	No
Comfortable	60.0	40.0	28.8	71.2
Adequate	63.8	36.2	29.8	70.2
Inadequate	71.7	28.3	34.8	65.2
	Chi-square = 3.24 Gamma = .151		Chi-square = 1.01 Gamma = .080	

*p<.05; **p<.01; ***p<.001

Table 4.44 - Self reported minor property offenses (at 14-15 years) by family size (at 8-9 years). (N = 405)

	Minor Property (14-15 yrs)					
Family size (Number of siblings) (8-9 yrs)	Diversity				Ever	
	0	1	2-4	5-11	Yes	No
None	20.5	31.8	34.1	13.6	79.5	20.5
One	18.0	27.0	42.0	13.0	82.0	18.0
Two	13.0	29.0	45.0	13.0	87.0	13.0
Three	19.0	19.0	28.6	33.3	81.0	19.0
Four	8.6	20.0	45.7	25.7	91.4	8.6
Five or more	11.1	23.8	34.9	30.2	88.9	11.1
	Chi-square = 25.74* Gamma = .174				Chi-square = 4.63 Gamma = .145	

Family size (Number of siblings) (8-9 yrs)	Sometimes		Frequently	
	Yes	No	Yes	No
None	52.3	47.7	34.1	65.9
One	61.0	39.0	24.0	76.0
Two	60.0	40.0	26.0	74.0
Three	65.1	34.9	38.1	61.9
Four	77.1	22.9	31.4	68.6
Five or more	77.8	22.2	38.1	61.9
	Chi-square = 11.59* Gamma = .222		Chi-square = 6.64 Gamma = .117	

*p<.05; **p<.01; ***p<.001

Table 4.45 - Self reported minor property offenses (at 14-15 years) by broken home before 15 years. (N = 405)

	Minor Property (14-15 yrs)					
	Diversity				**Ever**	
Broken home before 15 yrs	0	1	2-4	5-11	Yes	No
Not broken	17.0	25.8	39.1	18.2	83.0	17.0
Broken by death	7.4	22.2	44.4	25.9	92.6	7.4
Broken otherwise	8.3	27.1	35.4	29.2	91.7	8.3
	Chi-square = 6.78 Gamma = .204				Chi-square = 3.80 Gamma = .388	

	Sometimes		**Frequently**	
Broken home before 15 yrs	Yes	No	Yes	No
Not broken	64.2	35.8	28.5	71.5
Broken by death	63.0	37.0	44.4	55.6
Broken otherwise	66.7	33.3	37.5	62.5
	Chi-square = .135 Gamma = .027		Chi-square =4.20 Gamma = .231	

*p<.05; **p<.01; ***p<.001

Table 4.46 - Self reported minor property offenses (at 14-15 years) by behavior of parents combined (10-11 years). (N = 390)

Behavior of parents combined (10-11yrs)	Minor Property (14-15 yrs)					
	Diversity				**Ever**	
	0	1	2-4	5-11	Yes	No
Good	15.2	28.0	39.2	17.6	84.8	15.2
Good average	16.5	25.9	41.2	16.5	83.5	16.5
Poor average	14.8	22.7	43.2	19.3	85.2	14.8
Poor	17.4	26.1	29.3	27.2	82.6	17.4
	Chi-square = 6.78 Gamma = .044				Chi-square =.303 Gamma = -.033	

Behavior of parents combined (10-11 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Good	57.6	42.4	25.6	74.4
Good average	68.2	31.8	31.8	68.2
Poor average	68.2	31.8	31.8	68.2
Poor	65.2	34.8	33.7	66.3
	Chi-square = 3.61 Gamma = .103		Chi-square =1.99 Gamma = .107	

*p<.05; **p<.01; ***p<.001

Table 4.47 - Self reported minor property offenses (at 14-15 years) by supervision by parents (8-9 years). (N = 377)

Supervision by parents (8-9 yrs)	Minor Property (14-15 yrs)					
	Diversity				**Ever**	
	0	1	2-4	5-11	Yes	No
Good	21.6	33.0	33.0	12.5	78.4	21.6
Average	15.1	24.8	40.8	19.3	84.9	15.1
Poor	9.9	19.7	40.8	29.6	90.1	9.9
	Chi-square = 13.35*				Chi-square = 4.20	
	Gamma = .249				Gamma = .256	

Supervision by parents (8-9 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Good	51.1	48.9	21.6	78.4
Average	63.8	36.2	29.4	70.6
Poor	80.3	19.7	46.5	53.5
	Chi-square = 14.48***		Chi-square =11.91*	
	Gamma = .357		Gamma = .319	

*p<.05; **p<.01; ***p<.001

Table 4.48 - Self reported minor property offenses (at 14-15 years) by relationship with parents combined (18-19 years). (N = 387)

	Minor Property (14-15 yrs)					
Relationship with parents combined (18-19 yrs)	Diversity				Ever	
	0	1	2-4	5-11	Yes	No
Good	15.9	36.5	36.5	11.1	84.1	15.9
Average	15.5	23.1	42.4	18.9	84.5	15.5
Poor	11.6	25.6	31.4	31.4	88.4	11.6
	Chi-square = 14.30*				Chi-square =.850	
	Gamma = .182				Gamma = .107	

Relationship with parents combined (18-19 yrs)	Sometimes		Frequently	
	Yes	No	Yes	No
Good	54.0	46.0	27.0	73.0
Average	64.3	35.7	29.4	70.6
Poor	72.1	27.9	39.5	60.5
	Chi-square = 5.20		Chi-square =3.65	
	Gamma = .219		Gamma = .174	

*p<.05; **p<.01; ***p<.001

Table 4.49 - Self reported serious property offenses (at 14-15 years) by family income (at 8-9 years). (N = 405)

	Serious Property (14-15 yrs)				
	Diversity			**Ever**	
Family income (8-9 yrs)	0	1	2-4	Yes	No
Comfortable	92.8	4.0	3.2	7.2	92.8
Adequate	88.8	8.0	3.2	11.2	88.8
Inadequate	77.2	12.0	10.9	22.8	77.2
	Chi-square = 14.47**			Chi-square = 12.40**	
	Gamma = .387			Gamma = .395	

	Sometimes		**Frequently**	
Family income (8-9 yrs)	Yes	No	Yes	No
Comfortable	5.6	94.4	2.4	97.6
Adequate	6.9	93.1	1.6	98.4
Inadequate	15.2	84.8	5.4	94.6
	Chi-square = 7.37*		Chi-square = 3.51	
	Gamma = .339		Gamma = .277	

*p<.05; **p<.01; ***p<.001

Table 4.50 - Self reported serious property offenses (at 14-15 years) by family size (at 8-9 years). (N = 405)

	Serious Property (14-15 yrs)				
Family size (Number of siblings) (8-9 yrs)	**Diversity** 0	1	2-4	**Ever** Yes	No
None	93.2	6.8	0.0	6.8	93.2
One	91.0	6.0	3.0	9.0	91.0
Two	91.0	5.0	4.0	9.0	91.0
Three	85.7	9.5	4.8	14.3	85.7
Four	74.3	20.0	5.7	25.7	74.3
Five or more	81.0	6.3	12.7	19.0	81.0
	Chi-square = 21.03* Gamma = .297			Chi-square = 11.70* Gamma = .296	

Family size (Number of siblings) (8-9 yrs)	**Sometimes** Yes	No	**Frequently** Yes	No
None	4.5	95.5	0.0	100
One	6.0	94.0	2.0	98.0
Two	4.0	96.0	2.0	98.0
Three	14.3	85.7	3.2	96.8
Four	14.3	85.7	8.6	91.4
Five or more	12.7	87.3	3.2	96.8
	Chi-square = 10.05 Gamma = .302		Chi-square = 6.26 Gamma = .344	

*p<.05; **p<.01; ***p<.001

Table 4.51 - Self reported serious property offenses (at 14-15 years) by broken home before 15 years. (N = 405)

Broken home before 15 yrs	Serious Property (14-15 yrs)				
	Diversity			**Ever**	
	0	1	2-4	Yes	No
Not broken	88.8	7.0	4.2	11.2	88.8
Broken by death	81.5	14.8	3.7	18.5	81.5
Broken otherwise	81.3	8.3	10.4	18.8	81.3
	Chi-square =5.75 Gamma = .269			Chi-square = 3.08 Gamma = .274	

Broken home before 15 yrs	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Not broken	7.6	92.4	2.1	97.9
Broken by death	14.8	85.2	0.0	100
Broken otherwise	10.4	89.6	8.3	91.7
	Chi-square = 1.99 Gamma = .222		Chi-square = 6.93* Gamma = .476	

*p<.05; **p<.01; ***p<.001

Table 4.52 - Self reported serious property offenses (at 14-15 years) by behavior of parents combined (10-11 years). (N = 390)

Behavior of parents combined (10-11 yrs)	Serious Property (14-15 yrs)				
	Diversity			**Ever**	
	0	1	2-4	Yes	No
Good	88.0	10.4	1.6	12.0	88.0
Good average	89.4	7.1	3.5	10.6	89.4
Poor average	90.9	3.4	5.7	9.1	90.9
Poor	81.5	8.7	9.8	18.5	81.5
	Chi-square = 11.72 Gamma = .137			Chi-square = 4.32 Gamma = .124	

Behavior of parents combined (10-11 yrs)	**Sometimes**		**Frequently**	
	Yes	No	Yes	No
Good	8.0	92.0	1.6	98.4
Good average	5.9	94.1	2.4	97.6
Poor average	5.7	94.3	0.0	100
Poor	13.0	87.0	6.5	93.5
	Chi-square = 4.22 Gamma = .146		Chi-square = 8.56* Gamma = .400	

*p<.05; **p<.01; ***p<.001

Table 4.53 - Self reported serious property offenses (at 14-15 years) by supervision by parents (8-9 years). (N = 377)

Supervision by parents (8-9 yrs)	Serious Property (14-15 yrs)				
	Diversity			Ever	
	0	1	2-4	Yes	No
Good	94.3	3.4	2.3	5.7	94.3
Average	87.2	8.3	4.6	12.8	87.2
Poor	80.3	11.3	8.5	19.7	80.3
	Chi-square = 7.44 Gamma = .360			Chi-square = 7.16* Gamma = .369	

Supervision by parents (8-9 yrs)	Sometimes		Frequently	
	Yes	No	Yes	No
Good	3.4	96.6	1.1	98.9
Average	8.7	91.3	3.2	96.8
Poor	12.7	87.3	2.8	97.2
	Chi-square = 4.64 Gamma = .360		Chi-square =1.05 Gamma = .225	

*p<.05; **p<.01; ***p<.001

Table 4.54 - Self reported serious property offenses (at 14-15 years) by relationship with parents combined (18-19 years). (N = 387)

	Serious Property (14-15 yrs)				
Relationship with parents combined (18-19 yrs)	**Diversity**			**Ever**	
	0	1	2-4	Yes	No
Good	93.7	4.8	1.6	6.3	93.7
Average	88.7	7.1	4.2	11.3	88.7
Poor	76.7	12.8	10.5	23.3	76.7
	Chi-square = 11.61*			Chi-square = 10.9**	
	Gamma = .408			Gamma = .415	
Relationship with parents combined (18-19 yrs)	**Sometimes**			**Frequently**	
	Yes	No		Yes	No
Good	4.8	95.2		0.0	100
Average	7.1	92.9		2.5	97.5
Poor	16.3	83.7		5.8	94.2
	Chi-square = 8.10*			Chi-square = 4.68	
	Gamma = .404			Gamma = .584	

*p<.05; **p<.01; ***p<.001

Table 4.55 - Self reported personal offenses (at 14-15 years) by family income (at 8-9 years). (N = 405)

	Personal (14-15 yrs)					
	Diversity				**Ever**	
Family income (8-9 yrs)	0	1	2	3-5	Yes	No
Comfortable	70.4	11.2	9.6	8.8	29.6	70.4
Adequate	69.7	14.9	10.6	4.8	30.3	69.7
Inadequate	62.0	15.2	13.0	9.8	38.0	62.0
	Chi-square = 5.01 Gamma = .090				Chi-square = 2.12 Gamma = .108	

	Sometimes		**Frequently**	
Family income (8-9 yrs)	Yes	No	Yes	No
Comfortable	24.8	75.2	8.0	92.0
Adequate	20.2	79.8	8.0	92.0
Inadequate	31.5	68.5	16.3	83.7
	Chi-square = 4.34 Gamma = .084		Chi-square = 5.52 Gamma = .246	

*p<.05; **p<.01; ***p<.001

Table 4.56 - Self reported personal offenses (at 14-15 years) by family size (at 8-9 years). (N = 405)

	Personal (14-15 yrs)					
Family size (Number of siblings) (8-9 yrs)	Diversity 0	1	2	3-5	Ever Yes	No
None	75.0	15.9	4.5	4.5	25.0	75.0
One	76.0	10.0	10.0	4.0	24.0	76.0
Two	73.0	12.0	9.0	6.0	27.0	73.0
Three	58.7	12.7	12.7	15.9	41.3	58.7
Four	68.6	17.1	5.7	8.6	31.4	68.6
Five or more	52.4	20.6	20.6	6.3	47.6	52.4
	Chi-square = 25.99* Gamma = .217				Chi-square = 14.67* Gamma = .243	

Family size (Number of siblings) (8-9 yrs)	Sometimes Yes	No	Frequently Yes	No
None	15.9	84.1	6.8	93.2
One	20.0	80.0	3.0	97.0
Two	18.0	82.0	8.0	92.0
Three	34.9	65.1	14.3	85.7
Four	20.0	80.0	11.4	88.6
Five or more	38.1	61.9	20.6	79.4
	Chi-square = 15.62** Gamma = .241		Chi-square = 15.83** Gamma = .399	

*p<.05; **p<.01; ***p<.001

Table 4.57 - Self reported personal offenses (at 14-15 years) by broken home before 15 years. (N = 405)

Broken home before 15 yrs	Personal (14-15 yrs)					
	Diversity				Ever	
	0	1	2	3-5	Yes	No
Not broken	70.0	14.2	10.3	5.5	30.0	70.0
Broken by death	66.7	3.7	14.8	14.8	33.3	66.7
Broken otherwise	56.3	16.7	12.5	14.6	43.8	56.3
	Chi-square = 11.34 Gamma = .232				Chi-square = 3.6 Gamma = .217	

Broken home before 15 yrs	Sometimes		Frequently	
	Yes	No	Yes	No
Not broken	21.8	78.2	8.5	91.5
Broken by death	33.3	66.7	7.4	92.6
Broken otherwise	35.4	64.6	20.8	79.2
	Chi-square = 5.54 Gamma = .296		Chi-square =7.38* Gamma = .356	

*p<.05; **p<.01; ***p<.001

Table 4.58 - Self reported personal offenses (at 14-15 years) by behavior of parents combined (10-11 years). (N = 390)

	Personal (14-15 yrs)					
Behavior of parents combined (10-11 yrs)	Diversity				Ever	
	0	1	2	3-5	Yes	No
Good	71.2	13.6	7.2	8.0	28.8	71.2
Good average	67.1	14.1	15.3	3.5	32.9	67.1
Poor average	73.9	9.1	10.2	6.8	26.1	73.9
Poor	59.8	18.5	12.0	9.8	40.2	59.8
	Chi-square = 10.24 Gamma = .096				Chi-square = 4.88 Gamma = .108	

Behavior of parents combined (10-11 yrs)	Sometimes		Frequently	
	Yes	No	Yes	No
Good	21.6	78.4	12.0	88.0
Good average	22.4	77.6	3.5	96.5
Poor average	20.5	79.5	5.7	94.3
Poor	33.7	66.3	17.4	82.6
	Chi-square = 5.78 Gamma = .151		Chi-square =11.92** Gamma = .120	

*p<.05; **p<.01; ***p<.001

Table 4.59 - Self reported personal offenses (at 14-15 years) by supervision by parents (8-9 years). (N = 377)

Supervision by parents (8-9 yrs)	Personal (14-15 yrs)					
	Diversity				Ever	
	0	1	2	3-5	Yes	No
Good	75.0	12.5	9.1	3.4	25.0	75.0
Average	71.1	14.7	8.3	6.0	28.9	71.1
Poor	53.5	14.1	19.7	12.7	46.5	53.5
	Chi-square = 15.60*				Chi-square =9.82**	
	Gamma = .261				Gamma = .266	

Supervision by parents (8-9 yrs)	Sometimes		Frequently	
	Yes	No	Yes	No
Good	17.0	83.0	9.1	90.9
Average	22.0	78.0	8.7	91.3
Poor	38.0	62.0	14.1	85.9
	Chi-square = 10.50**		Chi-square =1.81	
	Gamma = .308		Gamma = .142	

*p<.05; **p<.01; ***p<.001

Table 4.60 - Self reported personal offenses (at 14-15 years) by relationship with parents combined (18-19 years). (N = 377)

	Personal (14-15 yrs)					
Relationship with parents combined (18-19 yrs)	**Diversity**				**Ever**	
	0	1	2	3-5	Yes	No
Good	79.4	12.7	6.3	1.6	20.6	79.4
Average	66.0	13.9	11.8	8.4	34.0	66.0
Poor	66.3	16.3	9.3	8.1	33.7	66.3
	Chi-square = 6.60 Gamma = .144				Chi-square = 4.32 Gamma = .152	
Family size (Number of siblings) (8-9 yrs)	**Sometimes**				**Frequently**	
	Yes		No		Yes	No
Good	12.7		87.3		1.6	98.4
Average	25.2		74.8		10.5	89.5
Poor	27.9		72.1		12.8	87.2
	Chi-square = 5.35 Gamma = .224				Chi-square = 5.92 Gamma = .358	

*p<.05; **p<.01; ***p<.001

The results of the bivariate analysis between family factors and self report delinquency measured at 14-15 years thus provides some evidence concerning the conditions which existed in the homes of boys in the survey sample who became involved in various forms of misbehavior at a relatively early age. Thus, low family income and poor relationships with parents appeared to be contributory factors towards the commission of more serious serious property offenses rather than minor crimes.

The finding that the quality of supervision by parents was associated with all categories of self report delinquency implies that poor parental supervision creates an environment conducive to the development of both serious and minor misconduct among juveniles. However, the analysis also indicated that differences in the attitudes of parents towards their children or the quality of their own relationships had no systematic significant impact upon whether or not the boys became involved in deviant behavior. Thus, the variable 'behavior of parents combined' was only significantly related to the frequent commission of serious property offenses. Similarly, broken homes only exhibited an association with the frequent commission of both serious property and personal offenses. Clearly, broken homes and parental behavior only tend to contribute towards the development of delinquency among the more frequent serious offenders.

Finally, family size as a structural family variable was associated with a variety of offenses, but only consistently with the personal offense category.

Delinquency at 16-17 years - The bivariate analysis between self reported delinquency at 16-17 years and family factors provides further information concerning the role of the family in the development of different types of juvenile delinquency.

The major finding displayed in the cross-tabulation results is that every family variable included in the analysis, with the exception of broken homes, exhibits a significant association at the .05 level with both of the serious property measures of delinquency (Tables 4.73 to 4.78). The broken homes variable is only significantly related to the 'ever' done serious property variable (Table 4.75). Gamma, which indicates the strength of these relationships, reaches its

highest values of the order of .5 in the analysis between serious property offenses at 16-17 years and both supervision by parents and relationships with parents (Tables 4.77 and 4.78). Moreover, from the percentage figures displayed in the Table 4.75 it is again possible to discern that it the reason for the break up of the marital home must be taken into account when describing the relationship between broken homes and serious property offenses, taken to represent just one particular aspect of juvenile delinquency. Thus, while 12.4% of the boys who lived in an intact home admitted to having been involved in serious property offenses, as compared with 11.1% of those who had lost a parent through death, proportionately more than twice as many (25.5%) of the remainder, whose parents were either divorced or separated, admitted to the same type of deviant activity.

From the above results, it can be concluded that the relationships between family members and the quality of parental supervision and discipline all played important roles in determining whether or not the boys in the sample displayed deviant behavior in the form of involvement in serious property offenses up to the age of 17 (Tables 4.76 to 4.78).

