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Adolescent Alcohol Use and Misuse: The Influence of
Perceived Family Socialization Factors

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Adolescent alcohol use/misuse: the role of family socialization factors

Summary

Alcohol-related problems are a worldwide phenomenon and, in the latter part of the twentieth century, have generated substantial academic interest. Some of this research has focussed on the alcohol use and misuse of young people. The present thesis falls squarely into this area, bringing to the investigation of adolescent drinking behaviour an emphasis on family environment from recent studies into problem drinking.

The aim of this study, therefore, was to increase understanding of the formation of early drinking patterns by investigating perceived family socialization factors associated with self-reported adolescent alcohol use and misuse. The results should have implications for alcohol education and intervention strategies in the U.K..

Research into problem drinking and drug use/misuse, previous adolescent drinking research, developmental psychology, social psychology, family psychology, family systems and the sociology of deviance all informed this thesis, by contributing to the development of a theoretical model of family socialization influences on adolescent drinking behaviour. Two main areas of family environmental influence are outlined in this model, and demographic and structural variables form a third component of the model. In this study, *family process* behaviours are viewed as those aspects of family relationships and interactional styles which are important in the socialization of adolescent behaviours and the internalization of norms, are non-alcohol-specific, and are characterized by two major dimensions of family functioning - *support* and *control*. Underlying the role of alcohol-specific family behaviours in the development of adolescent drinking is *family social*

learning, which is characterized by *family models* and *social reinforcement* for drinking.

The main study involved administering a fully piloted questionnaire to a large, cross-sectional, random sample of school students, aged 11-18, in Humberside (N=4386). In addition, a small number of semi-structured interviews were carried out, and each written up as a case study, to supplement the quantitative questionnaire data.

Data from the questionnaire were analyzed on three levels. Descriptive statistics are presented and comparisons made with information from previous studies. ANOVA's tested for disordinal interactions and for non-linear effects of family socialization variables on adolescent drinking behaviour. As no marked non-linear patterns or disordinal interactions were found a third level of analysis was carried out, involving structural equation modelling techniques. The main results from the study are summarized below:

- (i) As expected, both heavy drinkers and non/very light drinkers were more likely to report extreme patterns of family socialization behaviours. Low support and control, indifferent parents and more frequent family drinking were all linked with more self-reported adolescent drinking, whilst high support and control, disapproving parents and non/light family drinking were all linked with less adolescent drinking. The family profile linked with normative levels of adolescent drinking was moderate support and control, a moderating parental attitude, and moderate (mid-range) family drinking.
- (ii) Multivariate analyses pointed to the predominantly independent and additive effect of each family socialization variable on adolescent drinking behaviour.

(iii) On the whole, family social learning variables, particularly parental attitude, were more important statistical predictors of adolescent drinking behaviour than family process variables.

(iv) Contrary to predictions, when each school year/sex group was examined separately, an interesting transitional effect was found. For younger males and females, family social learning variables were significant predictors of drinking behaviour, but family process variables were not.

However, in older year groups, the effect of family support and control on drinking behaviour increased whilst, in a complementary fashion, the effect of family models and, in particular, parental attitude, decreased.

(v) As expected, knowledge of friends' drinking predicted the respondent's drinking behaviour, but the impact and pattern of family socialization influences on drinking behaviour was not moderated by this peer influence variable. In addition, knowledge of friends' drinking was not as important, statistically, as family social learning influences.

The thesis concludes by discussing the above findings and commenting on the generalizability of the results and the implications of the results for current alcohol education paradigms and for future research. The value of the family socialization model for the investigation of other adolescent substance use and social behaviours is also discussed.

Chapter 1: Introduction

The purpose of this postgraduate research project was to carry out a large cross-sectional study in the U.K. of adolescent drinking and associated family socialization factors. The Alcohol Education and Research Council, who funded this research, had identified adolescent drinking behaviour as a key area for alcohol research, with the aim of furthering understanding of the formation of early drinking habits. Specifically, this study aimed to investigate how family dynamics play a contributory role in the development of drinking behaviour in a regional sample of English teenagers. Such information would hopefully indicate areas where alcohol education initiatives involving the family would be most efficient.

Is adolescent drinking a problem? This is an important question which underlies the theoretical argument in this thesis. Drinking behaviour ranges along a continuum from non-drinking through normal and sensible levels of alcohol use to the other extreme of excessive alcohol use and misuse. In this thesis it is argued that in the U.K. adolescent drinking is a normal transitional behaviour between childhood and adulthood - an adult life where drinking alcohol is a socially acceptable and condoned behaviour. Certainly, if the quantity of research into adolescent drinking (especially in the U.S.A.) were used as an indication, then one could easily be forgiven for thinking that teenage drinking is a problem behaviour. Indeed, alcohol use is described as a 'problem behaviour' in one of the most influential of current theories - Problem Behaviour Theory (Jessor & Jessor 1977; Jessor 1987). This theory has been developed over the past 20 years to try and explain the

aetiology of problem behaviours. It comprises three systems of psychosocial influence: the personality system, the behaviour system and the perceived environment system, and is characterized by risk factors in the development of problem behaviours. Within the perceived environment system family behaviour is an important source of psychosocial influence, and it is the relationship between perceived family behaviour and self-reported drinking which is investigated in this study.

Family systems theory views the dynamics within the family unit as the most important factor in the development of dysfunctional behaviour. Some theorists hold that pathology is so intertwined with ongoing family functioning that the problem cannot be isolated from other family interactions and behaviour. However, this is a rigid view. It is recognized that family assessment may be problematical, particularly for traditional reductionist methods, but there are now available assessment scales which attempt to measure family behaviours along dimensions such as conflict, cohesion, organization, love, autonomy, expressiveness etc., and to organize these dimensions into theoretically higher order dimensions, e.g. a relationship dimension, a personal growth dimension, or a system maintenance dimension (Family Environment Scale - Moos & Moos 1986).

In particular, this study aimed to assess the adolescent's perception of his or her family life. It is argued that perception of family life is especially important in the influence of family behaviour on the development of alcohol use by young people. In line with this, it was also important to measure each individual's perception of their own drinking behaviour. Such perceptions, measured by self-reports, are usually assumed to be reasonably valid. In fact, such self-reports go beyond being just an indicator of actual behaviour: they can also incorporate an attitudinal component. As such, self-reports can comprise elements of social, cultural and stereotypical attributions and aspirations regarding alcohol use.

The following brief introduction to alcohol, adolescence and family life is intended to highlight the issues investigated in this thesis. Subsequent chapters discuss these issues in more specific detail.

Alcohol, adolescence and family life

Alcohol

"Alcohol is the oldest and most widely used intoxicant. When man first crawled out of the primeval swamp, it did not take long, in evolutionary terms, before he had taken to drinking like the fish he had so recently resembled. There are relatively few places on the surface of this planet where the inhabitants do not imbibe with enthusiasm and enjoyment." Lowe (1990, p.53)

Strictly speaking, alcohol is a depressant substance, capable of impairing, retarding and disorganizing the functions of the central nervous system. However, the effects of alcohol are often outwardly seen to be excitatory. This may be attributable to alcohol affecting CNS inhibitory processes more than CNS excitatory processes. Thus alcohol has a disinhibitory effect, leading typically to apparently stimulated (less inhibited) behaviour (Lowe 1984).

Alcohol consumption in Great Britain tends to be lower than in most other European countries, and it also tends to be mainly beer drinking rather than wine (dominant in southern European countries such as Spain, France and Italy) or spirits (more prevalent in north eastern Europe, e.g. Sweden and Poland) (Royal College of Physicians 1991). In 1987 the population of England and Wales spent £17 billion on alcohol - equivalent to £370 for

every adult (Royal College of Physicians 1991). There are differences of course in the drinking behaviour of different groups within the population. Males drink more than females, especially in early adulthood, and younger adults drink more than older adults. There is also considerable regional variation in the amount of alcohol consumed by young men (Goddard & Ikin 1988; Central Statistical Office 1993).

So, why do people drink alcohol? In psychological terms, people may drink because alcohol tends to provide pleasurable sensations and experiences - it has positive qualities. Baum-Baicker (1985, cited by Lowe 1990) considered in some detail the value of light and moderate drinking. Positive effects included: stress reduction; an increase of affective expression, happiness, euphoria, and conviviality; a decrease in tension, depression and self-consciousness; and some improvement in certain types of cognitive performance.

In addition, alcohol is an important factor in social interaction. In Britain, pubs and clubs are the places where most people meet outside of work (and sometimes in work), to socialize. Such places are businesses engaged in the process of selling alcohol, which, as mentioned above, can produce positive sensations and experiences and acts as a disinhibitor of behaviour, promoting social interaction and communication. Social interactions which take place in pubs and clubs are therefore rewarding and positive experiences, facilitated by alcohol which is also a shared experience.

There is, though, a negative side to alcohol use. Heavy or excessive drinking can be associated with various physical and/or social problems. The Special Committee of the Royal College of Psychiatrists (1986) suggested that, in relation to the physical consequences of excessive drinking, there was little increased risk either of physical or psychological dependence on alcohol or of alcohol-related disease, such as cirrhosis of the liver, if

consumption was below 50 units a week for men and 35 units a week for women¹.

However, alcohol misuse is also associated with problems other than severe physical or psychological consequences. There is a much wider range of social and physical consequences of excessive drinking, such as alcohol-related violence and crime, and mild damage to the heart, liver, brain and immune system (Goddard & Ikin 1988). Although expert opinion differs as to the amount of alcohol associated with risk for the above consequences, medical and health education bodies have agreed to promote a maximum of 21 units a week for men and 14 units a week for women as sensible, low risk levels of alcohol use (Royal College of Physicians 1991).

Adolescence

Adolescence can be broadly described as the period of the life-span between childhood and adulthood. Different societies and cultures have different conceptions of this period. In some primitive cultures the transition from childhood to adulthood is marked simply by a ceremonial rite - there is no prolonged adolescent period. In western cultures, however, the adolescent period is longer than in any other culture or society. There are several reasons for this. First, adolescence is typically seen as beginning at puberty and, in western cultures, the age of puberty onset is decreasing (Coleman & Hendry 1990). In addition, the boundary of adulthood is also more vague than ever before. Previously synonymous with work, the present era of mass

¹ One unit (SAU) is equivalent to 8 grams of alcohol (in the U.K.). Half a pint of normal strength beer, cider or lager contains one unit of alcohol as does a standard glass of wine or a measure of spirits.

unemployment and social security extends adolescence for some individuals into the late teenage years, and for some into their early twenties.

Coleman (1980, p.viii) defined adolescence as:

"that stage in the life cycle that begins at puberty and ends when the individual reaches maturity".

So, according to Coleman, maturity marks the boundary between adolescence and adulthood. But what is maturity? There are various ways to define or measure maturity - legal, age-linked, sociological, physiological, psychological, and so on. For the purpose of this study maturity is taken to mean the age at which an individual becomes responsible for their own actions in the form of independence and autonomy from parents or guardians.

What distinguishes adolescence from other periods of the life-span? Physiologically, adolescence is marked by hormonal changes which bring on puberty. Pubertal development is characterized in females by onset of menstruation, breast development and growth of pubic hair. In males puberty is characterized, at various stages, by penis growth, facial and body hair and a deepening of the voice. One of the main physical developments apparent in both sexes at puberty is the growth spurt: this is a period of accelerated rate of increase in height and weight in early adolescence. There are considerable individual differences in age of onset and duration of the growth spurt, with females usually beginning this period of rapid growth at an earlier age than males. Males, on average, begin their growth spurt at age 13, and peak during their 14th year; for the average female the corresponding ages are 11 and 12. Thus the sequence of pubertal growth is generally 18 to 24 months later in males than in females (Coleman & Hendry

1990). Also, for both males and females, sexual maturation is linked to the growth spurt - thus girls typically reach sexual maturity earlier than boys.

Moreover, hormonal changes and the great changes in body size and shape at puberty may have a profound effect on an individual. Clumsiness can be one manifestation, as an individual tries to come to terms with his or her new physical dimensions.

The age of onset of puberty can also have implications for psychological adjustment. Early development in males can carry social advantages, whereas late maturers tend to be less relaxed, less popular, more dependent, and less attractive to both adults and peers. Early maturing females can also reap social benefits - enhanced self-confidence and increased social prestige (Coleman & Hendry 1990). However, females who are early maturers are frequently less popular with their peers and can suffer from increased inner turbulence (Clausen 1975).

Peterson and Crockett (1985) suggested a deviance hypothesis to explain adjustment at puberty. Individuals who are early or late maturers differ from on time maturers because of their status (socially deviant compared to their peer group). Early maturing girls and late maturing boys are at risk for adjustment problems because they constitute the two most deviant groups in terms of maturation. However, it is important to take into consideration the interaction between the individual and his or her environment in considering adjustment at puberty. For example, a young boy who receives a great deal of social reinforcement because of his ability to sing tenor, may not be socially advantaged by the onset of puberty and the deepening of his voice. Similarly, a young girl who devotes her life to ballet dancing may not be too enamoured with early or even on-time onset of puberty, as this would mean an increase in weight, and thus problems dancing (dancers must maintain a relatively low body weight).

More importantly, during adolescence an individual's self-image and self-concept are challenged, with obvious implications for successful adaptation and adjustment. Erikson (1968) coined the phrase "identity crisis" to describe this period of development. This traditional model of adolescence suggests a period of 'storm and stress' - the rejection of parental values and the identification with 'deviant' peers - the so-called youth sub-culture. This perspective regards disturbance and discord during adolescence as a perfectly normal developmental process: all teenagers are said to experience an "identity crisis". However, there is little contemporary evidence which supports this traditional view. Current research suggests that by far the majority of young people progress through adolescence without serious discord, and without becoming disturbed. Young people, on the whole, successfully and competently negotiate their adolescent years and expanding peer relationships while maintaining close family ties. Although peer relationships may become more important, parental influence remains a central factor for major socialization issues (Coleman & Hendry 1990).

Others have also noted the durability of parental influence throughout the adolescent period. Ausubel and Sullivan (1970) refer to the systemic properties of relating through adolescence, first to the family system and then to a peer system, as a process of desatellitization/resatellitization. However, Bloom (1990) suggests that a more appropriate term would be extra-satellitization, referring to the fact that the adolescent does not so much lose one system as gain another. Bloom (1990, p.14) introduced this term because:

"The growth in importance of peer groups has been viewed as entailing a reduction of parental influence, but evidence suggests that long term influence of the parents over major topics remains."

Family life

One of the difficulties in defining the family is that different individuals have different perceptions of who the members of their family are. Is intimacy or blood (genetic) ties the predominant influence in the perception of what constitutes a family? Is it the people you live with? On another level, the legal notions of what constitutes a family differs from the sociological notions, which differs from the anthropological, which differs from the psychological, and so on. Defining the family unit is a fairly idiosyncratic thing to do. Nevertheless, the family constitutes the most important social grouping of human beings, and indeed of other animals. For the purpose of this thesis, and generally speaking within a psychological framework, the family can be considered to be an intimate group of people. What then constitutes intimacy? Intimate relationships can be discriminated from casual relationships in that intimate relationships involve more intense liking and loving; more exchange of information; longer time periods; and exchange of resources of greater value and variety. For the adolescents in the present studies, this sort of intimacy is typically manifested between themselves and their parents and siblings. However, for some individuals, other adults may take on a child-rearing (parental) role, fostering intimate relationships, for example grandparents, foster parents, or legal guardians. Adolescent family life, therefore, can be referred to as the behaviours, relationships and experiences - the characteristics of the intimacy - of the family unit.

Perhaps the most pervasive influence on family theory in recent years has been the family systems approach. One influential contributor to family systems theory is Minuchin, who described the family as "*the matrix of its members psychosocial development*" (1974, p.48). Systems theory was initially developed by von Bertalanffy (1968), a biologist. He felt that the physical

sciences did not provide suitable models for the behavioural and biological sciences. Living systems exchanged energy, nutrients, and information with their environments, and in the process grew and differentiated. To von Bertalanffy, this was contrary to the way inanimate objects dissipated energy and reverted to simpler forms. Thus he proposed a theory of systems.

A system consists of a set of elements, the relationships between the elements, and the relationships between the attributes or characteristics of the elements. Going on from this, Ghodse and McCartney (1992, p.1378) stated that:

"The systems approach emphasizes wholeness: it encourages us to attend to the constant dialectic between individual processes and the environment; between interpersonal relationships and wider social forces.

The total situation is seen as being in a dynamic flux: there is a continuous process of mutual adaptation of members to each other resulting in homeostasis or, under certain circumstances, change. Any resultant change will, in turn, affect the whole group or system".

What then are *family systems*? According to Broderick (1990), families are *ongoing, open, social, systems*. As a system, the family is regarded as having emergent qualities. That is, the whole is greater than the sum of its parts, and has qualities that cannot be deduced from the combined characteristics of each of its parts.

As a social system, the main focus is on process - the communications, actions and interactions of the components of the ongoing system - rather than the structural characteristics of family composition. In family systems, linear causality is rejected in favour of a model of circular, reflexive effects.

Systems theory therefore includes the notions of feedback - both positive and negative.

As elements of an open social system, family members do not only interact with each other, they also interact with external systems - other people, families and organizations.

As an ongoing, open, social system, interactions are observable in calendar time (days, months, years, generations) as well as in clock time (seconds, minutes, hours). The stability of patterns or sequences of behaviour in an ongoing family system is usually considered in calendar time. The calendar time process of socializing children is, according to Broderick (1990, p.185):

"one example of a family's style of interaction being the prime determinant of the child's behaviour and mental health."

The patterns and regularities that are observed over time can be described by rules that govern the system. A few family rules can govern the major aspects of ongoing personal relationships, and thus address the functions that the family serves.

Alcohol and adolescence

The literature on young people drinking describes such behaviour as part of the socialization process from child to adult (e.g. Sharp and Lowe 1989a; Barnes 1977; Stacey and Davies 1970). This behaviour develops in the adolescent years, when physical and psychological development, and age related status, mean that adolescents try to behave more like adults. Also, reciprocally, parents and other adults treat adolescents transitionally more like adults. Given that drinking alcohol is a widespread and normal part of

adult life, then adolescent drinking will increase from abstention to 'adult-levels' throughout the adolescent years.

During the adolescent phase, larger and more potent drinks generally become available within the sanction of the family - a few glasses of wine, a sherry, a pint or a can of beer - usually on appropriate occasions. Thus young people are being 'weaned' on to alcohol. This developmental process serves a useful function - a young person is introduced, and learns to use, alcohol in appropriate ways. During this period the acquisition of appropriate drinking behaviour does not seem to be a problem for the majority of teenagers (Sharp and Lowe 1989a; Barnes 1977; Stacey and Davies 1970).

In Britain most adolescents (over 90 per cent) have had an alcoholic drink by the time they are 16 years-old (Marsh *et al* 1986; Fogelman 1978). This is the legal age for consuming certain alcoholic beverages with a meal in a restaurant. (The legal age for the purchase of an alcoholic beverage from any legitimate source, i.e. licensed premises, in Great Britain is 18 years). Many adolescents begin their drinking much earlier than 16 years of age. Drinking at home under parental supervision begins for many young people during childhood and the early teenage years, peaking at the age of 13 or 14. After this, adolescent drinking tends to switch to settings away from the home.

Under-age drinking away from home, by obtaining alcohol from licenced premises, may well be considered deviant with regard to the law in Great Britain, yet Hawker (1978) found that 80 per cent of boys and 75 per cent of girls had tried to purchase alcohol illegally from licensed premises. Legally young people are not able to go out and buy drinks until the age of 18, but this restriction is widely flouted. In fact there is a general social and cultural condonation of young people's drinking, from varied sources including family influence, peer associations, media and advertising, and the 'blind eye' turned by agencies such as alcohol retailers and police forces. That

alcohol use by these older adolescents is generally condoned, in line with adult alcohol use, and that the majority of young people in the U.K. have started drinking by the age of 16, serves to highlight the normality of adolescent drinking. Thus, within an individual's own social and cultural environment, under-age drinking may be perceived as just a normal step in the development from adolescent to adult status, and therefore non-deviant.

However, when this drinking becomes excessive then there is cause for concern. There are no directly comparable studies to examine whether adolescent drinking has increased in recent years, but there is some evidence to suggest that drinking problems are becoming increasingly prevalent in much younger age groups (Special Committee of the Royal College of Psychiatrists 1986; Wallace *et al* 1987). Marsh *et al* (1986) report that half the 13 year old girls in their probability sample had been slightly drunk at least once, and 17% had been very drunk. For the 17 year-old boys these figures are 80% and 50%, respectively. As Sharp and Lowe (1989a, p.305) conclude:

"Drinking per se is not as worrying as the amount of drunkenness and consequent problems. Children may get drunk as part of learning how to drink sensibly. However, when their sole reason for drinking is to get drunk, then young people may be heading towards both social and physical problems."

Thus most adolescents use, and some misuse, alcohol. Those adolescents who misuse alcohol are not often described as being dependent on alcohol, as alcohol dependency is more often a concomitant of problem drinking in adults. But, the lack of dependency in most adolescent problem drinkers does not detract from concern about such individuals. A substantial proportion of older adolescents in the United Kingdom drink more than the recommended safe limits (Marsh *et al* 1986; Goddard & Ikin 1988). This

excessive drinking behaviour is more apparent in boys than in girls, and the consequences of such behaviour are described as potentially

"alcohol related violence and crime, and mild damage to the heart, liver, brain and immune system." (Goddard & Ikin 1988, p.6)

Some individuals in this age group are drinking so heavily that they can be considered to have 'dangerous' intake levels, in that these levels are linked with severe long term physical or psychological damage (Goddard & Ikin 1988).

Adolescence and family life

Adolescents are occasionally described by parents in terms of their frequent irrational and contradictory behaviour - behaviour which often makes frustrated parents despair. This contradictory behaviour can be understood as that of an individual striving towards independence, but an independence that may be full of uncertainty and insecurity. Adolescents who are one minute complaining about their lack of freedom and excessive parental strictness, might the next moment be bitterly resentful that no-one is taking any interest in them.

However, parents can also be irrational in their behaviour. They can want their children to become more independent - to make their own decisions and to stop making childish demands. But at the same time they might be frightened of the consequences of independence, such as the substance use or sexual behaviour which their child may engage in. This conflict of interests may result in contradictory behaviour towards adolescent offspring.

The 'generation gap' between parents and teenagers is a popular concept often used to explain away the difficulties experienced in families as a consequence of a young person's adolescence. A separate 'youth culture' has even been posited, which strongly reinforces the notion of a 'generation gap'. However, many studies show that generally a positive relationship exists between adolescents and their parents. Generally there are minor conflicts - usually about such issues as make-up or dating. As far as major values are concerned, such as morality and sexual and political attitudes, there are usually few differences between parents and adolescent offspring (Coleman & Hendry 1990).

One difference that does manifest is that of the perceived influence of the social relationship between parent and youth. Teenagers perceive their parents to be less influential than they actually are, while parents perceive that they are more influential than they really are. Furthermore, parents are generally relatively more satisfied with family relationships than are adolescents (Olson *et al* 1989). This may be due to the unequal distribution of power in the parent-youth relationship, i.e. parents are more likely to influence the relationship towards their own ideals. Thus, most young people are generally satisfied with family functioning, but they are just not as satisfied as their parents.

During adolescence the family remains a central locus for emotional support and guidance. For example, Rosenberg (1979) found that parents ranked higher than peers in interpersonal significance throughout adolescence. Also, satisfaction with support from parents, especially mothers, was a better indicator of adolescent well-being than satisfaction with help from peers (Burke & Weir 1978). Greenberg *et al* (1983) found that age did not appear to be a significant factor in relative parent/peer relationships. Older adolescents were no different than younger adolescents in their report of quality or utilization of relationships with parents or with

peers. It seems that throughout the school years parents are highly valued, usually more so than peers, for their support, love, advice, and guidance. As Noller and Callan (1991, p.51) remark:

"Although peers become more important for adolescents, and they spend a lot of time talking with peers, there is little evidence that the peer group actually becomes more important than the family during adolescence."

One of the reasons for the rejection of the 'storm and stress' model of adolescence is the lack of evidence of dysfunctional relationships between parents and offspring. Yet adolescence is undoubtedly a stressful period for the individual, especially for relationships with parents. Transitional behaviour, negotiating and traversing the boundaries between childhood, adolescence and adulthood, may not be easy for parents to support or control. However, the social and cultural values that young people aspire to are, on the whole, the same values they see in their parents. Furthermore, parents are generally encouraging about their offspring adopting similar values.

Noller and Callan (1991) report a 40% incidence of divorce in the U.K. in the 1980's. By the age of 16, one out of every five adolescents in the U.K. will have experienced a parental divorce (Coleman & Hendry 1990). Therefore, family structure is significantly affected in at least 20% of young teenagers. There are important implications to this statistic - children who have suffered through a parental divorce are often described as suffering symptoms similar to bereavement (i.e. a significant loss). Also, one cannot assume that in the remaining 80% of families that an ideal family environment exists. There is almost certainly a very wide range of family environments, from very poor to very supportive, with related consequences

for adolescents. However, some children benefit from parental divorce, because the conflictual and antagonistic parental environment is removed. But this only appears to be so if good parental access and contact is maintained. This suggests that good communication between adolescent and parents is important in avoiding a stressful adolescence.

Alcohol and the family

Familial influence on the aetiology of 'alcoholism', or problem drinking, has been well documented. Some of this research focusses on genetic influences - in which familial transmission of 'alcoholism' is hypothesized to involve a substantial genetic component. The evidence for this comes from numerous studies which report links between the problem drinking of a biological parent and offspring's problem drinking.

To briefly summarize these general findings, demographic and clinical studies suggest that a family history of problem drinking (FH+) is predictive of offspring's eventual problem drinking (c.f. Alterman & Tarter 1983). In adoption studies, FH+ individuals adopted at birth into FH- adoptive families, are more likely to become problem drinkers than adoptive siblings (Goodwin *et al* 1973; Cloninger *et al* 1981). Twin studies have indicated that mono-zygotic twins are more concordant for developing problem drinking than di-zygotic twins (Kaj 1960).

However, contrary results have been obtained with the twin study method. Gurling *et al* (1981, 1984) found little evidence for a genetic loading for alcohol abuse. Furthermore, twin study and adoption study approaches have come in for substantial criticism. Searles, in a comprehensive critique of genetic studies of alcoholism, listed numerous methodological concerns about twin and adoption studies. For example, in a re-analysis of Cloninger's work, Searles (1990, p.20) comments:

"almost half of the adoptees who were classified as abusers had neither a genetic predisposition nor an environmental releasor. Cloninger et al (1981) investigated an extremely limited set of environmental influences, none of which was directly related to alcohol abuse. Therefore, the causes of alcohol abuse in these cases can probably be found in the environment since there appears to be no genetic linkage."

Of those who misuse alcohol, a large number have developed a drinking problem without any family history of alcohol abuse. On a related note, there is also a large number of FH+ individuals who do not become problem drinkers. It may be that those individuals with a positive family history of problem drinking are more likely to have had a disrupted upbringing, suggesting a non-genetic familial pathway for the transmission of alcohol abuse. These points suggest that a gene for 'alcoholism' should not be over-emphasized as an aetiological factor. Along with most contemporary viewpoints, in this thesis problem drinking is considered to be aetiologically multi-factorial. As Davies (1982, p.78) comments:

"Alcoholism cannot therefore be determined solely or uniquely by genes. Consequently, it seems likely that what we are talking about is not a constitution which determines alcoholism, but a continuous distribution of 'predisposition', ranging from 'high' to 'low', which does not make an alcoholic outcome inevitable."

It is only quite recently that the contribution of family environmental factors in the development of problem drinking have been examined. Bennett and Wolin (1990) note that the recurrence of problem drinking in the

children of an alcoholic parent is significantly frequent. In looking for explanations for this pattern, these authors have examined the cultural nature of family life, rather than biological contributions. Their work focusses specifically on "*family culture and alcoholism transmission*".

Family culture consists of the behaviour patterns and belief systems of a family. These incorporate language, thought, action and material objects, and are conveyed through the socialization of each new generation. Central to this theoretical perspective is the concept of family rituals. Bennett and Wolin (1990) describe family rituals as symbolic forms of communication between family members. Habitual behaviours typify such rituals. The process of sitting down for a meal together, having set meal times, set bedtimes, going out together regularly and routinely as a family, are all examples of ritualistic family behaviour. These ritualistic family processes contribute to the family's sense of cohesiveness and group identity. Wolin, Bennett and Noonan (1979) examined the family rituals of twenty-five families in which at least one parent was, or had been a problem drinker. They found that families whose rituals were most altered during bouts of parental drinking were more likely to evidence transmission of problem drinking to their offspring than those families whose rituals did not suffer. Altered rituals no doubt contributed to reduced family cohesion and confused family identity.

Orford and Velleman, in a series of reports, described recollection of childhood family life by a sample of 170 young adult offspring of parents with drinking problems. This sample were perceived to be at high risk for developing problem drinking due to their positive family history of problem drinking. The most frequently reported effects of life at home were parental moodiness, unreliability, and a tendency to upset or fail to join in with family activities. These young adults were also likely to recall negative childhood experiences, worry and uncertainty, family instability, and being

caught between conflicting parental interests. Maternal problem drinking had a greater impact on the recall of negative childhood experiences, and was also more likely to take place in the home (Velleman and Orford 1990).

In another paper, Orford and Velleman (1991) reported that, as adults, these offspring of problem drinkers were more likely than a control group to have started their drinking careers earlier, and were more likely to have reported risky drinking behaviour. Such risky drinking behaviour was more likely among the offspring of problem drinkers if both parents were problem drinkers, and also if the drinking of the parent often took place at home.

More recently, Velleman and Orford (1993) detailed the results of a path analysis in which family disharmony was found to be an important statistical predictor of childhood difficulties in the offspring of problem drinkers and, in addition, the effect of parental problem drinking on childhood difficulties was mediated through family disharmony.

Wilson and Orford (1978), in a separate study, reported that excessive drinking in the home by problem drinking parents conferred a high risk for the later development of problem drinking. From these studies these authors suggest that greater family disharmony, rather than alcohol specific effects, may be a more salient factor in the transmission of problem drinking across generations.

Other studies support this conclusion. Beardslee *et al* (1986) reported on a forty year prospective study. They examined the effects of a positive family history of problem drinking, and also the degree of exposure to associated family environmental factors on the development of disorders in the offspring of problem drinkers. The sample comprised 176 offspring and 230 control subjects. Two exposure factors were measured and combined - amount of parental drinking and disruption of family functioning. The combined exposure variable contributed significantly and independently of family history to the later development of problem drinking. Reich *et al*

(1988) followed up 54 children of problem drinkers five years after the parents had been interviewed. These children were aged between six and 17 years, and could be distinguished from a control group by their impoverished home environment, marital and parent-child conflict, poor adaptive functioning, and an increased incidence of physical abuse. DeJong *et al* (1991) investigated 48 polydrug addicts and 91 alcohol addicts with the EMBU, an instrument for assessing parental rearing styles. Compared with a normal population, the alcoholics in this study had considerably higher scores on rejection, higher scores on over-protection and markedly lower scores on emotional warmth for both father and mother.

Alcohol, adolescence and family life

The above sections briefly introduced each of the topics of alcohol, adolescence and family life, and also discussed how each topic relates to the others. Clearly, families play a key role in adolescent development through socialization influences, and drinking alcohol is a frequent adolescent developmental social behaviour. In addition, it was also pointed out that families have been identified as important influences in the development of problem drinking behaviour. Further discussion of these issues is presented in the next few chapters.

In this final section of the introductory chapter, attention is drawn to the intersection of all three of these topic areas. This intersection underlies the theoretical and research focus of the present thesis and study, namely the influence of family socialization factors on adolescent alcohol use and misuse. In the following chapter alternative theories of adolescent alcohol use are presented and discussed, setting the present study in context. Subsequently, empirical evidence for the relationship between family socialization factors and adolescent drinking is examined and discussed

(chapters 3 and 4). This review precedes the theoretical discussion and development relevant to the present study, leading to the outlining of a theoretical model and the specification of testable hypotheses (chapter 5). The three following chapters discuss methodology and the methods used in the present studies (chapters 6 to 8). The results section addresses the research questions and hypotheses of the study (chapters 9 to 15), and the final chapters discuss the results of the research and offer some conclusions to the thesis (chapters 16 and 17).

At this stage it is probably useful to introduce the specific research questions to be addressed in the present study.

Research questions

Given that the purpose of this study was to investigate the relationship between perceived family dynamics and self-reported alcohol use, there are a number of separate research questions addressed:

(1) Can the perceptions of family environment by adolescents be organized along typical dimensions of family process, such as support and control? If so, what is the pattern of family environment perceived by adolescents in this study?

(2) What is the pattern of self-reported alcohol use in a regional sample of adolescents? In particular, three aspects of drinking behaviour will be examined:

- (i) first drinking experiences
- (ii) reasons for drinking
- (iii) current alcohol use

Furthermore, how does drinking behaviour in the present study compare with previous knowledge of adolescent drinking in the region?

(3) Can perceived family environment in relation to self-reported drinking be reduced to typical important dimensions, such as support and control? Or are lower order dimensions better indicators of this relationship?

(4) How do perceptions of family environment, as reported by teenagers, relate to their self-reported drinking behaviour, as measured by first drinking experiences, reasons for drinking, and current alcohol use? In line with this, what are the most important characteristics of family life in relation to adolescent drinking behaviour?

(5) Are there any differences in the relationship between self-reported drinking and perceived family environment for different age and sex groups?

(6) How does the perceived alcohol use of friends influence an adolescent's drinking behaviour; and is the relationship between family socialization and drinking behaviour moderated by knowledge of friends' drinking?

Chapter 2: Theories of adolescent alcohol use/misuse

In this chapter several important theories of adolescent alcohol use and misuse will be described. Although in this thesis the focus is on alcohol use, many theories classify adolescent drinking together with other substance use behaviours. Of course, the concept of the family features more in some theories than in others but, in describing current theories of adolescent alcohol use and misuse, it is intended to give a general overview of current knowledge. This brief overview serves a useful purpose as it places the present research study and theoretical development in context.

Problem Behaviour Theory

PBT (Jessor & Jessor 1977; Jessor 1987) is a social-psychological framework which helps to explain the nature and development of alcohol misuse, drug misuse and other problem behaviours. PBT is characterized by three systems of psychosocial influence - the personality system, the perceived environment system and the behaviour system. Variables within each psychosocial system are seen as either contributory or protective for the development of problem behaviour. Across the three systems, the balance between contributory and protective factors generates an overall state of psychosocial *proneness* to the development of a problem behaviour.

Contributory variables within the behaviour system (i.e. problem behaviours) are described by Jessor (1987, p.333) as:

"using marijuana, sexual intercourse, activist protest, drinking, problem drinking, general deviant behaviour and a multiple problem-behaviour index."

On the other hand, protective factors within the behaviour system are described as church attendance and academic performance.

The perceived environment system typically accounts for most of the variation in problem behaviour, including problem drinking (Jessor 1987). Variables within the perceived environment are either *proximal* or *distal* to the problem behaviour. Proximal variables are seen to implicate problem behaviour directly, whereas distal variables implicate problem behaviour indirectly, *by theory*. For example, parental support and control are seen as distal variables, whereas parental approval of the problem behaviour is a proximal variable.

PBT is an extensive and comprehensive model of teenage problem behaviour developed over many years of research, but, on reflection, one could argue that the problem behaviours as defined and outlined by the Jessors' are not in fact a problem for most young people. This point is acknowledged to a certain extent when problem behaviours are described as functional and instrumental towards the attainment of goals which are shaped by the norms and expectations of the larger culture (Jessor 1987), but this does raise the issue of who, exactly, these behaviours are a problem for? In addition, labelling these behaviours as problematical undoubtedly contributes to the (mis)perception of others, including parents and the media. Most of the behaviours described by Jessor as problem behaviours are in fact normal adolescent transitional behaviours. Furthermore, Kandel

(1980) points out that certain variables, in particular the parental socialization variables, are neither systematically discussed nor analyzed, despite their prominence in the graphic representation of the theoretical model.

Stage theory and adolescent socialization

Kandel (1980) suggests that drug and alcohol use should be considered within a developmental perspective, that the use of legal drugs precedes the use of illegal drugs, and soft drugs precede hard drugs, irrespective of the age at which initiation to drugs takes place. Four *stages* of initiation into drug use have been identified. These are:

- (1) beer or wine
- (2) cigarettes and/or hard liquor
- (3) marijuana
- (4) other illicit drugs

In this conceptualization, the use of a 'softer' substance is a necessary but not sufficient condition for progression to the next stage. Others have argued, however, that adolescent substance use is not a function of one path, but of a number of problems experienced by adolescents (Newcomb et al 1986).

Kandel's conceptualization of stages of substance use involvement sits within a broader theory of adolescent socialization. In this theory, Kandel (1980) focusses on the "interpersonal nexus" of parents, peers and developing adolescents. According to Kandel (1980):

"the basic theoretical issue in adolescent socialization is the extent to which the behaviours of adolescents are dependent upon the intragenerational influences of peers, or the intergenerational influence of adults, especially parents." (p. 256)

Three main processes are outlined as influential in the development of illicit drug use by an adolescent. From a social learning perspective, models of drug use provided by adults and peers are seen to be influential, as is approval of illicit drug use by significant others, leading to adolescents internalizing definitions and exhibiting behaviours and values condoned by these significant others. A third process, derived from control theory (e.g. Hirschi 1969), is the notion of commitment: the quality of the parent-child bond is assumed to have a restraining effect on involvement in deviant and delinquent activities, irrespective of parental behaviours and values.

Zucker's heuristic model

A hierarchical model of the pathways of parental influence on adolescent drinking was proposed by Zucker (1976). In this model six levels are outlined, with earlier levels feeding into (influencing) later levels. Level 1 consists of family status and demographic factors; level 2 of family environmental factors; level 3 of individual parental behaviours; level 4 consists of peer behaviours; level 5 is the child's (adolescent's) personality; and level 6 is the child's (adolescent's) drinking behaviour. In this model level 1 feeds into levels 2 and 3, levels 2, 3 and 4 feed into level 5, and level 5 feeds into level 6.

This seems to be rather a restrictive model in that all parental influence is conceptualized as feeding through the adolescent's personality (level 5). Even if one takes a broad definition of personality, one which encompasses

adolescent norms and attitudes, the model remains restrictive and would benefit from clarification in this respect. Two other limitations of this model are clear. First, there is no pathway from family and parental behaviours to peer behaviours. This suggests that peer behaviours are totally independent of family behaviours but, as outlined in social control theory (Hirschi 1969), family attachments may influence choice of friends and thus the behaviours of the immediate peer group. Secondly, within level 2 - family environmental factors - only father-mother interactions are considered. Parent-child interaction is not specified as a factor in the family environment, and this is a serious oversight.

Peer pressure

The development of adolescent alcohol use as a direct result of peer pressure is a prominent theory. Fishman and Kuver (1984, p.92) describe peer pressure as:

"Feeling intimidated to drink by one's peers in order to remain one of the crowd and to be invited to participate in a variety of activities. This pressure is sometimes real but, we find is often more imaginary, i.e. within the mind of the youngster who, without testing reality, anticipates rejection if he/she does not drink with others. The rewards of drinking are acceptance and approval, acquiring the courage to accept a dare or take a risk, and feeling omnipotent and invulnerable."

Support for the peer pressure hypothesis comes from consistent evidence of strong links between the drinking behaviour of an individual and the drinking behaviour of his or her friends, either as perceived by the

adolescent or as reported by friends (see Kandell 1980 for a review). Health educators have taken this on board in the development of alcohol education programmes. Resistance to peer pressure is now a basic tenet of much alcohol education. However, there are some problems with this conceptualization of peer pressure: it minimizes the role of each individual as an active and willing participant in the development of his or her drinking behaviour; and resistance to peer pressure has proven ineffective as an alcohol education paradigm (Moskowitz 1989; May 1991a,b).

Socio-demographic factors

An individual's age, sex, ethnicity, social class and location are all characteristics which have been implicated to varying degrees in adolescent drinking research.

Age

No other factor is as important in relation to the development of adolescent drinking as the age of an individual. Throughout adolescence - the formative drinking years - the level of consumption is age-graded: put simply, younger teenagers on the whole drink less than older teenagers.

Generally, individuals are given their first alcoholic drink in late childhood or early adolescence (usually by parents) (Marsh *et al* 1986). Drinking is a socially and culturally acceptable adult behaviour, and as young people mature towards adulthood then they adopt more and more adult-like behaviours. This typically involves a gradual developmental increase in alcohol consumption, initially sanctioned by parents (Marsh *et al* 1986). Thus adolescent drinking is a transitional behaviour, marking the boundary between childhood and adulthood.

Age of first drinking experiences have also been proposed as important factors in the development of drinking behaviour (Barnes & Welte 1986). The direction of effect is typically reported as earlier drinking predicting heavier future drinking. However, one problem with many studies which link earlier drinking with heavier later drinking is that they rely on retrospective recall, thus confusing cause and effect. It may be that heavier drinkers bias their reports of first drinking experiences due to a cognitive consistency effect (Davies 1992).

Remembered age of first drinking experiences may be further confused by a memory-recall deficit, in that older individuals report later first experiences than younger individuals. This effect has in fact been found in several studies (e.g. Davies and Stacey 1972; Aitken 1978) where age of first drink predicted the age of the respondent better than it predicted anything else. For example, in the Davies and Stacey study, 14-year-olds mostly said they were 9 or 10 when they had their first drink, 15-year-olds said about 11 or 12, and 16- and 17-year-olds said about 13 or 14.

In those prospective studies which have related earlier drinking to later drinking, only a small proportion (10-15%) were amongst the heaviest drinkers at both time periods (Casswell *et al* 1991; Bagnall 1991).

Sex

Although there are sex differences in adolescent alcohol use, with males typically drinking more than females, these differences are not as pronounced as in early adulthood (Marsh *et al* 1986; Goddard & Ikin 1988). Moreover, sex differences in alcohol use have tended to decline over time (Wechsler & McFadden 1976; Hanson 1977).

There are two main factors underlying sex differences in adolescent drinking. First, traditional social and cultural values have discriminated

against female drinking and drunkenness - stereotypically a negative behaviour - whereas male drinking and drunkenness is stereotypically a more positive behaviour. However, with the move in recent years towards equality of the sexes, this socio-cultural bias is less marked. Secondly, for adults, females are less able physiologically than males to tolerate the effects of alcohol. Thus similar perceived effects of alcohol may be brought about in females at smaller levels of consumption.

Ethnicity

Certain ethnic groups have higher rates of alcohol use than others, although this may be tied to religiosity rather than ethnic origin. Little research in the U.K. has examined ethnicity and adolescent drinking, but in the U.S.A. alcohol use tends to be more prevalent among whites than blacks, and American Indians have the highest rates of use of all drugs (see review by Kandel *et al* 1976; Rachal *et al* 1976).

Socio-economic Status

Kandel (1980), in her extensive review of youthful drinking and drug use, reported that rates of drug use do not vary according to SES. When such differences are found, Kandel reported, they appear to be only for the most deviant forms of behaviour, and most often as a difference between members of the lowest social class groups and all others.

In the U.K. Goddard and Ikin (1988) did find that alcohol use among adults varied with social class, but there was no clear pattern of variation. For example, men in social class V (unskilled manual) households had somewhat higher than average consumption. Two groups of men - those in social classes I (professional) and IV (semi-skilled) had somewhat lower than average consumption. The pattern for women was also varied, with

those from non-manual classes (except social class I) having higher than average consumption. However, the differences involved tended to be quite small.

Most studies tend to find little or no association between SES and alcohol and substance use. Substance use, abuse and dependency cuts across all income and socio-economic levels. Moreover, there are a few problems with research into SES and deviant behaviours. First, the definition and operationalization of a useful measure of SES has been elusive; and second, there is reluctance on the part of potential collaborating institutions, such as schools, to facilitate such comparisons. For example, Marsh *et al* (1986) stated that several factors precluded the use of social class as a variable in their national study of adolescent drinking in the U.K.:

"Most important of these was an undertaking to schools and education authorities to make no enquiry of children about their home backgrounds. Children's accounts of their parents' occupations are anyway of doubtful value." (p.7)

Location

Among young people, geographical differences may play a role in the prevalence of drinking behaviour. There is some evidence that alcohol use varies between rural and urban areas. Braucht (1980), reviewing psychosocial research on teenage drinking, reported on two national studies in the U.S.A. which found that current drinking rates were more positively correlated with urbanicity.