Tables 4.67 to 4.72 indicate that very few significant relationships exist between minor offenses and family factors up to the age of 17. The same can be said for Tables 4.79 to 4.84 with respect to personal offenses. In particular, minor property offenses are not related to any family variables included in the analysis, and indeed Gamma takes on a negative value when describing the association between these types of crimes and parental behavior (Table 4.70). Indeed, Table 4.70 indicates that 93.4% of those boys whose parents were described as exhibiting good behavior admitted to having been involved in minor property offenses, as compared with only 90.4% whose parents' behavior was described as poor. Although the difference is only of 3%, it is in the direction contrary to that which could have been anticipated.

Family income, in addition to being related to serious property offenses as mentioned previously, is also associated at the .05 level of significance with personal offenses (Table 4.79).

Table 4.61 - Self reported public nuisance offenses (at 16-17 years) by family income (at 8-9 years). (N = 397)

	Public Nuisance (16-17 yrs)			
	Diversity			
Family income (8-9 yrs)	0-4	5-6	7-8	9-13
Comfortable	14.9	29.8	33.1	22.3
Adequate	14.7	18.5	32.6	34.2
Inadequate	12.0	15.2	39.1	33.7
	Chi-square = 11.42			
	Gamma = .157			

*p<.05; **p<.01; ***p<.001

Table 4.62 - Self reported public nuisance offenses (at 16-17 years) by family size (at 8-9 years). (N = 397)

	Public Nuisance (16-17 yrs)			
	Diversity			
Family size (Number of siblings) (8-9 yrs)	0-4	5-6	7-8	9-13
None	14.0	20.9	41.9	23.3
One	16.3	24.5	31.6	27.6
Two	7.3	24.0	37.5	31.3
Three	14.5	17.7	35.5	32.3
Four	8.6	25.7	25.7	40.0
Five or more	23.8	12.7	31.7	31.7
	Chi-square = 16.44			
	Gamma = .045			

*p<.05; **p<.01; ***p<.001

Table 4.63 - Self reported public nuisance offenses (at 16-17 years) by broken home before 15 years. (N = 397)

	Public Nuisance (16-17 yrs)			
	Diversity			
Broken home before 15 yrs	0-4	5-6	7-8	9-13
Not broken	14.9	22.6	33.7	28.8
Broken by death	11.1	22.2	37.0	29.6
Broken otherwise	10.6	10.6	36.2	42.6
	Chi-square = 6.19			
	Gamma = .194			

*p<.05; **p<.01; ***p<.001

Table 4.64 - Self reported public nuisance offenses (at 16-17 years) by behavior of parents combined (at 10-11 years). (N = 383)

	Public Nuisance (16-17 yrs)			
	Diversity			
Behavior of parents combined (10-11 yrs)	0-4	5-6	7-8	9-13
Good	12.4	24.8	33.1	29.8
Good average	17.3	23.5	30.9	28.4
Poor average	14.9	16.1	42.5	26.4
Poor	14.9	17.0	33.0	35.1
	Chi-square = 6.92			
	Gamma = .045			

*p<.05; **p<.01; ***p<.001

Table 4.65 - Self reported public nuisance offenses (at 16-17 years) by supervision by parents (at 8-9 years). (N = 372)

	Public Nuisance (16-17 yrs)			
	Diversity			
Supervision by parents (8-9 yrs)	0-4	5-6	7-8	9-13
Good	16.3	25.6	38.4	19.8
Average	15.4	22.4	32.7	29.4
Poor	9.7	9.7	37.5	43.1
	Chi-square = 14.82*			
	Gamma = .230			

*p<.05; **p<.01; ***p<.001

Table 4.66 - Self reported public nuisance offenses (at 16-17 years) by relationship with parents combined (at 18-19 years). (N = 385)

	Public Nuisance (16-17 yrs)			
	Diversity			
Relationship with parents combined (18-19 yrs)	0-4	5-6	7-8	9-13
Good	11.3	27.4	37.1	24.2
Average	15.5	20.9	34.3	29.3
Poor	11.9	17.9	33.3	36.9
	Chi-square = 4.75			
	Gamma = .107			

*p<.05; **p<.01; ***p<.001

Table 4.67 - Self reported minor property offenses (at 16-17 years) by family income (at 8-9 years). (N = 397)

	Minor Property (16-17 yrs)					
	Diversity				Ever	
Family income (8-9 yrs)	0	1	2-4	5-11	Yes	No
Comfortable	11.6	15.7	48.8	24.0	88.4	11.6
Adequate	7.6	15.2	41.8	35.3	92.4	7.6
Inadequate	6.5	19.6	40.2	33.7	93.5	6.5
	Chi-square = 6.97 Gamma = .095				Chi-square = 2.10 Gamma = .205	

*p<.05; **p<.01; ***p<.001

Table 4.68 - Self reported minor property offenses (at 16-17 years) by family size (at 8-9 years). (N = 397)

	Minor Property (16-17 yrs)					
	Diversity				Ever	
Family size (Number of siblings) (8-9 yrs)	0	1	2-4	5-11	Yes	No
None	14.0	16.3	51.2	18.6	86.0	14.0
One	9.2	16.3	42.9	31.6	90.8	9.2
Two	8.3	15.6	46.9	29.2	91.7	8.3
Three	6.5	11.3	41.9	40.3	93.5	6.5
Four	8.6	14.3	40.0	37.1	91.4	8.6
Five or more	6.3	23.8	38.1	31.7	93.7	6.3
	Chi-square = 11.15 Gamma = .074				Chi-square = 2.40 Gamma = .158	

*p<.05; **p<.01; ***p<.001

Table 4.69 - Self reported minor property offenses (at 16-17 years) by broken home before 15 years. (N = 397)

	Minor Property (16-17 yrs)					
	Diversity				**Ever**	
Broken home before 15 yrs	0	1	2-4	5-11	Yes	No
Not broken	9.0	17.0	44.6	29.4	91.0	9.0
Broken by death	3.7	14.8	55.6	25.9	96.3	3.7
Broken otherwise	8.5	12.8	29.8	48.9	91.5	8.5
	Chi-square = 9.58 Gamma = .185				Chi-square = .890 Gamma = .130	

*p<.05; **p<.01; ***p<.001

Table 4.70 - Self reported minor property offenses (at 16-17 years) by behavior of parents combined (10-11 years). (N = 383)

	Minor Property (16-17 yrs)					
	Diversity				**Ever**	
Behavior of parents combined (10-11 yrs)	0	1	2-4	5-11	Yes	No
Good	6.6	16.5	43.0	33.9	93.4	6.6
Good average	9.9	19.8	42.0	28.4	90.1	9.9
Poor average	10.3	12.6	47.1	29.9	89.7	10.3
Poor	9.6	14.9	43.6	31.9	90.4	9.6
	Chi-square = 3.32 Gamma = -.020				Chi-square = 1.16 Gamma = -.112	

*p<.05; **p<.01; ***p<.001

Table 4.71 - Self reported minor property offenses (at 16-17 years) by supervision by parents (8-9 years). (N = 372)

	Minor Property (16-17 yrs)					
Supervision by parents (8-9 yrs)	Diversity				Ever	
	0	1	2-4	5-11	Yes	No
Good	12.8	18.6	40.7	27.9	87.2	12.8
Average	8.9	16.4	44.4	30.4	91.1	8.9
Poor	4.2	13.9	43.1	38.9	95.8	4.2
	Chi-square = 5.70 Gamma = .153				Chi-square = 3.61 Gamma = .307	

*p<.05; **p<.01; ***p<.001

Table 4.72 - Self reported minor property offenses (at 16-17 years) by relationship with parents combined (18-19 years). (N = 385)

	Minor Property (16-17 yrs)					
Drinking in pubs under 18 yrs (14-15 yrs)	Diversity				Ever	
	0	1	2-4	5-11	Yes	No
Good	9.7	27.4	37.1	25.8	90.3	9.7
Average	8.8	14.6	44.8	31.8	91.2	8.8
Poor	8.3	11.9	44.0	35.7	91.7	8.3
	Chi-square = 8.03 Gamma = .140				Chi-square = .080 Gamma = .045	

*p<.05; **p<.01; ***p<.001

Table 4.73 - Self reported serious property offenses (at 16-17 years) by family income (at 8-9 years). (N = 397)

	Serious Property (16-17 yrs)				
	Diversity			**Ever**	
Family income (8-9 yrs)	0	1	2-4	Yes	No
Comfortable	91.7	5.8	2.5	8.3	91.7
Adequate	88.0	6.0	6.0	12.0	88.0
Inadequate	75.0	5.4	19.6	25.0	75.0
	Chi-square = 22.65***			Chi-square = 13.3**	
	Gamma = .398			Gamma = .390	

*p<.05; **p<.01; ***p<.001

Table 4.74 - Self reported serious property offenses (at 16-17 years) by family size (at 8-9 years). (N = 397)

	Serious Property (16-17 yrs)				
	Diversity			**Ever**	
Family size (Number of siblings) (8-9 yrs)	0	1	2-4	Yes	No
None	93.0	2.3	4.7	7.0	93.0
One	93.9	2.0	4.1	6.1	93.9
Two	89.6	6.3	4.2	10.4	89.6
Three	77.4	9.7	12.9	22.6	77.4
Four	71.4	17.1	11.4	28.6	71.4
Five or more	81.0	3.2	15.9	19.0	81.0
	Chi-square = 27.54**			Chi-square = 19.30**	
	Gamma = .360			Gamma = .367	

*p<.05; **p<.01; ***p<.001

Table 4.75 - Self reported serious property offenses (at 16-17 years) by broken home before 15 years. (N = 397)

	Serious Property (16-17 yrs)				
	Diversity			**Ever**	
Broken home before 15 yrs	0	1	2-4	Yes	No
Not broken	87.6	5.6	6.8	12.4	87.6
Broken by death	88.9	0.0	11.1	11.1	88.9
Broken otherwise	74.5	10.6	14.9	25.5	74.5
	Chi-square = 8.00 Gamma = .291			Chi-square = 6.13* Gamma = .230	

*p<.05; **p<.01; ***p<.001

Table 4.76 - Self reported serious property offenses (at 16-17 years) by behavior of parents combined (10-11 years). (N = 383)

	Serious Property (16-17 yrs)				
	Diversity			**Ever**	
Behavior of parents combined (10-11 yrs)	0	1	2-4	Yes	No
Good	91.7	5.8	2.5	8.3	91.7
Good average	87.7	8.6	3.7	12.3	87.7
Poor average	92.0	2.3	5.7	8.0	92.0
Poor	74.5	6.4	19.1	25.5	74.5
	Chi-square = 28.08*** Gamma = .356			Chi-square = 16.99*** Gamma = .347	

*p<.05; **p<.01; ***p<.001

Table 4.77 - Self reported serious property offenses (at 16-17 years) by supervision by parents (8-9 years). (N = 372)

	Serious Property (16-17 yrs)				
	Diversity			**Ever**	
Supervision by parents (8-9 yrs)	0	1	2-4	Yes	No
Good	93.0	2.3	4.7	7.0	93.0
Average	89.7	5.1	5.1	10.3	89.7
Poor	69.4	11.1	19.4	30.6	69.4
	Chi-square = 24.24*** Gamma = .491			Chi-square = 23.05*** Gamma = .504	

*p<.05; **p<.01; ***p<.001

Table 4.78 - Self reported serious property offenses (at 16-17 years) by relationship with parents combined (18-19 years). (N = 385)

	Serious Property (16-17 yrs)				
	Diversity			**Ever**	
Relationship with parents combined (18-19 yrs)	0	1	2-4	Yes	No
Good	95.2	3.2	1.6	4.8	95.2
Average	88.7	5.9	5.4	11.3	88.7
Poor	73.8	8.3	17.9	26.2	73.8
	Chi-square = 19.97*** Gamma = .500			Chi-square = 16.55** Gamma = .503	

*p<.05; **p<.01; ***p<.001

Table 4.79 - Self reported personal offenses (at 16-17 years) by family income (at 8-9 years). (N = 397)

	Personal (16-17 yrs)					
	Diversity				Ever	
Family income (8-9 yrs)	0	1	2	3-5	Yes	No
Comfortable	66.1	16.5	11.6	5.8	33.9	66.1
Adequate	55.4	19.6	9.2	15.8	44.6	55.4
Inadequate	48.9	20.7	17.4	13.0	51.1	48.9
	Chi-square = 12.99* Gamma = .193				Chi-square = 6.74* Gamma = .217	

*p<.05; **p<.01; ***p<.001

Table 4.80 - Self reported personal offenses (at 16-17 years) by family size (at 8-9 years). (N = 397)

	Personal (16-17 yrs)					
	Diversity				Ever	
Family size (Number of siblings) (8-9 yrs)	0	1	2	3-5	Yes	No
None	69.8	11.6	11.6	7.0	30.2	69.8
One	58.2	19.4	13.3	9.2	41.8	58.2
Two	60.4	17.7	11.5	10.4	39.6	60.4
Three	51.6	17.7	11.3	19.4	48.4	51.6
Four	60.0	14.3	8.6	17.1	40.0	60.0
Five or more	46.0	28.6	12.7	12.7	54.0	46.0
	Chi-square = 13.84 Gamma = .126				Chi-square = 7.33 Gamma = .152	

*p<.05; **p<.01; ***p<.001

Table 4.81 - Self reported personal offenses (at 16-17 years) by broken home before 15 years. (N = 397)

	Personal (16-17 yrs)					
	Diversity				Ever	
Broken home before 15 yrs	0	1	2	3-5	Yes	No
Not broken	59.1	19.2	10.2	11.5	40.9	59.1
Broken by death	51.9	22.2	11.1	14.8	48.1	51.9
Broken otherwise	46.8	14.9	23.4	14.9	53.2	46.8
	Chi-square = 8.43 Gamma = .191				Chi-square = 2.88 Gamma = .203	

*p<.05; **p<.01; ***p<.001

Table 4.82 - Self reported personal offenses (at 16-17 years) by behavior of parents combined (10-11 years). (N = 383)

	Personal (16-17 yrs)					
	Diversity				Ever	
Behavior of parents combined (10-11 yrs)	0	1	2	3-5	Yes	No
Good	56.2	18.2	16.5	9.1	43.8	56.2
Good average	69.1	17.3	4.9	8.6	30.9	69.1
Poor average	56.3	19.5	11.5	12.6	43.7	56.3
Poor	51.1	18.1	12.8	18.1	48.9	51.1
	Chi-square = 12.79 Gamma = .083				Chi-square = 6.22 Gamma = .075	

*p<.05; **p<.01; ***p<.001

Table 4.83 - Self reported personal offenses (at 16-17 years) by supervision by parents (8-9 years). (N = 372)

	Personal (16-17 yrs)					
	Diversity				Ever	
Supervision by parents (8-9 yrs)	0	1	2	3-5	Yes	No
Good	60.5	18.6	11.6	9.3	39.5	60.5
Average	61.2	17.3	13.1	8.4	38.8	61.2
Poor	47.2	20.8	9.7	22.2	52.8	47.2
	Chi-square = 12.29 Gamma = .145				Chi-square = 4.55 Gamma = .144	

*p<.05; **p<.01; ***p<.001

Table 4.84 - Self reported personal offenses (at 16-17 years) by relationship with parents combined (18-19 years). (N = 385)

	Personal (16-17 yrs)					
	Diversity				Ever	
Relationship with parents combined (18-19 yrs)	0	1	2	3-5	Yes	No
Good	61.3	24.2	8.1	6.5	38.7	61.3
Average	59.8	16.7	13.4	10.0	40.2	59.8
Poor	48.8	21.4	10.7	19.0	51.2	48.8
	Chi-square = 10.59 Gamma = .166				Chi-square = 3.49 Gamma = .156	

*p<.05; **p<.01; ***p<.001

Official Delinquency and Family Factors

The bivariate analysis between official delinquency and family factors undertaken in this study produced results which indicated that all of the family variables were significantly related to both the adult and juvenile convictions of the boys in the sample. Gamma values indicating the strengths of the various relationships were generally around .3 signifying moderately strong associations.

Thus, for example boys who came from 'negative' backgrounds, in the sense of low income families or poor parental supervision at 8-9 years, or who did not enjoy very good relationships with their parents at 18-19 years, were found to be more likely to have both juvenile and adult convictions than boys who came from the equivalent 'positive' backgrounds (Tables 4.85, 4.89, 4.90, 4.97, 4.101 and 4.102).

Moreover, those boys who came from the worst family situations, whether brought about through broken homes or poor parental behavior, tended to have been convicted more often than those who came from better home environments, who frequently had received either none or, at most, only a few convictions (Tables 4.87, 4.88, 4.105 and 4.106).

Table 4.85 - Official juvenile convictions (10-16 years) by family income (at 8-9 years). (N = 411)

	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
Family income (8-9 yrs)	0	1	2-14	0	≥1
Comfortable	86.4	8.0	5.6	86.4	13.6
Adequate	81.3	13.5	5.2	81.3	18.7
Inadequate	66.7	11.8	21.5	66.7	33.3
	Chi-square = 25.64*** Gamma = .343			Chi-square = 13.48** Gamma = .340	

*p<.05; **p<.01; ***p<.001

Table 4.86 - Official juvenile convictions (10-16 years) by family size (at 8-9 years). (N = 411)

Family size (Number of siblings) (8-9 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
None	87.0	6.5	6.5	87.0	13.0
One	87.1	7.9	5.0	87.1	12.9
Two	84.2	9.9	5.9	84.2	15.8
Three	73.4	17.2	9.4	73.4	26.6
Four	74.3	14.3	11.4	74.3	25.7
Five or more	64.1	15.6	20.3	64.1	35.9
	Chi-square = 21.56*			Chi-square = 17.95**	
	Gamma = .318			Gamma = .328	

*p<.05; **p<.01; ***p<.001

Table 4.87 - Official juvenile convictions (10-16 years) by broken home before 15 years. (N = 411)

Broken home before 15 yrs	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
Not broken	82.1	9.6	8.4	82.1	17.9
Broken by death	78.6	21.4	0.0	78.6	21.4
Broken otherwise	62.5	18.8	18.8	62.5	37.5
	Chi-square = 15.50			Chi-square = 9.93**	
	Gamma = .327			Gamma = .360	

*p<.05; **p<.01; ***p<.001

Table 4.88 - Official juvenile convictions (10-16 years) by behavior of parents combined (10-11 years). (N = 396)

Behavior of parents combined (10-11 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
Good	87.3	8.7	4.0	87.3	12.7
Good average	85.9	11.8	2.4	85.9	14.1
Poor average	79.8	13.5	6.7	79.8	20.2
Poor	67.7	12.5	19.8	67.7	32.3
	Chi-square = 26.81*** Gamma = .347			Chi-square = 15.35** Gamma = .340	

*p<.05; **p<.01; ***p<.001

Table 4.89 - Official juvenile convictions (10-16 years) by supervision by parents (8-9 years). (N = 383)

Supervision by parents (8-9 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
Good	86.5	9.0	4.5	86.5	13.5
Average	82.3	10.9	6.8	82.3	17.7
Poor	68.9	16.2	14.9	68.9	31.1
	Chi-square = 9.93* Gamma = .297			Chi-square = 8.87* Gamma = .304	

*p<.05; **p<.01; ***p<.001

Table 4.90 - Official juvenile convictions (10-16 years) by relationship with parents combined (18-19 years). (N = 389)

Relationship with parents combined (18-19 yrs)	Official juvenile convictions (10-16 yrs)				
	Number			Ever	
	0	1	2-14	0	≥1
Good	84.1	9.5	6.3	84.1	15.9
Average	83.3	9.6	7.1	83.3	16.7
Poor	62.8	19.8	17.4	62.8	37.2
	Chi-square = 17.56** Gamma = .352			Chi-square = 17.29*** Gamma = .370	

*p<.05; **p<.01; ***p<.001

Table 4.91 - Juvenile delinquency scale (at 16-17 years) by family income (at 8-9 years). (N = 411)