A recent U.K. epidemiological study has indicated some regional differences in reported drinking behaviour (mostly among men), with

northern areas on the whole drinking more than southern areas (Goddard & Ikin 1988).

Barnes's socialization model

Barnes (1977; 1984; 1990) has, over many years, studied the impact of the family on adolescent drinking patterns. In a recent overview of her work, Barnes (1990) presented a model of the development of adolescent drinking behaviours which

"organized the vast amount of descriptive and theoretical research that examines both the influences on the family as well as the family's impact on adolescent drinking behaviour." (p. 138) (see Figure 2.1)

In Figure 2.1, it is clear that socialization factors are the most prominent influence on adolescent behaviours, including alcohol use. Within the domain of socialization influences, family factors are emphasized. Barnes's emphasis on the family as a socialization agent stems from earlier work by Parsons and Bales (1959), who argued that socialization of children is a basic and irreducible function of the family. This led Barnes to argue that socialization within the family is of critical importance to the development of non-problem behaviour, including non-problem drinking. According to Barnes (1990), parental socialization factors incorporate parental support and control attempts as well as parental models for the development of adolescent drinking behaviour. Other factors may also influence parental socialization, such as older siblings, peer group, family structure, and critical family life events.

The theoretical base in the present study draws markedly from the work of Barnes and her colleagues over the past 15 years.

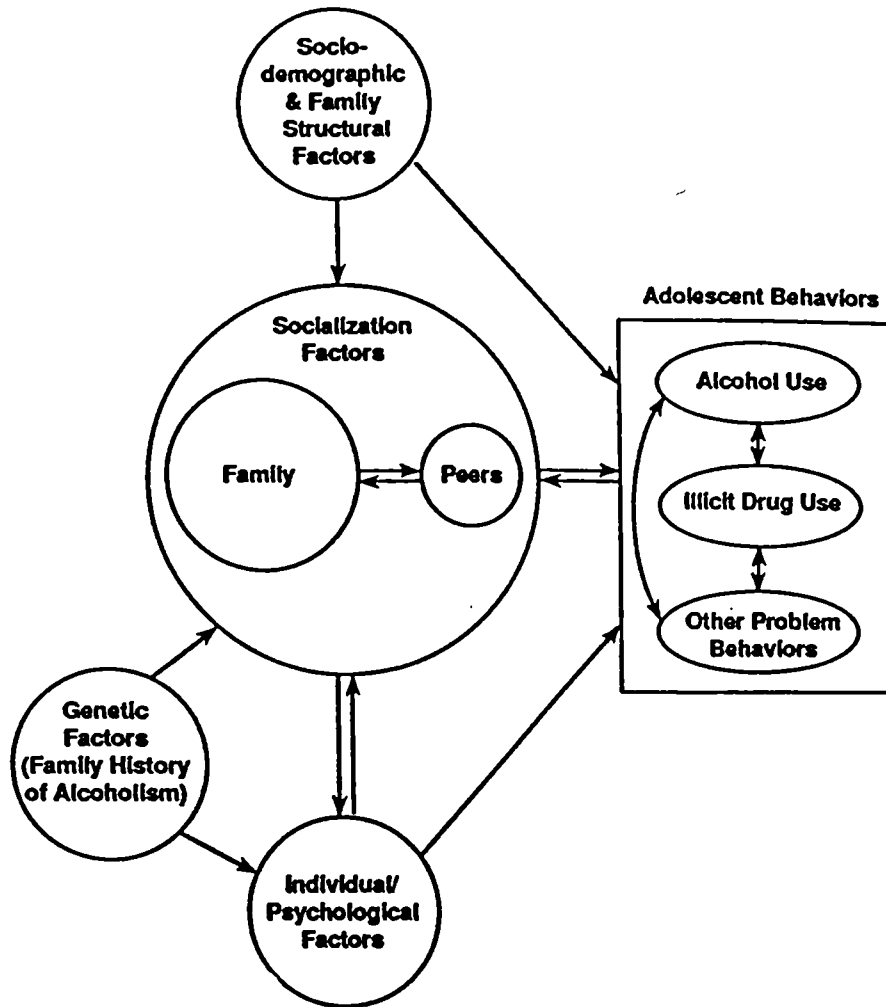


Figure 2.1: A model of the development of adolescent drinking behaviours (after Barnes 1990)

Chapter 3: Family process and adolescent drinking: review and meta-analysis of previous research

In this chapter concepts and constructs from family theory are elaborated in detail. More specifically, family theory which has implications for adolescent social behaviour is described. Following on from this, previous empirical research which has examined family socialization factors in relation to adolescent alcohol use is presented and discussed, in the form of a meta-analysis.

Family environment is an important, arguably the most important, influence in the socialization of children and adolescents. Although other environments, for example school, neighbourhood or peer, do make a substantial contribution to the socialization process, family life is the arena of most intense psychosocial interaction. Family life can be described by those interactions between family members which contribute to the social and psychological functioning of the family. There are different levels of functioning in different families, varying from severely dysfunctional to optimal patterns of behaviour. In this context, families have the greatest capacity for inflicting emotional harm on their members: physical and sexual abuse of children by parents in some families is a horrific example of dysfunctional family behaviour.

The intensity of family relationships also makes family life a likely area of interpersonal conflict. If we argue or fall out with another family member it is much more difficult to avoid the resulting tension than with friends or

acquaintances. If we grow apart from other family members we cannot join a new family as we would make new friends. At the same time the potential for love, support and guidance is strongest within a family: affective ties tend to be strongest with other family members, throughout the family life cycle, and a successful family environment contributes positively to the socialization process.

This chapter has started by drawing attention to the functionality of family environmental relationships. Given that adolescent drinking is a social behaviour, *family process* is taken to mean those aspects of family life which are influential in the acquisition and development of adolescent social behaviours. These general family interactions and behaviours are distinct from family behaviours which are specific to a particular adolescent social behaviour. Thus, family process refers to non-alcohol-specific family behaviours, whereas *family social learning* refers to alcohol-specific family behaviours, and is discussed in the next chapter.

There are different ways of commenting on functionality of behaviour. Whilst it is more usual, although possibly not more useful, to point to (family) influences on dysfunctional behaviour, it is also important to contrast this focus with (family) influences on *functional* behaviour. In other words, it is interesting to look not only at what aspects of family life are important for the development of deviant teenage drinking, but also what aspects of family life are important for the development of sensible teenage drinking? Focussing on positive, rather than negative, aspects of behaviour may be a more useful and productive method of health and social education.

Adolescent drinking: alcohol culture and familial transmission

The links between teenage drinking and family life are clear. Most young people are given their first drink of alcohol by parents and family, and much of an individual's knowledge about alcohol (or lack of it) is developed throughout childhood and adolescence by family-oriented interactions with alcohol.

Perhaps the most pervasive influence on family theory in recent years has been the family systems approach. Minuchin (1974, p.48) described the family as "*the matrix of its members psychosocial development*". As drinking is predominantly a social behaviour, the case for looking at family system influences on the development of adolescent drinking is well supported. Later on in this chapter other theories and approaches to family life which have implications for adolescent alcohol use will be discussed, namely the parent-child relations literature and social control theories of deviance. These theories have been developed within distinct academic and therapeutic orientations, from sociology, developmental psychology, clinical psychology, psychoanalysis, psychiatry, and general systems theory.

There are though, not surprisingly, commonalities between these different perspectives. Indeed, some overlapping perspectives show a common genesis. The integration of these overlapping perspectives has led to the development of a framework for the investigation of family process. This framework has been used to impose order on a range of studies which have looked at the relationship between family life and adolescent alcohol use. The result is a comprehensive meta-analysis of this literature, presented towards the end of the chapter.

Family systems

Systems theory was introduced and outlined in chapter 1. To briefly summarize, a system consists of elements, the relationships between the elements, and the relationships between the attributes or characteristics of the elements. Families are ongoing, open, social systems, and the family system is regarded as having emergent properties. With regard to family socialization, the calendar-time process of socializing children is:

"one example of a family's style of interaction being the prime determinant of the child's behaviour and mental health."

(Broderick 1990).

The patterns and regularities that are observed over time can be described by rules that govern the system. A few family rules can govern the major aspects of ongoing personal relationships, and thus address the functions that the family serves.

Minuchin (1974) highlights two functions that the family serves. Internally, the family is responsible for the psychosocial protection of its members, and externally for accommodation to a culture and the transmission of that culture. Adolescent drinking and familial transmission refers to the second of these familial functions. However, if an adolescent develops problem drinking behaviour, then this is a reflection on the (failure of) the first family function - psychosocial protection. Furthermore, when conflict arises between these two functions then both appropriate family behaviour and appropriate cultural behaviour are threatened. Healthy family functioning should cope with such conflicts successfully, whereas unhealthy functioning would lead to tension and poor conflict resolution.

The teenager who is caught between conflicting family pressure and general cultural pressures is in a difficult position.

Traditionally, this is seen as the time of 'storm and stress' - of the rejection of parental values and the identification with 'deviant' peers - the so-called youth sub-culture. This perspective regards disturbance and discord during adolescence as a perfectly normal developmental process. All teenagers are said to experience an 'identity crisis' (Erikson 1968). However, there is little contemporary evidence which supports this traditional view. Current research suggests that by far the majority of young people progress through adolescence without serious discord, and without becoming disturbed (see reviews by Gecas & Seff 1990 and Jackson & Bosma 1992). Young people, on the whole, successfully and competently negotiate their adolescent years and expanding peer relationships while maintaining close family ties.

One of the reasons for the rejection of the 'storm and stress' model of adolescence is the lack of evidence of dysfunctional relationships between parents and offspring. Yet adolescence is undoubtedly a stressful period for the individual, especially for relationships with parents. Transitional behaviour, negotiating and traversing the boundaries between childhood, adolescence and adulthood, may not be easy for parents to support or control. However, the social and cultural values that young people aspire to are, on the whole, the same values they see in their parents. Furthermore, parents are generally encouraging about their offspring adopting similar values. Even with regard to under-age drinking, parents are overwhelmingly moderating or ambivalent to this behaviour (Hawker 1978; Health Education Authority 1989). Both adolescents and parents tend to regard such age-graded behaviour as a normal transitional step on the path to adulthood - it is part of growing up.

Nonetheless, there are some individuals who do exhibit problem behaviour, alcohol misuse being one facet of this, and there are two

alternative familial explanations for this behaviour. Firstly, the individual may not regard such behaviour as contrary to familial and cultural influence and values. In this case, the definitional criteria of the problem behaviour need to be re-examined with regard to social and cultural norms. This is instanced by contrasts between recommended sensible drinking levels, legal drinking age, and socially and culturally condoned actual drinking behaviour. Or, secondly, a dysfunctional family environment leads to the expression of dysfunctional extra-familial behaviour. The latter hypothesis will be discussed in this chapter.

Minuchin's structural theory of family systems is based on the functional demands of family life, as developed over repeated transactional patterns. This structural theory has formed the basis of a whole school of family therapy, and as such the constructs of the theory have played an important role in treating dysfunctional families. Two main areas of functional demand are outlined, cohesion and adaptation, and each area is characterized and measured by the nature of psychological boundaries within the family system and sub-systems. Cohesion can be understood as the degree of emotional bonding, or togetherness, that exists between family members, and between family sub-systems. Adaptation refers to the ability of the family to moderate internal mechanisms, to change, when faced with stressful and/or new pressures. For normal functioning, the boundaries within these two dimensions of family process should be clear.

Extremes of cohesion are typified by overtly rigid boundaries (disengaged) or diffuse boundaries (enmeshed). Mid-range cohesion (normal) is indicated by clear boundaries. Most families fall within the wide normal range. Minuchin also states that the type of boundary is a function of a particular transactional style, and should not be regarded as a difference between functional and dysfunctional. In some instances an enmeshed boundary is functional, for example between mother and new-born child,

but at other times an enmeshed boundary may be dysfunctional, for example between a mother and an adolescent seeking autonomy.

Boundaries should also be flexible for normal functioning. As an adolescent grows, then the boundaries of appropriate and inappropriate behaviour change. In childhood, drinking alcohol is not an appropriate behaviour but, as an individual progresses through adolescence, alcohol use becomes more acceptable and appropriate. Family systems therefore need to be able to adapt to the changing internal and external environments. Adaptability can also be depicted in terms of a range of appropriate and inappropriate levels. Families which are inflexible and rigid have difficulty adjusting to the changing environment. Conversely, families which are over-flexible fail to guide their members through the assimilation of new behaviours and the acceptable and appropriate limits to such behaviours. Mid-range adaptability is therefore important for normal family functioning.

In an attempt to clarify and operationalize Minuchin's concepts, along with related concepts from other family theorists (notably the work of Reuben Hill), David Olson and his colleagues (1979, 1983, 1986, 1989) have developed their Circumplex Model of family functioning. They have also designed and developed a family assessment instrument (the Family Adaptability and Cohesion Evaluation Scales - FACES) to measure the constructs of cohesion and adaptability.

In the Circumplex Model (Figure 3.1), cohesion and adaptability are each classified into four groups, or levels of functioning. Enmeshment and disengagement form the extremes of the cohesion dimension, with separated and connected families the two intervening groups on the continuum. Rigid and chaotic adaptability are extremes of adaptability, with flexible and structured adaptability on the intervening continuum. Interactions of these eight groups give rise to sixteen family types. These sixteen types can then be reduced to three general levels of family functioning - balanced, which is

the combinations of the two central groups on each dimension; mid-range, which is the combination of an extreme group on one dimension and a central group on the other dimension; and extreme, which combines an extreme group from each dimension (see Figure 3.1).

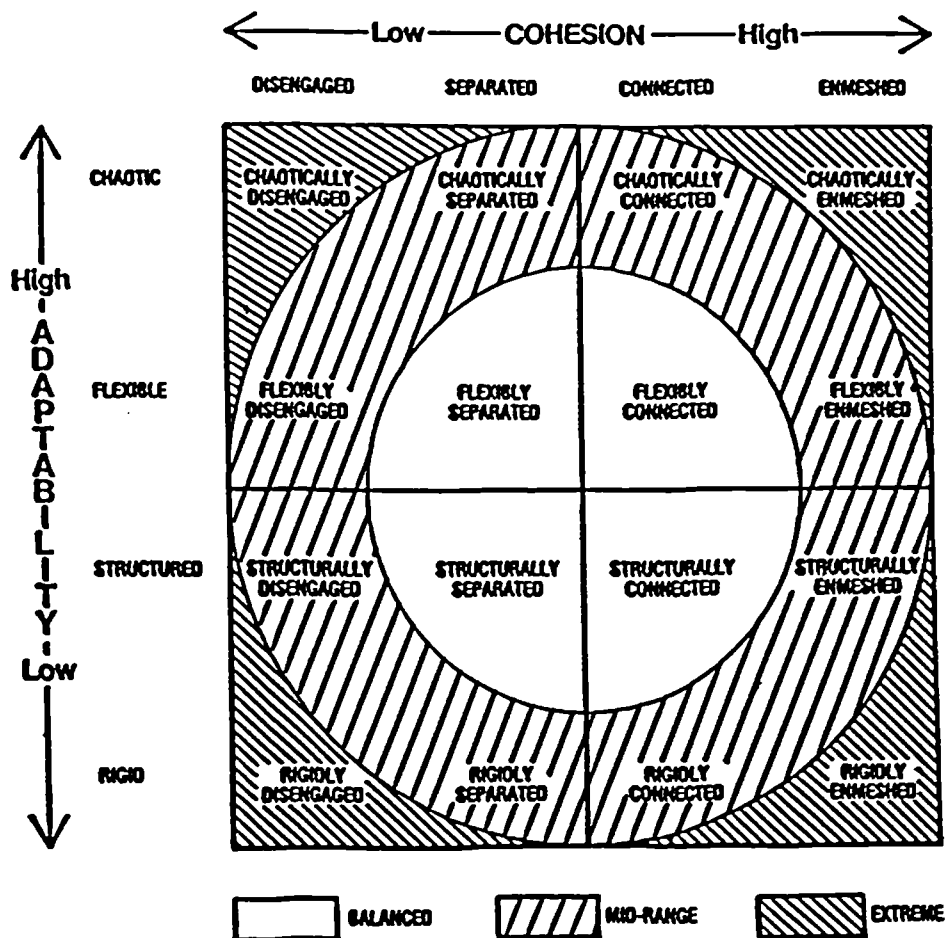


Figure 3.1: The Circumplex Model (reprinted with permission from Olson *et al* 1989).

A balanced level indicates more adequate family functioning. However, such families may not always operate in a balanced manner. They may, occasionally, exhibit extremes of family behaviour but, for most of the time, they do manage to operate on a balanced level. Also, a balanced family does not always necessarily equate with moderate extra-familial behaviour. If a family purposefully socializes an individual into 'deviant' extra-familial behaviour, there is no reason why the family should not function in a balanced manner. This, as suggested earlier, is one of the alternative familial explanations for such behaviour. An extreme family type indicates less adequate family functioning. According to the Circumplex Model, individuals in extreme family types are more likely to develop problem behaviours, such as problem drinking.

For the adolescent, the family is at a particular stage in its life cycle. The family life cycle is made up of several stages, including young married couples without children, families with pre-schoolers, families with school-age children, families with adolescents in the home, empty nest families, and families in retirement. The adolescent stage is typified by reports from parents and from adolescents of relatively low levels of cohesion and adaptability (Olson *et al* 1983).

Several studies have used the Circumplex Model to examine the family functioning of substance abusers. In a study by Friedman *et al* (1987), a sample of drug abusers reported on their family environment (using FACES II). Most of these individuals depicted their families to be disengaged rather than enmeshed, and to be rigid rather than chaotic on the adaptability dimension. This contrasted with the assessment of family functioning by family therapists for these same substance abusers. The therapists were much more likely to rate these families as enmeshed. This perceptual difference between family members and family therapists may reflect the particular schema imposed on the family assessment procedure. The

substance abusers may be more likely to view high cohesion as optimal, whereas the therapists, familiar with systems theory, may view too much cohesion as dysfunctional. Or, the difference may simply be due to the therapist having greater (or perhaps poorer?) insight into the family process.

These results were similar to those found in a more recent study by Volk *et al* (1989). They also examined the perceived family functioning of drug abusing adolescents (using FACES III), and found that these adolescents were three times as likely as non-drug abusing adolescents to report disengaged family functioning (60 per cent compared to 19 per cent). Contrary to their predictions, hardly any of the drug abusers reported an enmeshed family type. When the drug users were divided into soft users (alcohol and marijuana) and hard users (all other drugs, eg. cocaine, heroin, crack), then an incremental effect emerged. Hard users were more likely to report disengaged family types (over 75 per cent) compared to half (50 per cent) of the soft users. They also found only small differences between drug users and non-drug using adolescents on the adaptability dimension, and that the proportion of all adolescents reporting rigid adaptability was quite small - between 15 per cent and 25 per cent.

The results from studies which have examined adolescent substance abuse in relation to perceived family cohesion have found that only one extreme, disengagement, is linked to substance abuse. This suggests that perhaps enmeshed family types may not be dysfunctional in terms of substance abuse. Similarly, only rigid adaptability was linked with substance abuse in the study by Friedman *et al* (1987).

In summary, structural family systems theory has been introduced and two major dimensions of family functioning highlighted. The family systems model also specifies that extremes of family behaviour are potentially dysfunctional. Other family research and theory has also identified two major dimensions of family functioning, and these are discussed next.

Family relationships: support and control

Another source of theory on the implications of family environment for the functioning of individual family members comes from developmental psychology. The parent-child relations literature consistently identifies two dimensions of family life which are important in effective socialization of social competence in young people (Rollins & Thomas 1979; Maccoby & Martin 1983). These two dimensions are family support and control. However, the majority of studies focus on infancy and childhood, and there is a relative deficit of studies which look at adolescent development.

One possible reason for previously not extending these two important family characteristics into adolescence is because of the traditional perspective of adolescence - the 'storm and stress' model. In the traditional view, adolescence is a totally distinct life period, separated from childhood by puberty, and from adulthood by the 'generation gap'. However, as was mentioned earlier, current evidence does not support the traditional model of adolescence (see reviews by Gecas & Seff 1990 and Jackson & Bosma 1992). This leads to a rather obvious reflection - that there is no reason why those aspects of family relationships important in infancy and childhood, such as support and control, should not also be important during adolescence.

Support can be described as those behaviours which foster in an individual a sense of belonging, and that he or she is basically accepted and approved of by the family. Supportive behaviours are warm, loving, responsive, and are integral to the development of emotional bonds with each other. In the parent-child relations literature the most effective level of support in adolescent socialization is usually conceptualized as high support (Rollins & Thomas 1979; Maccoby & Martin 1983). Control can be described as consisting of behaviours within a family which are concerned with

guidance and flexibility in the power hierarchy. Contributing to the control dimension are behaviours such as rules and rule negotiation, discipline, power, punishment, permissiveness, authority, and guidance.

	Support	
	Accepting Responsive Child-centered	Rejecting Unresponsive Parent-centered
Control		
Demanding, controlling	<i>Warm-directive Authoritative and reciprocal</i>	<i>Authoritarian Power assertive</i>
Undemanding, low in control attempts	<i>Indulgent</i>	<i>Neglecting, ignoring, indifferent, uninvolved</i>

Figure 3.2: A two-dimensional classification of parenting patterns (adapted from Maccoby & Martin 1983, p. 39)

Maccoby and Martin (1983) proposed a four-fold classification of parenting patterns. Their four-fold scheme describes the interaction between the two major dimensions of parent-child behaviour - support and control (Figure 3.2). In this typology, optimal behaviour in the parent-child relationship is seen as the interaction between high support and high control. This relationship is regarded as authoritative and reciprocating, and these children should be independent, able to control aggression, socially responsible, self-confident, and high in self-esteem (Maccoby & Martin 1983, pp. 31-51).

The three other patterns of parenting in this typology are not viewed as positively. High control and low support indicate an authoritarian and power assertive parent-child relationship. These children tend to have poor social competence with peers, lack social initiative and spontaneity, and they tend to withdraw. They are also more likely to show less evidence of a 'conscience', or moral orientation. Low control and high support indicate an indulgent and permissive relationship. These children tend to be impulsive, aggressive, lack independence and the ability to take responsibility. Finally, the fourth pattern of parenting in Maccoby and Martin's typology is the combination of low support and low control. At its worst, this pattern is one of indifferent parenting, typified by uninvolved, rejection, and neglect. According to Maccoby and Martin, these children are more likely to exhibit 'delinquent' behaviour. They are also impulsive, moody, and their friends are often not liked by the parents.

Level of parental control is also important in Baumrind's (1972) theory of parenting styles. Lax and strict control equate with permissive and authoritarian parenting styles, and moderate levels of control are closely related to Baumrind's concept of an authoritative parenting style. According to Baumrind, the authoritarian parent values obedience and favours coercive measures to induce compliance. Permissive parents do not place demands or restrictions on behaviour, and are generally accepting and benign about the behaviour of their offspring. Authoritative parents, however, employ firm, but fair and less overtly punitive, methods of control. They generally try to direct their child's behaviour in a rational, issue-oriented manner (Baumrind 1972).

The influence of control processes for the internalization of social norms and values has received some attention in the social psychological literature. Aronson and Carlsmith (1963) demonstrated that mild as opposed to severe threat of punishment for a transgression was more effective for the

internalization of acceptable behaviour. Children who received less severe threats proved more likely on later testing (over several weeks) to express negative evaluations of the activity and to avoid carrying out the previously forbidden behaviour, even in later situations when the prohibition no longer applied.

Thus, those methods of social control which successfully produce compliance and, at the same time, are subtle enough (or are mutually agreed rather than outrightly coercive) so that the individual does not view his or her compliance purely as a consequence of the coercive process are much more likely to foster the internalization of behavioural values. In Baumrind's study these effects were clearly seen (children with authoritative parents showed much greater social responsibility in later years than children with authoritarian parents, and also than children with permissive parents).

Inconsistent control techniques may also contribute to poorer socialization. If parents fluctuate between lax and strict control the lack of consistency can contribute to poor internalization and subsequent lower adherence to socially and culturally accepted modes of behaviour. In a longitudinal study of children in New Zealand, Feehan *et al* (1991) found that inconsistent discipline (but not strict discipline) was associated with time 1 (age 7-9) behaviour problems, as measured by the Rutter Child Scale A (Rutter *et al* 1970). Prospectively, both inconsistent and strict discipline techniques at time 1 were associated with externalizing disorder at time 2 (age 15). According to DSM-III (APA 1980) externalizing disorder incorporates behaviours such as attention deficit disorder, aggressive and non-aggressive conduct disorders, and oppositional disorder. Internalizing disorders, on the other hand, incorporate anxiety and depressive disorders. Interestingly, externalizing disorders in youth have been linked with problem drinking in adulthood (McCord & McCord 1960).

Supporting this, inconsistent and strict discipline in childhood was found to be associated with alcohol abuse in adulthood, in a retrospective study by Holmes and Robins (1987). Also, Vicary and Lerner (1986) reported from the New York Longitudinal Study on the relationship between parental control processes and adolescent drug use. They found that both strict and inconsistent discipline in childrearing were associated with alcohol (and marijuana) use in older adolescents.

Two major dimensions of family life are also outlined in social control theory, which is discussed next.

Social control theory

Seydlitz (1991) refers to the centrality of the family in social control theory, and outlines modes of parental control as major elements in the effect of the family on adolescent delinquency:

"Direct control is control imposed by discipline, restriction and punishment, whereas indirect control is the attachment or affection between the parents and child." (p.175)

Direct and indirect controls were originally described in Nye's (1958) study of family relationships and delinquency, and relationships with parents, according to Nye, contribute to conscience formation. Indirect control refers to the affectual relationship with parents, and is an important factor in teenage conformity. Nye goes on to state that although parent-child relationships are important for forming and maintaining social control "*they cannot explain all conformity*". Direct control is also a contributory factor, and consists of parental restrictions and rules about time allowed away from home, choice of friends and type of activities. Direct control is accomplished by keeping children and teenagers

"within the home, allowing and forbidding behaviour outside the home, and by promising and delivering punishment for infractions of parental or societal rules." (p.7)

Nye also points to a limitation of direct control, in that it can only be achieved if the teenager is under the supervision, or in the presence of, their parents. As teenagers become involved in more and more activities outside the home, direct control cannot therefore be effective by itself.

Parental attachment is also a distinct construct in Hirschi's control theory (Hirschi 1969). Higher levels of attachment are theoretically linked with less deviant behaviour. Hirschi assumes that humans are naturally antisocial and deviant, but that they usually conform to social norms. Therefore, with this conceptualization, it is important to understand why people conform, and not why they deviate. Traditionally referred to as a major sociological theory of deviance, in fact Hirschi's formulation is a theory of non-deviance, or conformity. In the present context, why do young people conform to appropriate drinking behaviour, rather than deviate with excessive drinking?

In social control theory, conformity depends on the nature of attachment between an individual and the social environment. A positive attachment between an individual and significant others within a society leads to the adoption of the social norms and behaviour displayed by those significant others, in the form of a bond to society. There are four separate elements which contribute to the social bond: attachment to parents; religious attachment; educational attachment; and belief in conventional values. Without this social bond which emphasizes conformity, individuals are free to deviate. Social control theory also suggests that a poor social bond encourages identification with a deviant group, to which an alternative social bond is established.

Marcos *et al* (1986) have examined adolescent drinking within the framework of social control theory. They found a significant association between parental attachment and lifetime alcohol use. They defined and measured attachment to parents in terms of affective ties to parents. Individuals who reported less affectional ties and distant bonds with parents were likely to have a higher lifetime alcohol use score.

Overlapping perspectives

Described above are three major theories of family relationships. Although these theories were developed somewhat independently, there appears to be similarities in the way important theoretical constructs are described.

First, control and adaptability can be viewed, and have been operationalized, as similar concepts. Bloom (1985) reported on a factor analysis of several different family functioning scales completed by the same individuals, and found that FACES II adaptability scales were redundantly correlated (0.80 or higher) with a separate measure of control from the Family Environment Scale (FES) (Moos & Moos 1986). According to the FES manual, the FES control sub-scale measures:

"the extent to which set rules and procedures are used to run family life" (p.2).

Olson *et al* (1983) defined adaptability as:

"the ability of a marital or family system to change its power structure, role relationships, and relationship rules in response to situational and developmental stress." (p.70)

Olson and his colleagues go on to state that concepts mainly from family sociology make up this dimension. Such concepts are family power (assertiveness, control, discipline), negotiation styles, role relationships and relationship rules. These concepts are very similar to those outlined earlier as contributing to a family control dimension. Strict and lax control attempts might respectively equate with Olson's rigid and chaotic adaptability. A curvilinear property of the control dimension does find limited support in Rollins and Thomas's (1979) review of the parent-child relations literature, and also in Baumrind's conceptualization of parenting styles.

Secondly, there was also a significant overlap between the concepts of support and cohesion in Bloom's (1985) study. In a factor analysis, Bloom found that questionnaire items which measured support (FES) were redundantly correlated with items which measured cohesion (FACES II).

These concepts have sometimes been used interchangeably, and it is apparent why when one considers the description of support given earlier (p.45) and the definition of cohesion given by Olson *et al* (1983):

"the emotional bonding that family members have toward one another." (p.70)

There are also clear similarities between the concepts of support and control on the one hand, and indirect and direct controls on the other. Indirect and direct controls are the dimensions of family functioning specified by social control theories, which were developed to explain the development of deviant behaviour.

Meta-analysis

So far this thesis has attempted to pull together several similar perspectives on family functioning, and this leads to a review and combined analysis of numerous individual research studies which looked at family functioning and adolescent drinking. Studies of adolescent alcohol use/misuse and family process variables vary in their theoretical base, and thus in the measurement of constructs. Pointing out commonalities between such theoretical orientations has facilitated the combination of these studies in a comprehensive meta-analysis (Foxcroft & Lowe 1991). In this thesis the terms support and control are used to label these two major dimensions of family process.

In this meta-analysis, attempts were made to identify all family behaviour variables investigated in previous adolescent drinking research, and these variables were then grouped into either a support or a control dimension. Although this was a subjective categorization, variables were sorted along the lines of the precedent set by Rollins and Thomas (1979) in their meta-analysis (see Table 3.1).

Control Attempts	Support
Authoritative (5)	Warmth (31)
Authoritarian (35)	Acceptance (20)
Autonomy (6)	Affection (15)
Coercion (5)	Hostile (29)
Control (84)	Love (15)
Demanding (14)	Neglect (5)
Democratic (15)	Nurturance (37)
Discipline (23)	Rejection (36)
Dominance (25)	Support (11)
Induction (8)	
Permissive (8)	
Power (8)	
PowerAssertion (7)	
Pressure (5)	
Protective (16)	
Punishment (47)	
Restrictive (24)	
Strictness (7)	

Table 3.1: Labels frequently used for two dimensions of family process
 (All labels used in 5 or more studies are listed by frequency (in parentheses))
 Adapted from Rollins & Thomas (1979).

Method

For the purpose of this review articles were obtained from several sources:

(1) The adolescent drinking behaviour library, Alcohol Research Laboratory, Hull University.

(2) Keyword search of *Psychological Abstracts* CD-ROM.

(3) On line keyword search of two U.S. Databases - PSYCINFO and SOCIOLOGICAL ABSTRACTS

(4) Retrospective search of recent editions (past 2 years) of *Current Contents* - a weekly publication listing titles of articles in current journals in the social and behavioural sciences.

(5) Following up all relevant references from available sources.

A total of 31 published articles were selected for inclusion in the present review. The criteria for inclusion were:-

(1) The article was published in a reputable academic journal, in the past 20 years.

(2) The family socialization variables could be clearly classified along the appropriate dimensions.

(3) The drinking behaviour variable was a self-report measure and was easily identifiable, either on its own, or less frequently, as part of a composite substance use measure.

(4) The subjects' age range could be classified as adolescent or teenage.

(5) Relationships between family socialization variables were as reported.

No re-analysis of data was carried out.

(6) Only direct relationships were classified as significant. Those studies which showed an indirect relationship between drinking behaviour and support or control were classified as non-significant.

It soon became apparent that three factors recurred throughout the literature. As expected, variables which could be subsumed under the dimensions of support and control were frequently reported as an important correlate of adolescent drinking behaviour. It was also found that family structure, i.e. the extent of parental intactness, was quite often reported as an important correlate of adolescent drinking behaviour.

From 31 published articles, 29 variables were located which measured support, 17 variables which measured control, and eight variables which assessed family structure. In these studies, sample sizes ranged from 57 up

to 10,579; ages from 9 to 22; and the studies were all published between 1973 and 1992. Table 3.2 details the studies included in the meta-analysis.

The three dimensions extracted from the literature - support, control and structure - were subjected to meta-analysis. A sorting method was used (Glass *et al* 1981), with each study's results being classified on the appropriate dimension as either positively related, negatively related, or non-significant with respect to drinking behaviour. For example, in a study by Budd *et al* (1985), family conflict (a support variable) was found to co-vary positively with adolescent drinking, but as family conflict is negatively related to family support, then this finding provides evidence that family support is negatively related to drinking behaviour. Table 3.3 shows the results of the meta-analysis.

	Relationship with drinking behaviour			
	+ sig	n.s.	- sig	
Support	0	5	24	($\chi^2= 33.17, df=2 p<0.001$)
Control	1	6	10	($\chi^2= 7.16, df=2 p<0.05$)
Structure	0	1	7	($\chi^2= 10.75, df=2 p<0.005$)

Table 3.3: Total significant and non-significant results for the relationship between drinking behaviour and family environment

Study	Subjects (N)	Age	Drinking Behaviour	Family Support	Family Control	Family Structure
Adler & Lotecka (1973)	H.S.students (1591)		Non-users/Habitual users	Home Emotional Climate (-)		
Baer <i>et al</i> (1987)	H.S.students (350)	12	Quantity/Frequency Index	Cohesion (-) Conflict (-)		
Barnes <i>et al</i> (1986)	Adolescents (124)	12-17	Q/F Index	Parental Support (-)	Parental Control (n.s.)	
Barnes & Windle (1987)	H.S.students (673)	Grades 9-12	Freq. probs.in past year	Parental Support (-)	No. Parental rules (-) Father discipline (+) Mother discipline (n.s.)	Family Structure (n.s.)
Barnes & Farrell (1992)	Adolescents (611)	13-16	Q/F Index	Parental support (-)	Coercive control (-) Parental monitoring (-)	
Brook <i>et al</i> (1986)	H.S.students (318)	Freshmen & sophomores	Initiation & frequency	Parental Warmth (n.s.)	Parental Permissiveness (-)	
Brook <i>et al</i> (1989)	Adolescents and mothers (518)	9-18	Drug use (incl. alcohol)	Family Affection (-) and Conflict (-)		
Budd <i>et al</i> (1985)	Adolescents (10,579)	11-17	Q/F Index	Family Conflict (-)		
Burnside <i>et al</i> (1986)	H.S.students (2595)	Grades 7 & 10	Q/F Index			Family Intactness (-)
Byram & Fly (1984)	H.S.students (335)	11-17	Frequency ever used	Closeness to Family (-)		Family Structure (-)
Coombs & Landsverk (1988)	Youth (443)	9-17	Alc. & other beverages (freq. only)	Parent Youth Sentiment (-)	Parent Youth Power(-)	
Flewelling & Bauman (1990)	H.S.students (2102)	12-14	Ever had an alcoholic drink			Parental Intactness (-)
Friedman <i>et al</i> (1987)	Adolescents (96)		Drug abusers (incl.alcohol)	Cohesion (-)	Adaptability (-)	
Hays <i>et al</i> (1985)	H.S.students (1121)	13-18	Freq. of use in past year	Parental support and affection (n.s.)		

Table 3.2: The results of studies classified into the dimensions of family support, control and structure¹

Study	Subjects (N)	Age	Drinking Behaviour	Family Support	Family Control	Family Structure
Hundleby & Mercer (1987)	H.S.students (2048)	Ninth graders	Freq. of use in past 6 months	Trust & Concern (-)	Strictness (-) Parental Willing Involvement (-)	
Jessor & Jessor (1975)	H.S.students - 4 yr follow-up (432)	Yr 1: 12-15 Yr 4: 16-19	Transition to drinker status	Parental Support (-)	Parental Control (n.s.)	
Johnson (1986)	H.S.students (345)	Grades 9-12	Q/F Index	Family attachment (-) Involvement (-), commitment (-)		
Kline <i>et al</i> (1987)	H.S.students (499)	Grades 10-12	Q/F Index & P.D. status	Family Conflict and Disengagement(-)		
Marcos <i>et al</i> (1986)	H.S.students (2626)	14-19	Lifetime alcohol use	Parental attachment (-)		
Margulies <i>et al</i> (1977)	H.S.students (1936)		Onset of "hard liquor" use	Closeness with Family (n.s.)	Parental Control (n.s.)	
Mercer & Kohn (1980)	H.S.students (500)	Grades 11-13	Frequency of alcohol use	Parental Love (n.s.)	Parental Control (n.s.)	
Mercer <i>et al</i> (1978)	H.S.students (286)	Grade 9	Freq. of use in past 6 months	Warmth, Support & Interest (n.s.)	Organization (n.s.)	
Needle <i>et al</i> (1990)	Adolescents (467)		Multiple substance use scale			Divorced or intact parents (-)
Pandina & Scheule (1983)	H.S.students (1960)	12-18	Scale of SUI - substance use involvement	Overall Parental Love (-)	Overall Parental Autonomy (-)	
Plant <i>et al</i> (1985)	Secondary students (929)	15-16	Previous weeks alcohol consumption			Who Raised Child (-)
Prendergast & Schaefer (1974)	H.S.students (57)	16-19	Frequency of drinking	Parental Acceptance-Rejection (-)	Parental Control (-)	
Schlegel <i>et al</i> (1987)	H.S.students (494)	18-22	Control of drinking	Parental Support (-)		

Table 3.2 (cont): The results of studies classified into the dimensions of family support, control and structure¹.

Study	Subjects (N)	Age	Drinking Behaviour	Family Support	Family Control	Family Structure
Stern <i>et al</i> (1984)	Adolescents (813)	12-18	Frequency of alcohol use			Father absence (-)
Takei <i>et al</i> (1988)	Native U.S. Teenagers (74)	13-19	Frequency of drinking		Parental Control (-)	
Thompson & Wilsnack (1987)	H.S.students (839)	Grades 7-11	Initial use, Q/F Index & P.D. status	Parent-adolescent Conflict (-)		
Wechsler & Thum (1973)	H.S.students (1923)	Grades 6-12	Frequency of heavy & light drinking	Closeness to Family (-)		Parental Intactness (-)

Table 3.2 (cont): The results of studies classified into the dimensions of family support, control and structure¹.

1 In order to establish directional continuity when comparing studies, each finding was classified according to its relationship with the main dimension, as either significantly positively (+), significantly negatively (-), or non-significantly (n.s.) related to the drinking behaviour variable. E.g. the study by Budd *et al* found family conflict (a support variable) to co-vary positively with adolescent drinking, but as family conflict is negatively related to family support, then the Budd *et al* finding provides evidence that family support is negatively related to adolescent drinking behaviour, i.e. (-).

The chi-squared values in Table 3.3 were calculated using the conservative expected frequency criteria of equal probability between cells. This was done to counter the "file-drawer" effect where significant results tend to be published and non-significant results not submitted/accepted for publication.

A criticism sometimes levelled at the sorting meta-analytic technique is that individual sample sizes are not taken into account, and that it is a slightly crude method which gives equal weight to differing quality of research. Bearing this in mind, Table 3.3 clearly shows that the majority of studies reach similar conclusions, especially for support and structure (although there were relatively fewer structure variables). In fact, the Pearson r between sample size and result is non-significant for each dimension, enabling sample size to be discounted as a confounding factor (Foxcroft & Lowe 1991).

Differences between the outcomes for each dimension were statistically significant, and it was concluded that the meta-analysis showed that the family dimensions of support, control, and structure were all negatively related to adolescent drinking behaviour. In other words:

- Adolescents from less supportive families tended to drink more
- Adolescents from less controlling families tended to drink more
- Adolescents from non-nuclear families tended to drink more

In the meta-analysis there were six non-significant results and one significantly positive report of the relationship between control and adolescent drinking, compared to ten significantly negative results. Although this produced a significant effect in the chi-square analysis, this effect is not as clear cut as in the structure and support dimensions. Why is this effect not as clear cut? It may be that the control dimension is less important in the socialization

of drinking behaviour. Or, one possibility is that the relationship between adolescent drinking behaviour and control is not a linear one, thus confounding the results from previous studies. In fact, earlier in this chapter it was pointed out that both lax and strict control were potentially dysfunctional, and one study, although with a small sample, did indeed find this pattern.

Barnes *et al* (1986) looked at the influence of support and control on the incidence of adolescent problem drinking. They used a random digit dial telephone procedure to select a representative sample of adolescents and their families in an area of New York state. Their final analysis consisted of interviews with 124 families. Generalizing from Rollins and Thomas's (1979) meta-analysis, they predicted that effective socialization (into non-problem drinking) would be associated with high support and moderate levels of control. Their results were consistent with this hypothesis, as there was a clear (though non-significant) curvilinear trend in the relationship between control and problem drinking. Moderate control was associated with a much lower incidence of problem drinking than both lax and strict levels of control, especially when associated with high support. This is in line with the comments made earlier about the relationship between parental control and outcome behaviours, when it was pointed out that both lax and strict control were potentially dysfunctional socialization behaviours. This pattern is also consistent with the family systems perspective, in which extremes of adaptability may be dysfunctional. Interestingly, Barnes *et al* (1986) developed their concepts of support and control from Parsons and Bales's (1955) instrumental-expressive functions of the family. Olson *et al* (1979) also developed their Circumplex Model using Parsons and Bales's instrumental-expressive concepts. This common genesis for two individual theoretical

perspectives of the family lends support to the integration of these perspectives carried out earlier in this chapter.

If this curvilinear hypothesis is correct, why did other studies in the meta-analysis not find this? First, many research analyses rely on linear statistical tests, and any curvilinear pattern may not have been apparent. Secondly, this curvilinear pattern may be a particular function of certain family behaviours or of certain social behaviours. For example, Barnes *et al* (1986) used measures of control and of problem drinking which may be different from more usual measures of family life and adolescent drinking behaviour. Or, it may be that those studies in the meta-analysis which reported a linear relationship between control and adolescent drinking, although in the majority, may suffer from a problem with 'thin' variable ranges. That is to say the range of behaviour which a variable assesses is not sufficiently wide to allow a true picture to be obtained. For example, if control does indeed have a curvilinear quadratic association with adolescent drinking, but a particular variable only taps the downward slope, or only taps the upward slope, then a linear picture will emerge. Many of the present studies may ask questions which consider only part of the range, and it is possible that a false picture may build up of a linear relationship between control and adolescent drinking.

These measurement considerations therefore beg the question: If, generally, control scales tap only a linear component of the dimension, how can we explain the overlap with adaptability (from FACES) described by Bloom (1985)? One problem with the definition of adaptability in Olson's Circumplex Model is that it has been criticized as inferring a linear relationship between adaptability and family functioning, i.e. families *more* able to change are optimal. This has led to consequent confusion in the items of the test battery (FACES I to FACES

III), designed by Olson and colleagues to measure this dimension¹ (Lee 1988; Anderson & Gavazzi 1990).

Systems theory specifies that extremes of family cohesion - enmeshed and disengaged families - can be dysfunctional, with the mid-range of cohesion optimal for family functioning. This is not the picture obtained from the meta-analysis of adolescent drinking behaviour, where support is linearly related to drinking behaviour. However, other family theorists have found that cohesion is essentially a linear function: they suggest that higher cohesion is indicative of better family functioning; and lower cohesion of poorer family functioning (Beavers & Voeller 1983; Lee 1988; Anderson & Gavazzi 1990)

Or, as outlined for family control in the previous section, there may be a measurement deficiency which explains the preponderance of findings of a linear relationship between family functioning and family support. Furthermore, family systems theorists usually work with dysfunctional families, and it may only be in problem families that high support is considered dysfunctional (Olson *et al* 1983).

¹The problems with operationalizing the curvilinear properties of the Circumplex Model in FACES I to FACES III have caused Olson and his colleagues to state that in FACES III the scales of cohesion and adaptability should now be treated as related in a linear manner to family functioning. High cohesion and adaptability constitute balanced family types, and low cohesion and adaptability measure extreme family types (Olson 1991a and 1991b).

Conclusions from the meta-analysis

Adolescent drinking should be regarded as a normal developmental process, given that the adolescent's social and cultural environment condones such behaviour. If a family is deficient in support and control, then deviant or excessive drinking behaviour may result. The results of this meta-analysis indicated that low support and lax control were associated with heavier drinking in adolescents.

Implications for the current study

These results do not allow conclusions to be made about the family systems viewpoint, where extremes of family environment are viewed as potentially dysfunctional in the socialization of normative behaviours. This issue is addressed in the current thesis: if an individual remains abstinent in an environment which condones and encourages drinking, then this too is deviant (from the norm) drinking behaviour. High support and high control might be associated with *non-drinking*. Moderate amounts of support and control would therefore be the most functional for the socialization and development of *sensible drinking* in an individual. This is an important step because it clarifies the family systems viewpoint on non-problem families. Previously, and presently, research has shown that generally a linear relationship exists between these two dimensions and a target behaviour, for non-problem families, and although these findings may be legitimate, it is the range of normality of the target variable which is important. For example, if the target variable is anti-social behaviour, then a linear relationship may indeed exist between the amount of anti-social behaviour and the two socialization dimensions, with low

support and lax control associated with higher levels of anti-social behaviour. But, closer examination would perhaps reveal high support and high control to be associated with poorly autonomous, very socially conforming behaviour. This image is one with which readers of Orwell's "1984" will be familiar.

Also looked at in this chapter was the study by Barnes *et al* (1986), in which problem drinkers reported strictly controlling family environments. If this is a reliable and valid result, how does it fit into the above picture? As outlined above, strict control may be dysfunctional, and individuals from this type of family environment more likely to be non-drinkers, contrary to social and cultural norms. However, there may be an interaction between control and support at the extremes of these dimensions. If there is optimal support for an individual, then they are perhaps more likely to be abstainers if they are from a strictly controlled environment. On the other hand, if there is strict control, but dysfunctional support, then individuals may become heavier drinkers. Also, this pattern might only be reported in families where there is a teenager already with a drinking problem, i.e. heavier drinking might be a contributory factor in that more strict control (attempts) are perceived.

Although in the meta-analysis family structure was extracted from the literature as a separate dimension, the absence of a parent may have profound effects on the amount of support and control provided within such a family. Most studies have found that children and adolescents from divorced families exhibit emotional distress and behaviour disorders, although this can depend on the recency of the parental separation. When quality of the parent-child relationship is controlled, then the effect of family structure is greatly reduced, but may still be significant (Flewelling & Bauman 1990; Needle *et al* 1990).

Other family structural characteristics might also be important. For example, Nye *et al* (1970) found that there is, on average, more positive affect in smaller

families (as measured by adolescent perceptions). They also reported from the same study that larger families tended to be more authoritarian than smaller ones.

Individuals for whom the family socialization process has provided a good psychological adjustment are generally more confident and autonomous, have better social skills, and are more likely to pass on these qualities to their own offspring, than individuals from families who have provided poorer socialization. Support and control are two major dimensions of the socialization process, and are two of the most important factors in familial influence on adolescent drinking behaviour. Individuals from families deficient on these two dimensions are more likely to have less confidence, autonomy, and poorer social skills. Ford (1982) reported that social cognition variables (including social support networks) accounted for a large proportion of the variance in social competence. This accords with recent work by Bagnall (1990), who evaluated an alcohol education initiative, and reports that the way forward in alcohol education lies in an approach which emphasizes social influences and social skills.

Although the two family process dimensions of support and control are important factors in the family socialization of teenage drinking, another area of potentially important family influence is social learning. In the next chapter family social learning influences are introduced and discussed, and presented in the subsequent chapter is a model of family socialization for teenage drinking which incorporates both family process (non-alcohol-specific) and family social learning (alcohol-specific) factors.

Chapter 4: Family social learning and adolescent drinking: review and meta-analysis of previous research

The previous chapter described how family relationships make an important contribution to the socialization of adolescent drinking behaviour. From childhood through adolescence and into early adulthood a person's family is a key source of emotional support and guidance, and this is reflected in a wide range of behaviours, including teenage drinking. It is usually only when a young adult leaves his or her family home, and enters close relationships with other young adult(s), that the socialization influence of parents wanes.

Poor socialization by parents and family might lead a teenager to develop inappropriate and unacceptable social behaviour. Optimal family socialization, on the other hand, should lead to the adoption of socially and culturally normative behaviour, behaviour that is acceptable and appropriate for that person. For example, if an individual is brought up in a social and cultural environment that condones sensible alcohol use, either explicitly or implicitly, then optimal socialization should encourage the adoption of such sensible drinking behaviour. Poor socialization, on the other hand, could lead to the development of deviant drinking behaviour, either abstention or excessive drinking, depending on the prevailing social and cultural norms for youthful alcohol use.

So far the discussion has centred on non-alcohol-specific family behaviours, such as support and control. But there are also alcohol-specific family behaviours that may be just as important (if not more so) in the socialization of adolescent drinking. Alcohol-related family behaviour is a primary mode of alcohol-specific interpersonal influence. Such behaviour may contribute both independently and interactively (with family process factors) to the socialization of teenage drinking. Research by Barnes and colleagues (Barnes 1977; Barnes *et al* 1986) and by Kandel and colleagues (Kandel 1980; Kandel and Andrews 1987) offer a perspective on the family socialization of adolescent alcohol use that incorporates not only elements of family process, but also of social learning. However, whereas Barnes's work tends to emphasize family process behaviours and parental modelling influences, Kandel tends to focus on social learning influences, but also includes a measure of family support in her work.

This chapter presents a description of social learning theory, and discusses how its concepts are important in the family dynamics surrounding teenage alcohol use. Following on from this, a review and meta-analysis of over 40 recent empirical studies is presented and discussed.

Social learning theory

The typical representation of the relationship between person (P), behaviour (B) and environment (E), is $B=f(P,E)$. Kurt Lewin (1951) developed this model in his Field Theory, in which the most important and basic construct is the lifespac. Every person's **subjective environment** forms his or her lifespac, which consists of the person and the environment viewed as one constellation of

interdependent factors. The theoretical expression can thus be re-written to acknowledge the interdependent influences between person and environment, $B=f(P\leftrightarrow E)$. However, as Bandura (1977) noted in relation to social learning theory, behaviour is an interacting determinant, and cannot simply be regarded as the end result, or outcome, of a person/environment interaction. To express the truly reciprocal nature of interaction between behaviour, person, and environment, a more complex model is required (Figure 4.1). This model demonstrates the systemic properties of the relationship between behaviour, person and environment. As described by Bandura, the relationships are reciprocal, and as such family social learning is in line with family systems theory. Indeed, social learning behaviours could be considered a particular subset of communicative behaviours within the family system. One would therefore predict, in line with family systems theory, that extremes of social learning behaviours would be dysfunctional for the socialization of teenage drinking.

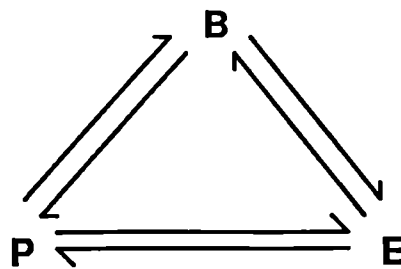


Figure 4.1: The reciprocal relationship between behaviour, person and the environment

Social learning theory (Bandura 1977) describes the adoption of behaviour through **imitation or modelling** as a major source of an individual's learning

and development. Individuals observe the behaviour of others, both directly and indirectly. Indirect observation can take place through media such as television, radio, news reports, advertising, marketing, stories, jokes, although direct observation of significant others, especially peers and family members, provide a more influential model. As an illustration of the indirect exposure young people have to alcohol, one recent estimate suggested that by the time young people reach the legal drinking age, they will have seen alcohol consumed on the television alone approximately 75,000 times (Radecki 1986, cited by Coombs *et al* 1988).

This direct and indirect exposure leads to the acquisition of symbolic representations of the observed behaviours. These symbolic representations then serve as a guide, or schema, for subsequent behaviour by an individual. Schemata can be described as cognitive sets for a particular behaviour, perception, or action. They are consistent with the organization of knowledge based on social and cultural experience.

As an example of how schema relate to behaviour, an individual's reasons for drinking - reasons for drinking form one part of our social and cultural experience - contribute to a schema for drinking alcohol (Foxcroft & Lowe 1993; also see chapter 7). In this study we found that adolescents who reported drinking more were significantly more likely to say they drink because they like the taste, because they like the effects, to get drunk, and to cheer up. Additionally, those teenagers who reported *more* reasons for drinking were more likely to be heavier drinkers. Thus not only do the types of reasons within a schema for drinking relate to drinking behaviour, but also overall consumption may be a function of the number of reasons for drinking within each person's schema.

In the present discussion, however, the focus is on how alcohol-specific behaviour within the family contributes to the development of an adolescent's drinking behaviour. As mentioned above, and also in the previous chapters, parents and family are a major source of psychosocial influence throughout adolescence. How, why, what, when and where parents drink alcohol provides a base on which individuals develop their own alcohol use. Thus, perceived parental alcohol use, incorporating observed parental drinking behaviour as well as indirect observation of reported and assumed parental drinking, contributes to a teenager's alcohol use schema.

Bandura (1977) describes a four-stage process which governs social learning. Firstly, attentional processes discriminate and focus on the appropriate stimulus. Secondly, retention processes come into play in the coding, organization and subsequent symbolic rehearsal of the behaviour. Thirdly, motor reproduction processes determine whether or not the observed behaviour is within the capabilities of the observer (this stage is more important in social learning by infants and young children). Finally, motivational processes come into operation. This fourth stage is the most important in determining whether or not observed behaviour is reproduced.

Thus, social learning theory distinguishes between acquisition and performance of behaviour. People are more likely to reproduce observed behaviour if it has positive consequences, i.e. if they are motivated to carry out the behaviour. Positive consequences of behaviour are those which are rewarding to an individual, and behaviours which are not rewarding, because they are regarded as unpleasant or not worthwhile, will not be adopted.

What, then, are the specific factors which motivate some young people to display behaviour that all have presumably 'acquired', or know how to? Motivational processes, according to social learning theory, are contingent on

reinforcement, either from the environment or from self. But which, if any, is the most important process of reinforcement in adolescent alcohol use and misuse? As Bandura (1977, p.10) states:

"there are times when environmental factors exercise powerful constraints on behaviour, and other times when personal factors are the overriding regulators of the course of environmental events."

With regard to the development of adolescent alcohol use, parental behaviour (an environmental influence) usually provides the initial motivation for behaviour change. Although social learning theory posits that unrewarding behaviours should not be adopted, if an individual is encouraged to undertake a behaviour which they initially perceive negatively (unrewarding), and if they persist in that behaviour, then eventually their cognitive set or schema regarding the appropriateness of the behaviour will moderate (the behaviour becomes rewarding). The discrepancy between performing the behaviour and the person's desire (not) to perform the behaviour is known as *cognitive dissonance* (Festinger 1957). To try and maintain consistency between schema and action, individuals are motivated to reduce any conflict or dissonance. This motivation to reduce dissonance can lead to changes made in the schema for the behaviour. (If schemata are regarded as a feature of the person and the requirement to undertake a behaviour a feature of the environment, then cognitive dissonance is an example of the reciprocal interactions at play between behaviour, person, and environment - see Fig. 3.1).

This is one reason why, in the period from pre-adolescence through early to late adolescence, individuals move from having negative or unrewarding concepts about alcohol, to eventually regarding alcohol as a positive reinforcer.

It is during this period that adults, usually parents, begin to introduce their children to alcohol, thus facilitating the dissonance and consequent change in cognitive set. Parents are the predominant providers of first tastes and first 'proper' alcoholic drinks, often in the form of a glass of wine or a glass of beer, though soft drinks are sometimes added to make the taste of these drinks more palatable and acceptable. During the adolescent phase, larger and more potent drinks generally become available within the sanction of the family - a few glasses of wine, a sherry, a pint or a can of beer - usually on appropriate occasions. Thus young people are being 'weaned' on to alcohol.

This process is illustrated by the results of two studies carried out in the U.K.. Jahoda and Crammond (1972) found that children between the ages of six and ten had progressively more unfavourable perceptions of drinkers (especially women drinkers). According to Jahoda and Crammond, this seemed to parallel the child's progression through social institutions (eg. primary school and church) which held negative and prohibitive attitudes towards alcohol (these attitudes seemed to be internalized by the children, evidenced by consistency between direct and indirect response observations made in their study). In a separate study Hawker (1978) questioned a large sample of 12-18 year-old teenagers, and reported that these teenagers were far more likely to say they were given their first alcoholic drink by their parents and family than by anybody else, and usually between the ages of 10 and 12. Similarly, the location of this first drink was more likely to be at home than anywhere else. Furthermore, Hawker also reported that the teenagers in her study were far more likely to usually drink at home than anywhere else.

So, the transition to drinking, fostered within the family and home environment, is paralleled by changing attitudes and perceptions of alcohol. The family and home provide social reinforcement (motivation) for drinking

which, through the mechanism of cognitive dissonance, encourages the change in a young person's schema for drinking. Thus, parental attitudes to their teenager's alcohol use, whether parents encourage or discourage, approve or disapprove, are influential and underlie the social reinforcement of alcohol use within the family. In other words, parental attitudes (environmental change) leads to a change in the schema for drinking (feature of the person) resulting in increased teenage drinking (change in behaviour).

With a slightly different theoretical orientation (from a purely behavioural point of view), Akers *et al* (1979) describe a mechanism of *differential reinforcement* which underlies this process. Pure behaviourism ignores any possible cognitive mechanisms involved in behaviour - behaviour is seen purely as a function of external motivators, i.e. stimulus and response. In Akers's social learning perspective the reproduction of behaviour is seen to depend on perceived rewards and punishments for the behaviour and the perceived rewards and punishments attached to alternative behaviour - differential reinforcement. If the benefit of engaging in the behaviour (drinking) outweighs its associated cost, and also outweighs the benefit of an alternative behaviour (not drinking), then the behaviour is likely to re-occur. Thus, as parents introduce their children to alcohol, the pattern of reinforcement-punishment changes and subsequently behaviour changes. This operant learning approach is not entirely in line theoretically with Bandura's more cognitive approach, but Akers's social learning perspective has been used in numerous adolescent alcohol studies (c.f. the work by Kandel and colleagues). Both theories provide explanations of the influence of parents on the early development of drinking behaviour in their offspring.

To summarize, so far social learning theory predicts that parents (and older family members) provide salient role models for drinking alcohol. How, why,

what, when and where these influential family members drink alcohol is assimilated into each adolescent's schema for drinking, and forms a base and guide for their own drinking career. In addition, the social reinforcement provided by parents and family surrounding the use of alcohol - both initiation and continuing use - contributes to how young people learn to drink. Whether parents approve, disapprove, or are indifferent about their offspring's alcohol use is thus an important motivational process.

Social learning theory therefore contributes two major factors to knowledge and theory of the family dynamics of adolescent alcohol use. These are imitation/modelling and parental attitudes. These two factors may also interact with each other. For example, if parents disapprove of their offspring drinking, but drink heavily themselves, how does this influence the drinking behaviour of their offspring? The empirical evidence for these family social learning factors and adolescent drinking is reviewed below.

The drinking behaviour of parents and older siblings provides a model of alcohol use on which individuals may base their own drinking. If parents drink regularly and sensibly, then an individual's schema for alcohol use may develop along the lines of regular, sensible drinking. Or if parents are heavier drinkers, then a model of heavy drinking is provided and could be incorporated into the individual's schema. Alternatively, non-drinking parents provide a model of abstemious behaviour.

If, as was pointed out in the previous chapter, adolescents aspire to adult behaviours rather than to reject adult behaviours, one would expect the drinking behaviour of adolescents within a community to reflect the drinking patterns of adults in that same community. This is exactly what Barnes (1981) found in a study which compared the drinking behaviour of a local sample of

adults with that of a local sample of teenagers. The similarity between the patterns of use for beers, wine and spirits was quite striking.

Family based social reinforcement of teenage alcohol use is manifested in parental norms and definitions about their teenager's alcohol use (Akers *et al* 1979). Parental norms and definitions are expressed in the form of attitudes to their offspring's alcohol use (and to alcohol use in general). Social learning theory (Bandura 1977) suggests that adolescents internalize the norms and definitions of their parents and that these internalized referents (part of the individual's schema for alcohol use) are reflected in the teenager's drinking behaviour.

If drinking, rather than non-drinking, is the norm in adulthood, one would expect parents to moderate their attitude toward their offspring's alcohol use as their son or daughter grows older: from a prohibitive attitude in pre-adolescence, through prescriptive and controlling stages to more tolerant and approving attitudes in later adolescence. As such, parental attitudes at any one time may be directly reflected in teenage behaviour only in the short term.

Meta-analysis

In a second meta-analytic study, published research was examined which detailed the relationship between adolescent drinking and family social learning. Using a similar selection and inclusion criteria to the first meta-analysis, which was reported on in the previous chapter, over 40 separate research studies were identified. In these, sample sizes ranged from 74 up to 15,000; ages from nine to 21; and the studies were all published between 1967 and 1992. Many of these studies reported both imitation/modelling and social

reinforcement variables in relation to adolescent drinking. As before, a sorting meta-analytic technique (Glass *et al* 1981) was used, with each study's results being classified on the appropriate family social learning factor as either positively related, negatively related, or non-significant with respect to drinking behaviour. The studies included in the meta-analysis are detailed in Table 4.1.

Included in this second meta-analysis were 38 published empirical studies which measured the relationship between teenage drinking and parental drinking. Thirty studies reported a positive relationship, with more frequent and heavier parental drinking related to more frequent and heavier adolescent offspring's drinking. The majority of studies were cross-sectional, and tended to report relationships which contributed to only a small part of the variation in teenage drinking. Eight studies found no relationship between parental drinking and offspring's drinking, and no studies reported a negative relationship between parental and offspring's alcohol use (see Table 4.2).

In an earlier narrative review, Bucholz (1990) stated that heavier drinkers were more likely than moderate drinkers or abstainers to report parents who approved of their drinking. A similar conclusion was reached in this meta-analysis of 24 recently published separate research studies. Of these, 18 studies found a positive relationship between adolescent drinking and parental attitudes, with heavier teenage drinking linked to parental approval of their offspring's drinking. The other six studies did not find any association (Table 4.2).

Study	Subjects (N)	Age	Drinking behaviour	Modelling/imitation	Social reinforcement
Adler and Lotecka (1973)	H.S. students (1600)	Grades 10-12		Parental drinking (+)	
Bank <i>et al</i> (1985)	Unmarried adolescents (429)	12,15 and 18	Frequency of use	Parental drinking (n.s.)	Parental norms (n.s.)
Adler and Kandel (1982)	School students (i) 499 French (ii) 609 Israeli (iii) 8206 U.S.	14-18 14-18 H.S. students	Frequency of use	(i) mothers drinking (+) (ii) mothers drinking (+), fathers drinking (-) (iii) fathers and mothers (+)	Parental tolerance (+)
Alexander and Campbell (1967)	H.S. students (5115)	Grade 12	Alcohol use		Parental opposition (+)
Barnes <i>et al</i> (1986)	Adolescents and families (124)	12-17	Frequency of drinking	Frequency of drinking (+)	
Barnes and Windle (1987)	H.S. students (673)	Grades 9-12	Alcohol-related problems		Parental approval (+)
Biddle <i>et al</i> (1980)	H.S. students (149)	early teens - late teens	Frequency of use Quantity index	Parental drinking (n.s.)	Parental attitudes (n.s.)
Brook <i>et al</i> (1986)	H.S. students - 1 year follow-up (318)	Year 1: Grades 9-10 Year 2: Grades 11-12	Initiation to alcohol use	Paternal drinking (+) Sibling drug use (+)	
Burnside <i>et al</i> (1986)	H.S. students (2595)	Grades 7, 10	Q/F Index	Frequency of parental drinking (+)	
Casswell <i>et al</i> (1991)	H.S. students (632)	9-15	Frequency of drinking	Parental frequency of drinking (+)	Positive communications about alcohol (+)
Coombs and Landsverk (1988)	Youths (443)	9-17	Frequency of drinking		Conduct rules for drinking (+)
Coombs <i>et al</i> (1985)	Young girls (197)	9-17	Current user	Frequency of parental drinking (+)	

Table 4.1: The results of studies classified into the dimensions of modelling/imitation and social reinforcement¹

Study	Subjects (N)	Age	Drinking behaviour	Modelling/imitation	Social reinforcement
Dishion and Loeber (1985)	Families (136)	Grades 7,10	Frequency of drinking	Parental drinking (n.s.)	
Donovan <i>et al</i> (1983)	H.S. students - 6 year follow up	Time 1: Grades 7,9 or college freshmen Time 2: Young adults	Problem drinker status		Parental approval (n.s.)
Ellickson and Hays (1991)	H.S. students - 1 year follow up	Time 1: Grade 7 Time 2: Grade 8	(i) initiation of drinking (ii) Continuing use (iii) heavy drinking	(i),(ii),(iii) Drinking by significant adults (+)	(i) Parental approval (+) (ii),(iii) Parental approval (n.s.)
Fontane and Layne (1979)	College students (99)	19.5 (mean)	Ever got drunk	Parents ever got drunk (+)	
Forney <i>et al</i> (1984)	H.S. students (1715)	Grades 6,8	Q/F Index	Parental drinking (+)	
Forney <i>et al</i> (1988)	H.S. students (3017)	Grades 6,8,10,12	Q/F Index	Parental drinking (+)	
Forslund and Gustafson (1970)	H.S. students (654)	Senior class	Drink when parents not present	Mother drinks (+) Father drinks - daughters only (+)	
Globetti (1972)	H.S. students (639)	Grades 9-12	Alcohol use	Parental drinking (+)	
Green <i>et al</i> (1991)	Scottish youth - 1 year follow-up (726)	Time 1: 15 Time 2: 16-17	Frequency of drinking	Parental drinking (n.s.)	
Grube <i>et al</i> (1989)	Irish adolescents (2700)	10-21	Frequency of drinking	Parental drinking (n.s.)	Parental approval (+)
Hawker (1978)	Secondary students (6891)	12-18		Frequency parent's drinking (+)	Parental approval (+)
Huba and Bentler (1980)	H.S. students (1634)	Grades 7-9	Frequency of beer/wine and liquor use	Parental drinking (+)	

Table 4.1 (cont): The results of studies classified into the dimensions of modelling/imitation and social reinforcement¹

Study	Subjects (N)	Age	Drinking behaviour	Modelling/imitation	Social reinforcement
Hundley and Mercer (1987)	H.S. students (2048)	Grade 9	Frequency of use	Parental drinking (+)	Parent's likely to be upset (+)
Jessor and Jessor (1975)	H.S. students - 4 year follow up (408)	Year 1: 12-15 Year 4: 16-19	Transition to drinker status		Parental approval (+)
Johnson and Pandina (1991)	H.S. students - 3 year follow up (1308)	Time 1: ages 12,15,18 Time 2: ages 15,18,21	(i) Frequency of use (ii) Problem drinking	(i) Parental alcohol use (+) (ii) Parental alcohol use (n.s.)	(i) Parental tolerance (+) (ii) Parental tolerance (n.s.)
Kandel and Andrews (1987)	Secondary students - 6 month follow-up (345)		Initiation of alcohol use	Frequency of use by interviewed parent (+)	
Kandel <i>et al</i> (1978)	Public secondary students - 6 month follow up (1936)		Initiation of hard liquor use	Parental drinking (+)	Tolerance of hard liquor use (n.s.)
Kline <i>et al</i> (1987)	H.S. students (499)	Grades 10-12	Q/F Index		Parental approval (+)
Lassey and Carlson (1980)	H.S. students (889)	Grades 8,12	Frequency of drinking	Parental drinking frequency (+)	
McLaughlin <i>et al</i> (1985)	H.S. students (1252)	Grades 7,10	Q/F Index	Parental alcohol use (+)	
Newcomb <i>et al</i> (1983)	H.S. students (662)	Grades 7-9	Frequency of drinking	maternal drinking (n.s.)	
O'Connor (1978)	Parents and teenagers (775)	18-21	Q/F Index	Parental drinking (+)	Parental approval (+)
Preston (1969)	H.S. students (528)	Grades 7-9	Alcohol use	Parental drinking (+)	
Rachal <i>et al</i> (1975)	H.S. students (15,000)	Grades 7-12	abstainers - heavy drinkers	Parents drink (+)	
Smart <i>et al</i> (1978)	H.S. students (1439)	Grades 9-13	Frequency of drinking	Parental frequency of drinking (+)	

Table 4.1 (cont): The results of studies classified into the dimensions of modelling/imitation and social reinforcement¹

Study	Subjects (N)	Age	Drinking behaviour	Modelling/imitation	Social reinforcement
Takei <i>et al</i> (1988)	Native U.S. teenagers (74)	13-19	Frequency of drinking	Related adults drinking (n.s.)	
Thompson and Wilsnack (1987)	H.S. students - 4 year follow-up (839)	Time 1: Grades 7,8 Time 2: Grades 11,12	Q/F Index	Paternal drinking (+ boys, n.s. girls) Maternal drinking (+ girls, n.s. boys)	Parental attitude (n.s.)
Wilks <i>et al</i> (1989)	Adolescents (106)	17-19	abstainer - heavy drinker	Parental drinking(+ boys) Paternal drinking(+ girls) Maternal drinking (n.s. girls)	Parental norms (+)

Table 4.1 (cont): The results of studies classified into the dimensions of modelling/imitation and social reinforcement¹

¹ In order to establish directional continuity when comparing studies, each finding was classified according to its relationship with the main dimension, as either significantly positively (+), significantly negatively (-), or non-significantly (n.s.) related to the drinking behaviour variable. Thus heavier drinking parents are models for higher alcohol use (+), and pro-drinking parental attitudes (positive reinforcement) encourage higher levels of adolescent drinking (+). E.g. the study by Alexander and Campbell found parental opposition (a social reinforcement variable) to co-vary negatively with adolescent drinking, but as parental opposition is negatively related to social reinforcement, then the Alexander and Campbell finding provides evidence that social reinforcement of drinking is positively related to adolescent drinking behaviour, i.e. (+).

	Relationship with adolescent drinking			
	+ sig	n.s.	-sig.	
Parental drinking	30	8	0	($\chi^2=38.31$, $df=2$ $p<0.001$)
Parental attitudes	18	6	0	($\chi^2=18.0$, $df=2$ $p<0.001$)

Table 4.2: Total significant and non-significant results for the relationship between adolescent drinking behaviour and family social learning factors

In summary, the results of this meta-analytic study show that:

- Adolescents drink more if their parents drink more
- Adolescents drink more if their parents approve of their drinking

Parental drinking and parental attitudes are discussed further below, presenting in more detail the results of some studies which were included in the meta-analysis.

Parents as models

There is a clear theoretical rationale for implying that such modelling is largely unidirectional. Parents are likely to have developed a fairly consistent pattern of alcohol use, which is unlikely to be influenced by how their offspring begin to use alcohol. Longitudinal studies which measure the relationship between parental drinking at time 1 and offspring's drinking at time 2 show a pathway of positive influence. Almost two thousand teenagers in Grade 7 (age 12) were

followed up by Ellickson and Hays (1991) 3 months and 12 months later. They found that alcohol use by parents or a close adult was significantly related to initiation of drinking; to continuing alcohol use; and to the development of heavy drinking. Johnson and Pandina (1991) followed up over thirteen hundred students aged 12, 15 and 18 over three years. They found parental alcohol use was significantly related to the future frequency of drinking in their offspring (but not to the development of problem drinking). Kandel and Andrews (1987) followed up 345 secondary students over 6 months. Frequency of alcohol use by the interviewed parent was significantly related to initiation of alcohol use in their offspring. Further, initiation into hard liquor use was predicted by parental use of hard liquor measured 6 months previously, in an earlier study by Kandel *et al* (1978).

Pointing to potential sex differences, Thompson and Wilsnack's (1987) results from a 4-year follow-up study involving 839 students (aged 12-17) showed that father's drinking predicted male offspring's alcohol use, and mother's drinking predicted female offspring's alcohol use. And, in a cross-cultural comparative study, Adler and Kandel (1982) reported that in the U.S.A. frequency of drinking by both parents was linked to son's and daughter's frequency of drinking. In Israel, mother's use only was influential, and in France mother's use predicted daughter's use only.

Other studies, predominantly cross-sectional, have also found sex differences, although no clear patterns are apparent. For example, Barnes *et al* (1986) found that adolescent drinking was significantly related to frequency of drinking of mother, but not father. However, the father's drinking did show a marked trend - adolescents with heavier drinking fathers were twice as likely as those with low/moderate drinking fathers to be heavier drinkers.

Donovan and Jessor (1978) found that family models of drinking were significantly related to problem drinking in girls, but not in boys. Forslund and Gustafson (1970) found that mother's drinking was associated with drinking without parental supervision by both sons and daughters, but paternal drinking was only related to daughter's unsupervised use. Conversely, Wilks *et al* (1989) reported that paternal drinking was related to drinking by both sons and daughters, but mother's drinking was linked only with son's drinking.

Most studies in this meta-analysis reported significant associations between the drinking behaviour of both parents and that of sons and of daughters. In those studies where sex differences were found, these may reflect genuine differences, perhaps cultural, in the inter-generational transmission of drinking behaviour. Or, as with several studies which used multiple regression techniques to analyse data, it may be a statistical artifact. For example, if there is a notable positive correlation between the drinking of mothers and the drinking of fathers, as there generally is (eg. Wilks *et al* 1989), then statistical techniques which partial out such co-variation and contribute such overlap in the relationship with offsprings drinking to either maternal or paternal drinking, may be inappropriate (eg. Kandel *et al* 1978; Smart *et al* 1978). Indeed, it may be the co-variation between the drinking of each parent which is the salient influence - the drinking behaviour model of both parents rather than one over the other. Of course, there may be some sex differences, but probably not of the order suggested by those studies reporting a stepwise multiple regression which indicates, for example, that father's drinking is significant but mother's is not significant.

Parental Attitudes

As stated above, most of the studies examined in the second meta-analysis were cross-sectional in design. And as with parental drinking, there is a clear theoretical rationale for supposing that the direction of effect is largely from parents to offspring. However, one could imagine the situation when heavy teenage drinking may cause parents to moderate their attitude to their offspring's alcohol use. If, for example, a teenager comes home drunk from a party, or gets into trouble with teachers or with police for alcohol-related behaviour, then parents will probably become less approving or tolerant towards their son's or daughter's future alcohol use.

The longitudinal studies tended to be less consistent than the cross-sectional studies. Donovan *et al* (1983) followed up 593 high school students and college freshmen six years later when they were young adults. There was no relationship between parental approval of drinking at time 1 and problem drinker status at time 2. However, in Johnson and Pandina's (1991) longitudinal study, tolerance by parents to their teenager's drinking was significantly related to both son's and daughter's frequency of drinking three years later.

Kandel and Andrews (1987) measured parental beliefs that alcohol use is harmful. These were not related to initiation of alcohol use in their offspring six months later, but were related to their offspring themselves having a negative attitude to alcohol use. In an earlier study Kandel *et al* (1978) reported similar results: parental tolerance of child's potential hard liquor use was not related, six months later, to initiation of hard liquor use. However, parental approval of alcohol use *was* related to initiation of alcohol use (but not continuing alcohol use) 12 months later in a longitudinal study by Ellickson and Hays (1991) of almost two thousand grade 7 students.

In summary, cross-sectional studies tend to report a significant relationship between parental attitude and offspring's alcohol use. The picture from longitudinal studies is less clear: some report a clear association, others no association. Longer term influence of a particular parental attitude could be a function of the ordinal nature of change in parental attitude - those parents who soften their attitudes earlier may reinforce more frequent earlier drinking which could, in turn, lead to heavier future drinking. However, the evidence for earlier drinking leading to later heavier drinking is poor and inconsistent (Davies 1992), as is the evidence for earlier heavy drinking predicting later heavy drinking (Bagnall 1991). It seems that, on the whole, parental attitudes are more influential in the short-term, and this is supported by the consistency in the cross-sectional studies in the meta-analysis of parental attitudes and teenage drinking.

Peer influence

Although the majority of studies in the second meta-analytic study were cross-sectional in design, there is a clear rationale for positing that parental drinking is more influential for offspring's drinking than vice-versa. Adults who are parents of teenagers will probably have developed an established and stable pattern of drinking, which is unlikely to be influenced to any extent by the way their children begin to drink. On the other hand, teenagers are likely to be influenced by the way they perceive their parent's established drinking patterns. The same cannot be said for the process of peer influence.

Modelling the drinking behaviour of peers is frequently depicted as the major mode of psychosocial influence for teenage drinking, especially for older teenagers. This 'peer pressure' hypothesis has formed the basis of much alcohol-

and drug-related alcohol education, and 'resistance to peer pressure' underlies many such initiatives. Peer influence is often found in cross-sectional studies to be a better statistical predictor of teenage drinking than other, including parental, influences. However, association does not imply causation. Many young drinkers drink with their friends. Their close social network is made up of friends with whom they share their behaviour (Eiser *et al* 1991). The argument that peer drinking is more influential for own drinking than own drinking is for peer drinking is obviously flawed. Both peers and self are learning to drink and are developing patterns of alcohol-related behaviour, and influences are reciprocal.

So, longitudinal studies which demonstrate that peer drinking at time 1 predicts own use at time 2 should also measure how own use at time 1 predicts peer use at time 2. Two studies which did just that came up with interesting and illuminating results. Britt and Campbell (1977), in a follow-up study of 1420 high school seniors in their college freshman year (i.e. one year later) found that baseline respondent alcohol use had a slightly stronger effect on follow-up peer influence than baseline peer influence had on follow-up respondent alcohol use. Similarly, Downs (1987) followed up over one year 100 adolescents between the ages of 13 and 17. Drinking by a close friend at time 1 was related to self-drinking at time 2. But, reciprocally, self-drinking at time 1 was related to close friend drinking at time 2. In this study also, the self→peer path was slightly stronger than the peer→self path. This suggests that as well as individuals drinking like their peers, they also choose to mix with friends who share their own drinking preferences and aspirations.

These results are one reason why 'resistance to peer pressure' as an alcohol education paradigm is generally ineffective in modifying behaviour (Moskowitz 1989). Peer drinking cannot be clearly separated out as a distinct

aetiological mechanism, as the influence of peers is complex and reciprocal. Therefore, encouraging adolescents to resist peer pressure to drink, when they themselves are already drinking like their peers, is obviously a weak and flawed alcohol education strategy. It is an insufficient attempt to deal with only part of the problem.

However, if we do not regard peer pressure as an aetiological factor but merely as a mechanism through which behaviour can be changed (resistance to peer pressure) then we are also in trouble. This is a form of cognitive-behaviour intervention, a method common in clinical psychology. But there are a couple of problems in using this technique with young drinkers. Firstly, this method relies on the recognition by young people that their friends' drinking influences the way they themselves drink. In a recent study however (Foxcroft & Lowe 1993; also see chapter 7), we found that only a small proportion of older teenagers (approximately 1 in 8) said that they drink because their friends do. Secondly, and perhaps more importantly, this technique requires that individuals see their own drinking as a problem which needs to be modified. Most young people drink because it is enjoyable and because it is a normal social behaviour, not a problem one, and as such do not wish to modify their behaviour.

Moreover, given that many teenagers want to drink, then if they are told by alcohol educators that they drink because of peer influence, and that they should resist such influences, teenagers may reject the incorporation of peer influence into their alcohol use schema. This would then reduce dissonance, and the young people would feel comfortable about carrying on drinking. This could also help explain the low number of individuals who cite friends' drinking as a reason for own drinking in the study mentioned above (Foxcroft & Lowe 1993).

Given the above findings of a low proportion of teenagers who said that they drink because their friends do, it would be interesting, especially with younger teenagers, to find out if teenagers in fact know how their friends drink. Knowledge of friends' drinking behaviours is an important requirement for peer socialization influence, and looking at those who know about their friends' drinking and those who do not may provide a more useful insight than simply, and incorrectly, predicting an individual's drinking from his or her friends' drinking.

Modelling and social reinforcement

As predicted, the results of the meta-analysis suggest that parental models of alcohol use and parental attitudes to their teenager's alcohol use are two important mechanisms in the socialization of adolescent drinking behaviour, and should always be considered together in the relationship with teenage drinking. Social learning theory clearly outlines these two factors, and also points to the potential additive and interactive effects of modelling and social reinforcement. Parental attitudes are particularly important in that they provide social reinforcement which may encourage or discourage the modelling of parental drinking. For example, parental disapproval provides little or no reinforcement for modelling parental drinking. On the other hand, parental approval directly reinforces modelling of parental drinking. Thus it is the combination of parental approval and heavy parental drinking which may result in heavier teenage drinking.

This pattern of influence was indeed demonstrated by O'Connor (1978). She reported on the relationship of parental drinking and parental social rules for

their offspring's drinking (parental attitude) with their offspring's light or heavy alcohol use. The data were analysed using logistic regression, and although confidence limits were not reported, the pattern of the results is illuminating nonetheless (Figure 4.2). The results of the logistic regression are presented in the form of odds ratios of the teenager being classified as a light or heavy drinker. For example, if odds of 3 to 1 are found for drinkers with approving and heavy drinking parents, this means that individuals with these parents are three times more likely to be heavy drinkers. The actual results (Figure 4.2) showed that adolescents whose parents were heavier drinkers and also approved of their drinking, were most likely to be heavy drinkers. Even if parents were light drinkers, providing they approved of their teenager drinking, then their teenager was more likely to be a heavy drinker. As predicted by social learning theory, parental disapproval was associated with light drinking by offspring, regardless of level of parental drinking.

In Figure 4.2, parental approval seems to be a more important influence than parental drinking per se, but it is the combination of heavy parental drinking and an approving or tolerant parental attitude which provides the most risk for heavy teenage drinking.

Although O'Connor's analysis is a step in the right direction, the classification of parental drinking and parental attitudes into light/heavy and approve/disapprove may be too general. The previous chapters have pointed to the normality of sensible teenage drinking, reflecting the alcohol use of most adults in the social and cultural environment. Teenagers who are heavy drinkers *or* non-drinkers are, it was suggested, socially deviant. The same argument applies to parental drinking. If parents do not drink *or* drink heavily then they too may be socially deviant. Thus, rather than light/heavy categories

of parental drinking, classification should distinguish non-drinkers from sensible/moderate drinkers and from heavy drinkers.

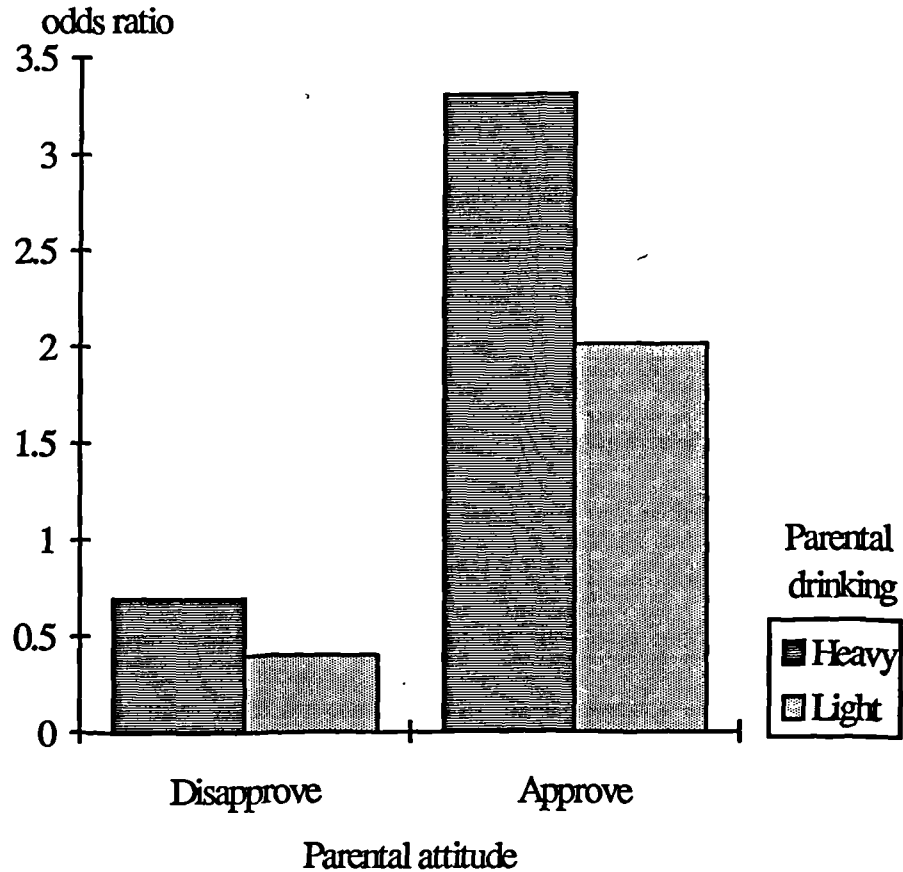


Figure 4.2: Odds of being a heavy drinker according to parental attitude and parental drinking (adapted from O'Connor 1978)

Parental attitudes should also be classified more distinctly. Parents may approve of their teenager drinking in a variety of ways. If a parent permits their teenager to drink only on special occasions and only with parental supervision, then this is a form of prescriptive approval. Also, teenagers may report that their parents do not mind them drinking as long as they drink sensibly and behave sensibly. This is a form of authoritative approval. On the other hand, if

teenagers report that their parents are not bothered or do not care about their offspring's drinking then this suggests parental indifference. Parental indifference is regarded by teenagers as tacit approval of their alcohol use, in that no drinking restrictions whatsoever are applied. Parental indifference is thus one extreme of parental attitude towards offspring's drinking, and the other is disapproval. Of course, parental attitudes probably vary as a function of the age of the respondent. In the socialization of alcohol use parental attitudes may be initially more prescriptive but moderate as the teenager matures.

To summarize, adolescent drinking is influenced by social learning in two respects. Parental drinking and parental attitudes provide models and social reinforcement through which young people develop their own drinking. The combination of parental approval of drinking and heavier parental drinking seems to be a serious risk factor for heavier teenage drinking. However, the relationship between these parental behaviours and teenage drinking is complex, and examination of the relationship should involve at least three levels within each behaviour. Nil, sensible and heavy levels of parental drinking need to be considered, as do parental disapproval, approval, or moderating attitudes to their teenager's alcohol use.

Chapter 5: Adolescent drinking: a model of family process and family social learning influences

Barnes (1990) produced a model of teenage drinking in which family socialization is the central and most important influence. This is also a major theme of this investigation, and the specifics of this model have been developed further by detailing the elements of family dynamics which are important in the socialization of normative adolescent alcohol use.

The previous two chapters have gone into some detail about family socialization influences on teenage alcohol use. These family socialization influences are non-alcohol-specific and alcohol-specific. Family process underlies non-alcohol-specific family influences, characterized by levels of supportive and controlling behaviours. Social learning is the alcohol-specific mode of family influence, characterized by modelling of parental drinking behaviour and by parental attitudes to their teenager's actual or potential alcohol use.

These four factors make up a framework for the investigation and understanding of family influences on the development of adolescent drinking behaviour (see Figure 5.1). This framework or model specifies causal relationships, but prediction of the direction or magnitude of the hypothesized

relationship with drinking behaviour may not always be possible, especially with the more complex interactions between the factors.