Family income (8-9 yrs)	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
Comfortable	78.4	8.0	8.0	5.6
Adequate	66.8	14.5	13.5	5.2
Inadequate	47.3	19.4	11.8	21.5
	Chi-square = 36.00*** Gamma = .360			

*p<.05; **p<.01; ***p<.001

Table 4.92 - Juvenile delinquency scale (at 16-17 years) by family size (at 8-9 years). (N = 411)

Family size (No. of siblings) (8-9 yrs)	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
None	78.3	8.7	6.5	6.5
One	76.2	10.9	7.9	5.0
Two	66.3	17.8	9.9	5.9
Three	65.6	7.8	17.2	9.4
Four	51.4	22.9	14.3	11.4
Five or more	48.4	15.6	15.6	20.3
	Chi-square = 31.32**			
	Gamma = .285			

*p<.05; **p<.01; ***p<.001

Table 4.93 - Juvenile delinquency scale (at 16-17 years) by broken home before 15 years. (N = 411)

Broken home before 15 yrs .	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
Not broken	69.3	12.8	9.6	8.4
Broken by death	53.6	25.0	21.4	0.0
Broken otherwise	50.0	12.5	18.8	18.8
	Chi-square = 19.38*			
	Gamma = .305			

*p<.05; **p<.01; ***p<.001

Table 4.94 - Juvenile delinquency scale (at 16-17 years) by behavior of parents combined (at 10-11 years). (N = 396)

Behavior of parents combined (10-11 yrs)	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
Good	74.6	12.7	8.7	4.0
Good average	72.9	12.9	11.8	2.4
Poor average	61.8	18.0	13.5	6.7
Poor	57.3	10.4	12.5	19.8
	Chi-square = 29.15***			
	Gamma = .252			

*p<.05; **p<.01; ***p<.001

Table 4.95 - Juvenile delinquency scale (at 16-17 years) by supervision by parents (at 8-9 years). (N = 383)

Supervision by parents (8-9 yrs)	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
Good	78.7	7.9	9.0	4.5
Average	70.0	12.3	10.9	6.8
Poor	54.9	23.0	16.2	14.9
	Chi-square = 22.51***			
	Gamma = .346			

*p<.05; **p<.01; ***p<.001

Table 4.96 - Juvenile delinquency scale (at 16-17 years) by relationship with parents combined (at 18-19 years). (N = 389)

Relationship with parents combined (18-19 yrs)	Juvenile delinquency scale (16-17 yrs)			
	No police record	Police contact	Convicted once only	Recidivist
Good	74.6	9.5	9.5	6.3
Average	67.9	15.4	9.6	7.1
Poor	52.3	10.5	19.8	17.4
	Chi-square = 19.20***			
	Gamma = .281			

*p<.05; **p<.01; ***p<.001

Table 4.97 - Official adult convictions (17-24 years) by family income (at 8-9 years). (N = 395)

Family income (8-9 yrs)	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
Comfortable	80.0	11.7	5.0	3.3	80.0	20.0
Adequate	75.1	11.9	8.1	4.9	75.1	24.9
Inadequate	58.9	11.1	12.2	17.8	58.9	41.1
	Chi-square = 24.25***				Chi-square = 12.48**	
	Gamma = .400				Gamma = .301	

*p<.05; **p<.01; ***p<.001

Table 4.98 - Official adult convictions (17-24 years) by family size (at 8-9 years). (N = 395)

Family size (Number of siblings) (8-9 yrs)	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
None	86.7	0.0	6.7	6.7	86.7	13.3
One	81.6	8.2	7.1	3.1	81.6	18.4
Two	73.7	18.9	5.3	2.1	73.7	26.3
Three	74.2	11.3	8.1	6.5	74.2	25.8
Four	63.6	18.2	9.1	9.1	63.6	36.4
Five or more	51.6	11.3	14.5	22.6	51.6	48.4
	Chi-square = 48.49*** Gamma = .337				Chi-square = 23.84*** Gamma = .352	

*p<.05; **p<.01; ***p<.001

Table 4.99 - Official adult convictions (17-24 years) by broken home before 15 years. (N = 395)

Broken home before 15 yrs	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
Not broken	75.6	11.6	6.9	5.9	75.6	24.4
Broken by death	70.4	11.1	7.4	11.1	70.4	29.6
Broken otherwise	56.3	12.5	16.7	14.6	56.3	43.8
	Chi-square = 11.98 Gamma = .313				Chi-square = 8.03* Gamma = .322	

*p<.05; **p<.01; ***p<.001

Table 4.100 - Official adult convictions (17-24 years) by behavior of parents combined (10-11 years). (N = 380)

Behavior of parents combined (10-11 yrs)	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
Good	78.9	10.6	6.5	4.1	78.9	21.1
Good average	76.8	11.0	7.3	4.9	76.8	23.2
Poor average	75.6	9.3	5.8	9.3	75.6	24.4
Poor	61.8	14.6	11.2	12.4	61.8	38.2
	Chi-square = 11.60 Gamma = .215				Chi-square = 8.76* Gamma = .220	

*p<.05; **p<.01; ***p<.001

Table 4.101 - Official adult convictions (17-24 years) by supervision by parents (8-9 years). (N = 368)

Supervision by parents (8-9 yrs)	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
Good	84.1	6.8	4.5	4.5	84.1	15.9
Average	75.5	12.3	7.1	5.2	75.5	24.5
Poor	54.4	16.2	13.2	16.2	54.4	45.6
	Chi-square = 21.67** Gamma = .380				Chi-square = 18.27*** Gamma = .407	

*p<.05; **p<.01; ***p<.001

Table 4.102 - Official adult convictions (17-24 years) by relationship with parents combined (18-19 years). (N = 379)

Relationship with parents combined (18-19 yrs)	Official adult convictions (17-24 yrs)					
	Number				Ever	
	0	1	2-3	4-10	0	≥1
Good	83.6	9.8	3.3	3.3	83.6	16.4
Average	73.7	13.4	7.3	5.6	73.7	26.3
Poor	62.8	8.1	14.0	15.1	62.8	37.2
	Chi-square = 18.71** Gamma = .309				Chi-square = 8.05* Gamma = .300	

*p<.05; **p<.01; ***p<.001

Table 4.103 - Official total convictions (10-24 years) by family income (at 8-9 years). (N = 395)

Family income (8-9 yrs)	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
Comfortable	75.0	13.3	8.3	3.3	75.0	25.0
Adequate	69.2	13.0	13.0	4.9	69.2	30.8
Inadequate	52.2	10.0	17.8	20.0	52.2	47.8
	Chi-square = 30.56*** Gamma = .311				Chi-square = 12.78** Gamma = .293	

*p<.05; **p<.01; ***p<.001

Table 4.104 - Official total convictions (10-24 years) by family size (at 8-9 years). (N = 395)

Family size (Number of siblings) (8-9 yrs)	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
None	80.0	4.4	11.1	4.4	80.0	20.0
One	76.5	9.2	10.2	4.1	76.5	23.5
Two	68.4	17.9	10.5	3.2	68.4	31.6
Three	67.7	14.5	11.3	6.5	67.7	32.3
Four	54.5	15.2	18.2	12.1	54.5	45.5
Five or more	46.8	11.3	19.4	22.6	46.8	53.2
	Chi-square = 40.09*** Gamma = .307				Chi-square = 21.38*** Gamma = .320	

*p<.05; **p<.01; ***p<.001

Table 4.105 - Official total convictions (10-24 years) by broken home before 15 years. (N = 395)

Broken home before 15 yrs	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
Not broken	70.6	12.2	10.0	7.2	70.6	29.4
Broken by death	63.0	14.8	14.8	7.4	63.0	37.0
Broken otherwise	45.8	12.5	29.2	12.5	45.8	54.2
	Chi-square = 17.76* Gamma = .339				Chi-square = 11.84** Gamma = .376	

*p<.05; **p<.01; ***p<.001

Table 4.106 - Official total convictions (10-24 years) by behavior of parents combined (10-11 years). (N = 380)

Behavior of parents combined (10-11 yrs)	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
Good	74.8	12.2	8.9	4.1	74.8	25.2
Good average	72.0	14.6	8.5	4.9	72.0	28.0
Poor average	69.8	10.5	10.5	9.3	69.8	30.2
Poor	53.9	11.2	22.5	12.4	53.9	46.1
	Chi-square = 20.02* Gamma = .246				Chi-square = 11.44** Gamma = .245	

*p<.05; **p<.01; ***p<.001

Table 4.107 - Official total convictions (10-24 years) by supervision by parents (8-9 years). (N = 368)

Supervision by parents (8-9 yrs)	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
Good	78.4	11.4	5.7	5.4	78.4	21.6
Average	69.8	12.7	12.7	4.7	69.8	30.2
Poor	48.5	13.2	20.6	17.6	48.5	51.5
	Chi-square = 25.49*** Gamma = .358				Chi-square = 16.53*** Gamma = .368	

*p<.05; **p<.01; ***p<.001

Table 4.108 - Official total convictions (10-24 years) by relationship with parents combined (18-19 years). (N = 379)

Relationship with parents combined (18-19 yrs)	Official total convictions (10-24 yrs)					
	Number				Ever	
	0	1	2-4	5-14	Yes	No
Good	80.3	6.6	8.2	4.9	80.3	19.7
Average	68.5	14.7	11.2	5.6	68.5	31.5
Poor	53.5	9.3	19.8	17.4	33.5	46.5
	Chi-square = 23.86*** Gamma = .339				Chi-square = 12.25** Gamma = .343	

*p<.05; **p<.01; ***p<.001

The bivariate analysis using official delinquency variables thus implied that family structure in the form of broken homes and family size, inter-parental relationships, parent-child relationships and parental control were all related to juvenile delinquency. In contrast, the analysis involving self report delinquency data suggested that the association between family factors and juvenile misconduct varied according to the type of offenses under consideration. This finding proved to be particularly true for offenses committed before the boys' fifteenth birthdays. However, when self report delinquency was measured and analyzed at 16-17 years virtually all of the significant relationships discovered through the bivariate treatment of the data with family factors were found to occur in the serious property offense category.

Drinking and Family Factors

Chi-square proved to be significant at the .05 level in the bivariate analysis between the three drinking variables and the six family variables only for family income and drinking in pubs under 18 measured at both 14-15 and 16-17 years (Tables 4.109 and 4.115), and family size and drinking in pubs under 18 measured at 16-17 years (Table 4.116). No other significant relationships were found. Moreover, for the association between family size and drinking in pubs under 18 measured at 16-17 years Gamma took on a value of -.046, indicating not only that the relationship was very weak but also that, as family size increased the percentage of boys drinking illegally tended to decrease. For example, the results displayed in Table 4.116 indicate that 72.1% of boys who had no brothers or sisters at when they were 8-9 years old drank in pubs at 16-17 years, compared with 65.1% of boys who had 5 or more siblings at the younger age. Similarly, as family income decreased, the proportion of boys who tended to drink illegally in pubs tended to decrease (Tables 4.109 and 1.115). The low income level of the families may have resulted in the boys from large families having no spare money available to spend upon alcohol in pubs.

Although no significant association was discovered between the behavior of parents and drinking in pubs at 16-17 years, the crosstabulations diplayed in Table 4.118 show that 82.6% of the boys who came from families with recorded 'good' parental behavior drank in pubs at that age, compared with the lesser figure of 78.7% of those whose parents were assessed as exhibiting 'poor' behavior. Similarly, the percentage of boys who have a poor relationship with their parents and are heavy drinkers at 18-19 years is lower than that of boys who have a good relationship with their parents. These latter two findings are contrary to expectations since it would be expected that poor parental behavior or poor relationships with parents would both be contributory factors towards the development of illegal drinking, rather than tend to inhibit such behavior.

In general, the results of the analysis indicated that, within the sample of boys, family structure, family relationships and parental supervision were not related to drinking. In contrast, different family variables had exhibited relationships with the various categories of self report

delinquency, and zero-order relationships were discovered between official delinquency and all of the family factors. In addition, the association which was discovered between delinquency and income was such that as income decreased, delinquency increased, while the statistically significant relationship between drinking and income indicated that as income decreased, drinking also decreased. Given the general positive relationship between drinking and delinquency, the differences which were found in the results of the two analyses between, on the one hand drinking and family factors, and on the other hand delinquency and family factors, were somewhat unexpected.

Table 4.109 - Drinking in pubs under 18 years (at 14-15 years) by family income (at 8-9 years). (N = 405)

	Drinking in pubs under 18 years (14-15 yrs)			
Family income (8-9 yrs)	Never	Once or twice	Sometimes	Frequently
Comfortable	62.4	5.6	18.4	13.6
Adequate	76.1	3.7	11.7	8.5
Inadequate	83.7	4.3	3.3	8.7
	Chi-square = 16.57*			
	Gamma = -.302			

*p<.05; **p<.01; ***p<.001

Table 4.110 - Drinking in pubs under 18 years (at 14-15 years) by family size (at 8-9 years). (N = 405)

Family size (No. of siblings) (8-9 yrs)	Drinking in pubs under 18 years (14-15 yrs)			
	Never	Once or twice	Sometimes	Frequently
None	77.3	4.5	15.9	2.3
One	73.0	4.0	11.0	12.0
Two	74.0	4.0	15.0	7.0
Three	63.5	3.2	19.2	14.3
Four	71.4	8.6	5.7	14.3
Five or more	82.5	4.8	1.6	11.1
	Chi-square = 20.05 Gamma = .001			

*p<.05; **p<.01; ***p<.001

Table 4.111 - Drinking in pubs under 18 years (at 14-15 years) by broken home before 15 years. (N = 405)

Broken home before 15 yrs	Drinking in pubs under 18 years (14-15 yrs)			
	Never	Once or twice	Sometimes	Frequently
Not broken	74.5	4.8	11.5	9.1
Broken by death	74.1	3.7	11.1	11.1
Broken otherwise	66.7	2.1	14.6	16.7
	Chi-square = 3.86 Gamma = .145			

*p<.05; **p<.01; ***p<.001

Table 4.112 - Drinking in pubs under 18 years (at 14-15 years) by behavior of parents combined (at 10-11 years). (N = 390)

Behavior of parents combined (10-11 yrs)	Drinking in pubs under 18 years (14-15 yrs)			
	Never	Once or twice	Sometimes	Frequently
Good	76.0	3.2	11.2	9.6
Good average	77.6	3.5	12.9	5.9
Poor average	70.5	6.8	11.4	11.4
Poor	69.6	5.4	12.0	13.0
	Chi-square = 5.05 Gamma = .099			

*p<.05; **p<.01; ***p<.001

Table 4.113 - Drinking in pubs under 18 years (at 14-15 years) by supervision by parents (at 8-9 years). (N = 377)

Supervision by parents (8-9 yrs)	Drinking in pubs under 18 years (14-15 yrs)			
	Never	Once or twice	Sometimes	Frequently
Good	76.1	8.0	10.2	5.7
Average	72.9	3.7	11.0	12.4
Poor	73.2	4.2	14.1	8.5
	Chi-square = 6.17 Gamma = .059			

*p<.05; **p<.01; ***p<.001

Table 4.114 - Drinking in pubs under 18 years (at 14-15 years) by relationship with parents combined (at 18-19 years). (N = 387)

Relationship with parents combined (18-19 yrs)	Drinking in pubs under 18 years (14-15 yrs)			
	Never	Once or twice	Sometimes	Frequently
Good	69.8	4.8	14.3	11.1
Average	73.5	3.8	13.0	9.7
Poor	79.1	3.5	7.0	10.5
	Chi-square = 3.05 Gamma = -.117			

*p<.05; **p<.01; ***p<.001

Table 4.115 - Drinking in pubs under 18 years (at 16-17 years) by family income (at 8-9 years). (N = 397)

Family income (8-9 yrs)	Drinking in pubs under 18 years (16-17 yrs)	
	Yes	No
Comfortable	18.2	81.8
Adequate	16.2	83.3
Inadequate	32.6	67.4
	Chi-square = 10.0** Gamma = -.230	

*p<.05; **p<.01; ***p<.001

Table 4.116 - Drinking in pubs under 18 years (at 16-17 years) by family size (at 8-9 years). (N = 397)

Family size (Number of siblings) (8-9 yrs)	Drinking in pubs under 18 years (16-17 yrs) Yes	No
None	27.9	72.1
One	20.4	79.6
Two	15.6	84.4
Three	14.5	85.5
Four	14.3	85.7
Five or more	34.9	65.1
	Chi-square = 12.85*	
	Gamma = -.046	

*p<.05; **p<.01; ***p<.001

Table 4.117 - Drinking in pubs under 18 years (at 16-17 years) by broken home before 15 years. (N = 397)

Broken home before 15 yrs	Drinking in pubs under 18 years (16-17 yrs) Yes	No
Not broken	20.7	79.3
Broken by death	22.2	77.8
Broken otherwise	21.3	78.7
	Chi-square = .040	
	Gamma = -.024	

*p<.05; **p<.01; ***p<.001

Table 4.118 - Drinking in pubs under 18 years (at 16-17 years) by behavior of parents combined (at 10-11 years). (N = 383)

Behavior of parents combined (10-11 yrs)	Drinking in pubs under 18 years (16-17 yrs)	
	Yes	No
Good	17.4	82.6
Good average	24.7	75.3
Poor average	19.5	80.5
Poor	21.3	78.7
	Chi-square = 1.70	
	Gamma = -.051	

*p<.05; **p<.01; ***p<.001

Table 4.119 - Drinking in pubs under 18 years (at 16-17 years) by supervision by parents (at 8-9 years). (N = 372)

Supervision by parents (8-9 yrs)	Drinking in pubs under 18 years (16-17 yrs)	
	Yes	No
Good	23.3	76.7
Average	18.7	81.3
Poor	22.2	77.8
	Chi-square = 0.96	
	Gamma = .027	

*p<.05; **p<.01; ***p<.001

Table 4.120 - Drinking in pubs under 18 years (at 16-17 years) by relationship with parents combined (at 18-19 years). (N = 385)

Relationship with parents combined (18-19 yrs)	Drinking in pubs under 18 years (16-17 yrs) Yes	No
Good	24.2	75.8
Average	20.5	79.5
Poor	19.0	81.0
	Chi-square = 0.60 Gamma = .083	

*p<.05; **p<.01; ***p<.001

Table 4.121 - Drinking combined (at 18-19 years) by family income (at 8-9 years). (N = 389)

Family income (8-9 yrs)	Drinking combined (18-19 yrs) Low	Average	Heavy
Comfortable	23.7	55.9	20.3
Adequate	31.9	49.5	18.7
Inadequate	29.2	48.3	22.5
	Chi-square = 2.86 Gamma = -.040		

*p<.05; **p<.01; ***p<.001

Table 4.122 - Drinking combined (at 18-19 years) by family size (at 8-9 years). (N = 389)

Family size (Number of siblings) (8-9 yrs)	Drinking combined (18-19 yrs) Low	Average	Heavy
None	27.9	48.8	23.3
One	28.1	55.2	16.7
Two	24.7	54.6	20.6
Three	35.0	48.3	16.7
Four	33.3	45.5	21.2
Five or more	28.3	46.7	25.0
	Chi-square = 4.63 Gamma = -.006		

*p<.05; **p<.01; ***p<.001

Table 4.123 - Drinking combined (at 18-19 years) by broken home before 15 years. (N = 389)

Broken home before 15 yrs	Drinking combined (18-19 yrs) Low	Average	Heavy
Not broken	28.5	52.5	19.0
Broken by death	26.9	50.0	23.1
Broken otherwise	31.9	42.6	25.5
	Chi-square = 2.01 Gamma = .040		

*p<.05; **p<.01; ***p<.001

Table 4.124 - Drinking combined (at 18-19 years) by behavior of parents combined (at 10-11 years). (N = 375)

Behavior of parents combined (10-11 yrs)	Drinking combined (18-19 yrs) Low	Average	Heavy
Good	25.0	54.2	20.8
Good average	35.8	48.1	16.0
Poor average	33.0	53.4	13.6
Poor	26.7	46.5	26.7
	Chi-square = 7.77 Gamma = .001		

*p<.05; **p<.01; ***p<.001

Table 4.125 - Drinking combined (at 18-19 years) by supervision by parents (at 8-9 years). (N = 366)

Supervision by parents (8-9 yrs)	Drinking combined (18-19 yrs) Low	Average	Heavy
Good	31.8	54.1	14.1
Average	27.4	53.3	19.3
Poor	33.3	44.9	21.7
	Chi-square = 2.98 Gamma = .047		

*p<.05; **p<.01; ***p<.001

Table 4.126 - Drinking combined (at 18-19 years) by relationship with parents combined at 18-19 years). (N = 389)

Relationship with parents combined (18-19 yrs)	Drinking combined (18-19 yrs) Low	Average	Heavy
Good	28.6	55.6	15.9
Average	28.3	49.2	22.5
Poor	30.2	53.5	16.3
	Chi-square = 2.47 Gamma = -.021		

*p<.05; **p<.01; ***p<.001

Summary

The bivariate analysis between official delinquency and the three drinking variables considered in this study showed that a relationship existed between the drinking behavior of the boys in the sample and juvenile delinquency at all ages. The implication of these findings is thus that those boys who are heavy drinkers are more likely to have criminal records than those who abstain from alcohol or are only moderate drinkers.