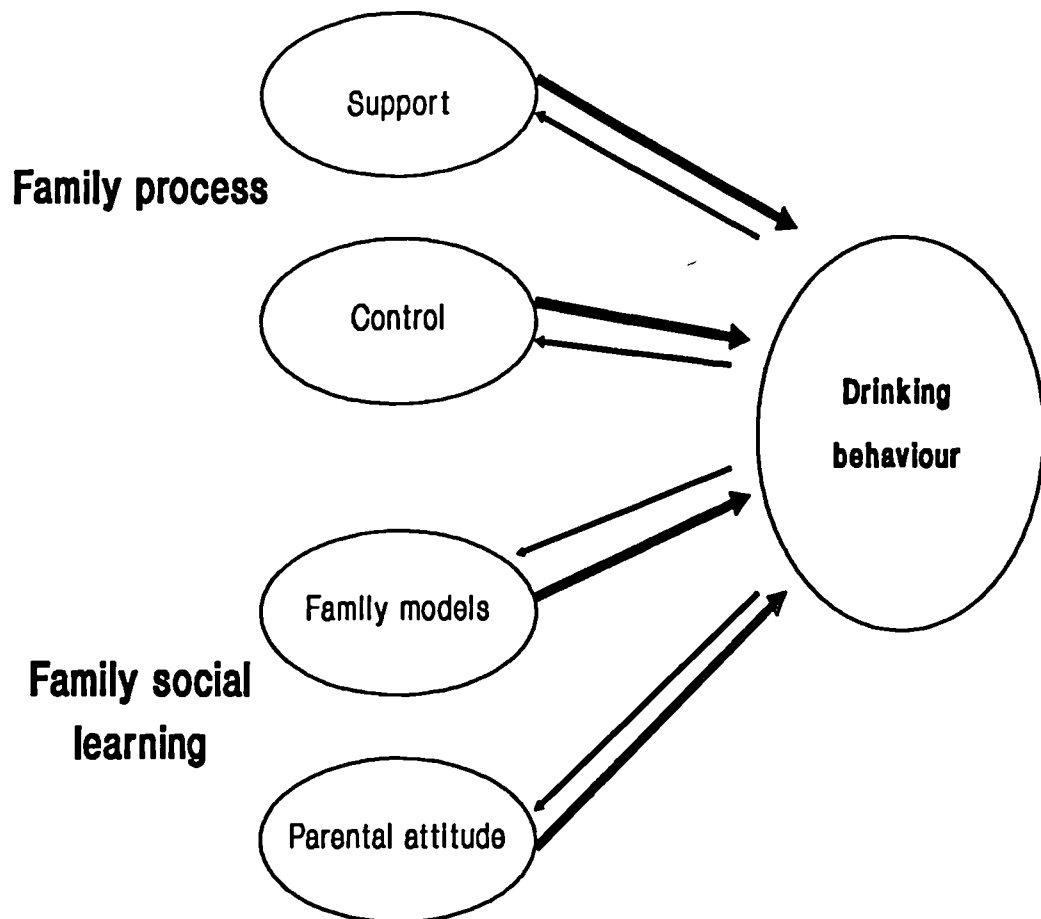


Figure 5.1: Family socialization factors which influence the development of teenage drinking

Although to a certain extent this is a post-hoc framework or model, the organization which the model brings to present knowledge and understanding is important. This demonstrates the iterative research-theory process involved in most theory/model development. The full causal model of family socialization influences on teenage drinking is specified in Figure 5.2.

Demographic factors include age, sex, family structure, SES, etc. Shaded arrows indicate direct influences, and unshaded arrows indirect, mediated, influences (c.f. Baron & Kenny 1986 for discussion of mediator variables).

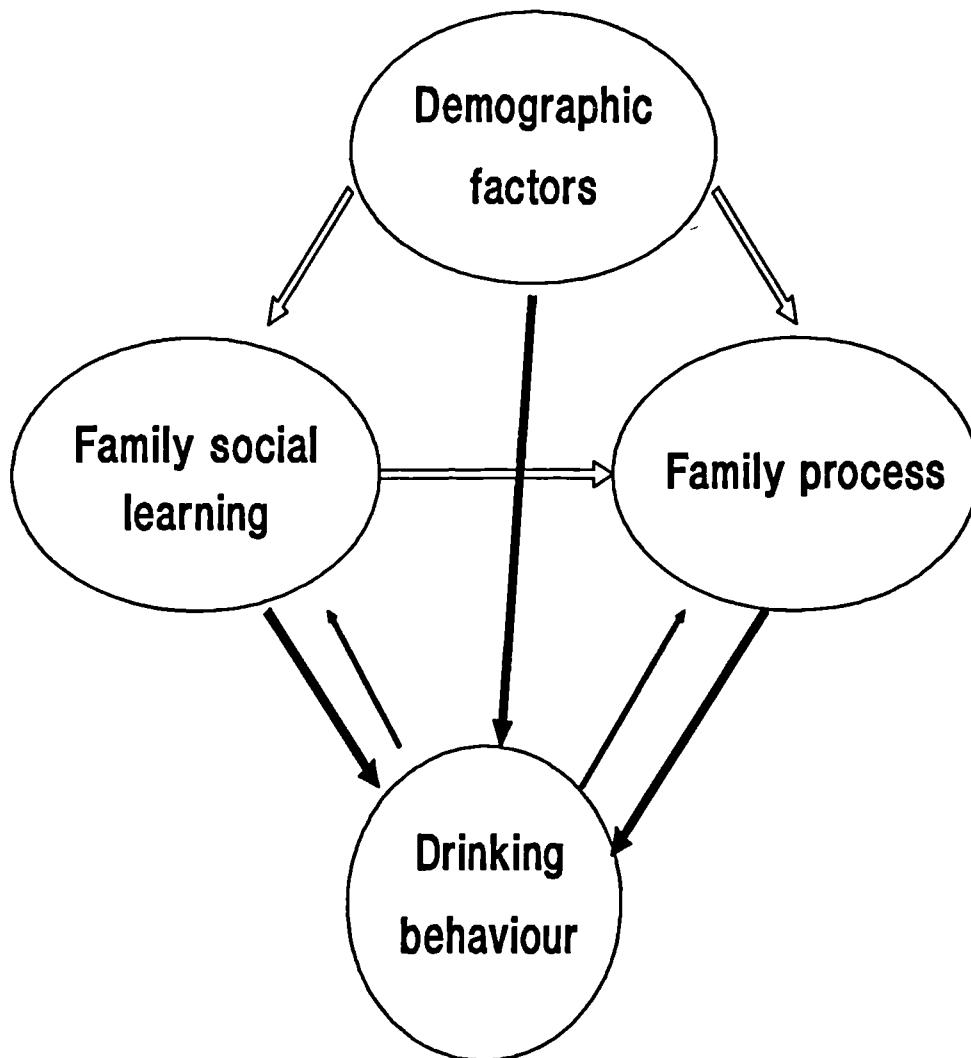


Figure 5.2: Family socialization: a model for teenage drinking

Of the indirect effects, demographic variables are hypothesized to be mediated by both family process and family social learning variables, and family social learning variables are hypothesized to be mediated by family process variables. For example, in addition to direct effects, perceived family

models and parental attitude may also be mediated by levels of perceived support and control in their effect on adolescent self-reported drinking behaviour.

The present theoretical model is in line with the "social mold" perspective on family socialization and adolescent behaviour (Peterson & Rollins 1987). Whilst there are undoubtedly bidirectional effects, most existing theory and empirical evidence supports the predominantly uni-directional social mold perspective, in which parents and family exert powerful socialization influences on children and adolescents (Peterson & Rollins 1987).

Furthermore, this conceptualization of family socialization theory goes beyond the organization of knowledge of family influences on teenage drinking. Previous research has focussed mainly on heavy or problem drinking adolescents, and classified non-drinkers and sensible drinkers as one indistinct group. Problem drinking adolescents are the most important focal group for many research programmes (researchers are often most interested in the practical implications of research for treating and educating individuals with problem drinking or problem substance use behaviour). However, this focus may neglect a more global view of family influences and teenage drinking, one which incorporates non-drinkers as a socially deviant group. This is an important point. If parents and educators strive to socialize teenagers into behaviour which will prepare them best for adulthood, then the goal, at least in the U.K., must surely be sensible drinking, rather than non-drinking. Optimal family socialization should be those family behaviours which lead to sensible and normative levels of drinking. It is therefore important for researchers to examine and specify such family behaviours, as well as family behaviours which may lead to non-drinking and heavy drinking.

Non-drinking teenagers

Most adolescent drinking research distinguishes heavy drinkers from non-heavy drinkers. Few studies have looked specifically at non-drinkers, and this distinction has not been carried forward into subsequent research studies by others. In one study that did look at teenage non-drinking, Davies and Stacey (1972) examined teenagers' perceptions of heavy drinkers and of abstainers along two dimensions - tough/rebellious and attractive/sociable. They found that these perceptions represented two contrasting stereotypes. The non-drinking teenager was seen by most people as lacking in toughness and rebelliousness, whereas heavy drinkers were seen as tough and rebellious. In terms of attractiveness and sociability, heavy drinkers were on the whole viewed by all sex/age groups as unattractive and unsociable, whereas the non-drinker was perceived as falling midway between the extremes of attractive/sociable and unattractive/unsociable. For further insight and clarification, it would be interesting to look at the teenager's perceptions of a sensible drinker in terms of toughness and attractiveness, and to compare this with their perceptions of the heavy drinker and of the non-drinker.

A report by Demone (1972) also distinguished non-drinkers from moderate and heavy drinkers. Demone reported characteristics associated with abstinence in his sample of 3256 young male adolescents. These characteristics included living with both real parents, a non-drinking father and a non-drinking mother, parental refusal to grant permission to drink under any circumstances, feelings of strong obligation to parents, and agreement with parents on fundamental issues, such as agreeing that the teenager may make his own decision about drinking when he is supporting himself.

Contrast this with the profile of the pathological drinker: among the characteristics reported were a broken home, father or mother who were abstainers, father or mother who drank daily, father or mother with a drinking problem, failure to confide in parents, commitment to peers in parent-peer conflict about excessive drinking, and parental indifference to their son's drinking. In describing this contrast in family characteristics between non-drinkers and heavy drinkers, Demone points to the rejection by heavy drinkers of formal adolescent activities and adult sanctioned behaviour, whilst non-drinkers overreact in the opposite direction - emulating all models and behaviours defined for adolescents by adults.

The above profiles support the conclusions made in the previous chapters, that non-drinking, as well as heavy drinking, is viewed as a 'deviant' behaviour, and that extremes of family process behaviours lead to extremes of teenage drinking behaviour. The non-drinkers in Demone's study felt a strong obligation to parents, whereas heavy drinkers failed to confide in their parents. In chapter 3 it was suggested that low support and low control were associated with heavy adolescent drinking, and that high levels of support and control may be associated with non-drinking. These observations clarified the family systems perspective, which suggested that extremes of family behaviours would be associated with dysfunctional outcome. Most previous research, however, had not confirmed this hypothesis, because the dysfunctional outcomes typically examined referred only to problem (heavy) drinking or problem substance use.

Also seen in the above profiles is the relevance of the non-drinker, sensible/moderate drinker and heavy drinker distinction for social learning influences. Non-drinkers were more likely to have non-drinking parents and parents with a disapproving attitude to their teenager's drinking. On the other

hand, heavy drinkers were more likely to have non-drinking *or* heavy drinking parents and parents with an indifferent attitude to their teenager's drinking. The interactions between these social learning influences and family process influences may also help explain why heavy drinkers might have heavy drinking parents or parents who abstain. Both influences are inadequate models for normative socialization, and it may be that different levels of support and control in the family environment provide positive or negative reinforcement of parental models and attitudes.

However, regarding family process as a social reinforcement factor in the modelling of parental drinking creates a theoretical problem for family socialization theory. This problem appears when parents provide inadequate models of drinking behaviour, leading to alternative predictions from social learning theorists and family theorists. For example, if parents are heavy drinkers, social learning theory predicts that a good family environment would reinforce the modelling of parental drinking. However, family process theorists would argue that an optimal family environment would protect against the adoption of dysfunctional behaviour. In reality though, heavy parental drinking is more likely to be associated with a poorer family environment, but nevertheless the possibility of a good family life and a problem drinking parent does produce competing predictions within family socialization theory.

These competing hypotheses have in fact been examined in a study of the offspring of problem drinking parents (Orford & Velleman 1991), and some support was found for both hypotheses. The authors concluded that the transmission of problem drinking occurs through a variety of mechanisms of differential importance in different sub-groups. This interesting problem merits further examination, preferably using a matched control group of offspring of non-problem drinking parents.

How family process mediates modelling of parental drinking could depend on the level of parental drinking: a good family environment could foster social reinforcement of normative parental drinking, but may protect against the modelling of heavy parental drinking behaviour. Figure 5.2 shows how familial social learning has a direct effect on teenage drinking (shaded arrow) and also an indirect, mediated effect through family process (unshaded arrow).

Consistent and inconsistent family socialization

The results of the meta-analyses in the previous chapters suggest that family behaviours which consistently socialize an individual towards heavier drinking behaviour are a combination of low support, low control, heavy parental drinking and condoning parental attitudes. Consistent behaviours may also underlie adolescent non-drinking: high support, strict control, parental non-drinking and disapproving attitudes. These were linked with non-drinking in the study by Demone (1972).

Inconsistent behaviours may also pose a risk for deviant drinking behaviour. The discussion above about mediating influences and competing hypotheses generally depicts inconsistent socialization behaviour. Such inconsistent socialization may be due to different behaviours from different parents, but another important influence is likely to be inconsistent socialization practices between distinct family socialization factors. For example, the inconsistency between heavy parental drinking and a disapproving parental attitude, or the inconsistency between low support and high control and an indifferent parental attitude (and perhaps abstaining parents thrown in for good measure), is not a complementary pattern of family behaviour, and is probably not optimal family

socialization behaviour. In terms of communication theory, such inconsistent family behaviours are not optimal in terms of adolescent socialization because they provide disjunctive messages and meta-messages to the maturing teenager (Bateson *et al* 1956).

In essence, the issue here is one of additivity or interaction. Do the two family process and two familial social learning factors combine independently and additively in the socialization of teenage alcohol use? Or is there an interactive effect between these factors? If the effect is independent and additive then the prediction of teenage drinking behaviour from both consistent and inconsistent patterns of family socialization behaviour is quite straightforward. For example, a disapproving parental attitude towards a teenager's drinking in a family environment which otherwise socializes towards heavier drinking (low support, low control and heavier family drinking) would reduce that teenager's alcohol use behaviour. This teenager is therefore less likely to drink heavily than those individuals whose families consistently socialize towards heavier alcohol use.

Alternatively, there are two types of possible interaction effect. Ordinal interaction can be described as the potentiation of an outcome (drinking) by the combination of predictors (family socialization factors). An ordinal interaction effect is clearly shown in Figure 4.2 in which the likelihood of being a heavy teenage drinker is synergistically related to the combination of heavy parental drinking and an approving parental attitude. With disordinal interaction the rank order of the predictor variables changes. For example, there is a disordinal interaction in the situation where heavier drinking is linked with low support and low control, and also with low support and strict parental control.

From the patterns of socialization described so far, the optimal pattern for the socialization of sensible teenage drinking behaviour seems to be a pattern of

moderation - moderate levels of support and control, a moderating attitude to offspring's drinking and a model of sensible parental drinking. This pattern of socialization is most likely to have positive consequences for sensible teenage drinking, and could therefore be described as a pattern of positive or functional consistency.

Adolescent drinking in the U.K. and Humberside: recent trends

Before going on, in the next section, to look at the research questions and to develop hypotheses, a review of adolescent drinking in the U.K. and Humberside is described below.

The Social Survey Division of the Office of Population Census and Surveys (OPCS) carried out, in 1984, national probability sample surveys of adolescent drinking in England and Wales and in Scotland (Marsh *et al* 1986). Their results, based on self-reports of adolescents interviewed in their own homes, suggested that the majority of teenagers in England and Wales had taken their first proper alcoholic drink by the age of 13 (82% of boys and 77% of girls). By 16, over 90% of boys and girls had taken their first proper alcoholic drink. According to this survey, around 1 in 10 remained non-drinkers at 17.

Of the 13-year-old boys, 3 in 10 said they drank weekly, compared with 1 in 10 of the 13-year-old girls. By the age of 15, 52% of the boys and 37% of the girls reported drinking at least weekly. Of those who reported drinking in the last seven days, the majority drank only modest amounts. Half of the 13-year-old boys drank less than four units in the previous seven days. By 15, half of the boys said they drank more than 10 units in the last seven days, compared with 30% of the 15-year-old girls.

In a more recent national sample survey of 14-16 year old English teenagers, Plant *et al* (1990) found that most teenagers reported drinking only moderate amounts of alcohol. However, 1 in 3 males and 1 in 5 females said that they had at some time consumed 11 or more units on a single drinking occasion. Plant *et al* (1990) also looked at reasons for drinking, and found that most respondents endorsed positive reasons for drinking, e.g. curiosity, taste, parties. This report did not, however, detail the relationship between reasons for drinking and actual drinking behaviour.

More locally, Sharp (1992) carried out a survey in Hull schools of young people and drinking. She found that the proportion of non-drinkers decreased in older year groups, whereas the proportion of heavier drinkers increased. In school years 7 and 8 (aged 11-13) boys were more likely than girls to report drinking in the last week, whereas in year 9 (aged 13-14) girls were more likely than boys to report drinking in the last week. By years 10 and 11, girls and boys were equally likely to have drunk in the last 7 days.

Respondents in this survey were more likely to say that they had their first proper alcoholic drink without their parents between the ages of 11 and 13. Boys tended to report earlier first drinking experiences than girls, and most respondents of both sexes said that their first drink took place at home.

Sharp (1992) also looked at reasons for drinking, reporting that drinking to be confident, to feel relaxed, because of the effects and to be sociable were all reasons which were increasingly given by respondents in older age groups. In addition, heavier drinking boys were more likely to have said that they drink to get drunk, whereas heavier drinking girls were more likely to have said that they drink to be sociable.

In relation to changing patterns of alcohol consumption, both Sharp and Lowe (1989) and May (1992), in a later review, concluded that there is no direct

evidence that adolescents are currently drinking more, despite recent alarmist media headlines. However, comparisons between different surveys/studies are confounded because of variations in measurement methods, e.g. regional differences, survey techniques and questionnaire design (Sharp & Lowe 1989).

Goddard and Ikin (1988) did compare the drinking behaviour of adult drinkers between two national sample surveys carried out in 1978 and 1987. They concluded that consumption may have fallen among younger men, particularly those aged 18-24, whose average consumption fell from 26.0 units a week in 1978 to 21.4 units a week in 1987.

Of interest in the present study is the comparison of adolescent drinking in Humberside in 1988 (Sharp 1992) with adolescent drinking four years later, from the current research. Both studies involved the administration of questionnaires to Humberside school pupils, and several questions were the same or similar across the 1988 and 1992 questionnaires, facilitating analysis of stability and change in adolescent drinking over this 4 year period.

Reasons for drinking

Also of interest in the present study is the reasons for drinking that an individual has, and the relationship between reasons for drinking and alcohol use. Previous research has found that heavier drinkers are more likely than others to say they drink to relax, to socialize, for curiosity, to relieve boredom, and because their friends all drink (Plant *et al* 1990, 14-16 year-olds). Sharp and Lowe (1989b) report that, in their sample of 11-16 year-olds, heavier drinkers were more likely than others to drink because they liked the taste, to feel

relaxed, because everyone does, to get drunk, and because it makes a party fun. Bagnall (1988), in her three-country investigation of the drinking behaviour of thirteen-year-olds, found that males were more likely than females to give as reasons for drinking: 'so as not to be the odd one out in a group', 'to help me mix more easily with other people', 'to help me talk to members of the opposite sex more easily', and 'to look good in front of other people'. It seems that the heavier drinkers among young teenagers are more likely than others to drink for reasons of recreation, and that males are more likely to drink for reasons of social confidence and enhancement than females.

When respondents are asked simply to indicate which one's of a given set of reasons for drinking apply to them, then standard attributional analysis is not really appropriate. However, asking respondents to indicate the reasons why they drink alcohol requires them to cognate their reasons for this action. These perceived reasons influence the individual, in that without them, the behaviour would not be seen as appropriate. To this extent these reasons help to explain the behaviour for the individual (Locke and Pennington 1982).

As stated above, the reasons that a person gives for an action constitute an attempt at explaining that action. Such causal attributions are made using a causal schema (Kelley 1972). Hewstone (1989, p.27) describes schemata as representing "*organized knowledge, based on cultural experience and not just an abstract relation between cause and effect*". In other words, causal attributions are made in the light of previous experience of self and others in the environment. Such attributions are often described as "common-sense" attributions. Kelley (1972) describes a simple causal schema as one of multiple sufficient causes (MSC), i.e. an action will occur if cause A is present, or if cause B is present, or indeed if they are both present. Common actions, such as drinking alcohol, are more likely to be explained using a schema of this type (MSC), whereas a causal

schema of multiple necessary causes (MNC) is more likely to be invoked to explain uncommon events, such as traffic accidents, or marital breakdown (Kelley 1972).

A person's reasons for drinking make up multiple sufficient causes. If this argument is extended then one obvious hypothesis is that the probability of an effect occurring is directly related to the number of causes present. Thus an individual is likely to use alcohol more often and perhaps more heavily if he or she has more reasons for using alcohol. Leddo *et al* (1984) state:

"An important feature of a knowledge structure view of explanations is that many human actions are well understood to have multiple reasons that can supplement each other. This seems to be true, for example, in much goal-directed behaviour, and even in increasingly simpler scripts. One goes to a restaurant to satisfy hunger, to indulge appetite, to avoid cooking, to have a change of scene, to socialize, and perhaps to celebrate." (pp. 934-935)

Listed above are numerous reasons why one goes to a restaurant - in fact they are a list of multiple sufficient causes. Although more than one reason may be given for going to a restaurant on a particular occasion, it is also the case that, in general, the probability of an individual eating out varies with the number of reasons within that individual's schema for eating out. The more reasons, the more likely one is to eat out. This goes beyond the usual focus of attribution research (that of examining the nature of attributions for a single event) to the prediction of a behaviour from the attributions for that behaviour. This is in essence the goal of most research in the behavioural sciences - understanding behaviour so that subsequent behaviour can be predicted.

Adolescent drinking behaviour

In the present study, three different aspects of adolescent drinking behaviour will be examined. First, respondents' self-reported first drinking experiences provide information about initiation into the alcohol 'culture'. Secondly, information about respondents self-reported reasons for drinking will provide information about their attitudes towards alcohol and give insight into each individual's alcohol-use schema. Thirdly, current drinking behaviour provides information aboutcurrent drinking behaviour! Moreover, it is likely that, due to a cognitive consistency effect, the cross-sectional nature of the present study, and the use of questionnaires, these three different aspects of drinking behaviour will *all* be indicators of an individual's underlying drinking behaviour schema.

Research questions and hypotheses to be tested

The research issues and questions to be addressed in this study and thesis are outlined below. From each research question a number of testable hypotheses are specified. These hypotheses are based on the empirical evidence and theoretical argument detailed in this and the previous chapters.

(1) Can the perceptions of family environment by adolescents be organized along typical dimensions of family process, such as support and control? If so, what is the pattern of family environment perceived by adolescents in this study?

Hypothesis 1:

- (a) There is a clear structure and dimensionality in the perception, by adolescents, of family process along dimensions of support and control.
- (b) Adolescents do not, on the whole, perceive their family environment negatively.

(2) What is the pattern of self-reported alcohol use in a regional sample of adolescents? In particular, three aspects of drinking behaviour will be examined:

- (i) first drinking experiences
- (ii) reasons for drinking
- (iii) current alcohol use

Furthermore, how does drinking behaviour in the present study compare with previous knowledge of adolescent drinking in the region?

Hypothesis 2:

- (a) Over the past 4 years, patterns of adolescent alcohol consumption have remained stable.
- (b) Most teenagers report that they drink sensibly.
- (c) Older teenagers drink more than younger teenagers.
- (d) There are sex differences in drinking behaviour, with boys drinking more than girls, but not markedly so.
- (e) Older teenagers report later age of first drinking experiences.
- (f) After age is controlled, those who report earlier first drinking experiences also report more current alcohol use.

(g) More reasons for drinking is linked to more current self-reported alcohol use.

(3) Can perceived family environment in relation to self-reported drinking be reduced to typical important dimensions, such as support and control? Or are lower order dimensions better indicators of this relationship?

Hypothesis 3:

(a) There is no advantage in characterizing family process by sub-factors of support and control in relation to self-reported adolescent drinking behaviour.

(4) How do perceptions of family environment, as reported by teenagers, relate to their self-reported drinking behaviour, as measured by first drinking experiences, reasons for drinking, and current alcohol use? In line with this, what are the most important characteristics of family life in relation to adolescent drinking behaviour?

Hypothesis 4:

(a) Levels of support, control, family models and parental social reinforcement are all directly related to alcohol use.

(b) Low support is linked with more self-reported drinking and high support with lower levels of self-reported drinking behaviour.

(c) Low control is linked with more self-reported drinking and high control with lower levels of self-reported drinking behaviour.

- (d) Adolescents who report that their parents and older sibling (if applicable) have relatively higher levels of alcohol use will themselves report higher levels of drinking behaviour.
- (e) Adolescents who report that their parents are relatively more tolerant or indifferent towards them drinking will themselves report higher levels of drinking behaviour.
- (f) Alcohol-specific family influences (family social learning) will provide better statistical predictors of self-reported adolescent drinking behaviours than non-alcohol-specific influences (family process).
- (g) Consistent socialization towards normative drinking behaviour will be characterized by moderate, mid-range, levels of support, control, family drinking and parental attitudes.
- (h) Disjunctive messages and meta-messages, characterized by inconsistent family behaviours in relation to the hypothesized link with adolescent drinking, will result in higher levels of self-reported drinking behaviour. This pattern would be characterized by disordinal interactions between family socialization factors in the relationship with drinking behaviour.

(5) Are there any differences in the relationship between self-reported drinking and perceived family environment for different age and sex groups?

Hypothesis 5:

- (a) There are no important differences in the relationship between adolescents' self-reported drinking behaviour and perceived family environment for different age/sex groups.

(6) How does the perceived alcohol use of friends' influence an adolescent's drinking behaviour; and is the relationship between family socialization and drinking behaviour moderated by knowledge of friends' drinking?

Hypothesis 6:

(a) The self-reported drinking behaviour of adolescents is positively correlated with their perception of their friends' alcohol use behaviours.

(b) Individuals in older year groups are more likely to know how their friends drink.

(c) Adolescents who know how their friends drink are more likely to be drinking with their friends. This group are likely to be drinking more than individuals who do not know how their friends drink.

(d) Family socialization factors remain important predictors of drinking behaviour despite increased peer socialization influences.

Conclusions

According to Lerner (1985), there needs to be three components of theory guided research studying adolescent-social context relations:

1. There needs to be some conceptualization of the nature of the attributes of the person one is interested in studying.

In the present study, the individual attributes in question are adolescents' self-reported drinking behaviour, as indicated by first drinking experiences, reasons for drinking and current alcohol use.

2. There need to be some conceptualizations of the person's context one wishes to explore and a rationale for why this portion of the context is pertinent to the individual attribute one is assessing.

In the present study, family socialization factors, characterized by family support, control, models for drinking and social reinforcement for drinking, provide the theoretical 'context' of familial influence on adolescent drinking behaviour. Families are major agents of child and adolescent socialization, influencing and shaping social behaviours such as the development of drinking behaviour.

3. There needs to be some conceptualization of the relation between the individual attribute and the contextual feature.

In the present study the hypotheses made earlier outline the conceptualization of the relationship between adolescent drinking behaviour and family socialization factors. In brief, moderate levels of family socialization should be linked with sensible drinking behaviour, whereas extreme levels of family socialization are predicted to be linked with extremes of drinking behaviour, indicated by low and non-use on the one hand and heavy, excessive use on the other. These hypotheses are addressed in the results chapters, although not necessarily in the order specified. (At the end of each results chapter the hypotheses addressed in that chapter are listed and the results summarized).

Chapter 6: Methodology

Research design

Miller (1991, p.4) describes three broad research design orientations. These are basic or pure research, applied or action research, and evaluative research. In Table 6.1, the nature of the research problem, goal of the research, guiding theory and appropriate techniques are all described in relation to the context of the present study, namely basic and applied research.

<i>Defining characteristic</i>	<i>Basic (pure)</i>	<i>Applied</i>
Nature of the problem	Basic scientific investigation seeks new knowledge about social phenomena, hoping to establish general principles with which to explain them	Applied scientific investigation seeks to understand a demanding social problem and to provide policymakers well-grounded guides to remedial action
Goal of the research	To produce new knowledge including discovery of relationships and the capacity to predict outcomes under various conditions	To secure the requisite knowledge that can be immediately useful to a policymaker who seeks to eliminate or alleviate a social problem
Guiding theory	Selection of theory to guide hypothesis testing and provided reinforcement for a theory under examination	Selection of a theory, guidelines, or intuitive hunches to explore the dynamics of a social system
Appropriate techniques	Theory formulation, hypothesis testing, sampling, data collection (direct observation, interview, questionnaire, scale measurement), statistical treatment of data, validation or rejection of hypotheses	Seek access to individual actions and inquire what actors are thinking and feeling at the time; elicit the attributions and evaluations made about self, other, or situational factors; regard crucial explanations as hypotheses to be tested

Table 6.1: Research design orientations (adapted from Miller (1991))

The present research project fruitfully combines both basic and applied research design orientations. In this research a theoretical model has been developed which may provide new knowledge about adolescent alcohol use and misuse in the U.K., and which will hopefully have policy implications.

In the choice of research design several factors were considered. These were the accessibility of potential subjects in the population; resources available to the researcher; planned methods of analysis and, of course, the research questions to be addressed. Miller (1991) suggests that:

"The guideline 'Start strong' supercedes any other consideration. It specifies that every effort be made to select a design setting with a population in which large variations of both independent and dependent variables may be found. And for any research project, insurance is important and may be secured by combining case analysis with any other research design. Failure to find statistical relations spurs the need for case study. In the intense probing, especially of extreme cases at the tails of a distribution, may be found polarized relationships that suggest new hypotheses, new designs, and new analyses of the data." (p.21)

Following Miller's advice, two research designs were chosen. The major study used a cross-sectional sample survey design and was primarily quantitative, although some qualitative data was obtained from an open ended question. On a smaller scale, several case studies were also carried out, using semi-structured interviews, thus providing more detailed qualitative data.

The use of case studies in fact allows more than the simple "insurance" policy suggested by Miller. These qualitative case studies also lend themselves to the triangulation (convergent validation) of results from the quantitative data.

Power

Type I error is the probability of rejecting the null hypothesis when it is true. This is equivalent to the level of significance (α). For example, in the present context, stating that drinking behaviour covaries with family support when in fact it does not (false positive) would be a type I error. On the other hand, there is also the possibility of accepting the null hypothesis when it is in fact false. This is known as type II error (β). For example, in the context of family support, stating that drinking behaviour does not covary with family support when in fact it does, is a type II error (false negative). Type I and II errors are inversely related. Thus if a more stringent significance level is applied (e.g. $\alpha=0.01$ or $\alpha=0.001$) then there is a greater chance of making a type II error. In planning a study it is therefore important to consider both types of error and to achieve an appropriate balance between the two.

The power of a statistical analysis refers to the probability of making a correct decision, i.e. rejecting the null hypothesis when it is in fact false. Referring to drinking and support, stating correctly that drinking covaries with the level of support is an example of correct rejection of the null hypothesis (i.e. true positive). It is important to estimate the power of statistical analyses in the planning stages of a research study, as power is a factor in the choice of sample size. A power level of at least 0.8 is desirable (Stevens 1991), and three factors are important in calculating power:

- the α level;
- sample size;
- effect size.

In line with statistical convention, in this study significance levels of $\alpha=0.05$ will be applied to statistical tests (Stevens 1992, p.172). Previous research suggests that effect sizes in the area of family relationships and adolescent drinking are typically small. This seems to be also typical of much research in the social sciences (Miller 1991). In line with Cohen's (1977) rule of thumb guidelines (effect sizes: 0.2= small; 0.5= medium; and >0.8 = large) a small estimated effect was used in the power/sample size calculation. With an estimated effect size of 0.2, $\alpha=0.05$ and power of 0.8, the required sample size is 196 (Howell 1987). In the pilot study a sample of 430 respondents was obtained. The estimated power of this study was calculated to be 0.98. This is very high and certainly acceptable for this study. The main study would have a much larger sample and consequently ample power. A minimum requirement in the main study would therefore be 196 respondents in each year/sex group, given that separate analyses would be carried out on each group. Sample sizes larger than this would have the effect of increasing the power or maintaining it if the effect size turned out to be much less than 0.2.

Sampling

A sample is a smaller representation of a larger whole. Random sampling, stratified sampling and judgemental or purposive sampling are three common

sampling techniques. A simple random sample is one in which each member of the population has an equal chance of being included. With stratified sampling, a subsample proportionate in size to the significant characteristics (e.g. age or sex) of the total population is selected. If practical considerations mean that probability sampling is not appropriate, then a purposive sample can be taken. For example, a sub-group that is 'typical' of a population as a whole, and observations from this 'typical' subgroup are then generalized to the population as a whole.

In defining a sample, one needs to consider the definition of the population, the size of the sample and also the representativeness of the sample. In the present study a regional sample of English adolescents was required. A combination of sampling strategies was used. In the main study we administered the questionnaire to a selection of teenagers in Humberside schools. Within Humberside, schools were selected at random, and within each selected school, a class was chosen randomly from each of 5 year groups (years 7 to 11; aged 11-16). This simple random sampling method meant that each adolescent in each school in Humberside had an equal probability of being included in the study. (However, this assumption needs qualifying because of refusals by some schools/individuals to participate - see the section on external validity, and also the method section for the main study). On another level, this sample could be taken as representative of the population of English teenagers' drinking behaviour. This assumes that the Humberside sample is a purposive one, typical of the population as a whole. Again, this assumption needs qualifying. For example, regional differences in adolescent behaviour may make inferences to the whole population inappropriate but, on the other hand, the magnitude and direction of the hypothesized relationships between variables may be an accurate reflection of the population parameters.

In considering the size of the sample several factors need to be addressed. First, as mentioned above, the size of the sample should ensure a suitable level of power in the study. Secondly, from a family systems perspective, how extremes of behaviour are related was a consideration in this research, and suitable numbers of respondents who reported these extreme behaviours were required. Given that the proportion of adolescents in the population experiencing extremes of behaviour - whether from their family or in their own drinking - is small, in order to sample a sufficient number of these individuals then the size of the whole sample needed to be quite large. Alternatively, and as it turned out an unviable option, would have been stratified sampling, in which equal proportions of individuals with and without extreme behaviours were sampled. A group of adolescents in treatment, for example, could have comprised the extreme behaviours sample. However, two problems arise: first, the nature of entering and undergoing treatment necessarily alters the perceptions held by the individual and, as such, these individuals may no longer be representative of the population in the same way as individuals not undergoing treatment. Secondly, and more practically, access to such a group of adolescents was a problem because of the issue of confidentiality and of intrusion into the treatment process.

Thus, in the main study, a sample requirement of 300 adolescents of each sex in each year group was decided (3000 across all year/sex groups). Assuming a proportion of 'extreme' individuals of less than 0.1 in each year/sex group, this sample size would, hopefully, include a sufficient number of these individuals to include in the statistical analyses. A sample of this size would also meet the level of power requirements for the study.

Bynner (1992), reporting on the ESRC 16-19 initiative, pointed to the problem of poor response rates in this large study. Bearing this in mind, and the

sensitivity of some of the questions, we expected quite a high non-participation rate in the present study, especially by schools with increased commitments because of the introduction of the National Curriculum. Accordingly, it was decided to generously over-sample the population by initially aiming for 200% of the required sample size. This meant twice as many schools (all selected at random) were approached as were needed for the study. Non-participation by individuals within schools was also a factor but, in line with the ESRC initiative, a policy of negative consent was adopted - i.e. parents and individuals had to opt out of the study rather than opt in (positive consent). Table 6.2 shows the sampling requirement.

	males	females
School year		
7 (aged 11-12)	300	300
8 (aged 12-13)	300	300
9 (aged 13-14)	300	300
10 (aged 14-15)	300	300
11 (aged 15-16)	300	300

Table 6.2: Sample requirements

Reliability

Two important aspects of a scientific investigation are the reliability and validity of the study. Reliability is the extent to which a measurement technique, for example a questionnaire, is effectively and consistently measuring anything at all. Validity can be described as the extent to which a measurement technique actually measures what it purports to measure.

In this study, two forms of reliability are reported. Test-retest reliability indicates the extent to which a measurement technique is consistent over time. For instance, will a test elicit the same responses from a subject when the test is re-administered a short time later? The length of time between test administrations is important - it should be long enough so that a memory effect (remembering previous answers) is not operating - but not so long that the trait under investigation has changed. Rust and Golombok (1989, p.70) recommend at least one week before the re-administration of a test.

Validity

The validity of a test is the extent to which a test measures what it was designed to measure. Validity encompasses four main areas - content validity, criterion validity, construct validity and external validity.

Content validity refers to whether the test items call for a range of responses that represent the entire domain of skills and behaviours that the test is supposed to measure. Content validity has already been alluded to in chapter 3 when discussing the range of measurement of the control dimension: it was suggested that some studies may possibly have only measured part of the dimension of control, leading to a picture of a linear relationship between control and drinking, rather than curvilinear.

Criterion-related validity is used mostly in aptitude tests, and is the extent to which a test score relates to a criterion measure. For example, how a measure of intelligence relates to exam marks. In this study, criterion-related validity would be the extent to which reported drinking behaviour or perceived family environment related to actual drinking behaviour or actual family environment,

that is providing there was a useful and valid criterion measure of actual drinking behaviour.

Construct validity is established by defining as clearly as possible the construct to be measured and then relating the measure of that construct to behaviours in situations where that construct is thought to be an important variable. In this study, construct validity will be indicated if the measures of family environment reflect the dimensions of family life being investigated.

External validity refers to the issue of generalizability. To what populations, contexts and variables can the results of the study be generalized. Within Humberside schools, a simple random sample design was used, but with certain limitations. Participation in the research was, of course, voluntary, and several opt-out levels may have tainted the randomness of the sample.

Age of the respondents

For most adolescents, level of drinking increases as a function of age. Although an individual's age is an important consideration when looking at the development of drinking behaviour, it is perhaps more appropriate to consider the school year (grade) of the individual. Young people tend to regard level of maturity and age-related status more as a function of school year than their actual age. In the U.K. teenagers in year 11 (aged 15-16) are in their final year of compulsory education, and these teenagers have a higher status than those in younger year groups, and this is likely to be reflected in their level of alcohol use.

In line with this, the status associated with having left school and entered the job market seems to be a more important factor for drinking behaviour than the

actual age of the individual. This important point was noted by Parker (1974, p.125) in his sociological study of down-town adolescents:

"In short, no-one really saw under-age drinking as wrong in itself. If you were old enough to work, you were old enough to drink and spend your earnings as you wished."

There is no doubt, however, that other developmental markers might also be important factors. School year is quite closely linked to the age of the respondent, but is less closely linked to pubertal status. It could be that pubertal status, over and above school year and age, is an influential factor in the relationship between family socialization factors and adolescent drinking. Recent studies (Steinberg & Hill 1978; Hill *et al* 1985) have shown that adolescent family relationships and pubertal status are significantly linked. It may also be that puberty is important in the development of adolescent drinking behaviour, although one would expect age-linked social and cultural norms to be more influential.

Measuring drinking behaviour

A frequent issue in measuring alcohol use is validity, i.e. are researchers measuring factually accurate details/accounts or are biases and distortions operating. One problem when trying to address this issue is, in fact, that of method. No research process can be free of method and the biases that the method may involve.

Self-reports of alcohol use may not be truthful due to several possible presentation or self-disclosure biases. First, because much adolescent alcohol use takes place under-age and thus illegally, teenagers may be reluctant to disclose any incriminating information, especially to individuals/organizations who are perceived authority figures, e.g. teachers or other older adults. Or, if an individual wishes to hide/deny a drinking problem, under-reporting of alcohol consumption may also occur (Midanik 1988).

On the other hand, it may be the case that young people who are striving towards adulthood perceive alcohol as a positive (adult) attribute, and some over-reporting of drinking behaviour may occur. Interacting with these self-disclosure biases is the style and administration of the questionnaire or interview. For example, a formal exam-type questionnaire may encourage less truthful responses to the sensitive issue of under-age drinking, whereas a more friendly questionnaire may encourage co-operation. Ensuring anonymity and confidentiality may reassure respondents and encourage truthfulness, but it may also, for some individuals, also encourage facetious responses. The administration procedure may also produce biases in the way questions are answered. An examination procedure may be perceived negatively and associated with authority, but on the other hand a "free-for-all" administration, where respondents sit with their group of friends and copy/share their responses will also produce biases.

In addition, the administrator of the questionnaire can influence the way individuals respond. Individuals may react differently to an administrator who is seen as an authority figure than to an administrator who is perceived as a peer or non-authority figure (e.g. Davies & Baker 1987).

Similarly, the location of interview will also produce a contextual response bias. Respondents may vary their answers according to whether questions are

asked at home (where parents may be present), at school (where friends and teachers are present) or in a youth club (where youth leaders, friends and older teenagers may be present).

There are also potential distortions in self-reports of alcohol use due to a memory recall deficit. Individuals may simply not remember exactly how much they have drunk over a recent period of time or on a particular occasion. This may lead to a degree of guessing with associated inaccuracies.

Despite the sorts of questionnaire method biases detailed above, self-report measures of drinking behaviour have been assumed by some to have good, if not total validity (Balding 1987). However, as Midanik (1988) pointed out in her review of the validity of self-reported alcohol use, there has been too much emphasis on the inappropriate issue of trying to find a definitive answer to a relative question, e.g. are self-reports of alcohol use valid. Midanik concluded that:

"research on the validity of self-reported alcohol use should emphasize the interactions of the respondent, the interviewer, the information being obtained and the context of the interview to determine under which conditions valid responses can be maximized." (p.1019)

Other methods of measuring adolescent drinking behaviour are also subject to bias. Participant-observation (e.g. Dorn 1983; Willis 1977) introduces an element of subjective interpretation of behaviours, in that participant-observers typically record their observations retrospectively. Moreover, the participant-observers themselves may introduce a context change leading to changed behaviour, especially if they are not regarded as a peer by the individual or

group under observation. There are also legal and ethical problems with this type of research: given that much adolescent drinking is under-age and illegal, participant-observers would be expected to condone an illegal activity and perhaps to assist the illegal act by getting involved in round-buying (Dorn 1983).

The comparative variable and summary measure of drinking behaviour typically used in epidemiological studies (e.g. Wilson 1980; Marsh *et al* 1986; Goddard & Ikin 1988) is the mean number of units consumed over a time period. This is not the most useful measure of drinking behaviour, as the distribution of alcohol use tends to quite markedly skewed, with most individuals drinking sensibly and a few individuals reporting excessive levels of use. It would be more useful to use a more robust measure of central tendency, or perhaps to break down alcohol use into discrete categories, for example the recommended levels of sensible and heavy drinking described by the Royal College of Physicians (1987).

To briefly summarize, in the present study, and in much of the research into adolescent drinking behaviour, adolescents' self-reports are relied on as an indicator of actual drinking behaviour. Such self-reports are typically seen as being reasonably valid. In fact, such self-reports go beyond being just an indicator of actual drinking behaviour: they also reflect each individual's attitude to alcohol. As such, self-reports can comprise elements of social, cultural and stereotypical attributions and aspirations regarding alcohol use. For example, a young person who reported drinking in excess of the recommended safe levels, but actually did not, may perceive such levels of alcohol use as desirable. Thus self-reports may reflect actual or intended drinking behaviour and, viewed in this way, provide information about each individual's alcohol use schema.

In this study it was decided to use a measure of current alcohol use which encompassed several separate but overlapping characteristics of drinking behaviour. One measure often used in alcohol research is the retrospective drinking diary - typically over a one-week period. This involves each respondent indicating what and how much they have drunk for each day of the last seven days. This information is then used to calculate how many units of alcohol that individual has consumed in the previous week.

Recommended sensible, moderate and heavy (dangerous) levels of alcohol use are based on the number of units of alcohol consumed by a person over a one week period (Royal College of Physicians 1987). These limits are, for *adults*, depicted in Table 6.3(a). In the present study, however, the potential respondents were aged between 11 and 16 and were at varying stages of physical and psychological (im)maturity. The recommended sensible limits for adult drinkers are probably not appropriate for this younger and less mature age group. In the main study these recommended drinking limits have been redefined for use with this younger age group (Table 6.3(b)). Of course these are arbitrary criteria. Sensible and safe teenage drinking levels should be linked to age and physical and psychological maturity. These factors vary considerably from pre-adolescents to young adults. As such, it is not suggested that the sensible drinking levels applied here be extended beyond this study and applied generally. Their purpose is merely to facilitate comparison in the present study between levels of reported drinking in the previous seven days.

(a) adult levels	Drinking behaviour	(b) teenage levels
no units	<i>nil</i>	no units
females 1-14 units males 1-21 units	<i>sensible</i>	females 1- 7 units males 1-11 units
females 15-25 units males 22-35 units	<i>moderate</i>	females 8-14 units males 12-21 units
females 26-35 units males 36-50 units	<i>heavy</i>	females 15-25 units males 22-35 units
females over 36 units males over 50 units	<i>very heavy</i>	females over 25 units males over 35 units

Table 6.3: Drinking pattern according to weekly consumption for (a) adult drinkers (R.C.P. recommendations); and (b) teenage drinkers (this study)

Measuring family life

In this study the emphasis is on the family as a unitary system and the focus of the research reflects this - family characteristics need to be measured rather than the characteristics of individuals within the family.

There are numerous ways of measuring family functioning, and each has its own inherent biases. For example, participant-observation is predominantly qualitative research, involving a degree of subjectivity which many 'traditional' researchers are critical of. Copeland and White (1991), with reference to studying families, stated:

"Specifically, qualitative researchers emphasize involvement, mutuality and rapport between participants and themselves (as opposed to establishing a more distant, one-sided relationship as is the case in traditional research) in the belief that they get more realistic, valid, and important information in doing so." (p.11)

Qualitative research, being subjective and interpretive, thus represents a challenge to many of the assumptions found in quantitative research approaches.

More relevant to the present study is the issue of self-reports of family functioning. Individual self-reports of family life are limited in that they only provide individual perceptions of the family rather than a more direct measure of actual family functioning. But, as Midanik (1988) noted in relation to self-reports of alcohol use, the definitive picture of actual family functioning is an inappropriate goal. Self-report techniques have the advantage, however, of providing an 'insiders' perspective on the family and are especially useful if the researcher is interested in just such a perspective (Copeland & White 1991). Another advantage, especially relevant in the present instance, is economy - questionnaire surveys are a logistically easier and cheaper research method - given that the current research project was carried out by one researcher with limited resources.

However, as was mentioned in the previous section on measuring drinking behaviour, self-reports are subject to a number of presentation or self-disclosure biases, which may encourage respondents to portray their family functioning either more or less positively.

An individual's perception of his or her family life is also an important consideration if one is interested in the consequences of family life for that

individual. This study looked at the self-reported drinking behaviour of adolescents, and it was therefore a logical step to also look at an adolescent's perception of his or her family. This approach though is one which has not received much attention, as Amato (1990) points out:

"...relatively little attention has been devoted to how children perceive parent-child relations. Instead, the dimensions of support and control have largely been formulated by researchers and theorists and 'imposed' on family interaction as a way of organizing observations...a pertinent question is whether or not children themselves experience and interpret the family environment in such a fashion". (p.614)

Amato goes on to report that, for his sample of children, perceptions were indeed organized into two broad dimensions - support and control. But if perceived support and control can be considered salient constructs, a relevant question is how to assess or measure these dimensions. The work that has been carried out in this area has tended to rely on questionnaire scales whose properties have been shown to vary according to the nature of the sample. The Family Environment Scale (FES) (Moos & Moos 1986) is probably the most used and most cited family self-report measure in the U.S.A. and U.K. Fowler (1981) factor analysed the FES subscale items and elicited the two constructs - support and control, but Oliver *et al* (1988), in a study which superceded Fowler's report, found that the resultant factors of the FES were specific to the heterogeneity v homogeneity of the sample and also the age of the sample. Furthermore, family functioning has been shown to vary cross-culturally. For example, Devereux (1970) reported on the different normative family socialization behaviours

between England, Germany, and the U.S.A. This has no doubt contributed to the ongoing debate about the FES and its measurement properties and underlying constructs (Roosa and Beals 1990; Moos 1990; Waldron *et al* 1990). In the U.K., Sloper *et al* (1988) reported FES subscale internal reliabilities which were all lower than those reported in the FES handbook, and the majority were less than 0.70, several considerably so.

Whilst self-reports of systemic family functioning are especially relevant to family process behaviours, alcohol-specific family behaviours (family social learning) may not lend themselves as easily to the perception of the family as a unitary system. In particular, this may be the case with levels of drinking by different family members. Questions such as "*how often do your parents drink?*" are much more difficult to answer than, for example, "*is there a feeling of togetherness in your family?*". Consequently, it may be more fruitful to measure individual family members' drinking behaviour separately and, if appropriate, to combine these, using the family mean or sum technique (Copeland & White 1991; Fisher *et al* 1986), into an overall measure of family drinking behaviour.

Measuring social reinforcement of drinking as a unitary function of the family system is less of a problem, as it is highly likely that the parental sub-system will have a common 'socialization policy' in terms of social reinforcement. Therefore asking "*what do your parents think about you drinking?*" is appropriate to the measurement of family system properties.

Chapter 7: Questionnaire development

A questionnaire was developed to measure drinking behaviour and family socialization variables in a sample of 11-16 year-old school pupils. One constraint imposed on the questionnaire content was that Humberside LEA advisers felt that if the questionnaire were to make direct social comparisons, using for example socio-economic status indicators, then this would not be acceptable to many schools. This was a particularly sensitive issue at the time of the study because of the publication of school 'league tables' and the financial implications/penalties of any school being perceived negatively. Therefore no SES variables were included in the questionnaire, and additionally, the researcher undertook not to make any comparisons of data from different schools in different locales. The initial questionnaire was developed through several pilot stages to produce a final version for use in the main study. In this chapter details of the questionnaire development are presented and discussed, along with selected results from the pilot studies.

The first questionnaire (see Appendix 1)

The initial page of the questionnaire contained a title - "Young People, Drinking and Family Life" - and some background information to the study, in which confidentiality and anonymity of responses were assured and stressed.

Demographic information

The first three questions asked about age, sex, and family structure - '*who do you live with?*'. Respondents were instructed verbally to tick or indicate all those applicable in answer to who they lived with (Q3, see Appendix 1), but then it was stressed that in answer to every other question only one answer should be given. Additionally, respondents were also informed that if their 'exact' answer was not one of the options given, then they should indicate the nearest one (all questions were closed-response format).

Drinking behaviour

Questions 4 to 26 asked about the respondent's drinking behaviour, and a 7-day retrospective drinking diary was included at the end of the questionnaire. Many of the questions included in the present questionnaire are based on previous survey items used in studies in the previous 10 years. For example, several questions were developed from Sharp (1992), and the 7-day drinking diary, with its pictures of different drinks a useful *aide-de-memoir*, was earlier used by Marsh *et al* (1986).

Q4. 'When did you last have an alcoholic drink?'

Respondents indicated on a 5-point scale from '*never had one*' to '*within the past 7 days*'.

Q5. 'If you drink, how much do you usually like to drink?'

Questions about usual consumption are usually difficult to operationalize and analyse because of dose-related variability in the effects of alcohol. In this study this problem was addressed by asking about the usual effects of alcohol. The five possible responses ranged from '*never had a drink*' to '*enough to get merry*' and '*enough to get drunk*'.

Q6. 'How old were you when you had your first proper alcoholic drink without your parents/guardians?'

The five options ranged from '*less than 8-years-old*' to '*14-16*' and '*never had a proper alcoholic drink*'.

Q7. 'Where were you at the time of this first drink?'

Six options were presented, including '*at home*', '*at a friend's house*', '*pub/club*' and '*never had a drink*'.

Q8. 'When are you going to have your next drink?'

Options ranged from '*as soon as I can*' to '*not in the near future*'.

Q9-19: 'Reasons for drinking'

Drinkers were asked to indicate which of 11 possible reasons for drinking applied to them, ticking either 'TRUE' or 'FALSE' for each reason. These reasons were based on previous studies (Bagnall 1988; Plant et al 1990) and piloting by Sharp (1992). The 11 reasons in the questionnaire were:

*like the taste
to escape problems
to feel confident
to feel relaxed
to get drunk
because my friends do
to be sociable
to celebrate
because I'm under pressure/stress
I like the effects
It cheers me up*

Q20. 'How often do you drink?'

Options ranged from 'I don't drink' to 'more than once a week'.

Q26. 'How old were you when you first got merry or drunk?'

A similar response format to Q6 - age of first drink - was used.

Drinking diary

At the end of the questionnaire respondents were asked to indicate what they had drunk over the previous 7 days. This was a 'day to a page' diary, and the pages were sorted such that the first page represented the previous day. For instance, if the questionnaire was administered on a thursday the first diary page was for a wednesday, followed by a tuesday, monday, sunday and so on through to the previous thursday.

Amount consumed on last drinking occasion

The final part of the questionnaire was given over to a diary page which was to be filled in by those respondents who had not drunk anything at all in the

previous seven days. On this page these respondents were asked to indicate their consumption on their last drinking occasion.

Socialization influences

Q21 to Q24: Drinking by significant others

These questions referred to frequency of drinking of the respondent's father, mother, older sibling and friends respectively. Response options ranged from '*they don't drink*' to '*more than once a week*' and '*does not apply/don't know*'. On the advice of the Local Education Authority advisors, who were consulted about the questionnaire even at this early stage, the response options to this question were restricted. It was felt that probing further than the '*more than once a week*' option would be seen as too intrusive by many schools/individuals and lead to a high non-participation rate.

Q25. What do your parents think about you drinking?

Six options were specified, ranging from '*I don't drink*' and '*they don't like me drinking at all*' to '*they don't mind. I drink whatever, whenever and wherever I want to*' and '*they don't know*'.

Q27 to Q82: Family process

The aim in the present study was to examine perception of family functioning in a regional sample of adolescents in the United Kingdom. As outlined in the previous chapter, the Family Environment Scale (FES, Moos & Moos 1986) is arguably not suitable for this task, even though it was the preferred instrument

when the research was initially planned. It was decided therefore to develop an adolescent family process questionnaire which comprised items purporting to measure aspects of family support and control. These items were taken from an item and subscale pool of two established family functioning questionnaires, the FES and the Bloom Family Functioning Scales (Bloom 1985), the latter measure itself derived from several family assessment scales (including the FES). Both the FES and the Bloom scales describe Relationship (support) and System Maintenance (control) meta-concepts, each made up of several subscales. For example, the FES subscales cohesion, expressiveness and conflict make up the Relationship dimension, and the subscales control and organization make up the System Maintenance dimension. Additionally, also included in the questionnaire were several items from FES subscales other than those mentioned above. This was because Waldron *et al* (1990) report a different factor structure for the FES, one which included items from other subscales of the FES loading on support and control factors.

Items from eight subscales of the Bloom family functioning scales were selected for inclusion in the questionnaire. The eight subscales were cohesion, expressiveness, conflict, sociability, organization, authoritarian, and laissez-faire. Items from the FES Relationship dimension and the System Maintenance dimension subscales, and items indicated by Waldron *et al*'s (1990) factors, which did not overlap with the Bloom items were also included in the questionnaire. The aim was to have a comprehensive item pool from which factors could be derived. Items were worded so that they referred to the present, and blatant language discrepancies were altered. This resulted in a 55-item pool. As principal components analysis was planned, a four-point Likert response format was adopted, comprising '*strongly disagree*', '*disagree*', '*agree*', or '*strongly agree*' with the item statement.

The wording of some of these items was changed following consultation with Humberside LEA advisers. The advisers felt that certain questions may be evaluated as too intrusive, both by schools and respondents. For example, the item '*In my family we never hit each other*' (Q62) was changed from '*In my family we often hit each other*', because it was felt that the latter question may on the one hand be seen as too intrusive, and on the other, there was the possibility that some respondents may become upset by the questionnaire process of reflecting negatively on their own family relationships. The advisers were satisfied when the direction of the question was changed, although this had the effect of unbalancing the proportion of items scored in each direction, with the possibility of increasing positive responses due to respondents' positive acquiescence.

Pilot studies

In the initial pilot study the aim was to assess the performance of the first questionnaire in terms of readability, understandability and completion time, and also to give some indication of individual item performance.

Although school pupils between 11 and 16 years old were the target sample for the main study, at the time of both pilot studies negotiations with Humberside Local Education Authority were still taking place regarding consent, access to schools and content of the questionnaire. Therefore it was decided to approach a slightly older age group for piloting, as there were fewer problems in negotiating access.

In both pilot studies the performance of the questionnaire was assessed using youth trainees and vocational students from local colleges and training establishments. Individuals with a broad range of abilities were sampled, from

trainee computer technicians and programmers, apprentice builders, social care and nursery students, and also a special group of youth trainees with reading difficulties. The tutor of this latter group said that the reading age of these students was at a pre-secondary school level. This group therefore provided a good test of the readability, understandability and completion time of the questionnaire.

In the second pilot study a larger sample was obtained to assess more specifically the psychometric performance of the questionnaire.

Pilot study I

The sample

Sixty youth trainees working in Humberside, U.K. agreed to take part in the survey. There were 30 males and 30 females, with 11 16-year-olds, 28 17-year-olds, 16 18-year-olds, three 19-year-olds and one 21-year-old (one person did not give their age).

Procedure

Questionnaires were administered to groups of trainees in January 1991. All questionnaires were administered by the researcher and trainees were asked to complete the questionnaires on their own, and to ask the researcher if they were not clear about any of the questions. Anonymity and confidentiality were guaranteed and stressed.

Questionnaire completion was followed by an informal discussion and feedback session about young people and drinking. Data analysis was carried out using the Statistical Package for the Social Sciences (SPSS, Norusis 1988).

Performance of the questionnaire

In terms of readability and understandability, the questionnaire performed quite well. There were only a few instances of words/meanings which would need changing or clarifying. In addition, the questionnaires took between 15 and 30 minutes to complete. This was a useful outcome as it was estimated that the maximum time for completion in some schools would correspond to a one lesson period of 35 minutes.

One concern was the performance of the family process items and scales, and to give some indication a principal components analysis (PCA) was carried out to identify latent factors. It was recognized that any results would be only tentative due to the low item:cases ratio, but that such an indication would be better than nothing (Child 1990). Moreover, it would be good practice for the exploratory factor analysis planned in the second pilot study.

On examination of the results of the PCA - specifically the factor structure and item-factor loadings - 10 items could have contributed usefully to a support scale and 7 items to a control scale. These results were not as good as had been hoped for, and it was decided to proceed to the second, larger pilot study where a better item:cases ratio would permit a more robust PCA.

Selected results

In this preliminary study and analysis, drinking behaviour was represented by the retrospective drinking diary results, and coded in terms of risk of problems associated with drinking (Goddard & Ikin 1988; Royal College of Physicians 1987). *Low risk* drinkers were males who reported drinking less than 21 units/week and females who drank less than 14 units in the previous week.

Increased risk drinkers were those drinking more than these amounts. Table 7.1 shows the distribution of sex of respondent by risk of problems associated with drinking. Over twice as many males were at increased risk ($\chi^2=4.8$, $df=1$, $p<0.05$).

	Risk		N
	Low	Increased	
Males	53%	47%	30
Females	80%	20%	30

Table 7.1: Proportion of males and female youth trainees at low and increased risk for alcohol-related problems

Pilot study II

Given that the questionnaire had performed reasonably well in terms of readability, understandability and completion time, and that the main question remaining was the psychometric performance of the questionnaire items, it was decided to proceed to the second pilot study with more or less the same version of the questionnaire. Only one major semantic change was made, to Q28. The wording of this question was changed to '*What do your parents think about you drinking alcohol?*', so that current non-drinkers would potentially be able to answer the question. The first response option '*I don't drink*' and the last response option '*they don't know*' were excluded following the slight semantic change to the question. Furthermore, the response option '*they think I should drink gradually more as I get older*' caused some individuals difficulties as it was perceived as inferring that parents positively encouraged the increased use of alcohol. Therefore this option was changed to '*they don't mind as long as I don't*

drink too much'. In addition, the use of the last drinking occasion diary page for those who had not had a drink in the last seven days was dropped from the questionnaire. This question had confused some individuals, and the information obtained appeared to be redundantly correlated with other measures of alcohol use. Other changes to the questionnaire involved slight adjustments to the wording of a few of the family scale items. These are explained fully in the next chapter.

More detailed results are presented from this second study as a bigger sample of youth trainees was obtained.

Sample

Questionnaires were administered to 430 teenagers (237 females) between the ages of sixteen and nineteen. There were 99 sixteen year olds, 189 seventeen year olds, 125 eighteen year olds and 17 nineteen year olds. All the respondents were either engaged in youth training programmes or vocational training in Humberside, U.K. In all, thirty different groups were sampled, with refusals and absentees comprising less than 15%.

Procedure

The questionnaire was administered by the researcher, who was not known to the groups. Confidentiality and anonymity were guaranteed and stressed, and class tutors, if present, were requested to keep a low profile. An informal approach was adopted, and respondents were asked to request assistance if they required it. Completion took from 10 to 30 minutes, dependent on the respondent, and early finishers were requested to write comments on the back of the questionnaire until everyone had finished.

Principal components analysis

Family process scale items were scored from 1 to 4, and were then entered into a principal components analysis, using SPSS. The number of factors extracted was determined by examination of the scree plot, and oblique rotations performed and factor correlations examined. West (1991) suggests that if factor correlations are less than $-/+0.20$ then a varimax rotation is appropriate, and this criterion was adopted here. Subscales were then constructed using three hierarchical criteria: (i) suitable factor loadings (>0.30) on the appropriate factor; (ii) face and construct validity checks and discarding of redundant items; and (iii) maximizing coefficient alpha reliability. Secondary factor analysis of the derived subscales was then carried out, and oblique rotation performed and factor correlations examined prior to varimax rotation.

(1) Primary analysis: All items were entered into a principal components analysis, and examination of the scree plot revealed that six factors should be extracted, accounting for 40% of the variance. Oblique rotations were carried out and factor correlations are detailed in Table 7.2.

	1	2	3	4	5
Factor 2	0.00				
Factor 3	-0.02	0.16			
Factor 4	0.08	0.00	-0.03		
Factor 5	-0.20	-0.10	-0.05	-0.02	
Factor 6	-0.28	0.10	-0.03	-0.16	0.09

Table 7.2: Factor correlations after oblique rotation.

Factors 1 and 6 were correlated more than $-/+0.20$, so factor loadings from the oblique rotation structure matrix are reported. By examination of the items loading highly on each factor, each factor was labelled as follows:

Factor 1:	Cohesion-Conflict
Factor 2:	Authoritarian
Factor 3:	Laissez-faire
Factor 4:	Sociability
Factor 5:	Organization
Factor 6:	Expressiveness

Examination of the factor loadings, items and reliability estimates enabled the derivation of six subscales, corresponding to each factor. These subscale items, factor loadings, and reliabilities are shown in Appendix 2.

(2) Secondary analysis: The subscales derived from the primary factor analysis were used as variables in a secondary factor analysis. In an oblique rotation, no two factors extracted correlated at more than $-/+0.20$, so a varimax rotation was performed. Table 7.3 shows the three factors extracted (Eigen values >1.0).

These factors accounted for 70% of the variance.

	Factor 1	Factor 2	Factor 3	h^2
Cohesion-conflict	0.76	0.10	-0.11	0.59
Expressiveness	0.81	0.05	-0.24	0.72
Sociability	0.67	-0.04	0.20	0.49
Authoritarian	0.08	-0.84	0.18	0.75
Laissez-faire	0.18	0.83	0.17	0.74
Organization	-0.08	0.00	0.95	0.49

Table 7.3: Secondary factor analysis: factor loadings and communalities

The high loadings for cohesion-conflict and for expressiveness on factor 1 suggests that this factor is consistent with a support dimension. That factor 2 consists of high loadings from the authoritarian and laissez-faire subscales suggests this factor is consistent with a control dimension. Interestingly, the organization subscale is associated with a different factor to the control dimension, contrary to the FES and Bloom System Maintenance concepts.

There are several interesting results to emerge from this analysis. Initially identified were relevant items and subscales from several areas. The major sources were the FES Relationship and System Maintenance dimensions subscales and the Bloom Family Functioning subscales cohesion, expressiveness, conflict, sociability, authoritarian and laissez-faire. Apart from cohesion and conflict loading on a single factor, the present results also suggest subscales similar to Bloom's scales. However, several items contributing to each subscale differed from the original items. One reason for this could be due to sampling differences. As stated earlier, Oliver *et al* (1988) reported differences in the properties of a family assessment scale according to the homogeneity and age of the sample. What exactly are the implications of this? This suggests that the measurement properties of all family assessment scales need to be reassessed for each sample. When the assessment instrument is being used as a research tool then this may be possible. However, when a family functioning measure is used as an assessment instrument for an individual who may be entering therapy, then the results need to be interpreted cautiously. If, for example, an adolescent with a drinking problem completes a family assessment measure, and his results are taken at face value on subscales developed on another sample in another country/age-group/demographic position, then the assessment may be unreliable. Furthermore, comparisons with normative values are also problematical, for similar reasons. For example, it was

mentioned earlier that family functioning varies cross-culturally (Devereux 1970).

Furthermore, theorists have conceptualized family systems as potentially dysfunctional if extremes of behavior are manifest. For example Minuchin's Structural Theory (Minuchin 1977) and Olson's Circumplex Model (Olson *et al* 1979) both outline the importance in sub-optimal functioning of extremes of behavior along dimensions of cohesion and adaptability. However, as Pratt and Hansen (1987) report, there has been an apparent failure to devise self-report measurement instruments which adequately assess extremes of family behavior in relation to dysfunctional families. The point is that the use of self-report measurement scales should be used alongside a range of other assessment techniques, so that an overall picture can be built up.

Both Green *et al* (1985) and Oliveri & Reiss (1984) report that the convergent validity between self-report instruments and observer assessment techniques is quite poor. Friedman *et al* (1987) argued that observer assessment is more likely than self-assessment to result in extremes of behavior being classified as dysfunctional. This difference between self-perception and observer perception may contribute to the low convergent validity between these differing techniques. In conclusion then, family functioning measures used as therapeutic assessment instruments are at best only a very general guide to family functioning. The interpretation of these instruments should be carried out only by experts with knowledge of the instrument's limitations.

The derivation of six clearly identifiable subscales of family functioning in the present sample, together with the subsequent secondary classification into easily identifiable support and control factors, points to the salience of these constructs in an adolescent's perception of his or her family environment. This supports the results of Amato (1990), in which children also perceived their

family environment along two broad dimensions - support and control. Using the hierarchical criteria adopted in the development of the subscales, (i.e. (i) examination of factor loadings; (ii) face and construct validity checks; and (iii) maximizing reliability estimates), scales were derived which measure these two dimensions. Factor 1 in Table 7.3 suggests that cohesion-conflict, expressiveness, and sociability contribute to a support dimension. However, the definition of support given earlier (p.45) refers to the internal family environment, so the inclusion of the sociability subscale, which refers to a family's interaction with its external environment is not appropriate for the support scale. Support is perhaps best measured by the combination of the subscales cohesion-conflict and expressiveness. Examination of factor 2 from Table 7.3 suggests that the authoritarian and laissez-faire subscales contribute to a control dimension. Both these subscales are in line with the definition of control given earlier (p.45), and as such can be combined to form a control scale. As stated earlier, family functioning measures may be appropriate for research studies on large samples, given that the performance of the instrument can be checked and results interpreted accordingly. It is appropriate therefore to report the properties of a measurement tool for a particular sample, perhaps using the hierarchical method suggested earlier, or using confirmatory techniques.

Selected results - pilot study II

The total number of units of alcohol consumed over the last 7 days was coded according to the guidelines for weekly consumption put forward by the Department of Health, namely '*low risk*' through to '*dangerous levels*' of use (Royal College of Physicians 1987). These guidelines are different for males and females. Male 16-17 year-olds reported drinking on average 21.4 units of alcohol

in the previous week, and male 18-19 year-olds reported drinking on average 27.8 units of alcohol in the previous week. Female 16-17 year-olds reported drinking on average 8.4 units of alcohol in the previous week, and female 18-19 year-olds reported drinking on average 8.9 units of alcohol in the previous week. Goddard and Ikin (1988), in their national sample survey, found that for male sixteen and seventeen year-olds the average previous weeks consumption (using a similar retrospective diary technique) was 6.5 units. The equivalent figure for females was 4.6 units. In the 18 to 24 year age group males reported drinking on average 21.4 units and females 8 units in the previous week. The present sample, with the exception of older females, clearly reported a much higher average consumption than Goddard and Ikin's national sample. Table 7.4 shows the breakdown of alcohol use over the previous 7 days by sex and age.

	Males				Females			
	16-17		18-19		16-17		18-19	
	n	%	n	%	n	%	n	%
no alcohol	13	12	9	11	53	30	15	25
light/sensible use	58	52	34	42	89	51	35	57
moderate/increased risk	19	17	16	20	24	14	5	8
heavy/risky use	16	14	5	3	7	9	5	8
very heavy/dangerous use	6	5	5	3	15	19	1	2
<i>totals</i>	112	100	81	100	176	100	61	100

Table 7.4: Distribution of alcohol use over last 7 days by sex and age.

In Goddard and Ikin's report (1988) 11% of males and 7% of females in the 16-17 age group exceeded the low risk drinking limits of 21 and 14 units

respectively. In the 18-24 age group these figures were 38% and 15%, respectively. Marsh *et al* (1986), in their national sample study of 16 and 17 year-olds, found that 10% of females reported drinking more than 14 units in the past week, and using a slightly higher cut-off point, 14% of males reported drinking over 25 units in the previous week. From Table 7.4 it can be seen that 37% of male and 20% of female 16-17 year-olds reported drinking more than the safe limits of 21 and 14 units respectively (moderate and heavy drinkers). Also, 47% of male and 18% of female 18-19 year-olds reported drinking more than the low risk limits. The figures from both of the national sample studies are somewhat lower than those in the present sample, especially in the 16-17 age group.

	Males				Females			
	16-17		18-19		16-17		18-19	
	n	%	n	%	n	%	n	%
do not drink	3	3	3	4	5	3	0	0
only on special occasions	10	9	5	6	33	19	6	10
every few months	7	6	3	4	20	11	7	12
a few times a month	35	31	15	19	59	34	28	47
more than once a week	57	51	54	68	58	33	19	32
<i>totals</i>	112	100	80	101	175	100	60	101

Table 7.5: Frequency of drinking by sex and age

Over half the males and a third of the females reported drinking more than once a week (Table 7.5). Other studies have also looked at the alcohol use of youth trainees on Humberside: Sharp (1989) found that 40% of males and 35% of females drank more than once a week. Greer (1989) found slightly higher proportions reported drinking more than once a week - 50% of males and 40%

of females. In a national study, Marsh *et al* (1986) found that 23% and 37% of 16 and 17 year-old males (respectively) reported drinking more than once a week. For females the equivalent figures were 20% and 33%. In the present study, 51% of 16-17 year-old males and 33% of 16-17 year-old females reported drinking more than once a week. It seems that in the present study, younger individuals are more likely to be frequent drinkers than national equivalents, especially males.

As a snapshot of drinking behaviour, the seven-day retrospective diary technique is a useful measure. However, longer term alcohol use may not be reflected in this seven-day report. By combining the frequency, quantity, and seven-day diary responses (see Table 7.6), a composite measure of alcohol use was derived (Table 7.7). This composite measure gives a better picture of longer term alcohol use, and was the one used in this study to examine the relationships between alcohol use and reasons for drinking, and alcohol use and socialization variables.

Overall, the majority of the sample reported drinking on a regular basis. Of these, over 44 per cent drank more than once a week (Table 7.6). Most people said that they like to get merry or drunk when they drink (25 per cent usually drink enough alcohol to get drunk - Table 7.6). In the previous seven days the majority of respondents reported drinking sensibly. A sizeable proportion (almost a third) reported drinking more than the recommended sensible limits, and six per cent admitted to dangerous levels of alcohol use (Table 7.6).

Three levels of alcohol use were created - *low*, *moderate* and *high*. Individuals whose composite score (see Table 7.7) was in the lower third of the distribution were classified as 'low users', the mid-third as 'moderate users', and the upper third as 'high users' (Figure 7.1). A typical 'low user' would, for instance, drink only on special occasions, would usually only have a few sips, and would have

consumed no alcohol in the previous seven days, whereas a typical 'high user' would perhaps drink more than once a week, usually enough to get merry or drunk, and in the past seven days would have consumed more than the recommended sensible limits.

Drinking behaviour	n	%
<i>(a) frequency of drinking</i>		
0. do not drink	11	3
1. only on special occasions	54	13
2. every few months	37	9
3. a few times a month	137	32
4. more than once a week	188	44
<i>(b) usual consumption</i>		
0. never had a drink	7	2
1. do not usually drink	36	8
2. few sips	39	9
3. enough to get merry	238	55
4. enough to get drunk	109	25
<i>(c) consumption over previous seven days</i>		
0. no alcohol	90	21
1. light/sensible use	216	50
2. moderate/increased risk	64	15
3. heavy/risky use	35	8
4. very heavy/dangerous use	25	6

Table 7.6: (a) Frequency; (b) usual; and (c) last 7 days alcohol consumption

Composite drinker score	n	%	cum %
0	6	1	1
1	4	1	2
2	13	3	5
3	13	3	9
4	17	4	12
5	40	9	22
6	51	12	34
7	74	17	51
8	71	17	68
9	61	14	82
10	35	8	90
11	32	8	98
12	9	2	100
<i>total</i>	426		

Table 7.7: Composite drinker score

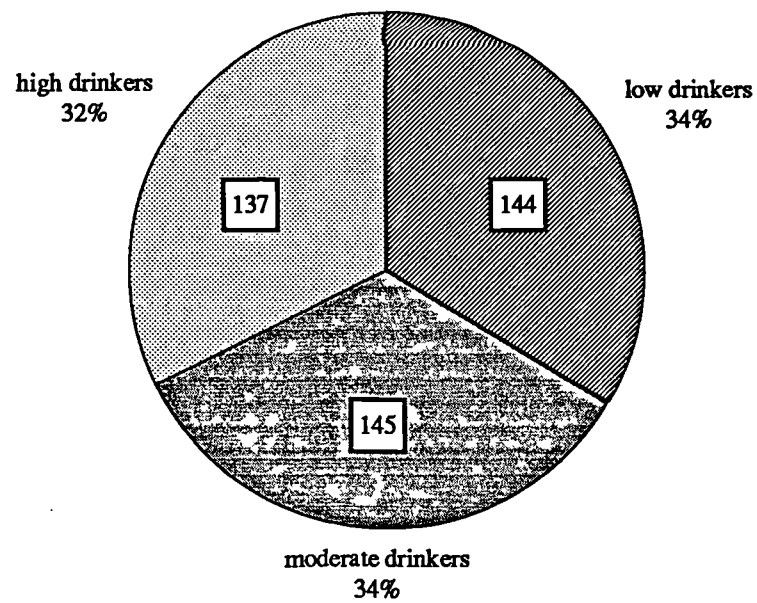


Figure 7.1: Composite drinker score groups

Reasons for drinking

Reason for drinking	Overall %	Alcohol use		
		Low %	Moderate %	High %
like the taste	86			
males		82	90	83
females		78	93	90*
to escape problems	13			
males		3	18	16
females		7	13	21
to be confident	20			
males		9	24	27
females		11	13	35***
to feel relaxed	64			
males		64	79	78
females		55	53 ⁺⁺	56 ⁺⁺
to get drunk	33			
males		24	27	63***
females		9	25	54***
because my friends do	13			
males		0	18	23*
females		10	10	8
to be sociable	62			
males		55	68	74
females		53	55	65
to celebrate	90			
males		85	85	88
females		91	94	90
because I'm under pressure	8			
males		0	5	7
females		10	11	13
I like the effects	41			
males		27	47	65***
females		23	28 ⁺	57***
It cheers me up	62			
males		48	69	72*
females		47	61	79***

Level of use differences (χ^2): * $p < 0.05$; *** $p < 0.001$

Sex differences (χ^2): + $p < 0.05$; ++ $p < 0.01$

Table 7.8: Reasons for drinking: sex and alcohol use

Table 7.8 lists the 11 reasons for drinking included on the questionnaire, and for each reason shows the percentage of male and female respondents in each of the alcohol use categories (low, moderate or high) who indicated that they drank for that reason.

Most respondents said they drank alcohol for the following reasons - '*like the taste*', '*to feel relaxed*', '*to be sociable*', '*to celebrate*' and '*it cheers me up*'. Few significant sex differences emerged from these analyses. In the moderate and high alcohol use groups, three quarters of the males said they drank to relax, compared to just half of the females. In the moderate alcohol use group only, males were significantly more likely than females to say they drank because they liked the effects. Interestingly, high alcohol using females were over two and a half times as likely to say they drank to boost confidence than moderate or low alcohol using females. Looking at the reasons for drinking between the different alcohol use groups, three reasons seem important. High alcohol users, both males and females, were over twice as likely as others to say they drink to get drunk. Similarly, heavier drinkers were significantly more likely to say they drink because they like the effects and to cheer themselves up. Moreover, for these three reasons, the proportion in the high alcohol use group saying they drink for that reason is considerable - ranging from 54 per cent to 79 per cent.

The total number of reasons for drinking each individual reported were also examined in relationship to self-reported alcohol use. As predicted, the number of reasons varied between alcohol use groups (Table 7.9). For males and females, alcohol use was highly significantly related to the number of reasons for drinking (males: $F=21.53$, $df=2$, $p<0.001$; females: $F=25.90$, $df=2$, $p<0.001$), with more reasons related to higher use. So, this study of older teenagers showed that those teenagers who exceeded the recommended limits for alcohol intake gave reasons more connected with the effects of alcohol, and overall

offered a greater number of different reasons. A study of early adolescent substance use by Shilts (1991) also showed that users differed from abusers in their reported reasons for substance use.

	Alcohol Use		
	Low	Moderate	High
Males	4.00	5.33	5.95 ***
Females	3.95	4.49	5.72 ***

*Level of use differences (ANOVA): *** $p < 0.001$*

Table 7.9: Mean number of reasons: sex and alcohol use

A similar analysis was also carried out with the composite drinking behaviour variable recoded using different criteria. In this second analysis, the more extreme drinking behaviours were grouped off, so that individuals with a composite drinker score of 0-4 were labelled abstainers/infrequent drinkers; 5-8 as sensible/moderate drinkers; and 9-12 as heavy/very heavy drinkers. In addition, if a respondent indicated that they usually drank enough to get drunk, or drank more than the recommended sensible/moderate levels in the previous week, then they too were categorized as heavy drinkers. Figure 7.2 shows these revised composite drinker score groups, and Table 7.10 the results of the ANOVA of number of reasons by drinker group. As before, for both males and females, alcohol use was highly significantly related to the number of reasons for drinking (males: $F=31.16$, $df=2$, $p < 0.001$; females: $F=14.61$, $df=2$, $p < 0.001$), with more reasons related to higher use.

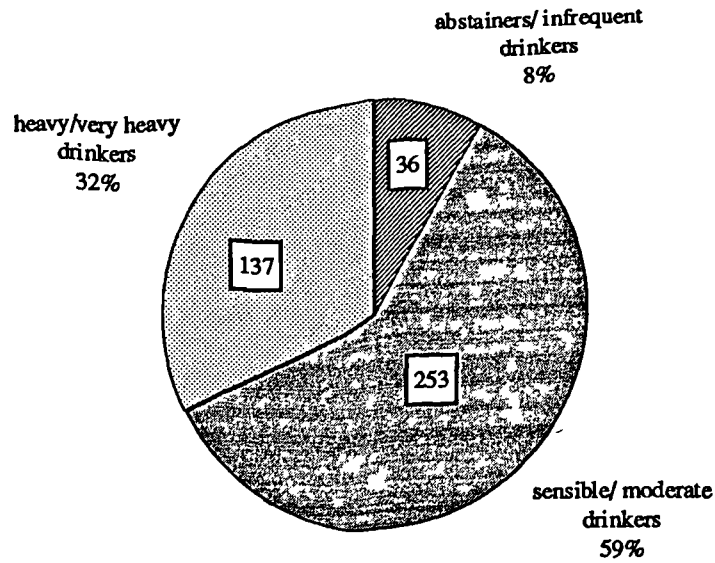


Figure 7.2: Composite drinker score groups (recoded)

	Alcohol Use		
	abstainers/ infrequent	Sensible/ moderate	Heavy/ very heavy
Males	3.00	4.77	6.13 ***
Females	2.23	4.24	6.20 ***

Level of use differences (ANOVA): *** $p < 0.001$

Table 7.10: Mean number of reasons: sex and alcohol use (recoded)

Clearly, the reasons for drinking that most respondents gave were positive reasons for alcohol use. The taste of alcohol, relaxation, celebration, and socializing are all reasons in which alcohol use is appropriate, if not favourable. The young people in the present study were no exception to this, because even if for some their alcohol use is illegal, it is a socially and culturally condoned activity. As mentioned earlier, similar previous research with younger age groups tended to show that heavier drinkers were more likely than others to

drink for reasons of recreation, and that males were more likely than females to drink for reasons of social confidence and enhancement. Although comparing studies is problematical because of methodological differences, generally, in this sample of older teenagers, these findings were not replicated. The majority of individuals drank recreationally, regardless of level of use. The reasons which were important in differentiating level of use were generally physiologically focussed ('*to get drunk*'; '*like the effects*').

One similarity between this study and earlier research (Sharp & Lowe 1989b) was the finding that heavier drinkers were more likely than others to give as a reason for drinking '*to get drunk*'. But, amongst older teenagers, heavier drinking females, but not males, were significantly more likely to drink to boost their confidence, whereas in earlier research (Bagnall 1988), males were more likely to drink for reasons of social confidence than females.

Family socialization factors

For the analysis of the relationship between adolescent drinking behaviour and family socialization factors, the drinking behaviour variable used was the same as in the second reasons for drinking analysis (see Figure 7.2). The sections below describe the bivariate relationships between drinking behaviour and the family socialization factors. All the relationships were statistically significant, and remained so when the effect of higher order interactions was partialled out. This was achieved using the SPSS Hiloglinear statistical algorithm (Norusis 1988).

(i) *Drinking behaviour by family support:*

The family support scale comprised 20 items, with an internal consistency of $\alpha=0.86$. Individuals were categorized into low, moderate or high support groups if their support scale score was in the lower third, mid-third or upper third of the distribution of support scores, respectively. Those who reported high family support were more likely than others to be sensible drinkers, and were less likely to be heavy drinkers. Conversely, those who reported low family support were more likely than others to be heavy drinkers, and were less likely than others to be sensible drinkers (see Table 7.11). ($\chi^2=11.49$, $df=4$, $p=0.02$; partial $\chi^2=13.26$, $df=4$, $p=0.01$).

	level of family support							
	low		moderate		high		totals	
Drinking behaviour	n	%	n	%	n	%	n	%
abstains/infrequent	8	6	13	9	11	9	32	8
sensible/moderate	71	52	88	60	82	68	241	60
heavy/very heavy	57	42	45	31	27	23	129	32
<i>totals</i>	136	100%	146	100%	120	100%	402	100%

Table 7.11: Breakdown of drinking behaviour by level of family support

(ii) *Drinking behaviour by family control:*

The family control scale was made up of 15 items with an internal consistency of $\alpha=0.79$. As with family support, individuals were categorized into low, moderate or high control groups if their control scale score was in the lower third, mid-third or upper third of the distribution of control scores, respectively. Those who reported low control were more likely than others to be heavy drinkers, and were less likely than others to be sensible drinkers. Respondents who reported high control were more likely than others to be abstainers, and those who reported moderate or high levels of control were

equally likely to be sensible drinkers ($\chi^2=15.35$, $df=4$, $p=0.004$; partial $\chi^2=17.76$, $df=4$, $p=0.001$). (See Table 7.12).

Drinking behaviour	level of family control							
	low		moderate		high		totals	
	n	%	n	%	n	%	n	%
abstains/infrequent	8	7	6	4	19	12	33	8
sensible/moderate	57	51	89	64	98	64	244	60
heavy/very heavy	47	42	45	32	36	24	128	32
<i>totals</i>	112	100%	140	100%	153	100%	405	100%

Table 7.12: Breakdown of drinking behaviour by level of family control

(iii) *Drinking behaviour by perceived parental attitude to respondent's drinking:*

The parental attitude variable was collapsed into three groups. Of the four groups 'they don't think I should drink at all' to 'they aren't bothered', the two mid-categories - 'drink only when they say', and 'they don't mind as long as I don't drink too much', were collapsed into one category for the present analysis. This was labelled 'drink sensibly', denoting that the parents had a moderating attitude to their offspring's alcohol use. Those respondents whose parents did not like them drinking were more likely than others to be abstainers. Those whose parents thought they should drink sensibly were more likely than others to be sensible drinkers, but were less likely than others to be heavy drinkers. Parents who were reportedly disapproving or indifferent were more likely than moderating parents to have heavy drinking offspring ($\chi^2=12.30$, $df=4$, $p=0.015$, partial $\chi^2=9.49$, $df=4$, $p=0.0499$). (See Table 7.13).

	Parental attitude							
	do not like it		moderating		indifferent		<i>totals</i>	
Drinking behaviour	n	%	n	%	n	%	n	%
abstains/infrequent	5	11	8	7	7	3	20	5
sensible/moderate	24	53	82	69	147	60	253	62
heavy/very heavy	16	36	29	24	92	37	137	33
<i>totals</i>	45	100%	119	100%	246	100%	410	100%

Table 7.13: Breakdown of drinking behaviour by parental attitude

(iv) Drinking behaviour by level of family drinking:

Family models of alcohol use was indicated by how often the respondent's mother, father, and older sibling (if applicable) drank alcohol. The 5-point response format ranged from 'never' to 'more than once a week'. A standardized scale (using Z-score transformation) was created for each variable, and the overall family drinking index was calculated as the average Z-score for each respondent's family (mother and/or father and/or older sibling). This family drinking index was then split into two equally sized groups - labelled as low and high levels of family drinking. There were no differences in the level of family drinking for sensible drinking respondents. However, those who reported a higher level of family drinking were more likely than those with lower levels of family drinking to be heavy drinkers, and were less likely to be abstainers ($\chi^2=17.437$, $df=2$, $p=0.0002$; partial $\chi^2=6.11$, $df=2$, $p=0.047$). (See Table 7.14).

	Level of family drinking					
	less frequent		more frequent		<i>totals</i>	
Drinking behaviour	n	%	n	%	n	%
abstains/infrequent	29	14	6	3	35	8
sensible/moderate	127	59	125	60	252	60
heavy/very heavy	58	27	76	37	134	32
<i>totals</i>	214	100%	207	100%	421	100%

Table 7.14: Breakdown of drinking behaviour by family models for alcohol use

Discussion

The analyses presented revealed several notable results. The composite drinking behaviour variable produced quite a high proportion of heavy drinkers. At first sight, this might be seen to reflect the way the sample was split into three drinking groups, with those individuals who said they usually drink enough to get drunk classified as heavier drinkers. However, very few of these individuals drank less than a few times a month (109 respondents said they usually drink enough to get drunk; of these, the vast majority (98) drank a few times a month or more often). More likely, is that the high proportion of heavy drinkers in this sample is a fair indication of the self-reported drinking behaviour of these respondents, reflecting both actual drinking and/or the individual's attitude to alcohol use. Previous studies have indicated that YTS trainees are typically above average in this respect (Foxcroft & Lowe 1992b; Greer 1989).

By far the majority of respondents reported that their parents were indifferent to their alcohol use. This accords with previous research (Sharp et al

1988; Hawker 1978) which reported that on the whole, parents were ambivalent about their offspring's drinking.

All the contingency analyses were significant at $p < 0.05$. Thus family support, control, parental attitudes, and level of family drinking were all linked to the drinking behaviour of the respondent. Sensible drinkers were more likely than heavy drinkers to report moderate or high levels of family support and control, and to have parents with moderating attitudes to their alcohol use. Heavy drinkers were more likely than non/infrequent drinkers to report more frequent family drinking.

In the next chapter details of the method used in the main study are presented. Following this, a brief introduction to the analysis of structural equation models is given, as results presented in later chapters rely on this relatively new technique. The chapter ends with details of the performance of the questionnaire in the main study.

Chapter 8: Main study - method

Refining the questionnaire

The final questionnaire is shown in Appendix 3. Refinements from the initial version are detailed below (note that the question numbers have changed from the pilot version).

1. Q4 and Q5.

Two questions were added which asked for further information about family composition. Namely how many older brothers and sisters and how many younger brothers and sisters.

2. Q7. How much do you usually drink?

An extra response option was included between '*just a few sips*' and '*enough to get merry*'. '*Only one or two drinks*' was added because of comments from some respondents that there was not a category which suited or nearly suited them.