The employment of self report delinquency data suggested that the strongest relationship between juvenile delinquency and drinking occurred between minor offenses and drinking rather than involving the more serious types of property offense. In addition to the Gamma values tending to be higher for public nuisance offenses than for other categories of misbehavior, a relationship existed between a boy's drinking behavior and his ever having committed, or frequently having committed, minor offenses. However, with the exception of drinking in pubs under 18 years (measured at 14-15 years), no relationships were discovered between drinking

and frequently committing either serious property or personal offenses. Thus, the more frequent serious offenders were generally less likely to be heavy drinkers than were those who had only committed serious offenses occasionally or once or twice.

At first sight, these results concerning official and self report delinquency data appear to be contradictory, since those boys with criminal records tend to be the more serious or frequent offenders, whilst the minor property and public nuisance offense categories include certain types of misbehavior which in comparison might be regarded as trivial, such as letting off fireworks in the street or riding a bicycle without lights.

However, in reality these differing findings reflect the some of the problems involved in the use of the two types of delinquency measures. Official delinquents are often those individuals who have initially attracted the attention of the police through either their family backgrounds or involvement in minor forms of misconduct. In other words, those boys who drank in pubs under age or in heavy amounts later in life may well have first come to the notice of the authorities through their deviant drinking behavior rather than as a result of the commission of serious offenses. Such a situation could result in an over-representation of individuals with drinking problems in the officially delinquent group.

The role of family factors in the development of juvenile delinquency also appears to vary according to whether official or self report data is used in the analysis. Relationships were discovered between every family variable considered and official delinquency, while different family factors tended to be associated with specific types of self report data. Thus, low family income, poor family relationships, broken homes and behavior of parents were all associated with self reported serious property offenses at 14-15 years. At the same age, family size was associated with personal offenses, whilst quality of supervision by parents was related to all four categories of self report delinquency.

Within each particular category of offense, the associations which occurred between family factors and delinquency tended to vary depending upon the form of the dependent variable under consideration. For example, broken homes and the behavior of parents were only related to 'frequently' committing serious property offenses, whilst family size and supervision by parents

were related to 'ever' having committed a serious property offense, and to the number ('diversity') of different types of property offenses committed. Within the minor property category, the 'ever' done variable was not related to any of the family factors, while family size was related to the 'sometimes' and 'diversity' variables, and supervision by parents to 'diversity', 'sometimes' and 'frequently' variables. In the personal offense category, once more there were differences in discovered relationships depending upon the form of the dependent variable. These results therefore suggest that whether an individual ever commits an offense, whether he commits it sometimes or frequently, and the number of different types of offense within a category which he commits are all factors which must be considered when examining the relationship between juvenile delinquency and family factors.

Virtually the only self report delinquency variable measured at 16-17 years which exhibited a relationship with any of the family factors included in the study was found to be serious property offenses.

In part, the numerous relationships discovered concerning official data may be due to an inbuilt bias in the criminal justice system. It may be argued that the authorities tend to identify a greater need for their official involvement when dealing with individuals from poor family backgrounds than they do when they are concerned with the deviant activities of boys whose home environments are viewed as being supportive of the legal system. Nevertheless, family factors did in general tend to be associated with serious property offenses, rather than with minor or personal offenses, when the self report delinquency data was examined. Consequently, the large number of zero-order relationships which were discovered between family factors and official delinquency may reflect a strong association between both family relationships and structure and serious crime rather than any system bias.

In contrast to these results, no systematic association was discovered between any of the drinking and family variables. The discovery of a relationship between drinking and minor rather than serious crime assists in understanding the reasons for this lack of association. As discussed above, the more minor forms of misbehavior up the the age of 16-17 years tended not to exhibit relationships with family variables. Thus, in a similar way drinking, which has been found to be

related to minor crime, tends not to be related to family variables. Poor parental behavior or poor relationships with parents, for example, seem not to influence the boys' drinking behavior or their involvement in minor misconduct.

Multivariate Analysis

In the preceding section of this chapter, the bivariate analysis examined zero order relationships in three stages: first, between drinking and delinquency, second between family factors and delinquency, and third between family factors and drinking. In this section, multivariate relationships are examined.

Using multivariate analysis, the combined effects of the three drinking and the six family factors on both self report and official delinquency are explored. Multiple regression analysis is the statistical technique which is primarily to be used, but due to its requirement of a continuous measure for the dependent variable its application is limited to the 'diversity' descriptions of self report and the number of convictions for official delinquency. In addition therefore, loglinear regression is used as a second multivariate technique with which the relationships between the independent variables and the dichotomous 'ever' done variables for both types of delinquency can be investigated.

Prior to undertaking the multivariate analysis, an attempt was made to determine whether any inter-correlations existed between the independent variables to be employed. The resulting correlation matrix is presented below as Table 4.127.

The correlation matrix gives an indication than no large correlations exist between any of the multivariate independent variables. The absence of any strong correlation between the three drinking measures at first sight appears surprising. It would have been expected that drinking frequently in pubs under the age of 18 years would have been related to heavy drinking at that age. However, the two variables were really measuring different forms of drinking behavior, since the variables measured at 14-15 years and 16-17 years measured the frequency with which the boys drank in pubs under age, whils the variable measured at 18-19 years measured the actual amount drunk in one evening or in a week. These differing definitions could partially account for

Table 4.127 - Correlation Matrix between the Independent Variables employed in the Multiple Regression Analysis.

(2) Behavior of parents combined (10-11 yrs)	-.01							
(3) Supervision by parents (8-9 yrs)	-.04	-.01						
(4) Drinking in pubs under 18 yrs (14-15 yrs)	-.08	-.06	-.06					
(5) Broken home before 15 yrs	-.04	-.11	.09	-.10				
(6) Relationship with parents combined (18-19 yrs))	.07	-.18	-.16	.07	-.16			
(7) Family size (8-9 yrs)	-.04	-.12	-.20	-.05	.10	-.13		
(8) Drinking in pubs under 18 yrs (16-17 yrs)	-.27	.05	-.01	-.17	.02	-.09	.06	
(9) Family income (8-9 yrs)	-.01	.02	.17	-.18	.21	.09	.24	-.04
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Drinking combined (18-19 yrs) = (1)

the absence of strong correlations. In addition, the fact that only 83 boys had never drunk in pubs at 16-17 years, compared with 289 at 14-15 years, could in part explain the absence of a strong correlation between the two drinking variables measured when the boys were younger. Clearly, a large number of boys only began drinking in pubs between these two ages.

The strongest correlation observed did in fact occur between drinking combined and drinking in pubs under 18 years (measured at 16-17 years), but its value of -.27 is small enough so as not to confound the results of the multivariate analysis. The negative relationship between the two variables suggests that light drinking at 18-19 years is correlated with drinking in pubs at 16-17 years, while heavy drinking at 18-19 years is correlated with not drinking in pubs at 16-17 years, a result which is the opposite of what would have been expected. In part, this unexpected result could again reflect the fact that the two variables measure different forms of drinking behavior.

Regression Analysis of the Factors Affecting Self Report Delinquency

Since the dependent variables used in the regression analysis were all measures of offense diversity, the results of the multivariate analysis will generally be compared to and contrasted with the results of the bivariate analysis of the 'diversity' self report variables unless otherwise stated.

Self Report Delinquency at 14-15 years - The four multiple regression analyses which use the three drinking and the six family factors as independent variables, and the 'diversity' measures of the four categories of self report delinquency at 14-15 years as dependent variables are presented in Table 4.128.

The overall relationships between the sets of drinking and family variables and the dependent variables are statistically significant at the .001 level. The independent variables account for a moderate proportion of the variance in the minor property, serious property and personal offense categories (18%, 12% and 15% respectively), and for a larger proportion (32%) of the variance in public nuisance offenses.

For all types of misbehavior, the explanatory power of the independent variables is largely due to the contribution of 'drinking in pubs under 18 years (measured at 14-15 years)', with the standardized beta of this variable being nearly twice as large as that of the variable which makes the second greatest contribution.

The standardized regression coefficients for the two other drinking variables, 'drinking in pubs under 18 years (measured at 16-17 years)' and 'drinking combined (measured at 18-19 years)' were both statistically significant with public nuisance and minor property offenses as the dependent variables. Conversely, their coefficients with serious property and personal offenses were all less than .1 and were not significant at the .05 level.

Thus, with other factors controlled for, more frequent drinking under 15 years tends to be associated with the commission of a larger number of all types of offense, whilst more frequent drinking under 17 years and heavy drinking at 18 years are only significantly associated with the commission of a larger number of minor property and public nuisance offenses.

In the bivariate analysis reported in the previous section of this chapter, drinking in pubs under 18 (16-17 years) was found to be significantly associated with self report personal offenses measured at 14-15 years (Table 4.11), and a significant relationship was also discovered between drinking combined (18-19 years) and both serious property and personal offenses measured at 14-15 years (Tables 4.9 and 4.12). In the multivariate analysis however, the regression coefficients for the equivalent three relationships were found to be only .09, .08, and .06 respectively, none of the coefficients being statistically significant at the .05 level. Therefore, although frequent drinking prior to 17 years and heavy drinking at 18 years may be associated with more serious types of crime, certain other factors are found to account for more of the variance in the commission of this category of offense when all relevant factors are considered simultaneously. In addition, since these two independent variables are both later measures of drinking behavior, they would be expected to play a more minor role than than other factors in explaining the differences in the number of offenses admitted to by the boys at the age of only 14-15 years.

Table 4.128 - Multiple Regression Analysis of factors affecting the diversity of self report delinquency offenses measured at 14-15 years. (N = 360).

	Standardized Regression Coefficients			
Factors	Public nuisance	Minor property	Serious property	Personal
Family income (8-9 yrs)	-.02	-.01	-.11*	.04
Family size (8-9 yrs)	.12*	.11*	.12*	.14*
Broken home before 15 yrs	.04	.09	.03	.14**
Behavior of parents combined (10-11 yrs)	-.02	-.00	.03	-.01
Supervision by parents (8-9 yrs)	.13**	.13**	.07	.12*
Relationship with parents combined (18-19 yrs)	.03	.09	.08	.06
Drinking in pubs under 18 yrs (14-15 yrs)	.37***	.24***	.21***	.22***
Drinking in pubs under 18 yrs (16-17 yrs)	.20***	.12*	-.00	.09
Drinking combined (19-19 yrs)	.16***	.10*	.08	.06
Multiple R	.57	.42	.34	.38
R squared	.32	.18	.12	.15
F	18.44	8.26	5.18	6.61
Significance	.00	.00	.00	.00

*p<.05; **p<.01; ***p<.001

The highest Gamma values discovered in the bivariate analysis between drinking and self report delinquency at 14-15 years were obtained in the public nuisance offense category: .648 for drinking in pubs under 18 (measured at 14-15 years) and .519 for the later measure of the same variable (Tables 4.1 and 4.2). Similarly, it would appear from the regression analysis that more frequent drinking is most closely associated with the commission of an increasing number of public nuisance offenses, since the largest regression coefficients within this category of offense were obtained for the three drinking variables.

The regression coefficients for family size were significant for all four offenses categories, accounting for 12% of the variation in the commission of public nuisance offenses, 14% of that for minor property offenses, 12% for serious property offenses, and 14% for personal offenses. These findings indicate that, all things being equal, as family size increases so does the number of all types of offenses committed by the boys in the sample. In the bivariate stage of the analysis, family size was found to be significantly associated with all forms of deviancy at age 14-15 years, but consistently so with personal offenses when the 'ever' done, 'sometimes' and 'frequently' forms of the dependent variables were taken into consideration (Table 4.56). From the results of the regression analysis, there is no clear indication that family size is especially closely associated with any one particular form of delinquency. Whilst, along with broken homes, it provides the second largest regression coefficient for personal offenses, it also does so for serious property offenses.

The only non-statistically significant regression coefficient for the independent variable 'supervision by parents (8-9 yrs)' occurred with diversity of serious property offenses as the dependent variable. Consequently, with everything else held constant, the poorer the quality of parental supervision at 8-9 years, the more public nuisance, minor property and personal offenses tend to be committed prior to age 15. In addition, taking into account the alternative form of the dependent variable of 'ever' done, the previous analysis established a bivariate relationship between serious property offenses and parental supervision (Table 4.53).

The regression coefficients for the variable 'behavior of parents' were -.02 for public nuisance and -.00 for minor property offenses respectively. Whilst these are different in sign

from what had been expected from their zero-order relationships, no significant relationships were found between the variables in either stage of the analysis. A very similar result was obtained using personal offenses as the dependent variable, the regression coefficient on this occasion being -.01. Indeed, the only positive regression coefficient for behavior of parents occurred with serious property offenses, but even in this case it was only .03 and was not significant at the .05 level. Thus, while a significant bivariate relationship was found to exist between parental behavior and one form of the 'serious property' offense variable other than 'diversity' (Table 4.52), it is possible to conclude from the multivariate results that no definite association is exhibited between poor parental behavior and the commission of an increasing number and variety of minor or serious property offenses prior to the age of 15.

The remaining three independent variables, 'family income', 'relationship with parents', and 'broken home before 15 years' all produced regression coefficients of less than .1, when public nuisance and minor property offenses were considered the dependent variables. These findings are very similar to the results of the bivariate analysis between the same variables. The exception, the relationship between 'relationship with parents' and minor property offenses, was significant in the bivariate analysis (Table 4.48), but non-significant when other factors were controlled.

With serious property offenses as the dependent variable, the regression coefficient for family income was significant, explaining 11% of the variance of this type of deviancy, indicating that, even with other factors controlled for, as family income decreases, the number of serious property offenses committed by boys in the sample increases. With the same dependent variable, the regression coefficient for relationship with parents was non-significant, despite a zero-order relationship between the two variables having been discovered in the bivariate stage of the analysis (Table 4.54). Finally, with broken homes as the independent variable, its regression coefficient was only .03, despite it exhibiting significant zero-order relationships with the 'serious property' offenses variable in its forms other than 'diversity'.

The major difference between the results of the regression analysis and the bivariate analysis with personal offenses considered as the dependent variable occurred with broken

homes as the independent variable. Thus, the regression coefficient of .14 is significant while no zero-order relationship was found with the 'diversity' measure (Table 4.57). At first sight, this result implies that, when other factors are considered simultaneously, broken homes are significantly associated with the commission of personal offenses as the .05 error level. However, for the purposes of the regression analysis, the variable 'broken home' had been dichotomized into the two categories 'intact home' and 'broken home due to death or separation', while ion thr bivariate analysis broken home due to death and broken home due to parental separation had been two separate categories. Thus, the differing results for the regression and bivariate analysis could well reflect the different measures of broken home which were used. In addition, a significant zero-order relationship was found to exist between frequently committing personal offenses and broken homes. All of the above findings therefore suggest that the relationship between broken homes and personal offenses is complex and largely depends not only upon the measure of broken homes, but also upon the measure of personal offenses used.

Self Report Delinquency at 16-17 years - The four multiple regression analyses employing the same six family and three drinking factors as independent variables and self report delinquency measured at 16-17 years are presented in Table 4.129.

Again, the overall relationships between the independent and dependent variables are statistically significant at the .001 level, with the independent variables accounting for a moderate proportion of the variance in the minor property, serious property, and personal offense categories, but a larger proportion (24%) of the variance in the public nuisance category.

For minor property and public nuisance offenses, the explanatory power of the independent variables is largely a consequence of the contribution of 'drinking in pubs under 18 years (measured at 16-17 years)', while for serious property and personal offenses 'drinking combined' provides the largest contribution. Nevertheless, the standardized beta values of all three drinking variables for each offense category suggest that more frequent or heavy drinking is associated with the commission of an increasing number of all forms of juvenile misconduct.

Table 4.129 - Multiple Regression Analysis of factors affecting the diversity of self report delinquency offenses measured at 16-17 years. (N = 360).

	Standardized Regression Coefficients			
Factors	Public nuisance	Minor property	Serious property	Personal
Family income (8-9 yrs)	-.14**	-.09	-.09	-.11
Family size (8-9 yrs)	-.03	.03	.10	.07
Broken home before 15 yrs	.08	.08	.05	.10
Behavior of parents combined (10-11 yrs)	-.00	-.07	.12*	.01
Supervision by parents (8-9 yrs)	.10*	.06	.10	.02
Relationship with parents combined (18-19 yrs)	.03	.09	.10	.09
Drinking in pubs under 18 yrs (14-15 yrs)	.14**	.10	.11*	.12**
Drinking in pubs under 18 yrs (16-17 yrs)	.35***	.21***	.07	.11*
Drinking combined (19-19 yrs)	.12*	.11*	.14**	.17**
Multiple R	.49	.35	.37	.37
R squared	.24	.12	.14	.14
F	12.47	5.52	6.11	6.16
Significance	.00	.00	.00	.00

*p<.05; **p<.01; ***p<.001

The regression coefficients of the three drinking variables were all significant for both public nuisance and personal offenses, whilst non-significant coefficients were those for 'drinking in pubs under 18 years (16-17 years)' with minor property offenses, and 'drinking combined' with serious property offenses. The bivariate analysis between drinking and these later measures of delinquency had produced almost identical results (Tables 4.13 to 4.24).

Considering both minor property and personal offenses as dependent variables, none of the regression coefficients for the six family factors were indicated to be statistically significant at the .05 level. By way of comparison, in the bivariate analysis at this age the only significant relationship discovered between these two forms of deviancy and the set of family variables occurred between personal offenses and family income (Table 4.79). In the multivariate stage of the analysis, the regression coefficient expressing this association is -.11, with a p-value of <.06, indicating that, when other factors are controlled, family income does make a moderate contribution to the variance in the number of personal offenses committed up to the age of 17 years, such that as family income decreases, personal offenses committed by the boys tend to increase in number.

With public nuisance offenses as the dependent variable, the regression analysis produced very similar results to those discovered at the bivariate stage (Tables 4.61 to 4.66). The regression coefficients for both supervision by parents and family income were significant, with the remaining family factors having coefficients of less than .10.

The major differences between the results of the bivariate and the multivariate stages of the analysis at this age were identified when the serious offense category was considered as the dependent variable. Whilst in the bivariate analysis all of the family factors had exhibited significant relationships with serious property offenses (Tables 4.73 to 4.78), the regression analysis indicated the only significant relationship to be that between behavior of parents and this category of misbehavior. Nevertheless, the regression coefficients for family size, supervision by parents, and relationship with parents were all .10, indicating that, although not statistically significant at the .05 error level, each of these three factors account for some of the variance in the commission of serious property offenses. The coefficient for broken homes was only .05,

suggesting that, all things being equal, considerably more of the variance in the diversity of involvement in serious property offenses is accounted for by family factors other than broken homes.

From the regression analysis of the self report delinquency data it thus appears that drinking behavior accounts for the largest proportion of variance in the commission of all types of juvenile offenses. The regression coefficients for the various drinking measures varied in size depending upon the particular type of offense under consideration.