3. Q22-26. Drinking by significant others.

Two response options were collapsed because there appeared to be a conceptual overlap between them. These options were '*only on special occasions (e.g. birthdays, weddings)*' and '*every few months*'. For many individuals it seems that special occasions occurred every few months or so.

4. Q27.

A third question was added to the final version. This question asked about the usual consumption of friends, and response options were similar to the question about respondent's usual consumption (Q7).

5. Q30-69.

Following the principal component analysis of the 55 family process items in pilot study II, 16 items were dropped from the final version of the questionnaire. Although the organization scale was not theoretically an important variable and did not have good internal reliability, these scale items were left in the questionnaire (but no further analyses involving this scale are reported in the current thesis). This left 39 items measuring family process characteristics. Changes to the wording of several of these items were made, following comments from individuals in the pilot studies and also bearing in mind further suggestions from Humberside LEA advisers:

Q34.

'*We hardly ever fight in my family*' was changed to '*we don't often fight in my family*'.

Q36.

'There is a strong emphasis on following rules in my family' was changed to *'it's important to follow rules in my family'*.

Q49.

'Each persons duties are clearly defined in my family' was changed to *'each persons duties are clearly set out in my family'*.

Q57.

'There are a lot of spontaneous discussions in my family' was changed to *'there are a lot of discussions in my family'*.

Q62.

'In my family we rarely criticize each other' was changed to *'in my family we don't often criticize each other'*.

6.

Some respondents in the pilot studies had suggested that the questionnaire was a bit formal and sterile, and would benefit from the use of colored paper or cartoons to 'liven it up'. In the final version two different colours of questionnaire were used (green and yellow) and, with the help of a local cartoonist, a male and female cartoon image were included in the questionnaire. These cartoon images were drawn so that they indicated the next question/page of the questionnaire.

A new concluding page was added to the final version of the questionnaire. This asked an open-ended question about the respondent's thoughts on young people, drinking and family life. Serving a dual purpose, this final question would provide useful statements/accounts made by the adolescents without the constraints of the closed response method used in the rest of the questionnaire. Additionally, this task would hopefully keep early finishers busy and leave those still completing the questionnaire undisturbed.

Procedure

Most of the participating schools were contacted through the office of the LEA Health Education Project. Once a school had agreed to cooperate (accessing schools was a lengthy process - almost a year of negotiations before final arrangements could be made) then a draft letter to parents was provided for the school to give to respondents. This letter (Appendix 4) asked if any parents did not want their child to take part in this study. Most schools used the letter as drafted, but some schools modified the letter slightly for their own use (e.g. putting the letter on school notepaper), and other schools assumed *in loco parentis* and did not send the letters to parents.

The questionnaire was administered either by the researcher or by teachers in the schools. If the researcher administered the questionnaire there was at all times at least one teacher present, and the teacher(s) usually assisted by answering queries or by helping poorer readers through the questionnaire. As the time and place of administration was at the convenience of the schools, participating groups ranged from small classes of 10 or 11 up to assembly halls

full of pupils. Occasionally the researcher was asked to administer the questionnaire to two or three groups simultaneously in adjacent rooms, moving back and forth between the rooms to supervise the administration and assist the teachers. In addition, several schools said that they did not think it was fair to administer the questionnaire only to one class in each year group, so whole year groups were targeted. Furthermore, in some schools not all year groups were able to participate.

The administration sessions went very well, and on a subjective level the questionnaire performed well. Only one question initially caused some people a problem - the new question 27, '*How much do your friends usually like to drink?*' This was because a category '*don't know*' was not specified as an answer option (an oversight!). This problem was addressed by verbally instructing the respondents to write this in if this was the case. Also, in the analyses, those respondents who answered '*don't know*' to Q26 about friends' frequency of drinking were coded as '*don't know*' in Q27.

The administration session typically involved a 3-4 minute introduction to the questionnaire in which respondents were asked to fill the questionnaire in on their own, but that it was not an examination, and anonymity and confidentiality were guaranteed and stressed. Early finishers were reminded about the open-ended question on the last page of the questionnaire, and were encouraged to write comments, draw cartoons, design a poster - in fact anything they wanted to. Full administration guidelines are contained in Appendix 5. When everyone had completed the questionnaire, if time permitted, a debriefing session and discussion followed.

After all the data were collected and preliminary analyses carried out, a report was prepared of selected results and these were sent to each participating school and also to Humberside LEA advisers.

Data analysis

In the following chapters the results of the main survey are presented. Several different analytical methods are used, including analysis of variance (ANOVA) and structural equation models (SEM). In chapter 10 ANOVA's are used primarily to describe the pattern of combined effect of the independent variables on the dependent variable (i.e. additivity or interaction). In addition, examination of residuals provides evidence of multivariate normality. In subsequent chapters, SEM techniques are used to test hypothesized models of the relationship between family socialization factors and adolescent drinking behaviours. As SEM techniques are a relatively recent development, they are described in some detail below.

Structural equation models

Structural equation modelling or latent variable path analysis (also known sometimes as LISREL models) is a fairly new statistical technique which, with the advance in computer technology, is widely available. Because of the recency and apparent complexity of this technique a fairly detailed though non-mathematical introduction to SEM's is given here. These details are drawn mainly from the excellent introduction to SEM by Kline (1991), and also from articles by Bentler and Bonnett (1980), Morris *et al* (1991) and a book by Dunn *et al* (in press) based on a series of workshops given at the Department of Biostatistics, Institute of Psychiatry, London.

Structural equation modelling is an evolving technique which enables researchers to address more complex, multivariate questions about variable relationships and interrelationships. Four main points will be discussed:

- the conceptual basis of SEM
- advantages of SEM
- requirements for SEM
- common misconceptions about SEM

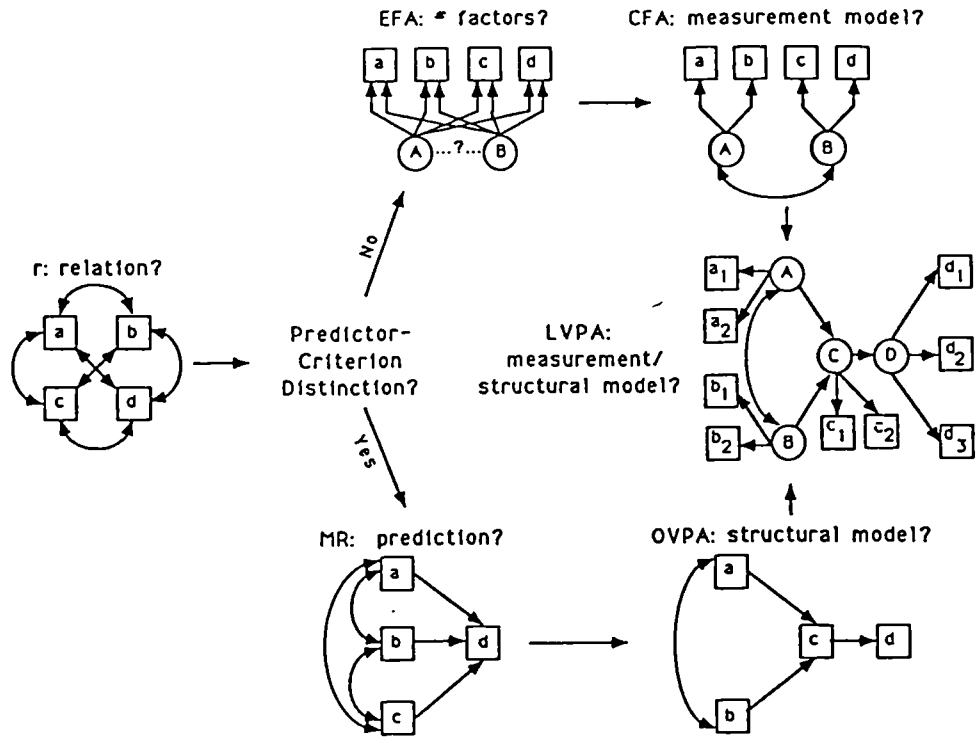
Figure 8.1 depicts a statistical family tree, around which this discussion is organized. In this figure four main features of each statistical technique are represented. These are:

- whether theory guides data analysis
- the distinction between dependent and independent variables
- whether analyses feature latent (unobserved) variables
- whether a direction of effect is specified

Correlation

On the far left of Figure 8.1 a simple correlational analysis is shown. The four variables a , b , c and d are all correlated with each other, but this technique is 'theory weak' in that a correlational analysis simply indicates covariation, thus providing descriptive information about interrelationships between the variables. For example, a may correlate with b only because both are affected by c , but a correlational analysis is not able to test this.

Weak ← Theory → Strong



Key:

- observed variable
- unobserved latent variable
- direction of causal effect
- ↔ covariation

Figure 8.1: A statistical family tree (adapted from Kline 1991)

Factor analysis

If no distinction between independent and dependent variables is specified, then factor analysis enables the examination of the underlying factors that account for the observed correlations (*a, b, c* and *d*).

Exploratory factor analysis (EFA - such as the principal components analysis in the previous chapter) is also a relatively 'theory weak' technique because it is a data driven approach: in EFA no *a priori* hypotheses about the nature or number of underlying factors are specified. On the other hand, confirmatory factor analysis (CFA) is 'theory stronger' than EFA because it allows the researcher to specify and test the underlying latent variable structure to a series of observed correlations.

CFA can be used in many different ways. It can be used as a follow-up to EFA as in the present study (later in this chapter). Or it can be used to evaluate the construct validity of a battery of tests. For example, in the analysis of single trait, multi-method tests (convergent validity) or in the analysis of multi-trait, multi-method tests (discriminant validity). Confirmatory techniques also enable the comparison of different measurement methods. For example, if four tests of family support are made, two different self-report measures and two different observer reports, then three underlying latent factors can be specified - one support factor and two measurement method factors (see Figure 8.2).

CFA is also useful as it allows the representation of unreliable measures. Underlying latent variables can be conceptualized as representing subjects' "true" scores on a variable. Factor loadings of less than 1.00 therefore indicate less than perfect reliability of the observed measures. Other statistical techniques, for example multiple regression and observed variable path analysis, do not allow underlying latent factors to be represented, and thus always assume perfect reliability of the observed measures.

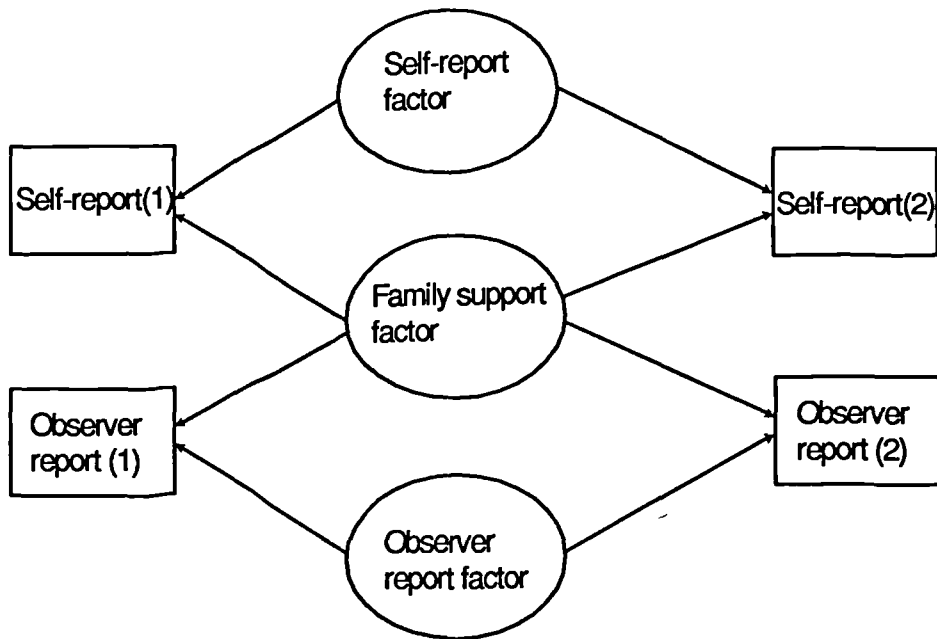


Figure 8.2: The use of CFA to compare different measurement methods

Multiple regression

This technique distinguishes between independent and dependent variables. In multiple regression one dependent variable is statistically predicted by two or more independent variables. Results are interpreted in terms of R^2 , which indicates the overall explanatory power of the independent variables. The relative importance of each independent variable is indicated by the beta coefficient.

However, simple multiple regression techniques do not allow the analysis of interrelationships among variables. For example, that *a* predicts *d* may be clear from the results, but simple multiple regression will not indicate if *a* also influences *d* indirectly through *c*.

Observed variable path analysis (OVPA)

This technique improves on multiple regression by allowing the specification of direct and indirect effects. Kline (1991) states that:

"The basic rationale of OVPA...involves determination of whether sample correlations among...[variables]...match those predicted on the basis of the researchers path model. As with EFA and CFA, there are different algorithms for conducting OVPA, but they typically yield estimates of direct and indirect effects (path coefficients), predicted correlations among the measures, and the goodness-of-fit of the entire model-to-sample data. path models with non-significant path coefficients and large discrepancies between predicted and observed correlations are rejected." (p.475)

Although this technique is relatively 'theory strong', there are several limitations. The technique relies, ultimately, on the correlation structure of the data and, to risk stating the obvious, correlation does not imply causation. Secondly, a 'good-fit' model does not mean that other models do not fit the same data equally well. Also, as in multiple regression, there is no way to represent latent variables, so this technique shares with multiple regression the assumption of perfect reliability. Furthermore, there is no way to represent multiple measures, for example more than one scale of alcohol use.

Structural equation models

SEM's can be conceptualized as a hybrid of path analysis and factor analysis, thus addressing some of the limitations of OVPA described above. Impressive

computer programs with complex calculational algorithms (e.g. LISREL, EQS) produce factor loadings, correlations between latent variables, path coefficients, predicted correlations and the goodness-of-fit of the entire model-to-sample data.

In interpreting the results of SEM, a good model is indicated on several different levels:

- factor loadings should be high (convergent validity)
- correlation among latent variables should not be excessively high
- path coefficients should be significant
- predicted correlations should be close to observed correlations
- the general fit of the whole model-to-sample data should be high

Thus, SEM allows more complex questions to be addressed, but they can "*never prove causality*" and "*can only fail to be disconfirmed*" (Kline 1991).

Misunderstandings of SEM's

Kline (1991) also points to several misunderstandings about SEM's:

- they do not completely 'correct' for unreliable measures. Tests with good psychometric properties are needed
- goodness-of-fit statistics cannot be interpreted as indicating the proportion of variance in the dependent variable accounted for by the independent variables

- changes to the model to improve fit need to take into account theoretical considerations, not just those changes which will maximize improvement of the model.
- SEM calculations often make the assumption of multivariate normality (although this depends on the type of analysis - recent algorithms allow data which departs from normality)
- although correlations are often used to describe the data, it is preferable to use a covariance analysis in SEM rather than the analysis of correlation matrices. This is because the standard deviations used to calculate a correlation are sample specific and may not be generalized to other samples

Sample size

Many SEM computer programs assume large sample sizes, but offer no guidelines as to the adequacy of sample size. Kline (1991) offers some tentative guidelines:

- if $n < 100$ try to have more than two observed measures of each latent factor
- a sample size of 150-200 is reasonable, dependent on the number of parameters
- try and have at least 5 subjects for every parameter in the model

Goodness-of-fit

There are several ways to measure how good a 'fit' a model is to the sample data. Several goodness-of-fit indices are produced by the SEM computer programs, although they provide limited information about the adequacy of a particular model: they reflect only the 'average' fit of a model. Therefore, a

model might have a reasonable 'fit' even though parts of the model clearly do not match sample data.

The chi-squared index is generally the first index provided in SEM statistical output. This statistic indicates the magnitude of sample-model differences (ranging from 0 to infinity), but it is very sensitive to sample size (Bentler & Bonnett 1980).

Other fit indices are less sensitive to sample size and are analogous to a squared multiple correlation (therefore ranging from 0 to 1). The Bentler-Bonnett Normed Fit Index (NFI) and the Bentler-Bonnett Non-Normed Fit Index (NNFI) show the relative fit of the specified model against a 'null model', in which all variables are assumed to be uncorrelated. The Comparative Fit Index (CFI) is similar to the NFI and the NNFI and, in addition, is a good index-of-fit for a wide range of sample sizes. When looking at residuals, the Average Absolute Standardized Residual (AASR) shows the average squared difference between observed and predicted correlations, and ranges from 0 to 1.00 (analogous to the Root Mean Square Residual (RMR) described in the article by Kline). In general, researchers should report multiple measures of fit. Rules of thumb for these fit indices indicating an acceptable model are:

- a non-significant χ^2 (bearing in mind the sample size)
- NFI, NNFI and CFI of >0.90
- AASR of <0.10

Is one model better than another? There are several factors to consider when addressing this question. First, the theoretical basis and argument for each model - can one model be theoretically justified over another? Secondly, one needs also to consider the issue of parsimony v complexity; and finally, one can

look at the difference in χ^2 goodness-of-fit between each model to see if one model is a significantly better fit than the other.

In summary then, SEM is an advanced complex statistical technique, but is no substitute for sound theory and good measures. As Kline (1991) concludes:

"Using SEM in the absence of either is like using a chain saw to cut warm butter: one will accomplish the task, but without a more substantial base, one is also likely to make a big mess. The quality of the ideas behind the analyses is more important than the quantity of numbers in the output." (p.481)

EQS

In later chapters several analyses will be based on SEM techniques. These were carried out using a maximum likelihood technique with EQS, a computer program designed by Bentler (1989). Covariance matrices were used in all analyses, and correlation matrices of the variables used in each analysis are presented in Appendix 7.

For each analysis the initial model specification will be based on the simplest model specifiable (Dunn *et al* in press), according to the theoretical arguments put forward in the previous chapters. So, for example, in looking at the relationship between family socialization factors and adolescent drinking, the potential model described in Figure 8.3 would be specified and tested first.

This model is more specifically known as a MIMIC model (multiple indicators - multiple causes), and it specifies that drinking behaviour is measured by first experiences, reasons for drinking and current drinking behaviour; and is predicted by age, sex, family structure, family size, support,

control, family models and social reinforcement. There are no indirect effects specified in this simple model.

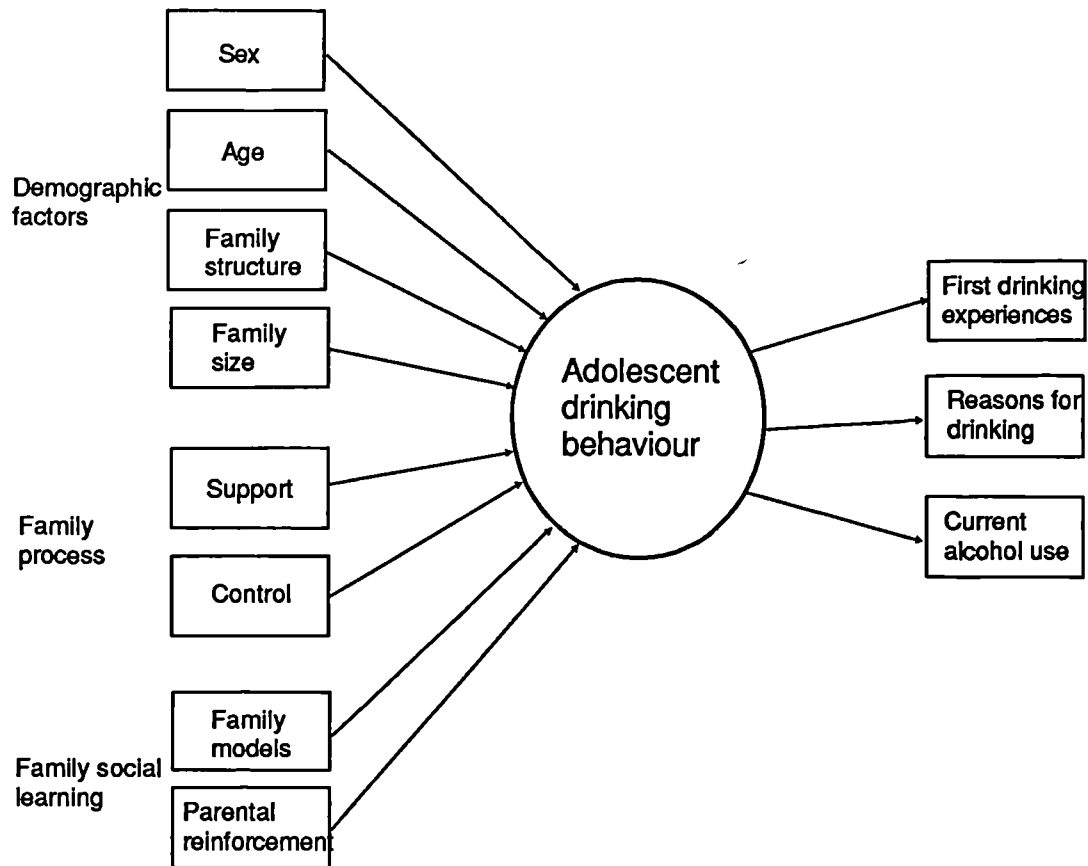


Figure 8.3: Example of an initial EQS model specification: the simple relationship between demographic factors, family socialization factors and adolescent drinking, showing only direct effects

EQS provides two very useful features which assist in model improvement, specification and testing. The first is the WALD test which indicates those parameters which can be successfully removed from the specified model without compromising the fit of the model. The second feature is the Lagrange Multiplier test, which indicates those parameters (if any) that would, if included

in the model, improve the fit of the model. In the present analyses only those parameters which make a theoretical contribution to the model will be included in the model. It is not unusual for the Lagrange Multiplier test to suggest the inclusion of a particular parameter in a model and then a fairly weak argument is put forward as to why that parameter should be included. This is one danger of automatic model building features, such as the one in LISREL.

Presentation of EOS results

In this thesis the results from these analyses are presented according to the criteria detailed earlier. In determining the fit of a particular model the sample base, χ^2 , AASR, NFI, NNFI and CFI will be presented in a table (see Table 8.1 for the format). Then a graph of the distribution of standardized residuals will be presented and described. This graph details the number and degree of departure of residual values, and a good model is indicated by residuals being normally distributed around zero. In these graphs of standardized residuals, the x-axis is labelled from 1 to 9 and then A, B and C. Each of these labels refers to a range which is described in a key at the side of each graph (e.g. see Appendix 6). For instance, the label 2 refers to the range -0.5 to -0.4, the label 7 to the range 0.0 to 0.1, and the label B the range 0.4 to 0.5. Residuals are plotted on the graphs as asterisks (*), with each asterisk representing a number of residuals (specified at the bottom of each graph).

Goodness-of-fit	
Sample size	
χ^2	
AASR	
NFI	
NNFI	
CFI	

Table 8.1: Format of presentation of SEM model 'fit' indices

A path diagram will indicate the *significant* standardized parameter estimates in the model. These can be interpreted in the same way as standardized regression coefficients. To avoid unnecessary clutter and confusion, only the standardized parameter estimates which indicate causal effect will be included in the path diagram (i.e. no correlations or parameter estimates of error terms will be shown). The final model will be described and discussed in the concluding section to each chapter.

Item analysis and psychometric assessment of the family scales used in the main study

Reliability estimates

Internal reliability, or internal consistency, is a less direct method of parallel forms analysis, in which the effects of different samples of items on scale or test reliability are measured. This is not strictly the same as a parallel forms analysis, in which errors of measurement caused by different conditions or times of administration are reflected. Such errors would be reflected in a test-

retest analysis. In this section we report internal consistency using coefficient alpha (α). Acceptable levels of α for a test range from a low of 0.65-0.70 up to the 0.9's. However, some experts (for example Cattell) would argue that lower reliabilities (0.50) are acceptable if the construct being measured is quite broad. In other words items are more variable in their scope, and therefore there is less consistency between items of a scale or test.

Internal reliability estimates for the family process scales, calculated using Chronbach's alpha (α), are presented below, together with the consequence for α of removing each scale item. The name given to each item corresponds to the question number in the final version of the questionnaire (Appendix 3).

(i) cohesion-conflict

RELIABILITY ANALYSIS - SCALE (COHESION-CONFLICT)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM51	26.3071	20.3445	.6136	.4067	.8001
FAM42	26.3839	20.9484	.3942	.1981	.8227
FAM40	26.2121	20.8437	.5966	.4510	.8028
FAM34	26.6363	20.6679	.4615	.2418	.8149
FAM53	26.5700	20.4547	.4649	.2557	.8151
FAM46	26.6611	21.4471	.4719	.2725	.8130
FAM47	26.9976	21.0984	.5114	.2981	.8096
FAM39	26.2924	21.4704	.5083	.3268	.8103
FAM30	26.1600	21.5253	.5049	.3178	.8107
FAM62	26.6226	21.3195	.4742	.2386	.8128
FAM37	26.1726	21.0852	.5124	.2935	.8095
RELIABILITY COEFFICIENTS			11 ITEMS		
ALPHA =	.8252	STANDARDIZED ITEM ALPHA =		.8315	

(ii) expressiveness

RELIABILITY ANALYSIS - SCALE (EXPRESSIVENESS)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM59	22.4995	11.2514	.4552	.2166	.7310
FAM32	22.3571	12.0428	.3807	.1879	.7422
FAM33	22.1603	11.5429	.4684	.2275	.7284
FAM52	22.2618	11.9517	.4544	.2402	.7315
FAM69	22.1292	11.6150	.4430	.2220	.7326
FAM54	22.1842	12.1345	.3589	.1471	.7456
FAM57	22.6013	12.0240	.3797	.1601	.7425
FAM61	22.2234	11.7482	.4714	.2375	.7285
FAM68	22.1221	11.4339	.5048	.2904	.7227
RELIABILITY COEFFICIENTS			9 ITEMS		
ALPHA =	.7564	STANDARDIZED ITEM ALPHA =		.7572	

(iii) authoritarian

RELIABILITY ANALYSIS - SCALE (AUTHORITARIAN)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM63	17.2818	7.3096	.4176	.1837	.5931
FAM58	16.7889	7.5006	.3106	.1020	.6222
FAM67	17.0032	8.8286	.0174	.0334	.6918
FAM44	16.6634	7.5105	.4108	.2074	.5969
FAM36	16.3637	7.5181	.3785	.1975	.6040
FAM65	16.6889	7.1230	.4509	.2297	.5830
FAM64	16.7458	7.1025	.4058	.2041	.5947
FAM49	16.9268	7.5909	.3472	.1757	.6118
RELIABILITY COEFFICIENTS			8 ITEMS		
ALPHA =	.6454	STANDARDIZED ITEM ALPHA =		.6463	

(iv) laissez-faire

RELIABILITY ANALYSIS - SCALE (LAISSEZ-FAIRE)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM50	12.8342	5.8067	.1957	.0518	.5956
FAM45	13.4261	5.7676	.1987	.0544	.5954
FAM56	13.0945	5.4575	.3229	.1084	.5505
FAM41	13.8187	5.3383	.3606	.1375	.5368
FAM66	13.5489	5.3690	.3381	.1432	.5449
FAM31	13.9258	5.3301	.3843	.2221	.5291
FAM35	14.0082	5.4443	.3930	.2294	.5289
RELIABILITY COEFFICIENTS			7 ITEMS		
ALPHA = .5930		STANDARDIZED ITEM ALPHA = .5981			

(v) organization

RELIABILITY ANALYSIS - SCALE (ORGANIZATION)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM39	10.8026	3.7015	.2227	.0509	.4854
FAM48	10.8639	3.1647	.2753	.0847	.4578
FAM60	10.4945	3.3293	.3542	.1296	.4082
FAM43	11.1671	3.2111	.3068	.1046	.4339
FAM55	11.1192	3.4654	.2451	.0649	.4742
RELIABILITY COEFFICIENTS			5 ITEMS		
ALPHA = .5086		STANDARDIZED ITEM ALPHA = .510			

(vi) support (i+ii)

RELIABILITY ANALYSIS - SCALE (SUPPORT)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM51	51.3745	53.9142	.6238	.4273	.8515
FAM42	51.4513	55.8402	.3431	.2075	.8634
FAM40	51.2795	54.3451	.6451	.4825	.8514
FAM34	51.7037	55.5489	.3892	.2494	.8610
FAM53	51.6374	54.7629	.4319	.2714	.8594
FAM46	51.7284	55.6904	.4856	.2984	.8569
FAM47	52.0650	56.1519	.4251	.3060	.8590
FAM39	51.3597	55.5413	.5393	.3468	.8552
FAM30	51.2274	55.4676	.5534	.3430	.8548
FAM62	51.6900	56.1013	.4289	.2510	.8589
FAM37	51.2400	54.8379	.5524	.3252	.8544
FAM59	51.6011	55.5107	.4145	.2371	.8597
FAM32	51.4587	57.1812	.3310	.2000	.8624
FAM33	51.2618	56.2165	.4067	.2460	.8597
FAM52	51.3634	56.4057	.4504	.2799	.8582
FAM69	51.2308	56.6640	.3581	.2287	.8616
FAM54	51.2858	56.9975	.3472	.1585	.8618
FAM57	51.7029	56.4832	.3940	.1931	.8602
FAM61	51.3250	54.7596	.5942	.3698	.8531
FAM68	51.2237	55.0934	.5241	.3415	.8554
RELIABILITY COEFFICIENTS			20 ITEMS		
ALPHA =	.8641	STANDARDIZED ITEM ALPHA =		.8684	

(vii) control (iii+iv)

RELIABILITY ANALYSIS - SCALE (CONTROL)					
ITEM-TOTAL STATISTICS					
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED
FAM50	36.3747	20.4981	.3825	.2521	.7083
FAM45	35.7829	21.6704	.1919	.0900	.7292
FAM56	36.1145	20.4978	.3983	.1803	.7068
FAM41	35.3903	21.1862	.2838	.1449	.7190
FAM66	35.6600	21.0410	.2986	.1692	.7175
FAM31	35.2832	20.8816	.3482	.2445	.7123
FAM35	35.2008	21.2303	.3236	.2472	.7150
FAM63	36.5058	20.1937	.4478	.3117	.7014
FAM58	36.0129	20.8566	.2965	.1200	.7181
FAM67	36.2271	23.0779	-.0069	.0640	.7483
FAM44	35.8874	20.7159	.4034	.2162	.7070
FAM36	35.5876	20.3608	.4391	.2602	.7028
FAM65	35.9129	20.1317	.4402	.2389	.7018
FAM64	35.9697	20.1104	.4014	.2142	.7058
FAM49	36.1508	20.9578	.3291	.2020	.7142
RELIABILITY COEFFICIENTS			15 ITEMS		
ALPHA =	.7281	STANDARDIZED ITEM ALPHA =		.7295	

Summary

Although the organization and laissez-faire sub-scales showed slightly lower internal consistency, the internal reliability estimates for the support and control scales was satisfactory (both were above 0.70). A test-retest study was also carried out to examine the consistency of these scales over time. The results from the test-retest study are detailed below.

Test-retest study

In order to assess test-retest reliability the final version of the questionnaire (Appendix 3) was administered to 99 students from the University of Hull, and re-administered two weeks later. Students were chosen only because access to schools and trainees for a repeated measures study was not possible - this sample was taken from a different population than the secondary school students in the main study. This was due in part to the reluctance of the local education advisors to agree to two intrusions into classroom time for each participant, and also because of the lengthy process of negotiating access to schools. Although not ideal, it is reasonable to assume that reliabilities for the family scales in the two populations would be similar, especially since the present family measures were derived from the FES, which has established reliability for its questionnaire items in various populations (Moos and Moos 1986). At time 1 the participants were not told that they were to be re-tested. This avoided any strategy on their part to remember their time 1 answers. The test-retest reliabilities (Pearson r) for selected variables from the final questionnaire are shown in Table 8.2.

Variable	Test-retest coefficients
Number of units drunk in last 7 days	0.55
Composite drinker score	0.92
Support	0.95
Control	0.86
Family models	0.70
Parental attitude	0.89

Table 8.2: Test-retest reliabilities for the final questionnaire

As can be seen from Table 8.2, there were high and acceptable test-retest reliabilities for drinking behaviour (composite measure - calculated in the same way as in the pilot studies), support, control and parental attitude. The test-retest coefficient for units consumed in the previous week was not as high. Given honest reporting by the respondents, there are two possible reasons for this. Either this was not a stable behaviour over this short time period or there was a problem in the calculation of the test-retest coefficient. This variable was, in fact, highly skewed, which may have contributed to the lower coefficient. A logarithmic transformation of the variable, at both time 1 and time 2, produced a test-retest coefficient of 0.74. The combined family drinking variable also produced a lower test-retest coefficient. On examination, one reason for this could be that many respondents did not answer some of these questions at all at time 2.

Confirmatory Factor Analysis

In the pilot study (N=430) exploratory factor analysis was carried out to analyze and develop the family scales to be used in the main study. In this section the factor structure of those family scale items in the main study is assessed using CFA techniques. The analysis was carried out using EQS, and the results are detailed below:

(a) Support

Goodness-of-fit	
Sample size	4329
χ^2	2539.5 with 185 d.f., $p < 0.01$
AASR	0.051
NFI	0.974
NNFI	0.975
CFI	0.976

Table 8.2: Goodness-of-fit for CFA model of support items

The distribution of residuals is shown in Figure 8.4, and it is clear that there are no problems with the residuals - they are all normally distributed around zero. In addition the Absolute Adjusted Standardized Residual is less than 0.1 (Table 8.2). Figure 8.5 shows the path diagram and path coefficients for this CFA model. Although the χ^2 index was significant, all other indices suggest a reasonable fit of the model-to-sample data. As mentioned earlier, the χ^2 index is particularly sensitive to sample size and, given the large size of the current sample, must be treated cautiously. (In fact, in a later analysis in chapter 12 several bootstrap samples are taken to examine and demonstrate the sensitivity of χ^2 to sample size).

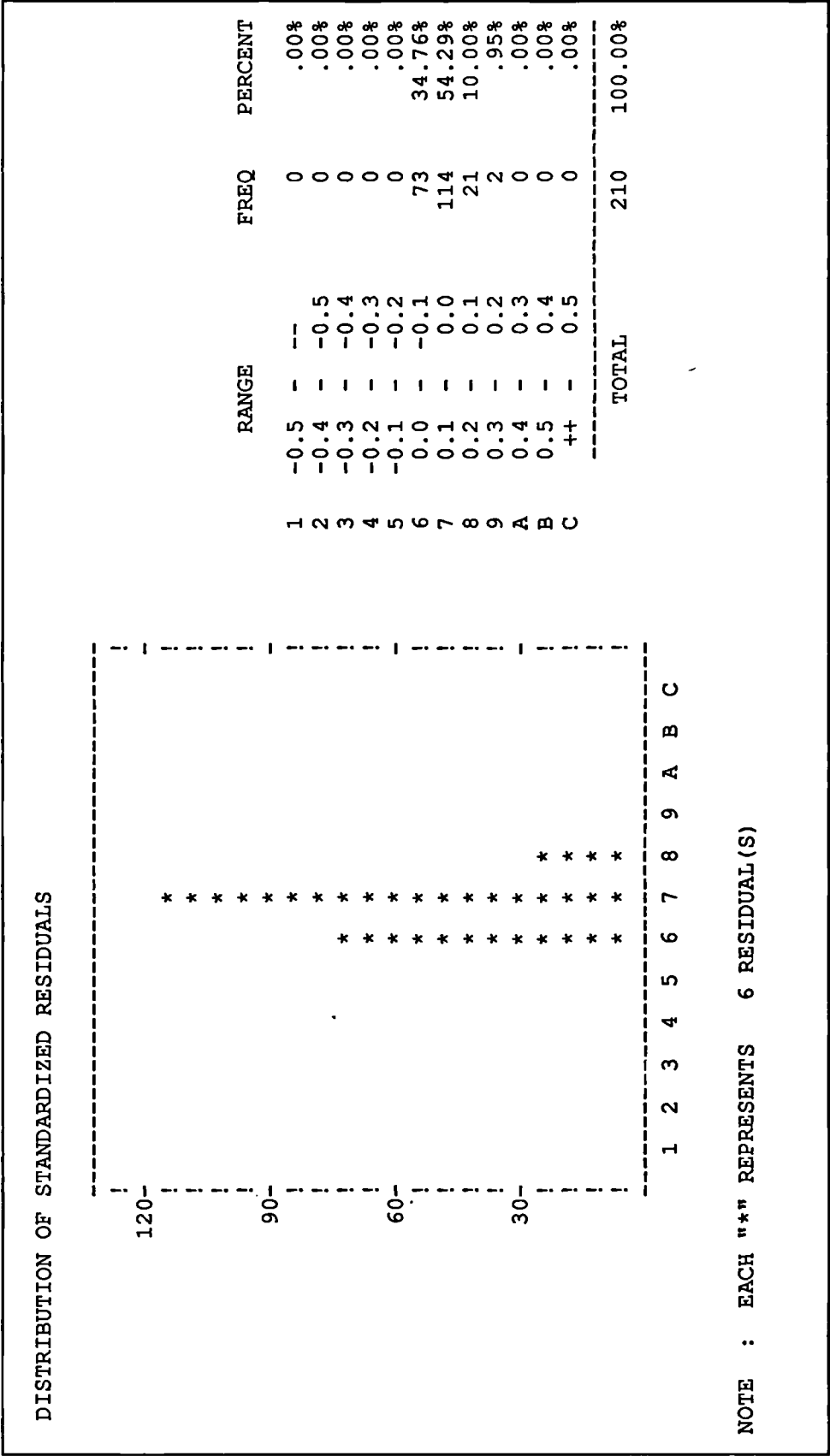


Figure 8.4: EQS output showing the distribution of residuals for CFA model for support

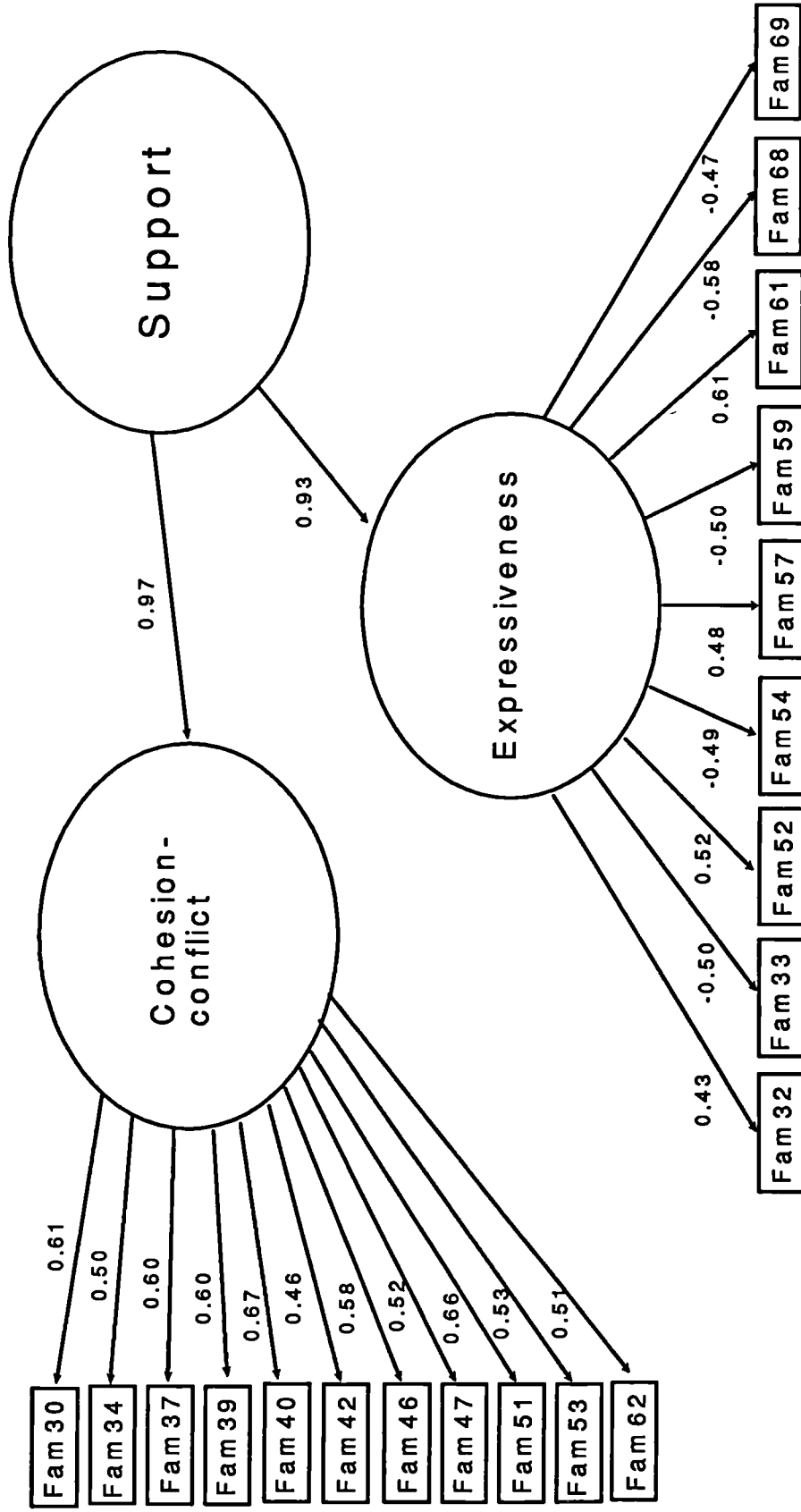


Figure 8.5: CFA model and standardized parameter estimates (factor loadings) for family support variables
(all parameters are significant at $p < 0.01$)

(b) control

Goodness-of-fit	
Sample size	4327
χ^2	1894.8 with 102 d.f., $p < 0.01$
AASR	0.065
NFI	0.966
NNFI	0.967
CFI	0.968

Table 8.3: Goodness-of-fit for CFA model of control items

Once again, although the χ^2 index was significant, all other indices suggest a reasonable fit of the model-to-sample data, and all parameter estimates are significant at $p < 0.001$. The distribution of the residuals is shown in Figure 8.6 and the residuals are normally distributed around zero. There is one problem with the current model though, and that is the relatively poor fit of item Fam67 to the model. Yielding a parameter estimate of only -0.096, this value compared poorly with the other family item coefficients. Examination of the face validity of this item reveals why this item might not be as good a measure as the other items of the control construct (as defined earlier). This question asks *'it's hard to know what the rules are in my family, as they are always changing'*. This question could therefore be measuring not the degree of control, but the level of consistency of the control structure.

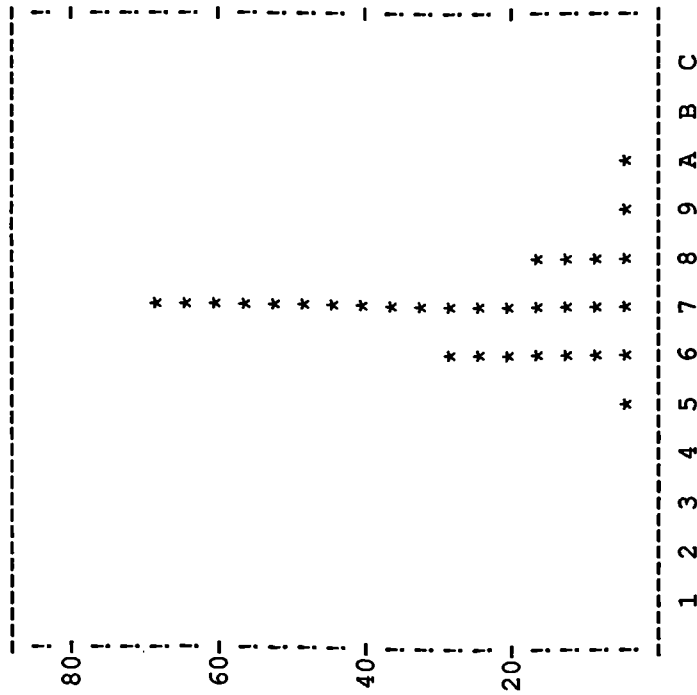
It was decided to carry out a second CFA for control (control #2) to see if eliminating this item improved the model. The goodness-of-fit of this second

model is shown in Table 8.4 and the distribution of residuals in Figure 8.7. Although the standardized fit indices are very similar, there has been a significant change in χ^2 (234.5 with 14 d.f. $p < 0.01$), suggesting that this second CFA model, without item Fam67, is better. The residuals are also centred slightly more around zero. Therefore this item was eliminated from the control scale and authoritarian sub-scale in further analyses in the main study (following chapters). The final model is shown in Figure 8.8.

Goodness-of-fit	
Sample size	4327
χ^2	1660.3 with 88 d.f., $p < 0.01$
AASR	0.063
NFI	0.969
NNFI	0.969
CFI	0.970

Table 8.4: Goodness-of-fit for CFA model of control #2 items

DISTRIBUTION OF STANDARDIZED RESIDUALS

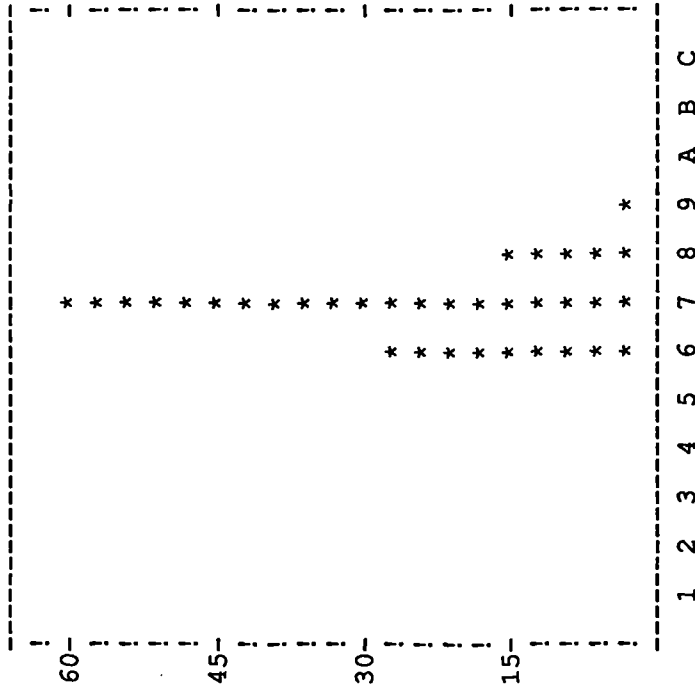


NOTE : EACH "*" REPRESENTS 4 RESIDUAL(S)

	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	2	1.67%
6	0.0 - -0.1	29	24.17%
7	0.1 - 0.0	67	55.83%
8	0.2 - 0.1	17	14.17%
9	0.3 - 0.2	3	2.50%
A	0.4 - 0.3	2	1.67%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		120	100.00%

Figure 8.6: EQS output showing the distribution of residuals for CFA model #1 for control

DISTRIBUTION OF STANDARDIZED RESIDUALS



	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	1	.95%
6	0.0 - -0.1	27	25.71%
7	0.1 - 0.0	59	56.19%
8	0.2 - 0.1	14	13.33%
9	0.3 - 0.2	3	2.86%
A	0.4 - 0.3	1	.95%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		105	100.00%

NOTE : EACH "*" REPRESENTS 3 RESIDUAL(S)

Figure 8.7: EQS output showing the distribution of residuals for CFA model #2 for control

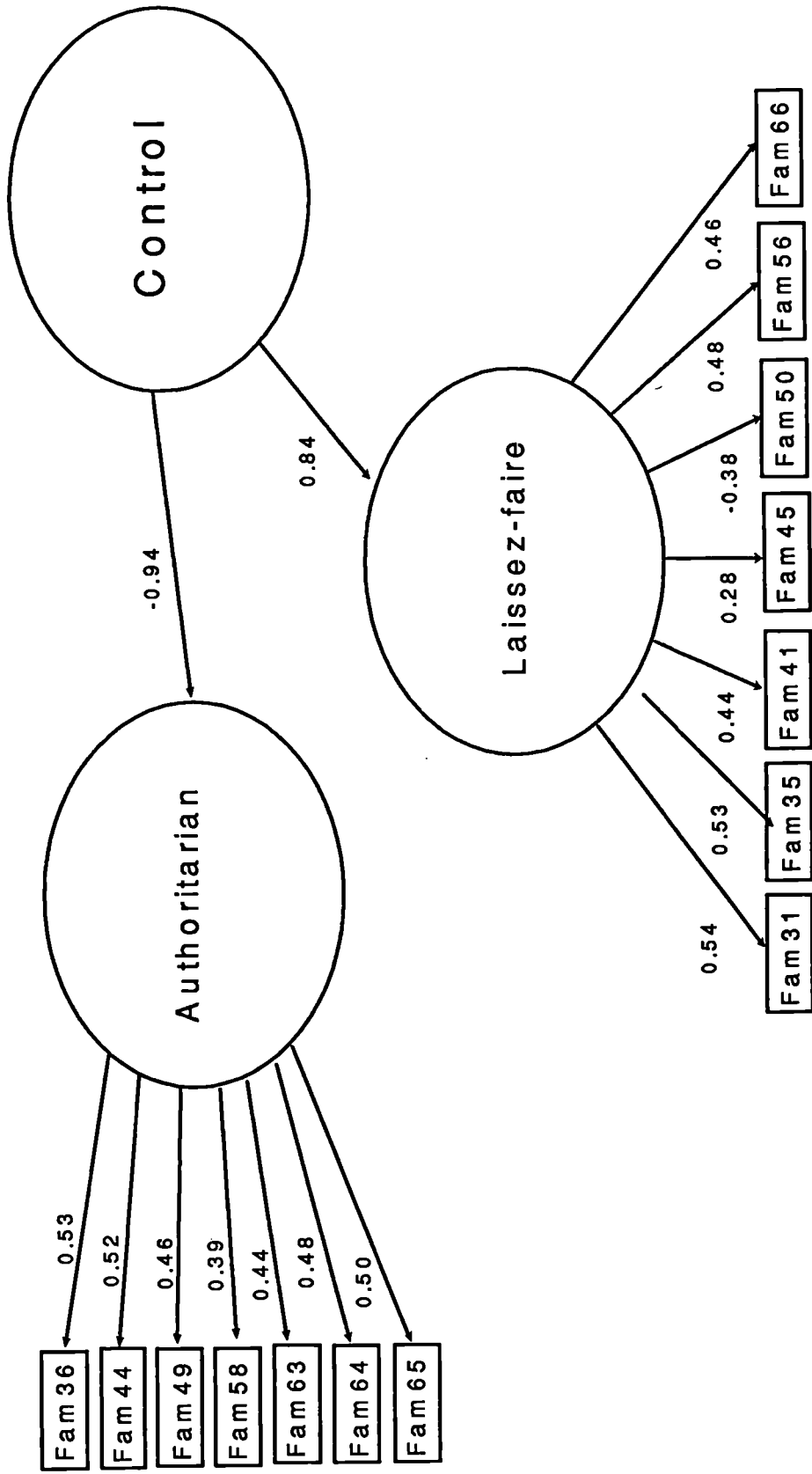


Figure 8.8: CFA model and standardized parameter estimates (factor loadings) for family control variables (all parameters are significant at $p < 0.01$)

Hypotheses addressed in this chapter

Hypothesis:

1(a) There is a clear structure and dimensionality in the perception by adolescents of family process, along dimensions of support and control.

Both support and control were found to be salient second-order factors in the confirmatory factor analysis of the family items from the questionnaire, supporting the above hypothesis.

Chapter 9: The sample, drinking behaviour and family socialization variables

In this chapter descriptive information is provided for sample, drinking and family socialization variables from the main study. The first part of the chapter looks at the sample obtained, namely demographic and family structural characteristics. The second part of this chapter details the drinking behaviour variables, both individually and also in instances when several variables were combined into composite variables. For example, age of first drink and age of first drunkenness were combined into one '*age of first drinking experiences*' composite measure. Following the description of the respondents' drinking behaviours, comparisons are drawn with Sharp's (1992) previous study of adolescent drinking on Humberside.

The final part of the chapter describes the family socialization variables. Family support and control scales and sub-scales are described in detail and, following this, the family social learning variables are presented. An examination of the reported frequency of drinking of mother, father and older sibling precedes the development of a combined family drinking behaviour measure, using established techniques. Finally, the breakdown of the parental attitude variable is detailed.

The sample

4386 individuals from schools throughout Humberside completed the questionnaire. The higher than expected sample size was due mainly to the better than expected co-operation rate from schools. Of the 48 schools approached, 32 agreed to take part. Additional over-sampling resulted from several schools requesting that whole year groups, rather than just one class, should have the questionnaire administered to them. Table 9.1 shows the breakdown of the sample by school year and sex. In all tables, reduced totals indicate missing values for those variables.

School year	Sex				<i>total</i>	
	male		female			
	n	%	n	%	n	%
7 (ages 11-12)	237	5	257	11	494	11
8 (ages 12-13)	373	9	337	8	710	16
9 (ages 13-14)	703	16	572	13	1275	29
10 (ages 14-15)	354	8	288	7	642	15
11 (ages 15-16)	550	13	590	14	1140	26
12 (ages 16-17)	38	1	39	1	77	2
13 (ages 17-18)	8	0	23	1	31	1
<i>total</i>	2263	52	2106	48	4369	100

Table 9.1 Breakdown of the main sample by school year and sex

The 32 schools that participated in the study represented a broad cross-section of schools in Humberside. They ranged from large inner city comprehensives to smaller rural schools, and also included some single-sex schools. Of the few schools that declined to take part, various reasons were given - from lack of available time to uncertainty about the nature and suitability of the questionnaire.

Within the schools, the adoption of a 'negative consent' policy, with letters to parents inviting replies only if they did not want their child to take part in the survey, was also a success. Few individuals did not participate because of parental refusal, and these pupils were generally excused from the lesson and asked to work in the school library. Absenteeism was a variable factor. In some schools absentee rates were as high as 30 per cent, whilst in others very few individuals were absent. In all, there were 545 absentees and 123 parental refusals. This gave a potential sample size of 5045 pupils, of which 4386, or 87 per cent, were sampled.

In relation to Q3, asking about family structure, the majority of respondents said that they lived with their mother and father, just over 1 in 10 said they lived with their mother only, whereas less than 1 in 50 said they lived with their father only. Of those who lived with a natural parent and a step-parent, most lived with mother and step-father (see Table 9.2). When this variable was recoded into nuclear and non-nuclear families, 3125 respondents were classified as from nuclear families (lived with both natural parents) and 1245 respondents were classified as from non-nuclear families (did not live with both natural parents).

Whom respondent lives with	value	N	%	cum. %
Mother	1	513	11.7	11.7
Father	2	77	1.8	13.5
Mother and Father	3	3125	71.5	85.0
Mother and Stepfather	4	381	8.7	93.7
Father and Stepmother	5	55	1.3	95.0
Foster parents	6	49	1.1	96.1
Other	7	170	3.9	100
	<i>total</i>	4370	100	

Table 9.2: Q3 - family structure

Questions 4 and 5 asked each respondent about the number of older and younger brothers and sisters they had. Tables 9.3a and 9.3b show the breakdown of these two variables. Most respondents had no or just one older sibling. Less than 1 in 5 had two or three older siblings and less than 1 in 20 more than four older siblings (Table 9.3a). The distribution of number of younger siblings was very similar (Table 9.3b).

No. of older siblings	N	%	cum. %
0	1765	40.4	40.4
1	1607	36.8	77.2
2	593	13.6	90.8
3	233	5.3	96.1
4	93	2.1	98.2
5	69	1.6	99.8
6	9	0.2	100
<i>total</i>	4369	100	

Table 9.3a: Q4 - number of older siblings

No. of younger siblings	N	%	cum. %
0	1831	41.9	41.9
1	1593	36.5	78.4
2	627	14.4	92.7
3	193	4.4	97.1
4	75	1.7	98.9
5	49	1.1	100
6	1	0	100
<i>total</i>	4369	100	

Table 9.3b: Q5 - Number of younger siblings

Questions 3, 4 and 5 were combined so as to calculate each respondent's family size. Table 9.4 shows the distribution of family sizes, ranging from 2 (e.g. respondent + one parent) up to 13 (e.g. large number of siblings).

Family size	N	%	cum. %
2	62	1.4	1.4
3	426	9.8	11.2
4	1804	41.5	52.8
5	1150	26.5	79.8
6	479	11.0	90.3
7	217	5.0	95.3
8	100	2.3	97.6
9	55	1.3	98.8
10	24	0.6	99.4
11	10	0.2	99.6
12	6	0.1	99.7
13	11	0.3	100
<i>total</i>	4369	100	

Table 9.4: Family size

Drinking behaviour

First drinking experiences

Over a third of the respondents said that they had their first proper drink without their parents between 11 and 13, with a similar proportion saying they had their first proper alcoholic drink before 11. One in 5 respondents said they had never had a proper alcoholic drink without their parents (Table 9.5).

Age of first proper drink	value	N	%	cum. %
Under 8 years old	1	437	10.1	10.1
8 to 10	2	1055	24.3	34.4
11 to 13	3	1578	36.4	70.7
14 to 16	4	364	8.4	79.1
never	5	907	20.9	100
	<i>total</i>	4341	100	

Table 9.5: Reported age of first proper drink without parents

Table 9.6 shows that just over a quarter of the respondents said they had their first proper drink at home, whilst just under a quarter said their first proper drink was at a friend's house. Roughly equal proportions (around 1 in 10) said their first drink was in a pub/club, street/park or elsewhere. One in 5 said they had never had a proper drink (Table 9.6).

Where first proper drink	value	N	%	cum. %
at home	1	1208	27.9	27.9
friend's house	2	983	22.7	50.5
pub/club	3	322	7.4	58.0
street/park	4	469	10.8	68.8
none of above	5	496	11.4	80.2
never had a drink	6	857	19.8	100
	<i>total</i>	4335	100	

Table 9.6: Location of first proper drink

With regard to age of first drunkenness, just under half said they had never been drunk, with around 1 in 10 saying that they first got drunk before the age of 11. Over a quarter reported they first got drunk between 11 and 13, and around 1 in 7 said they first got drunk between 14 and 16 (Table 9.7).

Age of first drunkenness	value	N	%	cum. %
Under 8 years old	1	166	3.8	3.8
8 to 10	2	342	7.9	11.7
11 to 13	3	1242	28.7	40.4
14 to 16	4	610	14.1	54.4
never	5	1975	45.6	100
	<i>total</i>	4335	100	

Table 9.7: Reported age of first drunkenness

The two variables age of first drink and age of first drunkenness were combined into one composite measure of first drinking experiences. This was done by simply adding together the values of each respondent's answer to both questions. The scale was then reversed so that a higher score represented an earlier first drinking experience (in line with the other drinking behaviour variables, where higher scores indicate more drinking behaviour). As each contributory variable ranged from 1 to 5, this gave a combined range of 2 to 10. Thus, a score of 10 on the composite first drinking experiences measure meant that both age of first drink and first drunkenness was under 8 years old. On the other hand, a score of 2 indicated that the respondent had not yet been drunk or yet had a proper alcoholic drink. Table 9.8 shows the distribution of the composite first drinking experiences variable. There were 102 respondents with a score of 10. Although one might think there should be at least 166 (see Table 9.7 above), it must be remembered that the age of first drink question (Table 9.6)

referred to age of first drink without parents. It is quite possible that some respondents first got drunk before 8 years old with their parents. The mean age of first drinking experiences score was 5.05, with a standard deviation of 2.08.

First drinking experiences	value	N	%	cum. %
never had a proper drink without parents/been drunk	2	818	19.0	19.0
.	3	125	2.9	21.9
.	4	766	17.8	39.7
.	5	716	16.7	56.4
.	6	910	21.2	77.6
.	7	425	9.9	87.4
.	8	321	7.5	94.9
.	9	117	2.7	97.6
first drink/drunken before 8 years old	10	102	2.4	100
	<i>total</i>	4300	100	

Table 9.8: Combined first drinking experiences variable

Reasons for drinking

Most respondents said they drank because they liked the taste or to celebrate, whilst fewest said they drink to escape problems or because of stress. Around 1 in 10 said they drink to be confident or because their friends do, with 1 in 5 saying they drink to get drunk and because they like the effects. Similar proportions (just under 30 per cent) said they drink to feel relaxed or to be sociable, and just under 40 per cent drank to cheer themselves up (Table 9.9).

Reason	N	%
like the taste	2796	63.7
to escape problems	263	6.0
to be confident	407	9.3
to feel relaxed	1292	29.5
to get drunk	865	19.7
because my friends do	476	10.9
to be sociable	1245	28.4
to celebrate	3062	69.8
because I'm under pressure/stress	241	5.5
I like the effects	886	20.2
it cheers me up	1682	38.3

Table 9.9: Proportion indicating they drank for each of the specified reasons

When the reasons for drinking specified by each individual were combined into an overall number of reasons for drinking variable, one quarter of the respondents did not give any reasons for drinking, 3 out of 5 respondents indicated between one and five reasons for drinking, and nearly 1 in 7 gave more than five reasons for drinking (Figure 9.1). The mean number of reasons was 2.8, with a s.d. of 2.4.

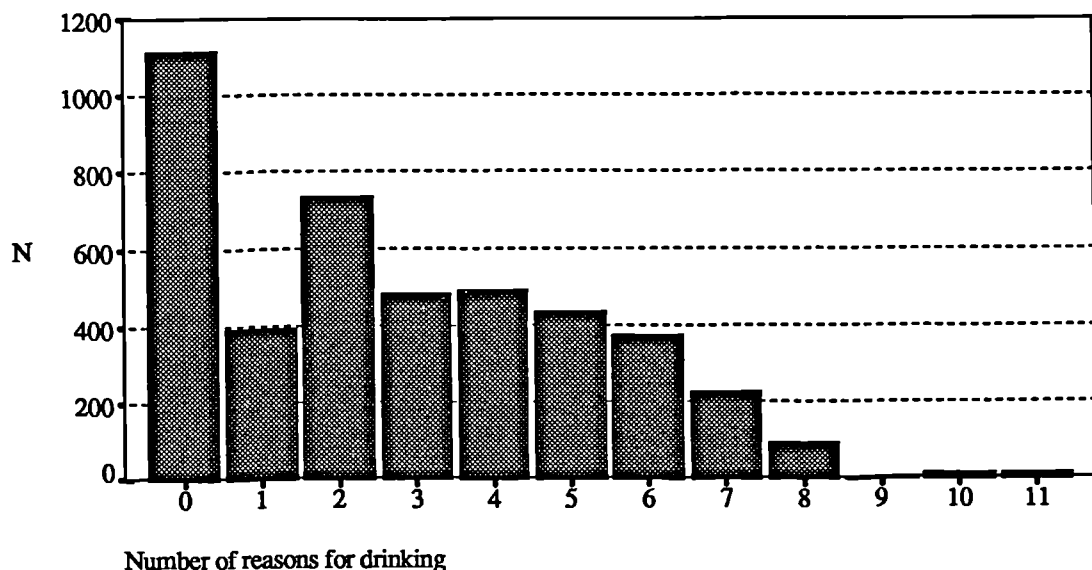


Figure 9.1: Distribution of number of reasons for drinking

Current alcohol use

The number of units consumed in the previous 7 days (which was, as expected, very highly skewed) was recoded into the categories described in chapter 6 (Table 6.3). Just under half the respondents were classified as non-drinkers, over 1 in 3 as sensible drinkers and over 1 in 6 as moderate, heavy or very heavy drinkers (Table 9.10a).

In response to the frequency of drinking question (Q22), half the respondents said that they drank every few months, whilst less than 1 in 10 said they were weekly drinkers. Around 1 in 7 classified themselves as non-drinkers (Table 9.10b).

When asked how much they usually liked to drink, over a quarter said they usually drink to get merry or drunk. Again, around 1 in 7 classified themselves as non-drinkers (Table 9.10c).

Table 9.10 also shows that the proportions of males and females reporting each drinking behaviour were very similar, and in fact there were no significant sex differences in previous week's drinking, frequency of drinking, or in usual level of consumption. As suggested earlier, this shows that male and female patterns of alcohol use were very similar, given the differential alcohol toxicity between males and females.

There are a couple of methodological points worth mentioning. There was a small difference (1 per cent of the sample) in the number of people who said that they did not drink in answer to the frequency of drinking and the usual consumption questions (Table 9.10b & c). This may reflect a lack of consistency, but more likely this slight response difference was due to the options available when answering the question. Some people who very occasionally have a few sips of alcohol, for example at Christmas, when

choosing between 'do not drink' and 'drink every few months' are likely to prefer the 'do not drink' option. However, they would be likely to prefer the 'drink a few sips' option rather than the 'do not drink' option when reporting their usual consumption. This is known as a *comparison shift* in questionnaire responses.

Drinking behaviour		n	%	n	%
		M		F	
<i>(a) last 7 days</i>					
0	nil	1035	46	1025	49
1	sensible	864	38	731	35
2	moderate	183	8	183	9
3	heavy	86	4	91	4
4	very heavy	95	4	76	4
<i>(b) frequency</i>					
0	do not drink	305	14	300	14
1	every few months; special occasions	1104	50	1109	53
2	few times a month	618	28	548	26
3	more than once a week	198	9	135	7
<i>(c) usual consumption</i>					
0	do not drink	291	13	281	13
1	few sips	479	21	512	24
2	one or two drinks	879	39	742	35
3	enough to get merry	385	17	393	19
4	enough to get drunk	219	10	173	8

Table 9.10: Sample distribution for composite drinking behaviour variables

The 7-day retrospective drinking diary provides only a snapshot of each individual's drinking behaviour, and does not describe their overall, long-term pattern of alcohol use (although it may approximate it). Yet the recommended levels of sensible alcohol use put forward by the Royal College of Physicians (1987) apply to average drinking behaviour over a period of time. Therefore, in this study, information about frequency of drinking and usual consumption was combined with the drinking diary classifications to give a composite measure of drinking behaviour which incorporated both of the more usual and useful measures of alcohol use - a Q/F index *and* a 7-day drinking history. This was done simply by summing each individual's response or score on the three measured variables to give a combined drinker score, which ranged from 0 to 11. For example, an individual with a drinker score of 0 would be a non-drinker; a person with a low drinker score might have consumed no alcohol in the past seven days, drink only on special occasions, and only have a few sips each time (drinker score of 2). A heavy drinker (high drinker score) would perhaps have consumed 12 units of alcohol in the past seven days, drink more than once a week, and usually drink enough to get drunk (drinker score of 9). Table 9.11 shows the Spearman correlations between the three contributory variables, and Figure 9.2 shows the distribution of the composite drinking score variable.

	last 7 days	frequency	usual consumption
last 7 days	1.00	0.60	0.52
frequency		1.00	0.66
usual consumption			1.00

Table 9.11: Correlations between composite drinking score contributory variables

The three contributory variables all correlated significantly with each other, suggesting some overlap between the variables (Table 9.11). However, the correlations were not so high as to suggest redundancy of variables, supporting the argument that the three variables assess slightly different, but overlapping, areas of current alcohol use.

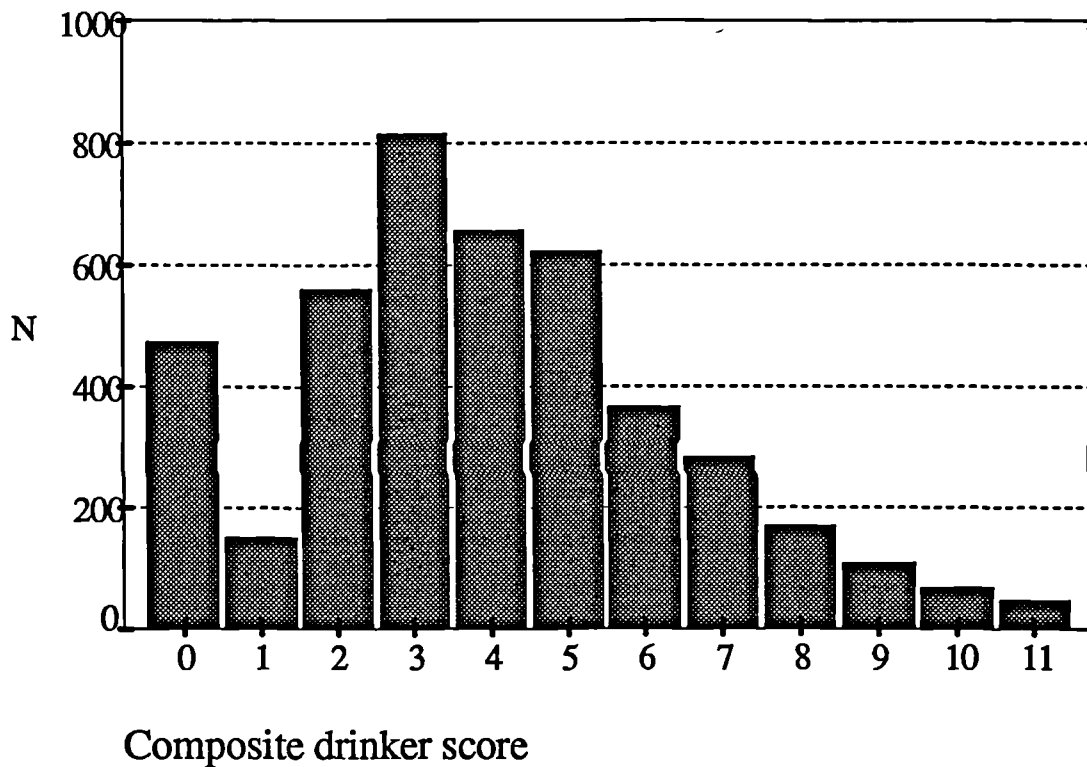


Figure 9.2: Distribution of the composite drinking score variable

The mean composite drinking score was 4.0, with a s.d. of 2.5. More respondents had a composite score of 3 than any other score, though the variable did have a bi-modal distribution, with a relatively large number coded as 0 (non-drinker).

A check was possible on the internal consistency of the responses to the drinking behaviour questions. Table 9.12 show the distribution of the variable which indicated time of last drink and, after recoding, this variables was cross-tabulated with the 7-day diary variable. This showed the proportion of respondents who said they last drank in the last 7 days *and* indicated that they had done so on the 7-day diary (Table 9.13).

Time of last drink	value	N	%	cum. %
Never had a drink	1	502	11.5	11.5
> 6 months ago	2	664	15.2	26.7
2-6 months ago	3	538	12.3	39.0
1 week-2 months ago	4	1247	28.5	67.6
In last 7 days	5	1417	32.4	100
	Total	4368	100	

Table 9.12: Time of last drink

	Drinking diary: 1+ units in last 7 days	
	yes	no
When last drink: in last 7 days		
yes	1349 31%	68 2%
no	965 22%	1986 45%

Table 9.13: Cross-tabulation of last drink variable with drinking diary classification

It is clear from Table 9.13 that there is a marked inconsistency between the responses to the 7-day diary and to the earlier time of last drink question. Whilst only a few changed their mind by reporting that they had consumed no units in the 7-day diary, despite saying earlier that they had last had a drink in the previous seven days, over 1 in 5 changed their mind in the other direction. This matches the observation by Sharp (1992) who noted a similar proportion of inconsistency regarding drinking within the last seven days. There are several possible explanations for this. First, it may be that the 7-day diary acted as an *aide-de-memoir*, reminding respondents of some alcohol they had in fact drunk in the last 7 days. Secondly, it is possible that some individuals, in response to the question about their last drinking occasion, may have interpreted the last seven days as equivalent to 'this week', and not included days prior to the previous Sunday in their response. Also, a positive response set may have encouraged some individuals to respond affirmatively to the drinking diary questions. Finally, some individuals may have been facetious or flippant in the way they responded to the drinking diary - indicating they had drunk much more than they actually had done.

Relating first drinking experiences, reasons for drinking and current alcohol use

These three variables all correlated highly with each other (Table 9.14, below the diagonal). In addition, partial correlations were calculated controlling for school year (Table 9.14, above the diagonal).

After controlling for school year, there was very little change in the correlations. Interestingly, there was no change in the correlation between first drinking experiences and current alcohol use, suggesting that those who

reported earlier first drinking experiences were currently drinking more, regardless of the school year (or age) of the respondent.

	first drinking experiences	number of reasons for drinking	current alcohol use
first drinking experiences	1.00	0.48	0.60
number of reasons for drinking	0.50	1.00	0.58
current alcohol use	0.60	0.64	1.00

Table 9.14: Zero-order (below diagonal) and partial (above diagonal, controlling for school year) correlations between first drinking experiences, number of reasons for drinking and current alcohol use.

Comparison of this study with an earlier study of adolescent drinking on Humberside

In this section comparisons are made between this 1992 study and a similar study carried out in Humberside four years earlier, in 1988 (Sharp 1992). In both 1988 and 1992 similar questions were asked of the participants about their actual drinking behaviour and their attitudes to alcohol. In terms of comparability, it is important to note that some questions were directly comparable because exactly the same wording and style was used in both 1988 and 1992.

All the schools in the 1988 study were schools in Hull. As the 1992 sample extended beyond Hull schools the comparisons made between 1988 and 1992 involve only those schools in Hull. Many of the same schools within Hull took

part in both studies, although one or two schools did not. 14 schools took part in the 1988 study, and 11 schools from Hull took part in the 1992 study. Table 9.15, below, shows the sample size in each of the two studies for the school year groups 7 to 11 (aged 11 to 16).

	Males		Females	
	1988	1992	1988	1992
Year 7 (age 11-12)	179	86	140	76
Year 8 (age 12-13)	190	99	142	70
Year 9 (age 13-14)	185	215	154	139
Year 10 (age 14-15)	164	128	130	49
Year 11 (age 15-16)	129	176	144	142
total N	847	704	710	476

Table 9.15: Sample breakdown for the 1988 and 1992 studies

1. Type of drinker

Three levels of drinking were compared. Non-drinkers were those individuals who reported that they did not drink. Another comparison group comprised those individuals who said that they were drinkers but reported that they drank no units of alcohol in the past 7 days, in the retrospective diary account. The third comparison group included those individuals who indicated that they drank one or more units of alcohol in the last 7 days, according to their retrospective diary account. Table 9.16 (below) shows the proportion of male and female respondents in 1988 and 1992 by drinking behaviour, and is followed by a description of the results for each year and sex group.

Males	Year 7		Year 8		Year 9		Year 10		Year 11	
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
	%	%	%	%	%	%	%	%	%	%
non-drinkers	10	21	4	21	3	15	3	18	5	6
0 units in last 7 days	49	44	44	35	41	40	35	28	30	30
1+ units in last 7 days	41	35	50	43	56	45	62	54	66	64
Females	Year 7		Year 8		Year 9		Year 10		Year 11	
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
	%	%	%	%	%	%	%	%	%	%
non-drinkers	23	38	10	31	7	7	4	10	4	4
0 units in last 7 days	61	47	61	30	31	40	30	22	32	36
1+ units in last 7 days	17	15	29	39	62	53	67	67	65	61

Table 9.16: Proportion of male and female respondents in 1988 and 1992 by drinking behaviour

1a. Percentage of non-drinkers - male respondents

In school years 7 through 10 a higher proportion of individuals in 1992 said that they were non-drinkers than in 1988. This ranged from twice as many in year 7 to 3 or 4 times as many in years 8, 9 and 10. In year 11 there were similar proportions of non-drinkers in both the 1988 and the 1992 studies.

1b. Percentage of non-drinkers - female respondents

A similar, though less marked, trend emerges when comparing female non-drinkers. Higher proportions of year 7 to 10 girls reported that they were non-drinkers in 1992 than in 1988, but in year 11 a similar proportion reported that they were non-drinkers.

1c. Percentage of drinkers who drank no units in the last 7 days - male respondents

In the 1988 vs. 1992 comparison for this group, no clear differences were apparent. In other words similar proportions of respondents in 1988 and 1992, in all the school years, said that they were drinkers but had not drunk any units of alcohol in the last 7 days, according to their 7 day retrospective diary accounts.

1d. Percentage of drinkers who drank no units in the last 7 days - female respondents

Of the students sampled in 1988, relatively more in school years 7 and 8 said that they were drinkers but had drunk nothing in the last 7 days than those year 7 and 8 students sampled in 1992. In school years 9, 10 and 11 similar proportions in 1988 and 1992 reported this behaviour.

1e. Percentage who drank one or more units in the last 7 days - male respondents

Similar proportions in 1988 and 1992 reported drinking one or more units in the last 7 days, as indicated by their retrospective diary accounts. There is also a clear age trend apparent - with relatively more individuals drinking in the last 7 days in older year groups.

1f. Percentage who drank one or more units in the last 7 days - female respondents

A similar picture emerges when comparing the 1988 and 1992 results for females who reported drinking one or more units of alcohol in the last 7 days. No clear differences in reported behaviour were observed. However,

comparing the pattern of male and female behaviours across the school years reveals an interesting result: the increase in the proportion of males reporting this behaviour from school year to school year is quite uniform, but for females there is a much sharper increase across school years 7, 8 and 9, before levelling off in school years 10 and 11. This indicates that although females are less likely to be regular drinkers in the early school years, their drinking behaviour increases more rapidly to match, by years 10 and 11, the proportion of males who drank one or more units in the last 7 days.

In summary, there are two main points which emerge from the results presented above. First, there seems to be a higher proportion of non-drinkers in school years 7 to 10 for the males and 7 to 8 for the females in 1992 than in 1988. Secondly, females increase their drinking more rapidly between years 7 and 9, to bring them from a group with relatively more non-drinkers in year 7 to a group with similar proportions of non-drinkers and drinkers to the year 9, 10 and 11 males.

2. Place of first proper alcoholic drink

In both the 1988 and 1992 studies there was a question about the location of the respondent's first proper alcoholic drink. Options were either at home, a friend's house, a pub/club, street/park or never had a proper drink. Table 9.17 (below) shows the proportion of male and female respondents in 1988 and 1992 by place of first drink. The top part of this table compares drinkers with those who said they had never had a proper drink, whilst the lower part of the table compares the location of first drink across the two studies *for drinkers only*. The table is followed by a description of the results for each year and sex group.

Males	Year 7		Year 8		Year 9		Year 10		Year 11	
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
	%	%	%	%	%	%	%	%	%	%
drinkers	65	49	84	51	83	71	86	66	91	82
never had a drink	35	51	16	49	17	29	14	34	9	18
<i>Drinkers only:</i>										
at home	49	51	43	41	41	48	34	27	37	32
friend's house	28	29	35	29	34	34	41	47	30	39
pub/club	12	14	12	12	14	6	10	9	16	5
street/park	12	8	11	16	11	13	15	15	18	23
Females	Year 7		Year 8		Year 9		Year 10		Year 11	
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
	%	%	%	%	%	%	%	%	%	%
drinkers	41	40	58	52	74	73	83	86	92	83
never had a drink	59	60	42	48	26	27	17	14	8	17
<i>Drinkers only:</i>										
at home	61	98	31	50	46	33	29	29	29	28
friend's house	29	0	55	25	39	42	49	36	49	48
pub/club	7	0	7	17	8	10	13	9	15	5
street/park	2	2	7	8	8	16	8	26	7	19

Table 9.17: Proportion of male and female respondents in 1988 and 1992 by location of first drink

2a. Year 7 males

Of the drinkers, around half said they first drank at home and just over a quarter at a friend's house. Between 8 and 14% said their first drink was in a pub/club or street/park.

2b. Year 7 females

Respondents in 1992 were more likely to say that their first drink was at home compared with 1988 pupils. Again, very few said their first drink was in a pub/club or street/park. Most said they had never had a proper alcoholic drink (around 60%).

2c. Year 8 males

More individuals in 1992 said they had never had a proper alcoholic drink (almost 50% compared with just 16% in 1988), whereas more drinkers in 1988 than in 1992 said their first drink was at a friend's house.

2d. Year 8 females

These drinkers were more likely to have had their first drink at home in 1992, but were only half as likely to have had their first drink at a friend's house than the 1988 respondents. Again, many reported that they had never had a proper drink.

2e. Year 9 males

The 1988 respondents were less likely to report never having a proper alcoholic drink. In both the 1988 and 1992 studies over 40% of drinkers said that their first drink was at home.

2f. Year 9 females

Of the drinkers, more in 1988 said their first drink was at home. Just over 1 in 4 said they had never had a proper alcoholic drink.

2g. Year 10 males

Over 40% of year 10 male drinkers said they first had a proper alcoholic drink at a friend's house. Fewer said that it was at home, and between 9 and 15% said that it was at a pub/club or street/park. More than twice as many 1992 pupils reported never having a proper drink compared with the 1988 sample.

2h. Year 10 females

Relatively more of these respondents reported their first drink took place at a friend's house than anywhere else. More of the 1992 drinkers reported the street/park as the location of their first drink than 1988 drinkers. Less than 1 in 5 said that they had never had a proper drink.

2i. Year 11 males

Similar proportions said that their first drink was at home or at a friend's house. Less than 1 in 5 said they had never had a proper alcoholic drink. Compared with earlier year groups, slightly more individuals said their first drink was in a street or a park (around 20%). In 1992 males were much less likely to have their first drink in a pub/club than in 1988.

2j. Year 11 females

More of the year 11 female drinkers said that their first proper drink was at a friend's house (around 50%) than at home (around 30%) or elsewhere. Less than 1 in 5 of the 1992 sample said they had never had a proper drink, compared with less than 1 in 10 of the 1988 sample.

In sum, for males, the most prevalent location of first proper alcoholic drink was either at home or at a friend's house. Interestingly, for female respondents, the home is important in the earlier year groups and similar proportions report the home as the place of first drink in older age groups. But, in the older female age groups there are fewer respondents who report that they have never had a drink, and this is paralleled by a relative increase in importance of the friend's house as place of first drink. This suggests that females are more likely to be introduced to alcohol at a friend's house if they begin drinking at a later age. Note that amongst females in years 9-11, the 1992 sample were more likely than the 1988 sample to report the street as their first drinking location.

3. How old were you when you first got drunk?

In both the 1988 and 1992 studies respondents were asked at what age they first got drunk. In this section age of first drunkenness for each study is compared within each school year group. Table 9.18 (below) shows the proportion of male and female respondents in 1988 and 1992 by age of first drunkenness. The top part of this table compares those who had been drunk with those who said they had never been drunk, whilst the lower part of the table compares age of first drunkenness across the two studies *only for those who said they had been drunk*. The table is followed by a description of the results for each year and sex group.

Males	Year 7		Year 8		Year 9		Year 10		Year 11	
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
	%	%	%	%	%	%	%	%	%	%
been drunk	47	36	61	37	63	48	70	61	71	79
never been drunk	53	64	39	63	37	52	30	39	29	21
<i>Been drunk only:</i>										
under 8	7	24	7	7	2	6	1	3	4	13
8-10	43	52	28	39	14	19	6	8	4	16
11-13	49	25	66	53	77	72	63	61	41	35
14-16	0	0	0	0	8	2	30	28	51	35
Females	Year 7		Year 8		Year 9		Year 10		Year 11	
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
	%	%	%	%	%	%	%	%	%	%
been drunk	15	12	41	37	52	65	68	69	74	77
never been drunk	85	88	59	63	48	35	32	31	26	23
<i>Been drunk only:</i>										
under 8	8	8	7	8	6	5	3	3	1	3
8-10	42	58	16	5	4	11	3	8	3	9
11-13	48	33	78	87	77	78	50	54	23	38
14-16	0	0	0	0	13	6	44	36	72	50

Table 9.18: Proportion of male and female respondents in 1988 and 1992 by age of first drunkenness

3a. Year 7 males

Half the respondents in 1988 said they had never been drunk, compared with 64% of respondents in 1992. More in 1992 than in 1988 said they first got drunk under 8 years old.

3b. Year 7 females

The majority of girls in this group said they had never been drunk (nearly 90% in both studies).

3c. Year 8 males

Again, more respondents in 1992 said they had never been drunk (over 60% compared with under 40%), whereas more 1988 respondents said they had first got drunk between 11 and 13 (66% compared with 53%).

3d. Year 8 females

Around 60% of this group said they had never been drunk. Of those who had been drunk, most said their first drunkenness was between 11 and 13. Very few said that they had first been drunk under 8 years old.

3e. Year 9 males

A similar pattern to the year 8 males: more respondents in 1992 said they had never been drunk (over 50% compared with under 40%).

3f. Year 9 females

1992 girls were slightly less likely to say they had never been drunk. In both studies, very few reported first being drunk under 8 years old.

3g. Year 10 males

Less than 40% said they had never been drunk, and around 30% said they had first been drunk between 14 and 16. Twice as many reported their first drunkenness taking place between 11 and 13.

3h. Year 10 females

Equal proportions in both studies (around 1 in 3) said they had never been drunk. Around half of those who had been drunk said they first got drunk between 11 and 13. Around 40% said they first got drunk between 14 and 16.

3i. Year 11 males

1992 males were more likely than 1988 males to say they first got drunk before 10 years of age. Between 20 and 30% said they had never been drunk.

3j. Year 11 females

This group (particularly the 1988 girls) were more likely to say that they first got drunk between 14 and 16. Around 1 in 4 said they had never been drunk, and only a small proportion said they had first been drunk before the age of ten.

In summary, relatively few respondents said that they first got drunk before the age of 8. In years 7 to 10, 1992 boys were less likely to report ever being drunk, and in years 7 and 8 1988 boys were more likely than 1992 boys to report first drunkenness at 11-13. Overall, 1992 boys were more likely (than 1988 boys) to say they had never been drunk.

Discussion

The main finding from these comparisons is the higher proportion of non-drinkers in 1992, particularly amongst the younger age groups (years 7-10). However, amongst those who did drink, there were fewer differences between the 1988 and the 1992 samples: the oldest pupils in 1988 were more likely (than 1992 pupils) to drink more than once a week. First proper drinks were more likely to be taken at home in the case of younger pupils, with friend's homes becoming equally popular in later year groups. Amongst older females, the street was a more likely location of first drink for 1992 girls than for 1988 girls. Relatively few pupils said they first got drunk before the age of 8.

The most significant change between 1988 and 1992 is the *increase in the proportion of non-drinkers*, particularly amongst the younger age groups (years 7-10). With only a few exceptions, the drinking behaviour/experiences of those pupils *who do drink* does not seem to have changed much between 1988 and 1992. Goddard and Ikin (1988) compared levels of consumption across two national sample demographic studies of adult drinkers; the first in 1978 and the second in 1987. They reported that consumption may have fallen among young men aged 18-24, whose average consumption fell from 26.0 units a week in 1978 to 21.4 units a week in 1987. It may be that this fall in average consumption is due to an increase in the proportion of non-drinkers. Comparing the 1978 study (Wilson 1980) with a more recent national sample study by Goddard (1991), the proportion of non-drinkers in the 18-24 year group shows a marked increase, especially for males. In 1978 only 2% of 18-24 year-olds were non-drinkers, compared with four times as many (8%) in 1990. For females, 5% were non-drinkers in 1978 compared with almost twice as many (9%) in 1990.

It may be that the consumption patterns of younger people have also changed in similar ways to the 18-24 year-olds noted above. However, there are no equivalent national sample studies of younger age groups which would allow a similar time-lag analysis. Although Marsh *et al* (1986) carried out a national sample survey of adolescent drinking, no comparable studies have been carried out since, and comparing the national sample results to the present results is problematical because of regional differences in drinking behaviour (typically quite high in the Yorkshire and Humberside region (Goddard & Ikin 1988; Central Statistical Office 1993).

How might the apparent increase in the proportion of non-drinkers found in the present results be explained? Several factors could be invoked to explain the higher number of non-drinking teenagers, and all deserve attention in future

research. For example, it may be that alternative substances (e.g. Ecstasy) attract some individuals away from alcohol. Or, that young people have less money to spend on alcohol in the current economic climate. It may well be the case that alcohol education has been effective in persuading more pupils not to drink or in delaying the start of their drinking careers. Or, it may be that some young people are becoming more health conscious, in line with cultural changes in the emphasis on positive lifestyles, and are therefore choosing not to drink alcohol or are delaying the onset of their drinking behaviour.

Family socialization factors

Family process variables

The twenty items which made up the family support measures were scored from 1 to 4 (*strongly disagree* to *strongly agree*). Directional consistency in scoring was achieved by reversing the scores on some items so that high support was indicated by high scores on all the items. For example a high score on the cohesion-conflict subscale indicated high cohesion/low conflict and thus high support. The frequency distribution of the cohesion-conflict subscale is shown in Figure 9.3; this subscale has a mean of 29.15 and s.d. of 4.98 (range 11-44). A high score on the expressiveness subscale also indicated high support. The frequency distribution of the expressiveness subscale is shown in Figure 9.4; this subscale has a mean of 25.07 and s.d. of 3.80 (range 9-36).