Clearly, with other factors controlled, public nuisance offenses are most closely associated with heavy drinking at all ages. Moderate regression coefficients are also produced with minor property offenses up to 15 years of age and with personal offenses up to 17 years. Moreover, at 14-15 years of age 'drinking in pubs under 18 years' has the largest regression coefficients for all four categories of offense measured at the same age, whereas at 16-17 years the same independent variable only provides the largest regression coefficient for public nuisance and minor property offenses measured at that later age. These findings thus imply that frequent illegal drinking at a young age tends to be associated with the commission of an increasing number of all types of offenses at that age, whilst drinking in pubs by older juveniles tends only to be associated with their commission of public nuisance and minor offenses.

The regression coefficients discovered for the independent family variables suggest that family factors play a more important role in explaining delinquent behavior at 14-15 years than they do when juveniles are two years older. Family size and supervision by parents provide the only significant regression coefficients for public nuisance and minor property offenses at 14-15 years. Family size contributes a reasonable proportion of the variance in all types of deviancy in younger self report delinquents, but becomes a non-significant factor when older juveniles are included in the analysis. Moreover, although the regression coefficient for supervision by parents was significant for public nuisance, minor property, and personal offenses at age 14-15 years, its only significant value at 16-17 years occurred when it described the commission of public nuisance offenses.

Broken homes and parental behavior were found to be related with involvement in personal offenses up to the ages of 15 and 17 respectively, and family income with serious property offenses in younger delinquents and with public nuisance offenses in older juveniles. Finally, relationship with parents failed to exhibit a clear relationship with any type of delinquency when all factors were considered together.

Regression Analysis of the Factors Affecting Official Juvenile Delinquency

The results of the multiple regression analyses using the three drinking and the six family factors as independent variables and official juvenile convictions (10-16 years), Juvenile Delinquency Scale (16-17 years), official adult convictions (17-24 years), and official total convictions (10-24 years) as the four dependent variables are presented in Table 4.130.

The overall relationships between the sets of drinking and family variables and the dependent variables are statistically significant at the .001 level, with approximately the same strength of association being exhibited with respect to each of the four official delinquency measures. The coefficients of determination are not very large, .12, .17, .13 and .16 respectively, indicating that the indepdndent variables account for only a moderate proportion of the variance in both juvenile and adult official convictions.

The only regression coefficient which was significant for all measures of official delinquency was that for family size, suggesting that when other factors are controlled, family size is the only independent variable which contributes a moderate proportion towards the variance in adult and juvenile convictions.

The regression analysis indicates that, with everything else held constant, drinking behavior explains very little of the variance in the number of juvenile convictions, a result which may be contrasted with the findings of the bivariate analysis which identified the existence of significant relationships between official juvenile convictions and both drinking in pubs under 18 years (measured at 14-15 years) and drinking combined (measured at 18-19 years) (Tables 4.25 and 4.27).

Table 4.130 - Multiple Regression Analysis of factors affecting the diversity of official delinquency measures. (N varies between values of 351 and 411 depending upon the measure).

Factors	Standardized Regression Coefficients			
	Juvenile convictions (10-16 yrs)	Delinquency Scale (16-17 yrs)	Adult convictions (17-24 yrs)	Total convictions (10-24 yrs)
Family income (8-9 yrs)	-.08	-.12*	-.11*	-.11*
Family size (8-9 yrs)	.18**	.16**	.18**	.20***
Broken home before 15 yrs	.05	.11*	.08	.07
Behavior of parents combined (10-11 yrs)	.11*	.12*	.05	.10
Supervision by parents (8-9 yrs)	.07	.10	.07	.08
Relationship with parents combined (18-19 yrs)	.05	.04	.07	.06
Drinking in pubs under 18 yrs (14-15 yrs)	.08	.14**	.11	.11*
Drinking in pubs under 18 yrs (16-17 yrs)	.01	.03	-.03	-.01
Drinking combined (19-19 yrs)	.10	.10*	.14**	.14**
Multiple R	.34	.36	.40	.41
R squared	.12	.13	.16	.17
F	5.17	5.77	7.26	7.92
Significance	.00	.00	.00	.00

*p<.05; **p<.01; ***p<.001

In the case of adult convictions the regression coefficient for drinking combined is .14 and statistically significant, implying that heavy drinking by young adults is associated with the acquisition of greater numbers of adult convictions prior to age 24. With the same official measure representing the dependent variable, the regression coefficient for drinking in pubs under 18 years (measured at 16-17 years) is negative, although in the bivariate analysis, no relationship was indicated yet Gamma took on a positive value (Table 4.32). The indication is thus that no clear relationship exists between drinking in pubs at 16-17 years and adult convictions prior to the age of 24 years. Similarly, a negative regression coefficient was obtained for drinking in pubs at the age of 16-17 years and total convictions between 10-24 years, although the existence of a significant relationship was indicated in the bivariate analysis (Table 4.35). Conversely, drinking in pubs under 18 years (measured at 14-15 years) had a statistically significant regression coefficient with total convictions as the dependent variable. Thus, although the analysis suggests no association between later (16-17 years of age) drinking and total convictions prior to age 24, the indication is that, all other things being equal, a relationship does exist between that official conviction variable and earlier (14-15 years of age) drinking habits.

The regression analysis with the drinking variables and the Juvenile Delinquency Scale provided significant regression coefficients for drinking in pubs under 18 years (14-15 years) and drinking combined (18-19 years), suggesting that when individuals who have experienced police contact are included together with those who have criminal records in the analysis of official juvenile delinquency, frequent illegal drinking at 14-15 years and heavy drinking at 18-19 years are both associated with increasing juvenile misbehavior.

In the bivariate analysis, all of the family variables exhibited significant relationships with official juvenile convictions, the Juvenile Delinquency Scale, and official total convictions (Tables 4.85 to 4.96 and 4.103 to 4.108). In addition, the only two family factors which were not significantly associated with official adult convictions were broken home before 15 years and parental behavior (Tables 4.99 and 4.100 respectively). However, in the regression analysis, apart from the family size variable, the only significant coefficients discovered were for the associations of parental behavior with official juvenile convictions, and family income with

official adult convictions. Furthermore, none of the alternative forms of family factor variables exhibited significant relationships with official total convictions.

The above findings imply that clearly there is no definite relationship between either broken homes or behavior of parents and official adult convictions. Moreover, while zero-order associations may exist between various family factors and official criminal records, when all factors are considered simultaneously most of these relationships disappear. Parental behavior does however, together with family size, make a major contribution towards the variance in official juvenile convictions, and family income, family size, and drinking combined contribute towards the variance in the number of adult convictions. When the juvenile delinquency scale is considered as the dependent variable, the only family factors without significant regression coefficients are supervision by parents, and relationship with parents combined (Table 4.130). Clearly, the inclusion of the police contact group within the definition of this dependent variable makes a considerable difference in the results of the regression analysis.

The official delinquency measures do not take into account the type of crime which leads to a conviction and consequently the regression analysis involving self report and official delinquency statistics are difficult to compare. Clearly, heavy drinking at the later age of 18 was associated with the acquisition of adult convictions, while juvenile convictions did not appear to be related to drinking when other factors were controlled. Of the official delinquency measures, since it included those boys who had remained unconvicted yet had experienced official contact with the police, the Juvenile Delinquency Scale bore the closest resemblance to the self report variables. The regression analysis of this particular factor indicated that early drinking is associated with an increasing amount of juvenile misconduct. The most definite relationship between drinking and self report delinquency occurred in the public nuisance category of offense, a category which would not necessarily involve criminal convictions but would in all probability result in official police contact.

Those family factors which produced significant coefficients with the different categories of self report data as the dependent variables tended to vary according to the type of delinquency under consideration, although the values of their coefficients were all consistently lower than

those for the drinking variables. Conversely, with the four types of official data as the dependent variables, no real distinction could be made between whether family factors or drinking behavior provided the largest contribution towards explaining delinquent activities.

Loglinear Regression

Loglinear regression analysis involving the 'ever' done delinquency variables provides additional information concerning the relationship between the same set of independent variables that was used in the regression analysis and delinquency. The delinquency variables employed in the loglinear analysis were in the dichotomous form of either never having committed an offense or having committed any number of offenses, while the diversity variables used in the regression analysis were a continuous measure of delinquency. The two different types of analysis thus involved slightly different measures of misbehavior. Additionally, all of the independent factors were transformed into dichotomous 'positive' or 'negative' variables for the loglinear treatment of the data in accordance with the scheme outlined in Table 4.131.

Public nuisance offenses were excluded from the loglinear analysis because, due to the overwhelming number of boys who had admitted to this form of delinquency, no 'ever' done variable was created for this category.

Self Report Delinquency - Tables 4.132 to 4.137 indicate that loglinear regression analysis with self report delinquency as the dependent variable produced the result that the drinking rather than the family independent variables tended to have significant coefficients. This finding is very similar to that of the regression analysis. In both the loglinear and the regression analysis, the coefficients for drinking in pubs under 18 years (measured at 14-15 years) were found to be statistically significant for involvement in minor property, serious property and personal offenses at the same age. The same independent variable measured two years later had significant coefficients with minor and serious property offenses but not with personal offenses under loglinear analysis, whereas under regression analysis it was indicated to be significantly related to minor property and personal, but not to serious property offenses. Thus, whilst the

overall loglinear finding that heavy or frequent drinking by adolescents increases the probability of their being delinquent corroborates the regression result that drinking habits tended to account for a large proportion of the variance in the boys' commission of all types of crime, the three drinking variables were not always related to the same categories of crime under the two forms of analysis.

The few family factors which were significantly related to the self report delinquency variables in the regression analysis did not necessarily exhibit significant associations in the loglinear analysis. The coefficient for family income, which was only significantly related to serious property offenses at 14-15 years under regression analysis, at the same age was also significant for minor property offenses under loglinear analysis. In addition, whilst the family size variable was significantly related to all types of property and personal offenses at 14-15 years using multiple regression, under loglinear analysis a negative relationship was indicated between it and minor property offenses, although the coefficient was non-significant. The only other significant loglinear coefficients at 14-15 years for the set of family factors were those for supervision by parents with personal offenses and for relationship with parents with serious property offenses.

The discrepancies between the results of the two types of analysis are largely due to the employment of different measures of the dependent variable. It therefore appears that slightly different factors are associated with, on the one hand the boys' initial involvement in delinquent behavior, and on the other hand their commission of an increasing number of offenses.

The only family factor coefficients which were significant under regression analysis when self report delinquency was measured at 16-17 years occurred within the serious property and public nuisance offenses categories. Loglinear analysis of the data collected at this age confirmed the minor property and personal offenses to have no statistically significant associations with any of the independent family factors.

Table 4.131 - Definition of Dichotomous Independent Variables utilized in the Loglinear Analysis.

Variable	Positive (1)	Negative (0)
Family income	Comfortable + Adequate	Inadequate
Family size	Below Average (≤ 2 children)	Above Average (≥3 children)
Broken home	Intact home	Broken due to death or separation
Behavior of parents	Good + Good Average	Poor + Poor Average
Supervision by parents	Good + Average	Poor
Relationship with parents	Good + Average	Poor
Drinking in pubs under 18 years (14-15 yrs)	No	Once or twice, Sometimes, or frequently
Drinking in pubs under 18 years (16-17 yrs)	No	Yes
Drinking combined	Low + Average	Heavy

Table 4.132 - Loglinear Regression Analysis of factors affecting the 'ever' done self report minor property offense variable (at 14-15 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	-1.42	.058	-6.59***
Family income (8-9 yrs)	.268	1.70	2.16*
Family size (8-9 yrs)	-.044	.915	-.515
Broken home before 15 yrs	.162	1.38	1.34
Behavior of parents combined (10-11 yrs)	-.129	.773	-1.57
Supervision by parents (8-9 yrs)	.137	1.31	1.1
Relationship with parents combined (18-19 yrs)	.052	1.10	.506
Drinking in pubs under 18 yrs (14-15 yrs)	.401	2.22	2.91**
Drinking in pubs under 18 yrs (16-17 yrs)	.264	1.70	3.03**
Drinking combined (18-19 yrs)	.029	1.06	.26

*p<.05; **p<.01; ***p<.001

Table 4.133 - Loglinear Regression Analysis of factors affecting the 'ever' done self report serious property offense variable (at 14-15 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	.674	3.84	4.35***
Family income (8-9 yrs)	.206	1.50	1.97*
Family size (8-9 yrs)	.176	1.42	1.96*
Broken home before 15 yrs	.069	1.14	.703
Behavior of parents combined (10-11 yrs)	-.101	.817	-1.11
Supervision by parents (8-9 yrs)	.079	1.17	.769
Relationship with parents combined (18-19 yrs)	.186	1.45	1.97*
Drinking in pubs under 18 yrs (14-15 yrs)	.186	1.45	2.01*
Drinking in pubs under 18 yrs (16-17 yrs)	.146	1.33	1.17
Drinking combined (18-19 yrs)	.124	1.28	1.27

*p<.05; **p<.01; ***p<.001

Table 4.134 - Loglinear Regression Analysis of factors affecting the 'ever' done self report personal offense variable (at 14-15 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	.120	1.27	.952
Family income (8-9 yrs)	.064	1.13	.755
Family size (8-9 yrs)	.190	1.46	2.85**
Broken home before 15 yrs	.097	1.21	1.25
Behavior of parents combined (10-11 yrs)	-.081	1.17	-1.22
Supervision by parents (8-9 yrs)	.171	1.40	2.12*
Relationship with parents combined (18-19 yrs)	.003	1.00	.038
Drinking in pubs under 18 yrs (14-15 yrs)	.240	1.62	3.48***
Drinking in pubs under 18 yrs (16-17 yrs)	.224	1.56	2.41**
Drinking combined (18-19 yrs)	.183	1.44	2.46**

*p<.05; **p<.01; ***p<.001

Table 4.135- Loglinear Regression Analysis of factors affecting the 'ever' done self report minor property offense variable (at 16-17 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	-1.62	.039	-5.96***
Family income (8-9 yrs)	.156	1.37	1.07
Family size (8-9 yrs)	.060	1.13	.544
Broken home before 15 yrs	.060	1.13	.441
Behavior of parents combined (10-11 yrs)	-.154	.735	-1.53
Supervision by parents (8-9 yrs)	.194	1.47	1.17
Relationship with parents combined (18-19 yrs)	-.011	.978	-.09
Drinking in pubs under 18 yrs (14-15 yrs)	.190	1.46	1.32
Drinking in pubs under 18 yrs (16-17 yrs)	.311	1.86	3.05**
Drinking combined (18-19 yrs)	.238	1.61	1.25

*p<.05; **p<.01; ***p<.001

Table 4.136 - Loglinear Regression Analysis of factors affecting the 'ever' done self report serious property offense variable (at 16-17 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	.673	3.84	3.97***
Family income (8-9 yrs)	.042	1.08	.381
Family size (8-9 yrs)	.306	1.84	3.24***
Broken home before 15 yrs	.111	1.25	1.11
Behavior of parents combined (10-11 yrs)	-.036	.930	-.381
Supervision by parents (8-9 yrs)	.260	1.68	2.60**
Relationship with parents combined (18-19 yrs)	.230	1.58	2.37**
Drinking in pubs under 18 yrs (14-15 yrs)	.207	1.51	2.22*
Drinking in pubs under 18 yrs (16-17 yrs)	.264	1.69	1.79*
Drinking combined (18-19 yrs)	.228	1.58	2.36**

*p<.05; **p<.01; ***p<.001

Table 4.137 - Loglinear Regression Analysis of factors affecting the 'ever' done self report personal offense variable (at 16-17 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	-.164	.720	-1.38
Family income (8-9 yrs)	.080	1.17	1.02
Family size (8-9 yrs)	.078	1.69	1.25
Broken home before 15 yrs	.047	1.10	.638
Behavior of parents combined (10-11 yrs)	.001	1.00	.060
Supervision by parents (8-9 yrs)	.059	1.13	.767
Relationship with parents combined (18-19 yrs)	.089	1.20	1.25
Drinking in pubs under 18 yrs (14-15 yrs)	.206	1.51	3.11***
Drinking in pubs under 18 yrs (16-17 yrs)	.120	1.27	1.56
Drinking combined (18-19 yrs)	.236	1.60	3.22***

*p<.05; **p<.01; ***p<.001

Official Delinquency - Loglinear regression analysis produced a mixture of independent variables with significant coefficients for official juvenile, adult and total convictions. 'Broken home' and 'family size' were the only factors with significant coefficients for all three dependent variables. Under regression analysis, family size was the independent variable which tended to provide systematic results with the official delinquency data. However, in the bivariate analysis all of the family variables exhibited significant relationships with criminal records. Clearly, when all factors are considered simultaneously certain variables are more closely related to official delinquency records than others, these factors varying according to which official measure of convictions is under consideration. That is, differences occur in the results according to whether continuous measures of the number of juvenile or adult convictions, or dichotomous variables describing whether or not an individual has a criminal record, are used as dependent variables in the analysis.

A larger number of the drinking variables displayed significant coefficients with official delinquency data under loglinear analysis than under multiple regression, in particular the coefficient of the early drinking measure, drinking in pubs under 18 years (measured at 14-15 years) was significant with juvenile convictions, and the later drinking measure, drinking combined (measured at 18-19 years) with adult convictions. These findings suggest that those boys who drink early in life tend to acquire convictions early, and those who drink later tend to be convicted later.

Significant loglinear coefficients were found to exist between supervision by parents for both adult and total convictions, and relationship with parents for juvenile convictions. Under regression analysis these associations were not suggested, but rather behavior of parents was indicated to be significantly associated with juvenile convictions, and family income with adult convictions.

Table 4.138 - Loglinear Regression Analysis of factors affecting the 'ever' done official juvenile convictions variable (at 10-16 years). (N = 359).

Factors	Coefficient	Antilog	Z-Value
Mean effect	.450	2.45	3.29***
Family income (8-9 yrs)	.035	1.07	.370
Family size (8-9 yrs)	.245	1.63	3.19***
Broken home before 15 yrs	.174	1.42	2.11*
Behavior of parents combined (10-11 yrs)	.096	1.21	1.25
Supervision by parents (8-9 yrs)	.070	1.15	.783
Relationship with parents combined (18-19 yrs)	.164	1.38	2.01*
Drinking in pubs under 18 yrs (14-15 yrs)	.141	1.33	1.77*
Drinking in pubs under 18 yrs (16-17 yrs)	.148	1.34	1.40
Drinking combined (18-19 yrs)	.131	1.30	1.56

*p<.05; **p<.01; ***p<.001

Table 4.139 - Loglinear Regression Analysis of factors affecting the 'ever' done official adult convictions variable (at 17-24 years). (N = 350).

Factors	Coefficient	Antilog	Z-Value
Mean effect	.237	1.60	1.89*
Family income (8-9 yrs)	.047	1.10	.542
Family size (8-9 yrs)	.202	1.49	2.91**
Broken home before 15 yrs	.148	1.34	1.91*
Behavior of parents combined (10-11 yrs)	.012	1.02	.167
Supervision by parents (8-9 yrs)	.180	1.43	2.20*
Relationship with parents combined (18-19 yrs)	.046	1.10	.586
Drinking in pubs under 18 yrs (14-15 yrs)	.070	1.15	.941
Drinking in pubs under 18 yrs (16-17 yrs)	.148	1.34	1.6
Drinking combined (18-19 yrs)	.163	1.38	2.11*

*p<.05; **p<.01; ***p<.001

Table 4.140 - Loglinear Regression Analysis of factors affecting the 'ever' done official total convictions variable (at 10-24 years). (N = 350).

Factors	Coefficient	Antilog	Z-Value
Mean effect	.169	1.40	1.36
Family income (8-9 yrs)	.044	1.09	.524
Family size (8-9 yrs)	.218	1.55	3.29***
Broken home before 15 yrs	.194	1.47	2.57**
Behavior of parents combined (10-11 yrs)	.029	1.06	.446
Supervision by parents (8-9 yrs)	.147	1.34	1.80*
Relationship with parents combined (18-19 yrs)	.066	1.14	.884
Drinking in pubs under 18 yrs (14-15 yrs)	.022	1.05	.304
Drinking in pubs under 18 yrs (16-17 yrs)	.255	1.57	2.77**
Drinking combined (18-19 yrs)	.148	1.34	1.97*

*p<.05; **p<.01; ***p<.001

In order to evaluate the loglinear result in terms of odds rather than log odds, antilogs were used. Antilogs therefore described the odds of becoming delinquent given particular family or drinking characteristics, with all other factors held constant. For example, in Table 4.132 the antilog for family income is 1.70, indicating that, other things being equal, the odds of boys with adequate family income committing minor property offenses are 1.7 to 1, while, using a reciprocal calculation, indications are that the odds of boys with inadequate family income committing the same type of offenses are (1/1.7) to 1.

By a simple calculation, these odds can be converted into probabilities of being delinquent given certain background characteristics, with the result that, using the same example as above, a boy from a family with an adequate income has a 37% chance of committing minor property crimes, while a boy from a poor family has a 63% chance of involvement in the same type of offenses (See Appendix IV Part A).

Rather than describing the probability of being delinquent given positive or negative situations for each of the independent dichotomous factors, three hypothetical personal profiles were created and applied to both the self report and official data. The first profile involved using the results of the loglinear analysis to describe the family situation as though all factors within it were positive: adequate income, small family size, intact home, good parental behavior, supervision and relationship with parents, no drinking in pubs at either 14-15 or 16-17 years, and acceptable drinking at 18-19 years. The second profile used the independent variables in their reverse form, in other words with each factor taking upon its 'negative' value. Finally, the third profile utilized a mixture of positive and negative characteristics such that the hypothetical boys with this particular personal profile would tend to drink frequently in pubs at both 14-15 years and 16-17 years, be poorly supervised by their parents, and come from large families with inadequate income, all other family and drinking factors being positive. This particular profile was selected by discerning those independent variables which had tended to exhibit systematic relationships with delinquency in both the bivariate and multivariate stages of the analysis.

Tables 4.141 to 4.143 present the results of the calculations concerning the probability of boys exhibiting various forms of delinquent behavior according to each of the three hypothetical

profiles (See Appendix VI Part B for details of calculations). Clearly, the 'all negative' situation results in a high probability of committing all types of offense and acquiring a criminal record. Taking the results of the self report data first the calculations indicate that, all other things being equal, boys who come from negative home backgrounds and drink both heavily and consistently have a 99% chance of committing minor property offenses and an 90% chance of committing personal offenses before their fifteenth birthdays. These probabilities were found to be higher than that of committing serious property offenses at 14-15 years, which was 68%.

One explanation of the higher probability of committing personal offenses than serious property crime in the 'all negative' situation could be that, even though both categories of crime represent serious forms of misbehavior, personal offenses represent acts of violence whereas serious property crimes generally represent events from which the boys have the potential to gain financially. Thus, the two measures are indicative of different forms of misconduct. It seems reasonable that negative family and drinking factors should contribute towards the development of violence in juveniles since, not only is personal violence often directly associated with drinking, but negative home environments may also provide boys with inappropriate role models.

When older delinquents were included in the analysis, the probability of committing serious property offenses in the 'all negative' situation rose by nearly 20%. All of these probabilities were very much higher than the equivalent probabilities for the 'all positive' situation, particularly for serious property and personal offenses. The calculated 64% and 76% likelihoods of involvement in minor property offenses at 14-15 and 16-17 years respectively were at first sight surprisingly high for the 'all positive' situation, but reflected the fact that a very large proportion (84.7%) of the boys in the cohort admitted to this form of delinquency. The very high probabilities of committing minor property offenses in the equivalent 'all negative' situations also reflect the over-representation of boys who admitted to this type of deviancy.

With official delinquency as the dependent variable a marked difference between the probability of obtaining a conviction at any age in the 'all positive' and 'all negative' situations was found.

It is thus possible to conclude that the nine independent variables represent important characteristics of family and drinking behavior which, taken together, exhibit a strong relationship with deviant behavior and suggest possible causal factors in the development of juvenile delinquency.

The third profile did not produce such systematic results as those exhibited by the 'all positive' and 'all negative' profiles. The greatest effects of poor family income, size, supervision and frequent drinking at both ages occurred in the minor property and personal offense of self reported delinquency data. Moreover, the probability of receiving any type of criminal record given the above conditions was not very high. This third profile appears to be most strongly related to minor and personal offenses rather than the more serious crime represented by serious property and personal offenses. Given the third profile, the probability of acquiring an adult conviction is higher than that of being convicted whilst still a juvenile, suggesting that the particular situation which the profile describes is more likely to be associated with criminal records in young adults than in adolescents.

Table 4.141 - The probability of involvement in self report delinquent offenses (calculated from loglinear regression results) at 14-15 years given particular environmental and personal profiles.

	Minor property	Serious property	Personal
'All good' profile	64%	2%	7%
'All bad' profile	99%	68%	90%
Large family, income and parental supervision poor, drinking in pubs at both 14-15 yrs and 16-17 yrs	99%	42%	69%

Table 4.142 - The probability of involvement in self report delinquent offenses (calculated from loglinear regression results) at 16-17 years given particular environmental and personal profiles.

	Minor property	Serious property	Personal
'All good' profile	76%	1%	13%
'All bad' profile	99%	87%	93%
Large family, income and parental supervision poor, drinking in pubs at both 14-15 yrs and 16-17 yrs	99%	43%	73%

Table 4.143 - The probability of being convicted of any category of offense (calculated from loglinear regression results) given particular environmental and personal profiles.

	Juvenile conviction (10-16 yrs)	Adult conviction (17-24 yrs)	Either conviction (10-24 yrs)
'All good' profile	4%	8%	7%
'All bad' profile	82%	83%	87%
Large family, income and parental supervision poor, drinking in pubs at both 14-15 yrs and 16-17 yrs	32%	52%	53%

Overall, therefore, the results of the multivariate analysis provide supporting evidence for the existence of a relationship between drinking and self report juvenile delinquency. In addition, drinking frequently or heavily appears to account for a greater proportion of the variation in the self reported commission of all types of offense than do family factors. In general, official criminal records failed to exhibit this differential association with the two types of independent variable.

While summary statements can be made concerning the association of drinking with delinquency, it is difficult to determine those family factors which are consistently related to juvenile offending. The family variables which exhibited statistically significant relationships with official delinquency data were not only different from those which were significantly associated with self report data, but variations were also found to occur in their relationships with each category of delinquency. Moreover, the results of the multiple regression analysis, which employed 'diversity' delinquency variables, were not identical with those of the loglinear analysis, which was based upon 'ever' done variables.

Chapter Summary and Conclusion

The statistical analysis employed in this study utilized three different techniques: bivariate crosstabulation, multiple regression, and loglinear regression. The results of the bivariate analysis indicated that heavy or frequent drinkers are more likely to commit all types of offenses and have criminal records than those individuals who either abstain from alcohol or drink only moderately. In addition, minor offenses appeared to be the type of misbehavior most closely associated with drinking.

Family factors, considered as possible contributors to the development of delinquency tended to vary in importance according to the type of deviancy under consideration. In examining the self report data first, a statistically significant relationship was found to exist between all four categories of offense measured at 14-15 years and parental supervision, whilst at the same age family size was only systematically associated with personal offenses, and low family income, poor family relationships and broken homes with serious property offenses. At

16-17 years, serious property offenses were virtually the only category of delinquency to exhibit significant relationships with any of the family variables analyzed. Conversely, a significant relationship was discovered between every family factor and official juvenile and adult convictions.

Despite the fact that parental supervision appeared to be related to the development of both serious and minor misconduct at an early age, the conclusion can be drawn that family factors tend to be more closely associated with the commission of serious crimes than with involvement in minor forms of deviancy.

No systematic associations were discovered between any of the drinking and the family variables. These results indicated that poor family backgrounds, defined in terms of the six family factors utilized in the analysis, were not significantly related to deviant drinking behavior.

The multivariate analysis of the self report data confirmed the overall result of the bivariate analysis that drinking heavily or frequently, particularly at a young age (14-15 years), is associated with the commission of all types of crime. In addition however, the regression analysis indicated that deviant drinking accounts for a greater amount of variation in involvement in public nuisance offenses than in property or personal crimes. Although the variables included in the multivariate analysis did not permit an examination of the effects of early drinking upon later delinquency, both the loglinear analysis using 'ever' done and the regression using 'diversity' variables suggested that drinking at 14-15 years was related to delinquency measured up to 17 years. There is thus some evidence that early drinking plays a role in the establishment of delinquent behavior.

The 'diversity' regression analysis indicated that, with all other factors controlled, drinking contributed very little towards the variance in the number of juvenile convictions, but that drinking as an adult appeared to be closely associated with the acquisition of adult convictions. In addition, the loglinear results implied that those boys in the sample who drank early in life tended to be convicted early, and those who drank later were convicted later. The fact that the two levels of multivariate analysis utilized slightly different measures of official convictions could partially account for the discrepant results. Perhaps one answer to the apparent conflict might be

that drinking behavior is associated more closely with an individual's initial acquisition of a criminal record than with the number of convictions he subsequently receives.

The multiple regression analysis employing 'diversity' self report delinquent variables indicated that family factors play a more important role in the development of delinquency in young adolescents than in older boys. Family size was found to be the only variable to contribute towards a reasonable proportion of the variance in all types of offenses committed by young boys, but it did not exhibit the same associations when the boys were two years older. In general, different family factors tended to be related with different types of delinquency, with the exception of 'relationship with parents', which did not show a clear relationship with any category of delinquency when all factors were considered together.

Using loglinear analysis with 'ever' done self report offense variables, different family factors were indicated to be associated with the various forms of misbehavior, but these relationships were not always consistent with those found under regression using 'diversity' variables. Nevertheless, both levels of multivariate analysis showed that no family factors were related to either minor property or personal offenses measured at 17 years. The multivariate treatment of the self report data thus provided evidence that the drinking behavior of juveniles accounts for more of the variation in their delinquent behavior than do family factors.

When official delinquency statistics were used as dependent variables in the multivariate stage of the analysis, the results suggested that certain family factors are more closely related to official delinquency than others, differences occurring according to whether juvenile or adult convictions were being used as a measure of deviancy. Those factors which were generally found to be significantly related to delinquency under regression analysis, 'behavior of parents' and 'family income', tended to be different from those indicated by loglinear analysis, 'supervision by parents' and 'relationship with parents'.

Overall, therefore, the results of the multivariate analysis, whilst providing firm grounds that drinking is related to delinquency, varied a great deal not only between self report and official data, but also between the two levels of analysis using 'diversity' and 'ever' done measures of deviancy.

CHAPTER V

FINDINGS AND CONCLUSIONS

Introduction

In this chapter the main features of the study are reviewed, its findings are summarized and, in the context of the research questions, conclusions are presented and discussed. The first section is a summary of the purpose and scope of the study. In the next section the findings and the results of the various data analyses are reviewed. This review is followed by a general discussion of the results and then by consideration of effects of the methodological limitations of the study upon its findings. The chapter concludes with several recommendations for future research.

Purpose and Scope of the Study

The major intentions of the present study were to examine the relationship between juvenile delinquency and heavy drinking by adolescents, and to determine whether the two forms of deviance shared any common causal factors. The consideration of all possible predictors of juvenile delinquency and alcohol misuse was beyond the scope of the study, and therefore emphasis was placed upon the role of the family, since previous writers had stressed family factors to be important in the development of delinquent behavior.

The literature review provided considerable evidence that a relationship exists between juvenile delinquency and heavy drinking, although there was some controversy concerning whether heavy drinking was more closely associated with minor or with serious types of offense. One of the further aims of this study was therefore to determine whether any differences exist in

the strengths of the relationships between drinking and different types of crime.

Relatively few studies have attempted to assess the possible common underlying causes of both heavy drinking and juvenile delinquency, and those which have tend to provide inconsistent findings. Jessor et al. (1968) discovered that mother-child affectional relationships, mother's alienation, limited sanctions and exposure to deviant models all influenced the probability of a school student exhibiting all types of deviant behavior, while Barnes was unable to find statistical significance between different types of parental nurturance and support and problem drinking.

Similarly, the literature concerned solely with the causes of alcohol abuse tended to disagree over the role of structural family variables in the development of adolescent alcohol misuse. While previous research provided general support for the argument that family relationships play an important role in the development of adolescent drinking habits, many differences existed in the variables studied and problems were experienced in obtaining reliable data through interviewing techniques.

The studies dealing with delinquency and the family, while helping to define those family variables worthy of consideration in the present study, presented conflicting evidence concerning the effects of broken homes upon delinquent behavior. One particular objective of this study was therefore to clarify those family factors which are associated with either problem drinking in adolescents or with juvenile delinquency, and to discern any factors common to both forms of deviancy.

Together with their inconsistent results, various methodological problems were identified in many of the previous studies in this area, suggesting the need for further research. In particular, one of the main problems encountered in previous research involved the choice of samples and controls. A number of studies selected samples of delinquents who had already been convicted and incarcerated, which not only precluded any study of delinquent youth who had not been institutionalized but also created problems in finding suitable control groups. Those control groups which were used were often drawn from high school students and could therefore have unintentionally included delinquents, either because youths were on probation or simply because they had managed to avoid apprehension.

Longitudinal data were employed in the present study in an attempt to avoid the problems involved with sampling by allowing the delinquent and control groups to develop naturally over time. In addition it was hoped that, by utilizing variables measured at specific stages over a number of years in the analysis, information would be gained concerning the direction of any relationships found to exist. The issue of whether drinking leads to delinquency or vice versa is an extremely difficult problem to solve, especially when examining cross-sectional data collected at only one particular point in time. Also, in the context of family factors, it is possible to argue that, rather than contributing towards the development of delinquency, poor family relationships or broken homes are the result of tensions and stresses caused by the deviant behavior of children.

The data used in the study were obtained from an English longitudinal study, entitled the Cambridge Study on Delinquency Development, which took nearly twenty years to complete. The survey was conducted in a typically working class residential area of London, the total sample consisting of 411 boys selected from six state primary schools in the area. The boys were 8 or 9 years old when first contacted, and were subsequently interviewed approximately every two years until they were 21, after which only particular sub-groups were seen. The parents of the boys were also interviewed on a number of occasions.

The data collected allowed both self report and official delinquency variables to be utilized in the present study. Four categories of offenses, public nuisance, minor property, serious property and personal were defined and created from the self report data and were used to provide measures not only of different types but also of different levels of delinquency through the use of diversity 'ever', 'sometimes' and 'frequently' done variables.

The original researchers who carried out the longitudinal survey generally chose to rely upon the official statistics in their analysis. Moreover, no attempt had previously been made either to use the Cambridge data to determine if different categories of delinquency were differentially associated with adolescent drinking habits, or if any common causal factors existed for both heavy drinking and juvenile delinquency.

The present study examined seven research questions, each of which had been developed and derived from examining the findings of previous research whilst undertaking the extensive literature review. Bivariate and multivariate techniques were utilized in analyzing the survey data.

Findings and Conclusions

In this section the findings and conclusions of the study are reviewed in the context of the research questions. The analysis involved both self report and official delinquency data so that the maximum amount of information possible concerning the delinquent behavior of the boys could be obtained.

The analysis commenced by considering the following two research questions:

Research Question 1 - Is heavy drinking among adolescent males positively related to delinquency?

Research Question 2 - Is heavy drinking among adolescent males more closely associated with certain types of delinquency than with others?

The bivariate analysis indicated that heavy drinking is positively associated with self report delinquency. However, the strength of the association varied when different types of delinquent behavior were treated as the dependent variable. It was discovered that minor offenses were more closely related to drinking than were serious property crimes, with the strongest relationship indicated in the public nuisance offense category. At this stage of the analysis, not only was it determined that an association existed between drinking and ever having committed an offense, but also that significant relationships tended to be found between drinking and frequently committing different types of offenses.

Significant zero-order relationships were also discovered between drinking and whether or not boys received juvenile or adult convictions, confirming the result of the self report data analysis that heavy drinking is associated with delinquency. However, the association between heavy drinking and receiving increasing numbers of convictions was not so conclusive, suggesting that the relationship might not be so strong when official data is being used as a measure of delinquency.

In order to expand upon the bivariate results and to determine whether relationships remained when other factors were included and controlled, multivariate analysis was undertaken. This phase included both regression analysis using the 'diversity' delinquency measures as the dependent variables, and loglinear regression which employed the dichotomous 'ever' done delinquency measures as the dependent variables.

The factors controlled in the multivariate analysis in addition to drinking were family size, family income, broken home before 15 years, behavior of parents, supervision by parents and relationship with parents. Considering the results of the regression analysis first, the existence of a relationship between drinking and self report delinquency was supported, with drinking behavior accounting for the largest proportion of the variance in the commission of all types of offenses. In particular, frequent drinking at the young age of 14-15 years was found to be associated with the commission of increasing numbers of serious and minor offenses at the same age. Nevertheless, the regression coefficients for the drinking variables indicated that heavy drinking was most closely associated with public nuisance offenses, which gave support to the findings of the bivariate analysis that drinking has a stronger association with minor rather than serious crimes.

The regression analysis also suggested however that, with everything else held constant, drinking contributes very little towards the variance in the number of juvenile convictions received, although heavy drinking by young adults was found to be associated with the acquisition of a greater number of adult convictions. On the assumption that the boys who receive official convictions are the most frequent or serious offenders, it is possible to conclude from the results of the regression analysis of official delinquency that, when all other factors are taken into account, drinking does not exhibit a strong relationship with the commission of serious offenses by juveniles. Whilst lending support to the finding from the bivariate analysis of the self report data that drinking is most closely associated with minor delinquent acts, this conclusion is not completely consistent with all of the results of the self report regression analysis since, under the latter analysis a relationship was discovered between all types of self reported offenses and drinking when both forms of misbehavior were measured at a young age.

The loglinear analysis again indicated that, even when other factors are controlled, a relationship exists between heavy drinking and self report delinquency. In addition, the results supported the regression finding that drinking at an early age is associated with the commission of all categories of crime at the same age.

A larger number of the drinking variables had significant coefficients for official delinquency under loglinear analysis than in the regression analysis, and early drinking was found to be significantly related to the acquisition of a juvenile conviction. Thus, inconsistencies were found in the analysis of the official delinquency data depending upon whether convictions were measured in terms of ever having received a conviction or, as in the regression analysis, by employing a continuous variable which indicated the increasing number of convictions acquired. Clearly, while drinking is related to whether or not a juvenile receives a conviction, all things being equal it does not appear to be associated with the acquisition of increasing numbers of convictions. This is not the case for self report data, where heavy drinking is found to be associated both with committing a single offense and with involvement in an increasing number of offenses.

Although the analysis undertaken was able to provide a substantial amount of supporting evidence for the existence of a positive relationship between juvenile delinquency and adolescent drinking, it proved extremely difficult to determine causality, in other words whether heavy drinking leads to delinquency or vice versa. The drinking variables and self report delinquency data were both measured at at least two different ages (14-15 years and 16-17 years), but because of their nature, the variables did not in themselves distinguish for example between those individuals who were originally heavy drinkers but who subsequently reduced their alcohol intake and those who only later became problem drinkers, nor between those boys who committed an offense at a very early age but not later and those who only commenced offending when they were older.

Using the official data, an attempt was therefore made to create a variable which described the percentages of boys who were convicted at a young age (before the age of 13) and those who were convicted later (between the ages of 14 and 20). In addition, through manipulating the

drinking variables, it was possible to create a variable which decribed the onset of drinking. Bivariate analyses of these two new variables was undertaken, but no statistically significant relationships were discovered. The results simply showed a slight tendency for early drinking to be associated with early delinquency and for later drinking to be associated with later delinquency.

The remaining five research questions were concerned with the relationship between family factors and drinking and with the relationship between family factors and delinquency:

Research Question 3 - Is family structure in the form of family size and broken homes related to heavy drinking and delinquency amongst adolescent males?

Research Question 4 - Do inter-parental relationships exhibit an association with heavy drinking and with delinquency in adolescent males?

Research Question 5 - Do parent-child relationships exhibit an association with heavy drinking and with delinquency in adolescent males?

Research Question 6 - Does parental control and authoritarianism imposed upon male adolescents show a relationship with their drinking habits and their delinquency? Specifically, are both low and high levels of discipline associated with higher levels of drinking and delinquency than are average levels of discipline or supervision?

Research Question 7 - Are family structure, inter-parental relationships, parent-child relationships and parental supervision more closely associated with certain types of delinquency than others?

To ease the understanding of the results and the conclusions drawn from the analysis undertaken, each of the family factors will be considered individually, and in the order in which they appear in the research questions.

Family Size - At the bivariate level of analysis, family size was found to exhibit a significant relationship with all types of self report delinquency committed at a young age, and in particular a close association was discovered between family size and personal offenses. However, when older youths were incorporated into the delinquency measure, personal and serious property offenses were the only two forms of misconduct associated with increasing family size.

The official delinquency data indicated that as family size increases, not only are individuals more likely be convicted on one occasion, but they are also more likely to acquire an increasing number of convictions. Thus, overall the bivariate analysis showed that family size is related to delinquency.

The multivariate analysis in general supported the conclusions of the bivariate analysis. Family size accounted for the largest proportion of the variance in both adult and juvenile convictions, and was one of the few variables which had a significant coefficient in the loglinear analysis using official delinquency data.

The results of the multivariate analysis employing the self report delinquency data were not so consistent as those outlined above. The regression analysis indicated that family size accounted for a reasonable proportion of the variance in the commission of all categories of offenses measured at 14-15 years, although when older boys were included in the analysis no such associations were found. The loglinear results showed the only category of offenses associated with family size to be serious property offenses.

It therefore appears that family size is related to official delinquency and all categories of self report delinquency in younger adolescent boys. The association found between family size and serious property offenses in the loglinear analysis, together with the associations that occurred using official deliquency data suggest that family size exhibits the closest relationship with the more frequent or serious offenders.

The only significant bivariate relationship discovered between drinking and family size occurred with drinking in pubs under 18 years (measured at 14-15 years) as the dependent variable. Moreover, this relationship was negative suggesting that, as family size increases drinking in pubs under age decreases. This result is the opposite of that which would have been anticipated given the findings of the analysis using the delinquency data and the theory that the larger the family size, the less time parents have to develop satisfactory relationships with their children, so reducing their ability to motivate their children to avoid deviancy. In part, the suggested association could simply result from the fact that, the larger the family the less will be the available money to spend on drinking.

Broken Homes - Significant zero-order relationships were discovered to exist between three of the self report delinquency variables and broken homes: frequent commission of serious property offenses (measured at 14-15 years), frequent commission of personal offenses (measured at 14-15 years), and 'ever' done serious property offenses (measured at 16-17 years). These results suggest that broken homes are only associated with the commission of crimes by the more serious offenders.

The bivariate analysis of official delinquency data found significant zero-order relationships between broken homes and both adult and juvenile convictions, again indicating that broken homes have the closest association with serious or frequent offending.

The multivariate analyses indicated that, with other factors controlled, a slightly more complex picture of the relationship between broken homes and juvenile delinquency emerges.

When the official delinquency data were treated as the dependent variable, none of the regression coefficients for 'broken homes' were significant at the .05 level, suggesting that other factors account for more of the variation in the number of adult or juvenile convictions received. Nevertheless, the loglinear coefficients for 'broken homes' with official delinquency as the dependent varaible were significant at the same error level. Thus, the combined results suggest that broken homes are related to whether or not an individual receives a conviction but not to the number of convictions acquired.

The only category of offense which was significantly associated with broken homes using the self report data in the multivariate analysis was personal offenses (measured at 14-15 years), which had a large enough regression coefficient to indicate that broken homes account for a moderate proportion of the variance in the commission of this type of offense.

Heavy or frequent drinking was found not to be related to broken homes, suggesting that boys' drinking behavior is not affected by whether or not parents separate.

Inter-Parental and Parent-Child Relationships - Information concerning inter-parental relationships and parents relationships with their children was obtained through interviews carried out by psychiatric social workers (PSWs) with the boys' parents when the

boys were 8-9 years old. Attempts were made by the PSWs to assess marital harmony, parental inconsistencies, parental dominance, mother's attitude, father's attitude and parental discipline as independent measures of the various relationships which existed between family members. However, the family characteristics concerned involved very sensitive issues which, even when parents were motivated to give truthful answers, tended to be prone to problems of faulty recollections and confused emotions, and consequently the accuracy of the measures was threatened.

All of the above variables were found to be closely inter-correlated and reflective of the PSWs general opinions regarding the parents' management styles. Consequently, every item was combined into a single score to produce a global rating of parental behavior which represented a measure of inter-parental together with parent-child relationships.

An assessment of the boys' relationships with their parents was also made through interviews with the boys themselves when they were 18-19 years old. A combined variable was created which described their relationship with their parents as falling into one of three categories, good, average or poor, and included such factors as how well the boys felt they related to their parents, whether they lived away from home and, if they did, their reasons for doing so. Once more the variable involved emotions which are difficult to accurately define, and therefore it was appropriate that the boys were asked to make the required judgements about these issues at the later age of 18-19 years rather than when they were younger, when their responses would have been less reliable.

Given the above two descriptions of the variables, it is thus appropriate that the results of the analysis concerning the variable 'behavior of parents' should be examined first. The bivariate analysis of the self report data indicated that the only level and category of offense related to behavior of parents was frequently committing serious property crimes. In addition, a significant association was found to exist between official juvenile delinquency and behavior of parents. Thus, poor parental behavior represents a possible predictor of the more serious forms of juvenile delinquency.

The multivariate analysis provided further information concerning the degree of association between juvenile delinquency and relationships within the family, although the significant relationships which were discovered were only indicated by the regression analysis. Serious property offenses were again the type of misconduct which exhibited relationships with behavior of parents. Similarly, the regression coefficients for juvenile convictions suggested that poor parental behavior accounts for a moderate proportion of the variation in the number of juvenile convictions received. The lack of significant relationships under loglinear analysis suggests that poor parental behavior is not so much associated with whether or not a boy commits a single serious offense, but rather with his commission of an increasing number of such offenses. No relationship was found between drinking and poor parental behavior.

At the bivariate level of analysis, the variable describing the boys' relationships with their parents produced almost identical results as the parental behavior variable, with 'ever' and 'sometimes' done serious property offenses and official convictions being the forms of delinquency to exhibit significant relationships. In addition, a relationship was discovered between minor property offenses and relationship with parents. However, the results of the multivariate analysis were such that the only significant relationships between delinquency and poor relationships with parents were found to occur under loglinear rather than regression analysis. Again, these relationships concerned both serious property offenses and juvenile convictions.

Overall, the results make it possible to conclude that inter-parental and parent-child relationships are associated with official juvenile delinquency and serious offenses rather than with minor forms of misbehavior. Nevertheless, there appears to be some inconsistency concerning whether the relationship between juvenile delinquency and poor parent-child relationships is based upon the commission of a single offense or involvement in an increasing number of offenses.

Drinking was found not to be related to relationships with parents, confirming the results of the analysis of the parental behavior variable.

Supervision by Parents - When the boys were 8-9 years old the PSWs endeavored to determine the level of parental supervision they were exposed to. The parents were rated both according to their vigilance, which described their watchfulness, concern and closeness of supervision, and according to their rules, which described whether they were rigid or lax in their application of rules of behavior and penalties for non-conformity. The two resultant variables were found to overlap considerably and so were incorporated into one single measure of parental supervision, in such a way that values were coded as either good, average or poor, with poor supervision tending to describe lax or undervigilant supervision.

Zero-order relationships were discovered beteen supervision by parents and all categories of offenses at 14-15 years. When older individuals were included in the analysis, the two forms of misbehavior found to be associated with poor parental supervision were serious property and public nuisance offenses. Thus, although the strength of the relationship was greater for serious property offenses (Gamma =.5) than for public nuisance offenses (Gamma =.2), at the bivariate level of analysis no definite distinction can be made concerning whether minor or serious offenses are more closely related to parental supervision. A zero-order relationship was also found between official delinquency and parental supervision.

The multivariate analysis revealed that, when other factors are controlled, parental supervision does not exhibit a relationship with official juvenile convictions. However, with self report delinquency data as the dependent variables, the multivariate results became much more complex. The regression coefficients for parental supervision with public nuisance, minor property and personal offenses (all measured at 14-15 years) indicated that poor parental supervision accounts for a moderate proportion of the variance in boys' involvement in these types of delinquency. However, public nuisance was the only category of offense to exhibit a significant regression coefficient with supervision by parents when self report delinquency was measured at 16-17 years. Taking the results of the regression analysis together, when other factors are controlled, poor parental supervision is related to the commission of an increasing number of minor offenses.

Although 'adult convictions' was the only official delinquency variable related to parental supervision under loglinear analysis, the self report data suggested that poor supervision by parents is related to whether or not an individual commits serious offenses, with serious property and personal offenses both having significant loglinear coefficients. Thus, it appears that supervision by parents is related to the commission of an increasing number of minor offenses, and also to whether or not an individual becomes involved in committing a single serious offense. Once more, no relationship was found between drinking and supervision by parents, suggesting that heavy or frequent drinking is not associated with poor parental supervision,

Family Income - Even though family income was not specifically included in the research questions as a factor potentially influencing juvenile delinquency and drinking, the variable was included in the analysis of the study. The major reason for this was that family income provided a realistic measure of variations in lifestyle and supplied some relevant information concerning the background of the boys.

The bivariate and multivariate analyses did not produce very systematic results regarding the level or category of delinquency most closely associated with family income. The bivariate results suggested that serious property and personal offenses were related to family income, whilst the regression results indicated that family income accounts for a reasonable proportion of the variance in serious property (measured at 14-15 years) and public nuisance offenses (measured at 16-17 years). The loglinear analysis showed that, when other factors are controlled, low family income is associated with the commission of minor property, serious property and personal offenses.

A zero-order relationship existed between official juvenile delinquency and family income, but the multivariate analysis indicated that other factors, such as family size and broken homes, are more important contributors to the variance in the number of juvenile convictions received, although family income appears to be a significant factor in the number of adult convictions acquired.

Drinking frequently in pubs was found to be related to family income. However, the direction of the relationship was such that frequent drinking was associated with high family income. This was the opposite direction to that which had been anticipated, but possibly reflects the fact that those households with low family income did not provide the boys with sufficient funds to spend on drink.

Discussion of Results

The present study, whilst supporting the general findings of previous research that a relationship exists between juvenile delinquency and heavy drinking by adolescents, has highlighted important differences which occur in the degree of the association when self report rather than official delinquents are incorporated into the analysis.

The majority of the literature reviewed earlier in the study concentrated upon official delinquents in examining the relationship between juvenile delinquency and alcohol abuse. One interesting finding of the present study is that family factors such as family size and parental behavior account for more of the variation in the number of juvenile convictions acquired than does frequent drinking. However, when self report data is employed in the analysis, the reverse is true, with drinking patterns explaining the largest proportion of the variation in all categories of offense. In particular, drinking at an early age was found to be associated with both minor and serious offenses, suggesting that drinking is only one form of general deviant behavior among young juveniles. Nevertheless, the results of the bivariate and multivariate analyses taken together showed that the strongest relationship occurred between frequent or heavy drinking and very minor offenses, indicating that the type delinquency exhibited by juveniles who drink is a factor in the relationship worthy of consideration.

One problem often regarded as afflicting official delinquency data is that the drinking behavior of youths may attract the attention of the police and thereby contribute towards their being convicted in the courts, thus introducing bias into the data and reducing their reliability. Furthermore, when examining exclusively the behavior of youths who have been convicted, no account is taken of those delinquent individuals who have managed to avoid approhension.

However, the further discovery of a relationship between drinking and juvenile delinquency using the self report data, which overcame these particular problems, provided important evidence for the existence of a genuine association between the two.

Having determined that a relationship exists between juvenile delinquency and heavy or frequent drinking by adolescent boys, it was then a further purpose of this study to discover whether the two shared any common causal factors.

Existing research concerning the relationship between drinking behavior and delinquency provided very little conclusive evidence regarding possible causal factors of the two forms of deviancy. Those studies which attempted to assess potential underlying causes emphasized the important role which the family plays in the development of a child's behavior. The literature concerned with identifying causal factors of alcohol abuse gave added weight to the importance of the role of the family in determining the drinking habits of a teenager. Furthermore, delinquency research suggested structural family variables such as broken homes and family size, together with parent-child relationships and parental supervision to be predictive of juvenile delinquency. In consequence, while there exists potential sources and causes of deviant behavior beyond those problems which occur within the family, the present study was restricted to examining the effect of family factors upon the development of juvenile delinquency and alcohol abuse by adolescents.

Social control theory emphasizes the importance of the ties which an individual maintains with his or her family. According to this theory, when family structure breaks down or parent-child relationships disintegrate, these ties are broken and the family loses its ability to motivate its children to avoid deviancy. In addition, supervision and discipline can affect the quality of ties between family members. High levels of discipline can create rebellious behavior, while low levels weaken the influence which parents have over their children. Social control theory therefore suggests that average levels of supervision are the most effective in preventing the development of deviant behavior.

The analysis undertaken in the present study indicated that very few family factors are related to frequent or heavy drinking. Family income and family size were the only two variables

found to exhibit an association with heavy drinking, and the directions of these relationships were opposite to that which had been anticipated, since it was indicated that as family size increases, and also as family income decreases, drinking by adolescents decreases. A possible explanation of these two results is that those boys who come from large or low income families find themselves with insifficuent funds to indulge in drinking.

The general finding that family relationships are not related to adolescent drinking patterns was contrary to the suggestions of previous research. A number of studies on patterns of adolescent alcohol abuse have emphasized the importance of the quality of internal family relationships in the development of heavy drinking (Globetti, 1972; Babst et al., 1978; Gantman, 1978; Bloom and Greenwald, 1984; Reeves, 1984). While differing in their emphasis upon the exact form of family interaction associated with drinking, the studies provided general support for the argument that family relationships play an important role in the development of adolescent alcohol abuse. Reeves, for example emphasized parental control, Babst et al. family affinity, and Bloom and Greenwald parental relationships as possible predictors of heavy drinking in juveniles. In the light of the conclusions of the above studies, the findings of the present study of no association between supervision by parents, relationship with parents or behavior of parents were therefore particularly surprising.

Less striking however was the result that drinking is not associated with broken homes. Those previous studies which have emphasized structural rather than interpersonal family variables in the development of alcohol abuse among juveniles have tended to differ in their conclusions. Thus, Weschler and Thum (1973) found that a relationship existed between the number of parents in the home and the drinking behavior of adolescents. However, both Kane and Patterson (1972) and Amoetang and Barr (1986) discovered no significant difference between the drinking habits of adolescents with a variety of family structures and parental occupations.

The same family variables were used in the analysis as possible predictors of delinquency as were used as factors in the development of drinking habits. At the bivariate level of analysis, family income, family size, broken homes, behavior of parents and relationships with parents all

exhibited significant relationships with both official juvenile and adult convictions. However, when self report data was examined, only the commission of serious property offenses was found to be related to every family factor employed in the analysis. On the assumption that official delinquency measures tend to include the more frequent and serious offenders, then these results suggest that family factors are more important in the development of more serious, rather than minor, forms of misbehavior among juveniles.

As discussed above, the family variables accounted for a greater proportion of the variance in official than in self report delinquency. No real distinction could be made following the regression analysis concerning whether the family factors explained a greater proportion of the variance in minor or serious crimes. Nevertheless, from the results of the loglinear analysis it was clear that the family played a more important role in boys' involvement in serious rather than minor offenses.

Given that drinking was more closely associated with self report delinquency and, within that definition of delinquency, with minor property crime, the low explanatory power of family factors in accounting for the variation in self report delinquency, and in particular the variation in whether or not a boy is involved in the commission of public nuisance offenses, can assist in understanding the reasons for the lack of associations between family factors and heavy drinking. Since heavy drinking and minor self report delinquency are closely related to one another, and neither exhibit many relationships with family factors, it is possible that the two forms of deviancy share comon causal factors other than those which were included for consideration in the present study.

The close association between official delinquency and the various family factors could partially be the result of those individuals with 'negative' family backgrounds disproportionately coming to the attention of the police, so increasing their likelihood of arrest and conviction for any exhibition of delinquent behavior. The relationships which exist between the family variables and serious property crimes are particularly interesting. Even when other factors are controlled, a number of family factors are significantly related to self report serious property offenses measured at both 14-15 years and 16-17 years old. Thus, family size, family income,

broken homes, behavior of parents, supervision by parents and relationship with parents all have significant coefficients under both regression and loglinear analysis when this particular category of delinquency is the dependent variable.

One further interesting result which results from the analysis of the self report data is that different family variables tend to be significantly related to the various categories of delinquency when the two ages at which the data were collected are compared. When older youths (16-17 year olds) are included in the bivariate and multivariate analyses, there is a tendency for fewer family factors to be significantly related to minor and personal crimes than at the younger age of 14-15 years. For serious property offenses however, a relationship is exhibited with all of the family variables at the bivariate level of analysis for both age groups, and at the multivariate level, although approximately the same number of statistically significant relationships occur within both age groups, the associations tend to involve different family factors. The inability to separate the later age group into those individuals who started committing crimes at a later age and those who became delinquent earlier in life prohibits definite conclusions to be drawn from these results. Nevertheless, the indication is that for predicting involvement in minor and personal crimes family factors are more important for younger boys, while for serious crimes the same factors are important for adolescents of all ages.

Not only were different results obtained when the two age groups were considered separately in the analysis, but the loglinear and regression analyses tended to produce disparate findings concerning the importance of family factors in delinquency development. These differences occurred both when self report and official delinquency were employed in the analysis, suggesting that family relationships and family structure vary in importance in explaining whether a youth commits a single delinquent act or is involved in an increasing number of offenses.

The relationship between family factors and delinquency appears from the above discussion to be much more complex than was suggested by the previous research outlined in the literature review. Datesman and Scarpitti (1975) and Chilton and Markle (1972) did indicate that broken homes might be related to different types of delinquency in varying degrees and according

to the age of the subjects. However, it would seem from the present study that, in addition to age and category of offense, type of delinquency measure used, whether self report or official or in the form of 'diversity' or 'ever' done variables, is an important factor which must be taken into account when the associations between both family relationships and family structure and delinquency are under examination.

Thus, for example broken homes, while exhibiting a significant bivariate relationship with official convictions was only significantly related to juvenile delinquency under loglinear analysis and not regression analysis, and while having a zero-order association with self report serious property offenses, when other factors were controlled accounted for a moderate proportion of the variation in personal offenses.

From the results of the present study it can not be stated that any one family factor appeared to be of equal importance in accounting for the variation in both official and self report delinquency. Similarly, no single family factor exhibited a significant association with all categories of self report offenses in both the multivariate and bivariate analyses. Whilst supervision by parents appeared to be significantly related to all categories of offenses at the bivariate level of analysis, when other factors were controlled it appeared that it only accounted for a moderate proportion of the variance in public nuisance offenses.

The manipulation of the self report delinquency data made possible the creation of four different measures of each category of offense at 14-15 years: 'diversity', 'ever' done, 'sometimes' done and 'frequently' done. There was a tendency, particularly within the public nuisance category, for frequent drinking to be associated with all four measures. However, this was not the case for family factors. The zero-order associations which occurred between the family variables and self report delinquency generally were found to be exhibited by only one or two delinquency measures within a category. Thus, the broken home variable for example was only related to the 'frequently' done measures of personal and serious property offenses, whilst supervision by parents was related to the 'ever' done measure of serious property offenses, the 'diversity', 'ever' and 'sometimes' measures of personal offenses, the 'diversity', 'sometimes' and 'frequently' measures of minor offenses, and the 'diversity' and 'frequently' measures of

public nuisance offenses. The results produced by examining the different measures in each offense category gave no clear indication that the family factors were only associated with one particular measure.

Overall, therefore the results of the present study have indicated that, while a close relationship exists between self report delinquency and drinking in adolescents, family relationships and family structure do not appear to represent common causal factors of both forms of deviancy. No zero-order relationships were discovered between drinking and family factors, and those family variables which exhibited significant relationships with delinquency varied extensively according to the type and level of delinquency under consideration.

Methodological Limitations and their Implications

A number of methodological problems were advanced earlier in this study as limitations of the research design. Having discussed the general results of the analysis, it is now possible to discern how these weaknesses in design affected the study findings.

One of the major difficulties which tends to afflict all research investigations of the relationship between juvenile delinquency and alcohol abuse is the inability to discover the direction of the association. It was originally hoped that, through the use of longitudinal data, the present study would be able to shed some light on this particular problem. Unfortunately, the data available from the Cambridge Study in Delinquent Development gave no indication of when the boys first started drinking, or their age when they committed their first offense. Thus, it proved impossible to determine directly which form of misbehavior occurred first, or indeed whether they both occurred simultaneously. In addition, the drinking and deliquency data were collected at different ages in such a way that data provided by the later age group, in addition to describing their current behavior included information regarding their activities when they were younger. Thus, for example, no distinction could be made between those boys who did not drink or commit offenses at a young age but did so later, and those who started drinking and deliquent conduct early and continued in the same manner. Therefore, although drinking at 14-15 years was related to the commission of public nuisance offenses at 16-17 years, it could

not be concluded that early drinking behavior causes, or is even associated with later drinking habits. Manipulation of the available drinking and delinquency data allowed for the creation of variables which described the onset of both drinking and delinquency. However, the bivariate analyses of these variables produced no significant relationship, and hence gave rise to inconclusive results concerning whther the relationship between drinking and delinquency is causal. The findings tended to suggest that early drinking as associated with early delinquency and later drinking with later delinquency.

The failure to determine the direction of the relationship in no way repuduates the discovery of an association between heavy drinking and delinquency however, indeed drinking behavior was found to account for the greatest proportion of the variance in self report delinquency.

Although family variables tended to be measured at the early age of 8-9 years (with the exception of the 'broken homes' variable which was measured before 15 years, and the 'behavior of parents' variable which was measured at 10-11 years), the possibility still remained that the juveniles were committing offenses prior to this point in their lives. There is therefore a chance that the very early delinquent behavior of their children contributed to the breakdown in marriages and the development of poor family relationships. Clearly however, adolescent delinquency will have very little, if any, effect upon family income and family size, and thus the finding that family factors measured at 8-9 years were related to delinquent behavior at 14-15 years suggests that poor family environments at an early age tend to contribute towards the development of deviant conduct in teenage boys.

It was indicated earlier in the study that interpreting associations as constituting chains of causation is problematic, since other variables not included in the analysis may play an extremely important role in the development of both delinquency and drinking. For example, it may be that parental drinking patterns and peer group pressure are two of the main causes of adolescent alcohol abuse, since family relationships and structure did not exhibit any systematic relationships with adolescent drinking. In addition, the drinking variables included in the analysis accounted for less than 20% of the total variance in the official data and in all of the self

report offense categories, with the exception of public nuisance offenses in which the total proportion of variance explained was between 25% and 30%.

Thus, while the relationships discovered between family factors and delinquency and between drinking and delinquency explain a sizeable amount of the variance in the dependent variables, large proportions remain unaccounted for. This result suggests that, while drinking and family factors were influential and may serve as viable factors in predicting juvenile delinquency, other factors may be more strongly related and would be represent more appropriate predictors.

Two clear examples of such factors, neither of which were tested in the present study, are parental and sibling criminality and peer group pressure, for two major reasons. First, the inclusion of all of the possible causes of drinking and delinquency was beyond the scope of the study, and second, the Cambridge data lacked any information regarding both peer and parental drinking behavior.

The problem of accurately defining heavy drinking was outlined in the literature review as one difficulty which had afflicted much of the previous research concerned with drinking behavior. The drinking variables included in this study failed to reflect drinking patterns of alcohol use by the boys. Furthermore, the measures developed at 14-15 years and 16-17 years did not specific quantities of alcohol consumption, but rather reflected the frequency with which the boys drank alcoholic beverages in pubs under age. Moreover, the boys' drinking behavior was assessed through self report data which runs the risk of producing inaccurate results due either to faulty recollections or intentionally false information.

In a simliar way, the family factors included in the study were prone to a number of weaknesses. The collection of data regarding such sensitive issues as parental relationships or behavior towards their children proved difficult, and was further complicated by the involvement of psychiatric social workers' subjective judgements. The result was that global scores tended to be relied upon to provide a general picture of parental care and supervision. The failure to discover statistically significant associations between drinking and parental supervision or drinking and parental behavior could thus partially reflect the lack of specificity of these global

scores in defining their constituent variables. While relationships were found to exist between some of the other family variables and drinking, they tended to be extremely complex which once more could be a result of the methods of data collection.

Recommendations for Future Research

Several recommendations for future reserach follow directly from the preceeding discussion of the limitations of this study. One of the major concerns in evaluating the association between juvenile delinquency and drinking is to determine the direction of the relationship and whether it is causal. Longitudinal data possesses the potential to provide such information. However, in the present study the data available did not allow any definite conclusions to be drawn concerning whether drinking leads to delinquency or vice versa, or indeed whether they both occur simultaneously. Thus, while recognizing the difficulties involved in embarking upon longitudinal research, more information could be gained through the collection of data concerning drinking behavior and delinquency beginning at a very young age and continuing through adolescence to young adulthood. In particular, the determination and comparison of the ages of onset of drinking and delinquency could increase understanding of the temporal relationship between the two forms of deviancy.

In addition, the development of variables describing the drinking patterns of individuals could assist researchers to make firm conclusions concerning the major causes of adolescent alcohol abuse. Many of the problems involved in collecting accurate information regarding such sensitive issues as drinking amongst teenagers and family relationships are difficult to overcome, but perhaps obtaining information from a variety of sources, and providing interviewers with more rigorous guidelines concerning their interview technique, could benefit both the accuracy and objectivity of the resultant data.

The fact that few relationships were identified between adolescents' drinking habits and family factors could, as was discussed earlier, indicate that other factors such as parental drinking behavior and peer group pressure are more valid predictors of teenage alcohol abuse. Studies which could collect data regarding these two difficult, yet important areas would potentially be of

value. The involvement of peer group pressure in shaping both the drinking and delinquent behavior of adolescents was especially suggested by the findings of this study that drinking tends to be closely associated with relatively minor forms of deviant conduct. In particular, offenses in the 'public nuisance' category are frequently the types of activities which juveniles become involved in when they are together with one or more their friends. Peer pressure is generally accepted to influence adolescents' public behavior in many situations. Studies of drinking habits and peer influence could shed more light upon both the onset of adolecent alcohol abuse and its association with juvenile delinquency.

In summary, future studies in which the measures are strictly defined and objectified as much as possible, preferably giving rise to interval level data, should ideally be concerned with the relevant behaviors of adolescents' peers, parents and siblings. Designed in this way, longitudinal studies in particular could offer some interesting and promising avenues for further research into the relationship between adolescent alcohol abuse and juvenile delinquency, and could assist further in understanding whether the two forms of deviancy share certain common causal factors.

APPENDICES

APPENDIX I

Table A.1 - Self Reported Delinquency

Act	Description	% of Boys Admitting at age 14-15	16-17
1	Riding a bicycle without lights (or with no rear light) after dark	77.0	78.8
2	Driving a car, motor bike or motor scooter under the age of 16	20.3	40.1
3	Belonging to a group (of ten or more people) who go around together making a row and sometimes getting into fights or causing a disturbance	16.8	23.4
4	Playing truant from school	54.3	80.9
5	Deliberately travelling without a ticket or paying the wrong fare on a bus	71.6	84.4
6	Letting off fireworks in the street	84.2	86.7
7	Taking money from home with no intention of returning it	9.4	11.3
8	Taking an unknown person's car or motor bike for joyriding (with no intention of keeping it for good)	7.4	15.6
9	Smashing, slashing or damaging things in public places (streets, cinemas, dance halls, railway carriages, buses, etc.)	11.9	18.1
10	Annoying, insulting or fighting other people (strangers) in the street	23.0	23.4
11	Breaking into a big store, garage, warehouse, pavilion, etc.	4.0	7.3
12	Breaking into a small shop (private tradesman) whether or not anything was stolen	6.4	8.6
13	Stealing things out of cars	8.9	9.6
14	Carrying some kind of a weapon like a knife or cosh in case it is needed in a fight	20.7	25.4

Table A.1 (cont'd.).

Act	Description	14-15	16-17
15	Attacking an enemy or someone in a rival gang in a public place (without using any sort of weapon)	18.8	24.4
16	Breaking the windows of empty houses	68.9	66.8
17	Using any kind of weapon in a fight (knife, cosh, razor, broken bottle, etc.)	12.1	17.1
18	Drinking alcoholic drinks in pubs under the age of eighteen	26.4	79.1
19	Going into bars under the age of sixteen	51.4	74.6
20	Stealing things from big stores, supermarkets, multiple shops (while the shop was open)	19.3	28.2
21	Stealing things from small shops or private tradesmen (while the shop was open)	36.8	39.8
22	Deliberately littering the street or pavement by smashing bottles, tipping dustbins, etc.	24.2	27.0
23	Buying cheap or accepting as a present anything known or suspected of being stolen	36.3	57.4
24	Planning well in advance to get into a house, flat, etc. and steal valuables (and carrying the plan through)	4.7	5.5
25	Getting into a house, flat, etc. and stealing things (without planning well in advance)	5.4	7.3
26	Taking a pedal cycle belonging to an unknown person and keeping it	8.4	10.6
27	Struggling or fighting to get away from a policeman	6.9	12.9
28	Attacking or fighting a policeman who is trying to arrest someone else	1.7	5.0
29	Stealing school property worth more than about 5p	29.1	53.2
30	Stealing tools, materials or any other goods worth more than about 50p from employers (all in one go) during working hours	2.2	12.6
31	Trespassing anywhere you are not supposed to go, for example railway lines, goods yards, private gardens, or empty houses	63.5	66.8

Table A.1 (cont'd.).

Act	Description	14-15	16-17
32	Going to 'X' films under age	64.0	89.7
33	Often spending £1 or more a week on gambling under the age of sixteen	7.9	19.7
34	Regularly smoking cigarettes under the age of sixteen	7.9	19.7
35	Stealing goods or money from slot machines, juke boxes, telephones, etc.	14.6	17.9
36	Stealing from people's clothes hanging up anywhere	3.5	5.8
37	Obtaining money by false pretences	10.4	9.8
38	Taking illegal drugs like purple hearts or smoking reefers	0.5	6.3

APPENDIX II

Categorization of Self Report Data

The four offense categories of public nuisance, property minor, property serious, and personal are comprised of the following self report acts as defined in Appendix II:

Public nuisance	1, 2, 3, 4, 5, 6, 19, 22, 31, 32, 33, 34, 38.
Property minor	7, 8, 9, 13, 16, 20, 21, 23, 26, 29, 30, 35, 36, 37.
Property serious	11, 12, 24, 25.
Personal	14, 15, 17, 27, 28.

Act 10, 'Annoying, insulting, or fighting other people (strangers) in the streets' is excluded from the four classifications outlined, since the large difference which exists between simply annoying, and actively fighting with, a stranger prohibits the type of behavior exhibited by those boys who admitted to this act being truly understood.

In addition, Act 18, 'Drinking alcoholic drinks in pubs under the age of eighteen', is omitted since this act, measured at both 14-15 years and 16-17 years is used to generate two of the drinking variables to be studied.

The following Tables A.2 and A.3 indicate the proportion of boys admitting a specific number of acts in each of the four categories at the age of 14-15 years and at the age of 16-17 years:

Table A.2 - Self Reported Delinquency Variable (14-15 years)

Value	Public Nuisance %	Minor Property %	Serious Property %	Personal %
0	1.2	15.3	87.4	68.1
1	4.0	25.7	7.7	13.8
2	6.2	17.3	3.0	10.9
3	10.6	12.8	1.0	4.9
4	11.1	8.9	1.0	1.2
5	13.6	5.9	100%	1.0
6	15.1	5.9		100%
7	12.6	3.5		
8	13.1	1.7		
9	5.7	1.2		
10	4.0	1.0		
11	2.5	0.5		
12	0.5	0.2		
	100%	100%		

Table A.3 - Self Reported Delinquency Variable (16-17 years)

Value	Public Nuisance %	Minor Property %	Serious Property %	Personal %
0	0.5	8.6	86.1	57.2
1	1.3	16.4	5.8	18.9
2	1.8	18.4	3.8	11.8
3	4.5	14.4	1.8	7.6
4	6.0	10.8	2.5	3.0
5	7.8	9.6	100%	1.5
6	13.4	6.5		100%
7	15.9	5.8		
8	18.4	2.5		
9	14.9	3.3		
10	8.6	2.0		
11	4.5	1.5		
12	2.0	0.3		
13	0.5	100%		
	100%			

APPENDIX III

Creation of Combined Variables

The creation of the combined variables followed the manner in which a combined rating of maternal attitude and discipline was developed. In this case, three points were scored if maternal attitude was cruel, passive or neglecting, if maternal discipline style was erratic or very strict, or if the quality of maternal discipline was harsh. Two points were scored if maternal attitude was loving anxious or overprotective, if maternal discipline style was lax or strict, or if the quality of maternal discipline was spoiling or disinterested. Finally, one point was scored for each assessment of normal. The combined score, which was obtained by simple addition, thus could vary between 3 and 9. If a boy was not rated on one of the scales, his total points on the other two were multiplied by 1.5; in the exceptional case where a boy was rated on one scale only, his points were multiplied by 3. Twenty four boys, for example, could not be rated on maternal attitude because their parents were too uncooperative.

The use of either 2 or 3 points for the different categories of unsatisfactory attitude or discipline involved a decision as to which categories were the most unfavorable. In most cases, this was fairly clear. Cruel, passive or neglecting, for example, were presumably worse than loving anxious or overprotective. Where the distinction was less obvious, for example between erratic and lax discipline, the points scoring decision was made by seeing which of these categories were most closely related to other parental characteristics which were undoubtedly unfavorable.

Paternal attitude, paternal discipline style, and paternal quality of discipline were condensed in the same way to produce the combined measure of paternal attitude and discipline. In addition, similar rules were adopted for combining the ratings of marital disharmony, parental inconsistency, and parental dominance to derive the combined measure of parental conflict.

In producing the final global rating of parental behavior, three three already combined ratings of maternal attitude and discipline, paternal attitude and discipline, and parental conflict were amalgamated. Each boy was allocated a score of either 1 (good), 2 (average), or 3 points

(poor), on each of the three separate ratings, and the global score measure was obtained by simple addition.

The two measures 'parental vigilance' and 'parental rules' were combined into one single measure of parental supervision. If parents were assessed as being overvigilant or rigid respectively on the two measures the boy was allocated 1 point, average scored 2 points on both, and undervigilant or lax repectively scored 3 points. The points were then summed for each boy. A total score of 2-3 resulted in a coding of 'good' for parental supervision, a score of 4 was coded as 'average', and a score of 5-6 as poor.

APPENDIX IV

Recoding of Self Report Data for Bivariate Analysis

At both ages (14-15 years and 16-17 years) the diversity self report offense categories of public nuisance, property minor, property serious, and personal were sub-classified and recoded as follows:

Public Nuisance:	Committing 0 - 4 offenses = 1 Committing 5 - 6 offenses = 2 Committing 7 - 8 offenses = 3 Committing 9-13 offenses = 4
Property Minor:	Committing 0 offenses = 0 Committing 1 offense = 1 Committing 2 - 4 offenses = 3 Committing 5-11 offenses = 4
Property Serious:	Committing 0 offenses = 0 Committing 1 offense = 1 Committing 2-4 offenses = 2
Personal:	Committing 0 offenses = 0 Committing 1 offense = 1 Committing 2 offenses = 2 Committing 3-5 offenses = 3

Thus, with the exception of the public nuisance offense category, the diversity variables were subdivided into groups containing boys who reported committing either 0, 1, or 2 or more of the offenses in each category.

As a result of this subclassification, the frequencies for the diversity variables used in the bivariate analysis were as indicated overleaf:

Table A.4 - Diversity (14-15 years)

Value	Public Nuisance %	Minor Property %	Serious Property %	Personal %
0	-	15.3	87.4	68.1
1	33.1	25.7	7.7	13.8
2	28.6	39.0	4.9	10.9
3	25.7	20.0	100%	7.2
4	12.6	100%		100%
	100%			

Table A.5 - (16-17 years)

Value	Public Nuisance %	Minor Property %	Serious Property %	Personal %
0	-	8.6	86.1	57.2
1	14.1	16.4	5.8	18.9
2	21.2	43.6	8.1	11.8
3	34.3	31.5	100%	12.1
4	30.5	100%		100%
	100%			

APPENDIX V

Recoding of Official Data for Bivariate Analysis

The official conviction statistics were categorized for coding as follows:

Juvenile:	No convictions = 0 1 conviction = 1 2-14 convictions = 2
Adult:	No convictions = 0 1 conviction = 1 2-3 convictions = 2 4-10 convictions = 3
Overall:	No convictions = 0 1 conviction = 1 2-4 convictions = 2 5-14 convictions = 3

As a result of this classification system, the frequencies in each particular category were as shown in Table A.6:

Table A.6 - Official Data Frequencies

	Juvenile	Adult	Overall
Value	**%**	**%**	**%**
0	79.6	72.9	67.1
1	11.4	11.6	12.4
2	9.0	8.1	12.7
3	-	7.3	7.8
	100%	100%	100%

APPENDIX VI

Calculations of Probabilities from Loglinear Results

Part A

The antilog for family income with minor property offenses as the dependent variable is 1.70 (Table 4.132). All other things being equal, the odds of committing minor property offenses given adequate family income are therefore 1.7 to 1. To calculate the corresponding probability, let X = the percentage which is required, then (X + 1.70X) = 1, therefore 2.7X = 1, X = (1/2.7) = 0.37 or 37%.

Similarly, to find the probability of committing minor property offenses given inadequate family income, everything else being equal, the odds are (1/1.7) to 1, thus (X + (1/1.7)X) = 1, therefore 2.7X = 1.7, X = (1.7/2.7) = 0.63 or 63%.

Part B

Taking the results from Table 4.132, the following list of odds can be drawn up:

Table A.7 - Loglinear odds for the alternative values of the set of independent variables

Variable	Value	Odds
Family Income	Adequate (1) Inadequate (0)	1.70 (1/1.70)
Family size	Below average (1) Above average (0)	0.915 (1/0.915)
Broken home	Intact (1) Broken (0)	1.38 (1/1.38)
Behavior of parents	Good (1) Poor (0)	0.773 (1/0.773)
Supervision by parents	Good (1) Poor (0)	1.31 (1/1.31)
Relationship with parents	Good (1) Poor (0)	1.10 (1/1.10)
Drinking in pubs (14-15 years)	No (1) Yes (0)	2.22 (1/2.22)
Drinking in pubs (16-17 years)	No (1) Yes (0)	1.70 (1/1.70)
Drinking combined	Acceptable (1) Heavy (0)	1.06 (1/1.06)
Mean effect	.058	

To calculate the 'all positive' situation, all of the positive values were taken and multiplied together (=9.57) and then multiplied by the mean effect (=0.56) to arrive at a value of the odds of committing minor property offenses given the all positive environment. The relevant probability was therefore (1/1.56) = 0.64, or 64%

A similar calculation was performed to discover the probability of committing minor property offenses in the 'all negative' situation (99%).

To calculate the probabilities concerning the third profile, first all of the negative factor odds values were taken and multiplied together (=7.69). Second, all of the positive factor odds values were similarly multiplied together (=1.24) and this figure was then multiplied by the mean effect (=0.072). The odds of committing minor property offenses given the third profile were then (0.072)/(7.69) = 0.009, and the corresponding probability was (1/1.009) = 0.99, or 99%.

Similar calculations were carried out using the results obtained from the loglinear analysis with the serious property and personal offenses, and the official delinquency data as the dependent variables.

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