When the twenty items were added together, this gave a potential range of the support variable from 20 to 80. The frequency distribution of the support

variable is shown in Figure 9.5. The variable is normally distributed, with a mean of 54.25 and s.d. of 7.80.

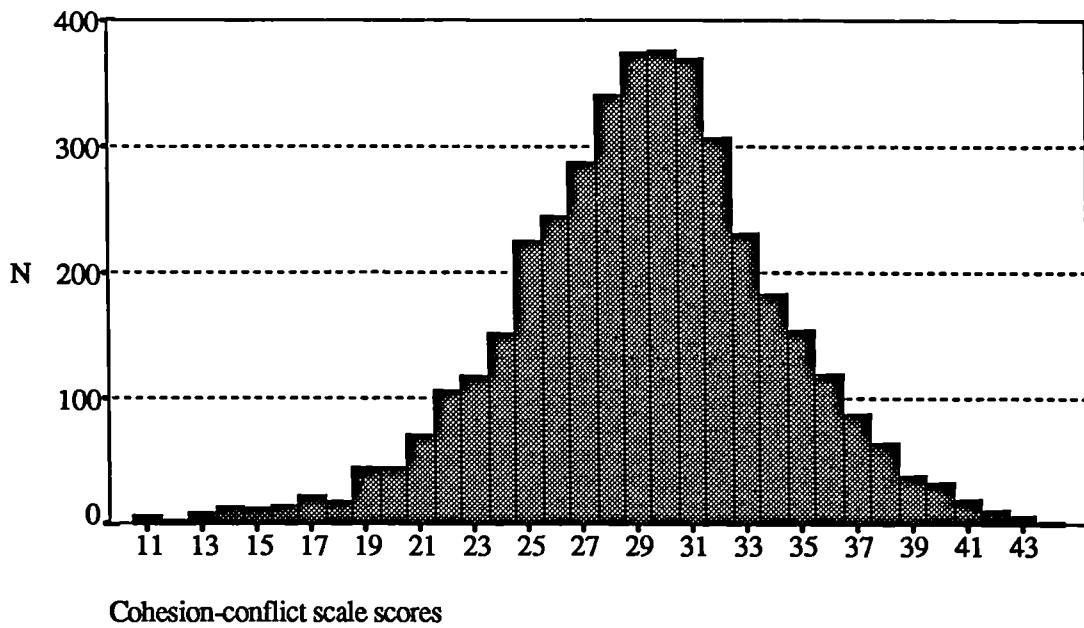


Figure 9.3: Frequency distribution of the cohesion-conflict subscale

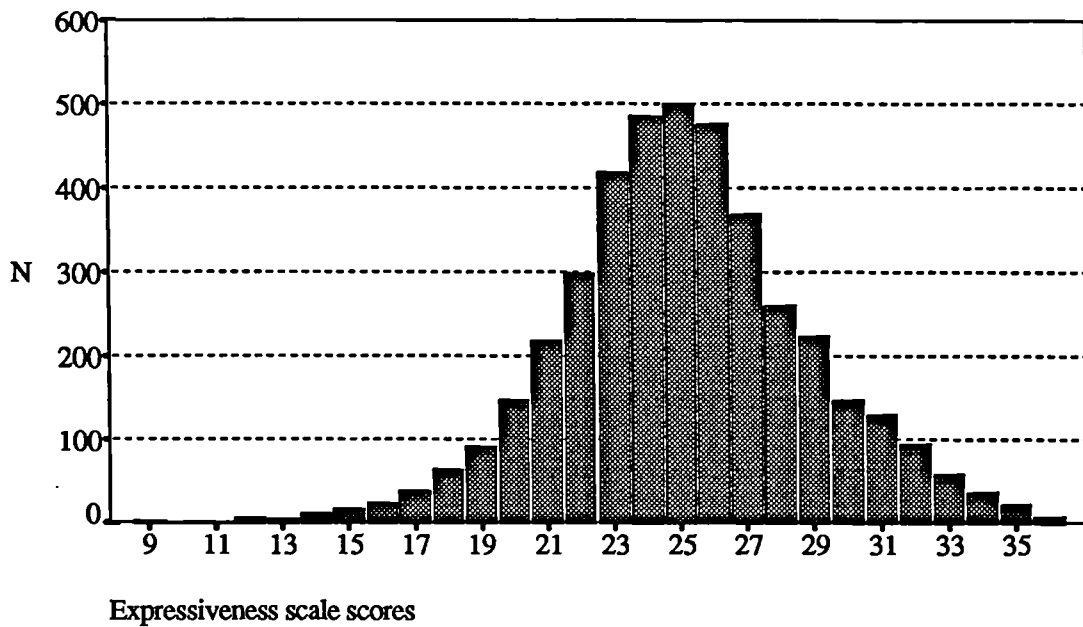


Figure 9.4: Frequency distribution of the expressiveness subscale

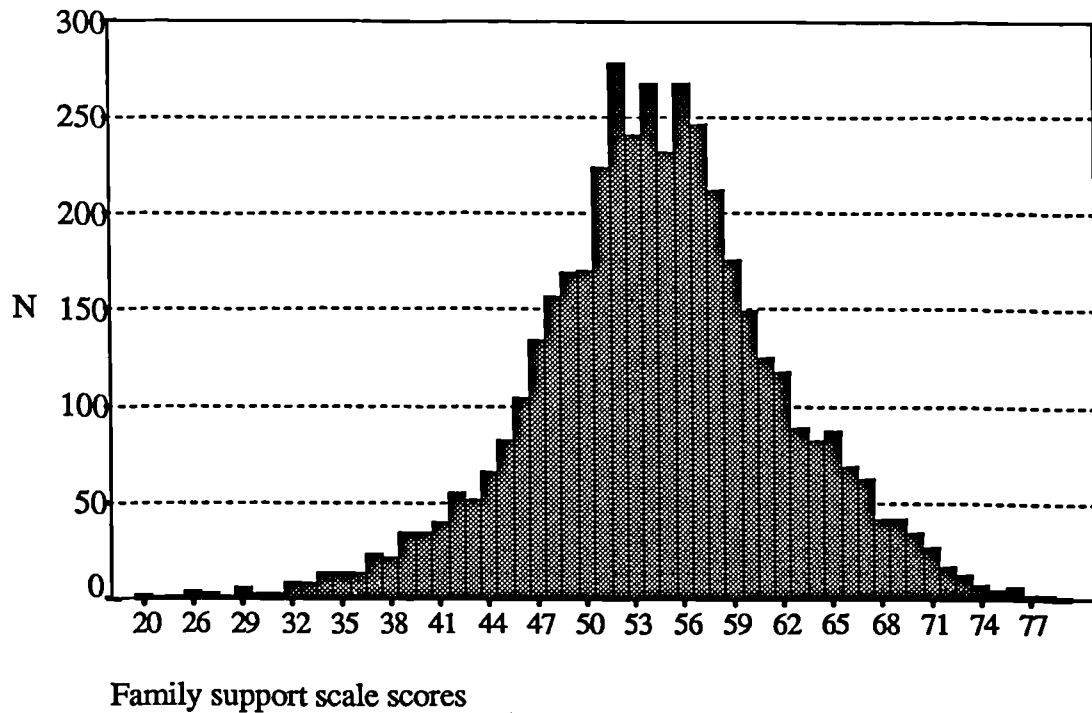


Figure 9.5: Frequency distribution of family support

The fourteen items which made up the family control measures were also scored from 1 to 4 (*strongly disagree to strongly agree*). Directional consistency in scoring was achieved by reversing the scores on some items so that high control was indicated by high scores on all the items. For example a high score on the authoritarian subscale indicated an authoritarian family environment and thus high control. The frequency distribution of the authoritarian subscale is shown in Figure 9.6; this subscale has a mean of 16.99 and s.d. of 2.95 (range 7-28). A high score on the laissez-faire subscale also indicated high control (i.e. low laissez-faire). The frequency distribution of the laissez-faire subscale is shown in Figure 9.7; this subscale has a mean of 19.20 and s.d. of 2.64 (range 7-28).

When the fourteen items were added together, this gave a potential range of the control variable from 14 to 56. The frequency distribution of the control

variable is shown in Figure 9.8. The variable is normally distributed, with a mean of 36.22 and s.d. of 4.76.

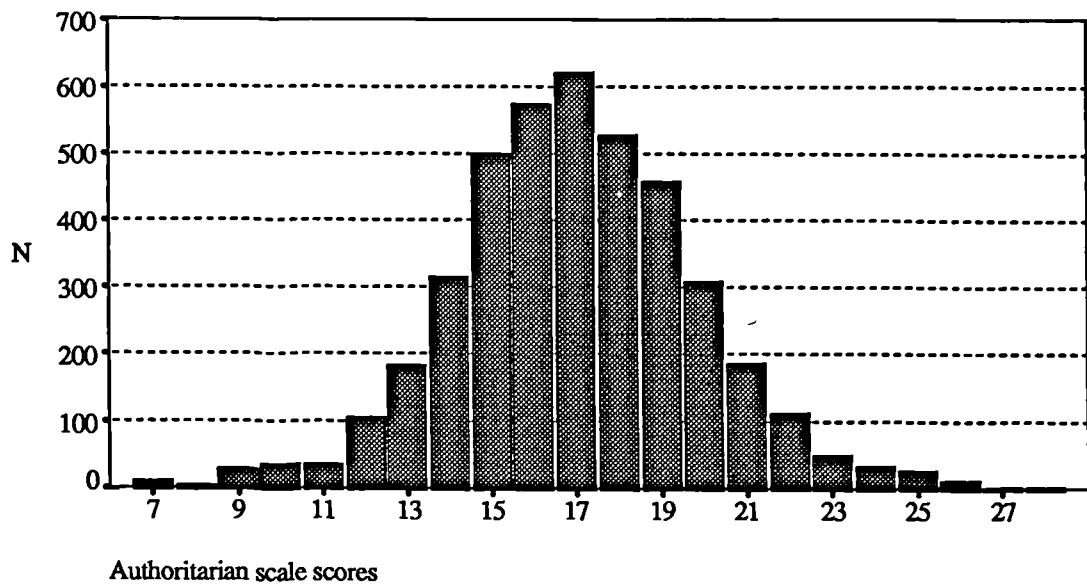


Figure 9.6: Frequency distribution of the authoritarian subscale

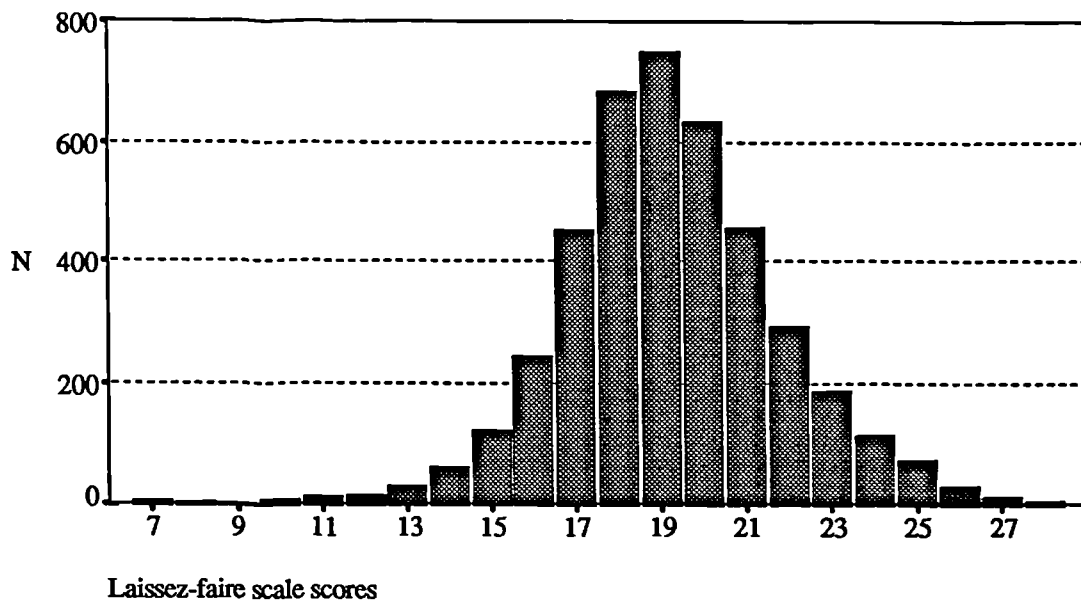


Figure 9.7: Frequency distribution of the laissez-faire subscale

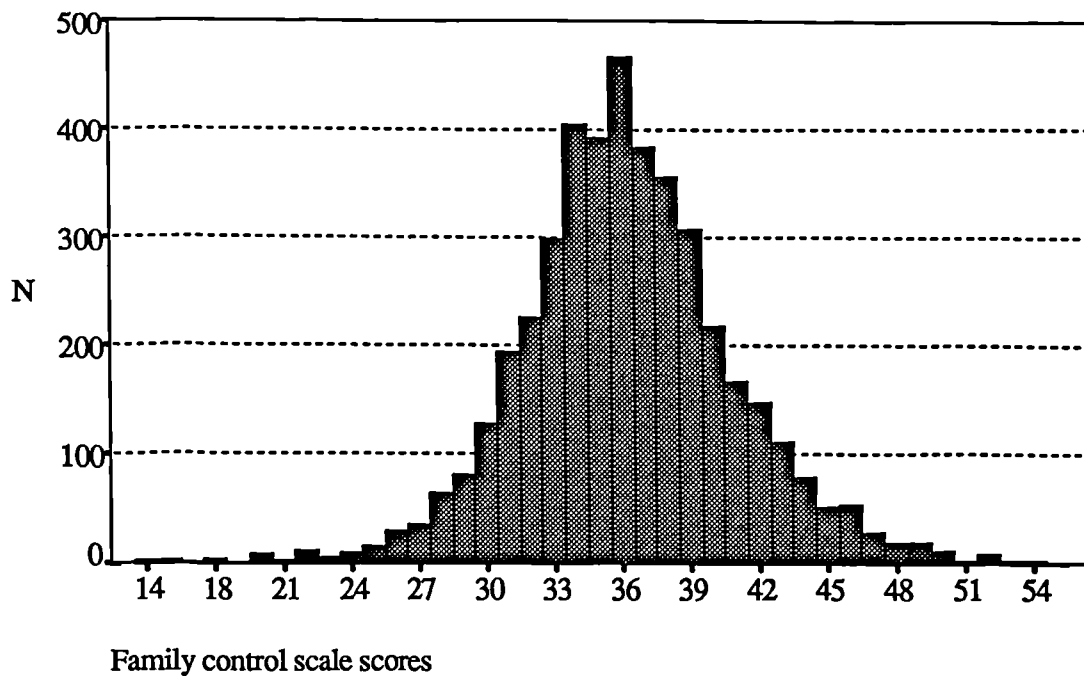


Figure 9.8: Frequency distribution of family control

Family social learning variables

Respondents were more likely to have said that their father drinks more than once a week or a few times a month than every few months or not at all (Table 9.19). On the other hand, respondents were more likely to have said that their mothers drank a few times a month or every few months than more than once a week or not at all (Table 9.20). With reference to the reported drinking of older brother or sister, roughly equal proportions reported each of the four frequency of drinking options (Table 9.21).

How often Dad drinks	value	N	%	cum. %
do not drink	1	299	6.8	7.6
every few months	2	953	21.7	31.7
few times a month	3	1333	30.4	65.4
> once a week	4	1368	31.2	100
	<i>total</i>	3953	100	

Table 9.19: Reported paternal frequency of drinking

How often Mum drinks	value	N	%	cum. %
do not drink	1	558	13.4	13.4
every few months	2	1525	36.7	50.1
few times a month	3	1382	33.3	83.4
> once a week	4	690	16.6	100
	<i>total</i>	4155	100	

Table 9.20: Reported maternal frequency of drinking

How often older brother/sister drinks	value	N	%	cum. %
do not drink	1	784	27.8	27.8
every few months	2	678	24.1	51.9
few times a month	3	701	24.9	76.8
> once a week	4	655	23.6	100
	<i>total</i>	2818	100	

Table 9.21: Reported older sibling's frequency of drinking

At this stage it is appropriate to look at how the separate family modelling variables (father's drinking; mother's drinking; and older sibling's drinking) combine in relation to the respondent's self-reported alcohol use. To this end, an ANOVA was carried out, with the composite drinking score as the dependent

variable (see Figure 9.2), to see if the three family modelling variables combined additively or interactively (if at all). The results of the ANOVA are shown in Table 9.22. All three main effects (mother's, father's, older sibling's drinking) were significant. The one interaction effect was between father's and older sibling's drinking. Examination of the mean composite drinker scores associated with this interaction (Table 9.23) suggests that there was no clear disordinal trend in the interaction of father's drinking and older sibling's drinking. It is clear that older sibling's drinking was the most important statistical predictor of the composite drinker score (Table 9.22), followed by father's and mother's drinking. These results therefore suggest that the three family modelling variables combine in a mostly additive manner in relation to adolescents' self-reported alcohol use.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	3151.901	9	350.211	67.762	.000
DADDRNK	194.184	3	64.728	12.524	.000
MUMDRNK	122.896	3	40.965	7.926	.000
SIBDRNK	1854.985	3	618.328	119.639	.000
2-Way Interactions	219.968	27	8.147	1.576	.030
DADDRNK MUMDRNK	29.144	9	3.238	.627	.775
DADDRNK SIBDRNK	147.312	9	16.368	3.167	.001
MUMDRNK SIBDRNK	25.330	9	2.814	.545	.843

Table 9.22: SPSS ANOVA output - drinker score by family modelling variables

Father's drinking	Older sibling's drinking			
	does not drink	every few months	few times a month	more than once a week
does not drink	2.29	3.24	4.53	5.88
every few months	2.22	3.08	4.53	4.80
few times a month	3.16	3.39	4.07	5.05
more than once a week	3.88	3.71	4.95	6.04

Table 9.23: Respondents mean composite drinker scores - father's drinking by older sibling's drinking

Following the results of the ANOVA, it was decided to combine the three family modelling variables into an overall composite family drinking index. There are several ways one could combine individual data to derive a family score. Copeland and White (1991), in their research methods text on studying families, suggested that using the "family mean" is one appropriate method of combining individual data. Fisher *et al* (1985) also pointed to this option when they considered the question of how best to combine individual data into "family" data. The family mean is basically the arithmetic mean of the data from each individual. In the present context, the family mean for each respondent would be made up of data from the father's, mother's and older sibling's drinking variables. In order to simplify the combined family drinking index scores, it was decided to calculate the sum of the three contributory variables rather than use the mean, thus avoiding anything less than whole numbers and also increasing the range and variance of the family score (particularly useful in scales where the range of the scores is low (Fisher *et al* 1986)). In cases where less than three contributory variables were present, then mean substitution was

used, i.e. the mean from those family drinking variables present was substituted for those not present. Thus, for an individual who recorded only paternal drinking, the composite family drinking index would consist of only paternal influence (i.e. paternal drinking + mean substitution of paternal drinking for each of the other two variables), whereas for an individual who recorded all three family modelling variables the composite family drinking index would combine all three additively (i.e. paternal drinking + maternal drinking + older sibling drinking). This technique is exactly equivalent to using the "family mean" as suggested by Copeland and White (1991) and Fisher *et al* (1985).

The final index is shown in Table 9.24. Thus a score (value) of 3 reflects combined parental and older sibling (if applicable) non-drinking. A score of 12 reflects combined regular parental and older sibling (if applicable) drinking of more than once a week. The mid-range scores reflect either combined mid-range drinking by all family members or a combination of opposite extremes of drinking.

Composite family drinking variable	value	N	%	cum. %
Non-drinking	3	181	4.2	4.2
.	4	82	1.9	6.1
.	5	304	7.1	13.2
.	6	729	16.9	30.1
.	7	435	10.1	40.2
.	8	602	14.0	54.2
.	9	850	19.7	73.9
.	10	274	6.4	80.2
.	11	413	9.6	89.8
More than once/week	12	438	10.2	100
	<i>total</i>	4308	100	

Table 9.24: Composite family drinking index

The distribution of this composite family drinking index (N=4308) was compared to the distribution of an alternative family drinking index derived only from the much smaller number of respondents who reported the drinking behaviour of father *and* mother *and* older sibling (N=2529). The purpose of this was to see if the use of the "family mean" technique described above, incorporating mean substitution, differed from a "family mean" technique which did not incorporate substituted values. Figure 9.9 shows the two distributions, and it is clear that the distributions are similar, supporting the use of the composite drinking index described in full above. In other words, the weighting technique did not appear to bias the distribution of the family drinking index scores.

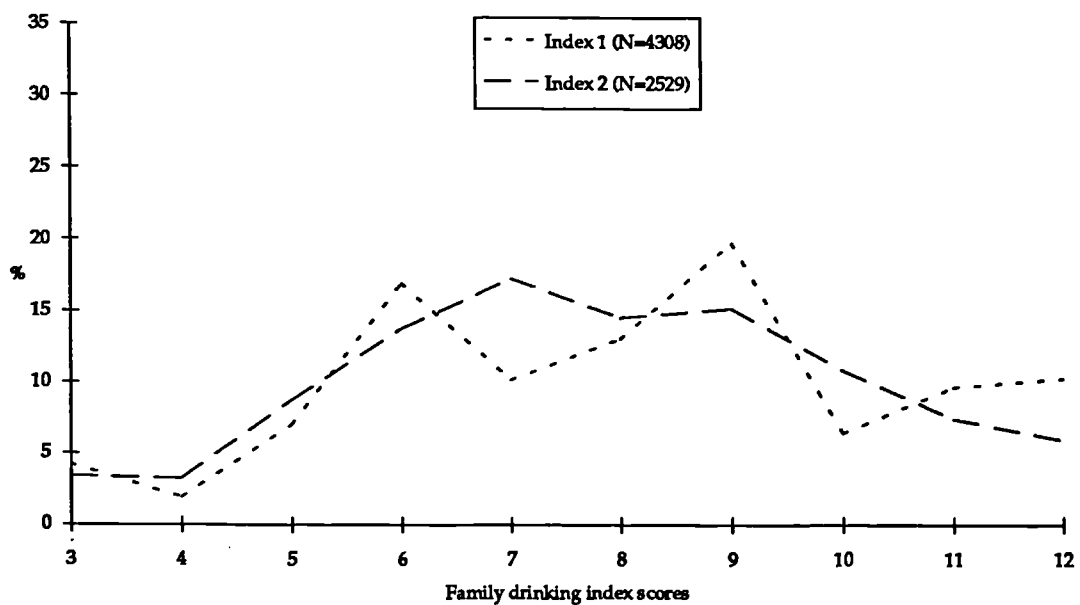


Figure 9.9: Comparison of family drinking index 1 (incorporating substituted scores) with family drinking index 2 (no substituted scores)

Most respondents indicated mid-range parental attitudes to their drinking. Over 80 per cent said that their parents thought that they could only drink with permission or only if the drinking is sensible. This contrasts markedly with the proportion who reported that their parents had an indifferent attitude - less than three per cent. Sixteen per cent said their parents did not like them drinking (Table 9.25).

What parents think	value	N	%	cum. %
do not like it	1	678	16.0	16.0
only if they say	2	1795	42.3	58.3
only if sensible	3	1671	39.4	97.6
indifferent	4	101	2.4	100
	Total	4245	100	

Table 9.25: Parental attitude to offspring's drinking

Hypotheses addressed in this chapter

Hypothesis:

1(b) Adolescents do not, on the whole, perceive their family environment negatively.

The family process variables were all normally distributed, with very few respondents reporting the very extreme levels of family support and control. This suggests that most respondents did not perceive their family environment negatively. It is interesting that very few respondents reported very high levels of support and control. Most respondents in fact reported moderate levels of support and control, suggesting that moderate levels of family process are normative. This is in line with the family systems approach described in earlier chapters.

Hypothesis:

2(a) Over the past 4 years, patterns of adolescent alcohol consumption have remained stable.

It is clear from the comparison of drinking behaviour between 1988 and 1992 that there seem to be more non-drinkers in the 1992 study. This was unexpected, but there are several potential explanations which may account for this. Alcohol education programs may be having an effect in discouraging drinking among younger teenagers. Or adolescents may be becoming more health and fitness oriented, in line with a general cultural trend in this country. This may mean that some individuals are more likely to remain non-drinkers until later adolescence. Teenagers may have less money to buy alcohol with due to the recession, or it could be that other substances, such as MDMA, are preferred to alcohol.

Hypothesis:

2(b) Most teenagers report that they drink sensibly.

In support of this hypothesis, most respondents did report no or sensible drinking in the last seven days, that they drink less than a few times a month, and that when they do drink, they usually have only one or two drinks or less. One in ten reported heavy or very heavy use, drinking more than once a week, and usually drinking enough to get drunk. Although the levels of reported drinking were generally not alarmingly high, at least 60 per cent of 14-16 year old boys and girls reported drinking regularly, and around 40 per cent reported first getting drunk before they were 14 years old.

Hypothesis:

2(f) After age is controlled, those who report earlier first drinking experiences also report more current alcohol use.

Supporting the above hypothesis, the correlation between first drinking experiences and current alcohol use did not change after the effect of school year was partialled out, and was highly significant. Davies (1992) suggested that the age of an individual was an important bias in the recall and reporting of first drinking experiences, implying that studies which showed that earlier drinking was linked with heavier drinking later on needed to be interpreted cautiously. Although the present result controls for the age of the respondent, it is probable that a cognitive consistency bias may have been present, in that those who are currently drinking more report earlier first drinking experiences to justify/explain/be consistent with their current behaviour.

Hypothesis:

2(g) More reasons for drinking is linked to more current self-reported alcohol use.

As predicted, the number of reasons within each individual's schema for drinking was significantly related to their current alcohol use. Once again, however, a cognitive consistency effect is likely to be affecting the results.

Chapter 10: Adolescent alcohol use and family socialization factors - relationship patterns and examination of residuals

Bearing in mind the potential non-linearity of family socialization variables in relation to adolescent drinking (as mentioned earlier), in this chapter each of the four main family socialization variables is split into three sub-groups, and the pattern of effect is examined using ANOVA. The results of the ANOVA point to the additivity of family socialization factors in their effect on adolescent drinking behaviour. These results pave the way for the use of linear multivariate statistics in the form of structural equation models in subsequent chapters. Because of this, the ANOVA in this chapter is regarded as a preliminary screening analysis and estimates of effect size are not calculated. (Effect sizes can be seen clearly in the structural models in the following chapters). Following the description of the ANOVA results, multivariate normality is assessed by examining the distribution of residuals, using the SPSS multiple regression technique.

Demographic factors

Also included in this analysis were the demographic variables school year and sex. School years 7 and 8 were combined (N=1212), as were years 9 and 10

(N=1922). In addition, the handful of year 12 and 13 pupils were grouped with the year 11 pupils for the purpose of this analysis (N=1252).

Family process variables

The family support and control variables were divided into five equally spaced groups - in other words the range of the variable was divided by 5 and these values formed the cut off points - very low, low, moderate, high and very high. These five groups were collapsed further into three groups - the very low and low categories were combined into an overall 'low' group - because of the small number of respondents in the most extreme groups. The breakdown of the recoded support variable is shown in Figure 10.1, and the recoded control variable in Figure 10.2.

Most respondents reported moderate levels of perceived family support and perceived family control. One in 10 respondents were classified as low perceived family support, and 1 in 8 as low perceived family control. Just over half were classified as moderate support, and just over two-thirds as moderate control. The remainder were classed as high support and high control (37 per cent and 17 per cent respectively).

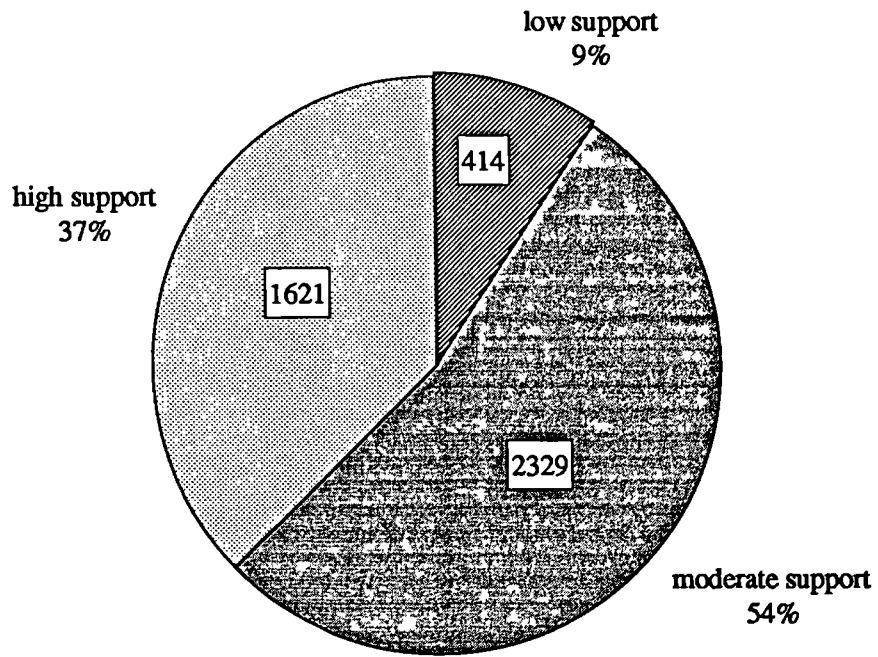


Figure 10.1: Recoded support groups

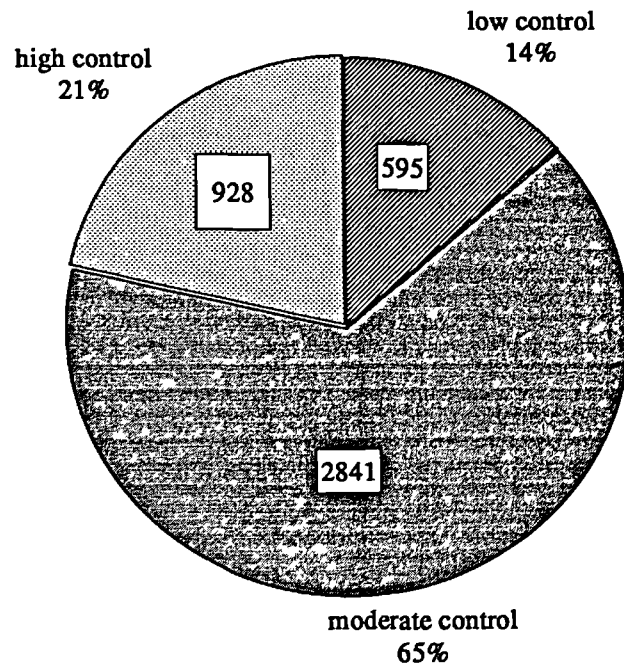


Figure 10.2: Recoded control groups

Family social learning variables

The family drinking index scores (see Table 9.24) were collapsed so as to give a three point family drinking index. The two lowest scores were combined and labelled '*do not drink*' (reflecting the majority drinking pattern - at least two out of the three (father, mother, older sibling) were non-drinkers), and the two highest scores were combined and labelled '*more than once a week*' (reflecting the majority drinking pattern - at least two out of the three (father, mother, older sibling) drank more than once a week). The mid-range scores were collapsed into one group, labelled as '*less than once a week*', indicating that this was the aggregate mid-range behaviour. The breakdown of this recoded family drinking index variable is shown in Figure 10.3. Most respondents reported mid-range family drinking behaviour. Only 1 in 16 respondents reported family non-drinking, and 1 in 5 reported their family drank more than once a week. The rest (72 per cent) were classified as mid-range (combined family drinking of '*less than once a week*').

Similarly, the parental attitude variable was collapsed into three groups. The two mid-groups were combined into one '*moderating*' attitude group (Figure 10.4). Four out of five respondents reported that their parents held a moderating attitude towards their drinking. One out of every six reported parental disapproval towards their actual or potential drinking, and very few (less than 3 per cent) reported parental indifference.

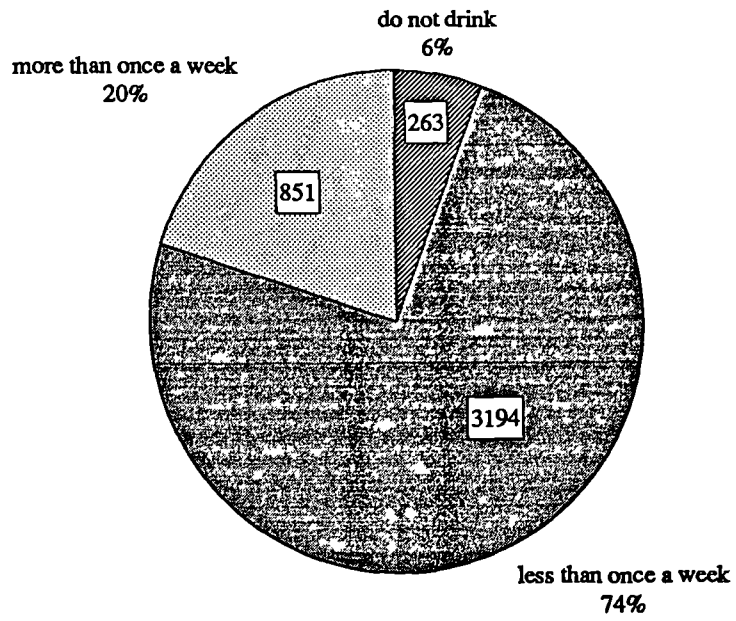


Figure 10.3: Recoded family drinking index groups

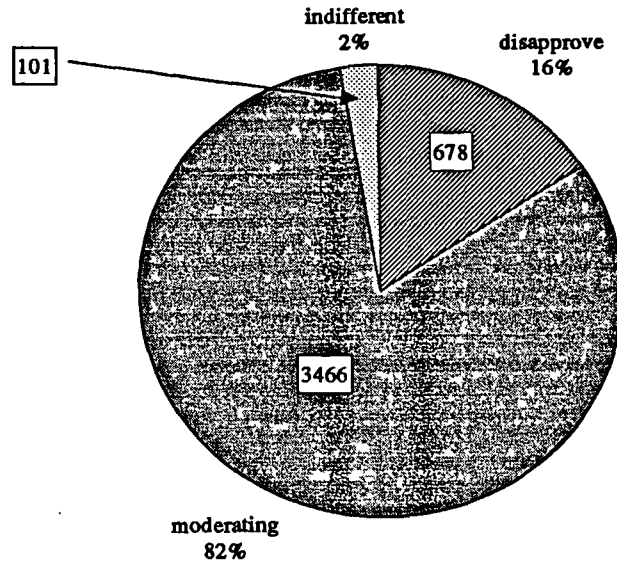


Figure 10.4: Recoded parental attitude categories

Analysis of variance

The four family socialization variables and the two demographic variables were the independent variables in a multi-factorial ANOVA, with the composite drinker score variable as the dependent variable. All analyses were carried out with SPSS using an algorithm which corrected for unequal cell sizes.

Sex of respondent and school year were significant independent factors in the ANOVA. The two family process variables, support and control, were also significant, as were the two family social learning variables, family drinking and parental attitude (Table 10.1). Several two-way interactions were significant (three way or higher were not computed), but the size of the sample should be taken into account when interpreting significance levels, and these interactions are therefore not commented on in detail in this chapter. On the other hand, the large sample did mean that a good number of respondents with more extreme behaviours could be included in the analysis. In fact the most important finding in this present study of a large general sample of Humberside school pupils is the additive nature of these family factors in the relationship with drinking behaviour.

The ANOVA results are outlined in Table 10.1, and are elaborated on in subsections (i) through (iii) below. In the ANOVA, parental attitude was the most important variable. Family process variables were less important, and sex differences were significant, but only slight.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	7354.836	11	668.621	161.318	.000
CONTROL	218.628	2	109.314	26.374	.000
FAMDRNK	894.980	2	447.490	107.965	.000
PRNTATT	1193.848	2	596.924	144.019	.000
SUPPORT	384.390	2	192.195	46.371	.000
YEAR	2112.642	2	1056.321	254.857	.000
SEX	26.401	1	26.401	6.370	.012
2-Way Interactions	630.853	50	12.617	3.044	.000
CONTROL FAMDRNK	10.901	4	2.725	.658	.622
CONTROL PRNTATT	66.735	4	16.684	4.025	.003
CONTROL SUPPORT	40.888	4	10.222	2.466	.043
CONTROL YEAR	42.744	4	10.686	2.578	.036
CONTROL SEX	11.703	2	5.852	1.412	.244
FAMDRNK PRNTATT	66.054	4	16.513	3.984	.003
FAMDRNK SUPPORT	5.032	4	1.258	.304	.876
FAMDRNK YEAR	50.886	4	12.722	3.069	.016
FAMDRNK SEX	17.713	2	8.856	2.137	.118
PRNTATT SUPPORT	80.302	4	20.076	4.844	.001
PRNTATT YEAR	96.275	4	24.069	5.807	.000
PRNTATT SEX	31.437	2	15.719	3.792	.023
SUPPORT YEAR	21.402	4	5.350	1.291	.271
SUPPORT SEX	8.955	2	4.478	1.080	.340
YEAR SEX	59.795	2	29.898	7.213	.001

Table 10.1: ANOVA of drinker score (dependent) and family socialization variables

(i) School year and sex

Respondents in older year groups reported drinking significantly more than those in younger year groups, as expected (Table 10.2 and Figure 10.5). After adjusting for differential alcohol toxicity between males and females, males drank slightly more than females in years 7-8, but this sex difference levels out in years 9-10, and males in years 11-13 also report drinking slightly more than females. However, the sex differences in all year groups are only minor. A more important factor is the school year of the respondent. The mean drinker score ranged from just over 2 (year 7-8 females) to just over 5 (year 11-13 males). Therefore, male and female respondents from all year groups reported, on average, mid-range (sensible) levels of alcohol use.

		males	females
	7 to 8	3.01 (557)	2.41 (543)
school year	9 to 10	4.03 (984)	4.19 (815)
	11 to 13	5.40 (569)	5.11 (634)

Table 10.2: Mean (N) composite drinker score by school year and sex

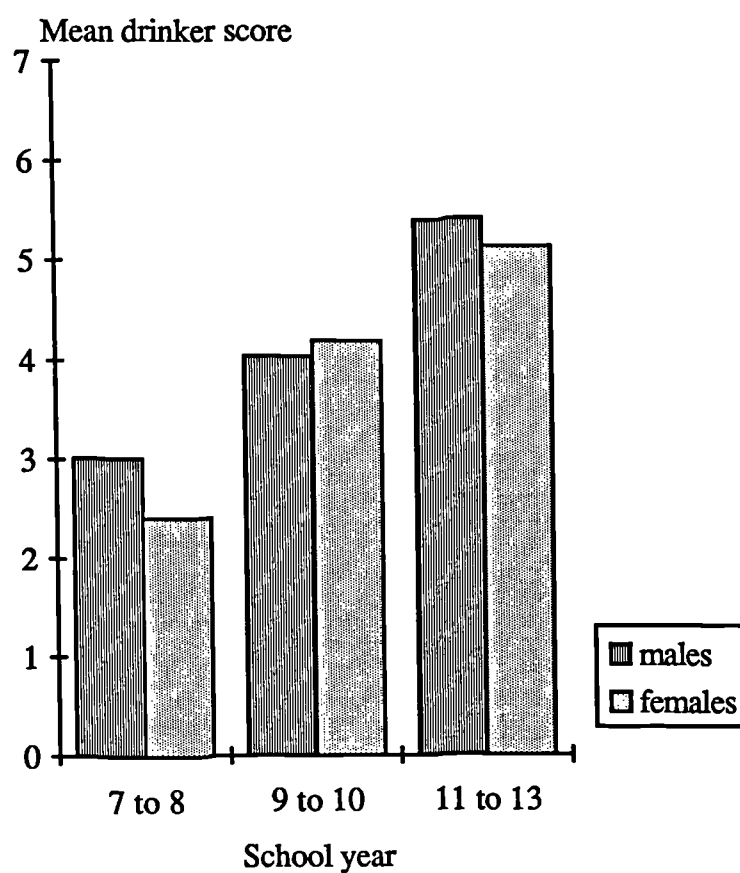


Figure 10.5: Mean drinker score¹: school year and sex

¹ Drinker score: a composite measure of 7-day diary, frequency and usual consumption variables

(ii) Family support and control

Table 10.3 and Figure 10.6 show that those individuals who perceived low support and low control had the highest mean drinker score. Alternatively, high support and high control were linked with the lowest mean drinker score. Moreover, the additive nature of support and control in relation to teenage drinking seems to be especially important. There is also a slight ordinal interaction between support and control, with low control a particularly salient influence. In the ANOVA this interaction was significant at the 5% level ($F=2.47$, $df=4$, $p=0.043$).

		control		
		low	moderate	high
support	low	6.82 (87)	5.15 (190)	4.68 (105)
	moderate	5.15 (271)	4.06 (1526)	3.96 (398)
	high	4.33 (202)	3.55 (941)	3.21 (382)

Table 10.3: Mean (N) composite drinker score by support and control

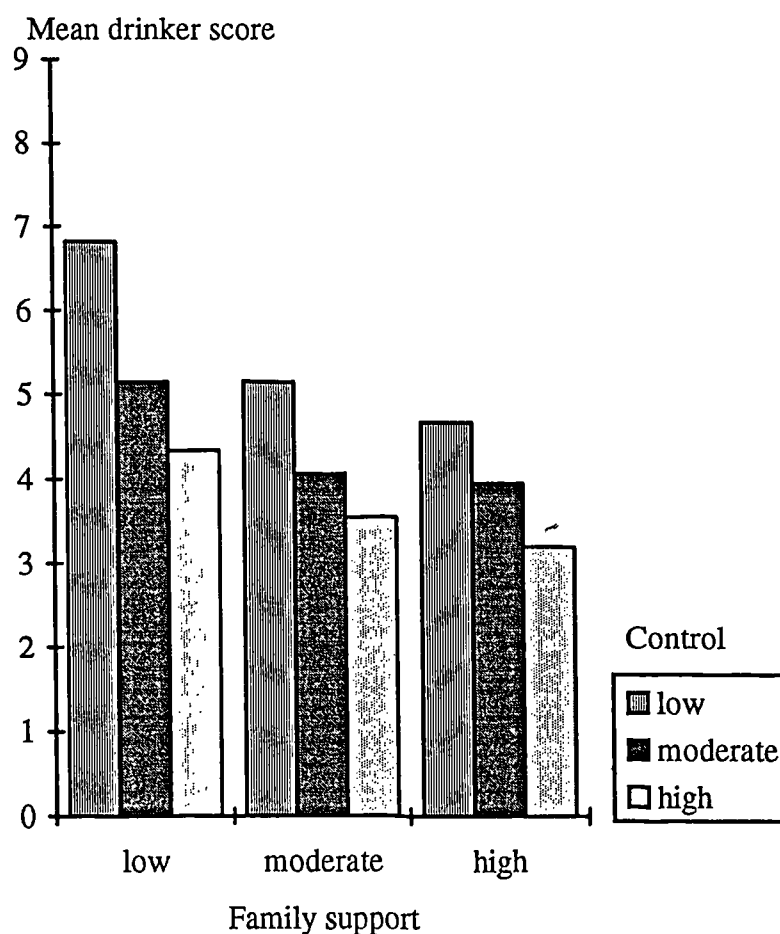


Figure 10.6: Mean drinker score: family support and control

(iii) Parental attitude and family drinking

Respondents who reported non-drinking parents and parental disapproval of their own drinking had the lowest mean drinker score (Table 10.4 and Figure 10.7). Those whose parents were indifferent to their teenager's drinking and whose parents did not drink had the highest mean drinker score (but there were only 5 respondents who reported both these parental behaviours). Other individuals who also had a high mean drinker score were those whose parents were not bothered about their teenager's drinking and who also drank more than once a week. As suggested earlier, those 5 individuals with the highest

mean drinker score might have been particularly influenced by the inconsistency in parental messages. This disordinal interaction was significant in the ANOVA at the 1% level ($F=3.98$, $df=4$, $p=0.003$).

		family drinking index		
		do not drink	< once/week	> once/week
	disapprove	1.14 (122)	2.41 (453)	3.92 (64)
parental attitude	moderating	3.33 (109)	4.07 (2539)	5.35 (723)
	indifferent	8.40 (5)	6.07 (54)	8.06 (33)

Table 10.4: Mean (N) composite drinker score by parental attitude and family drinking index

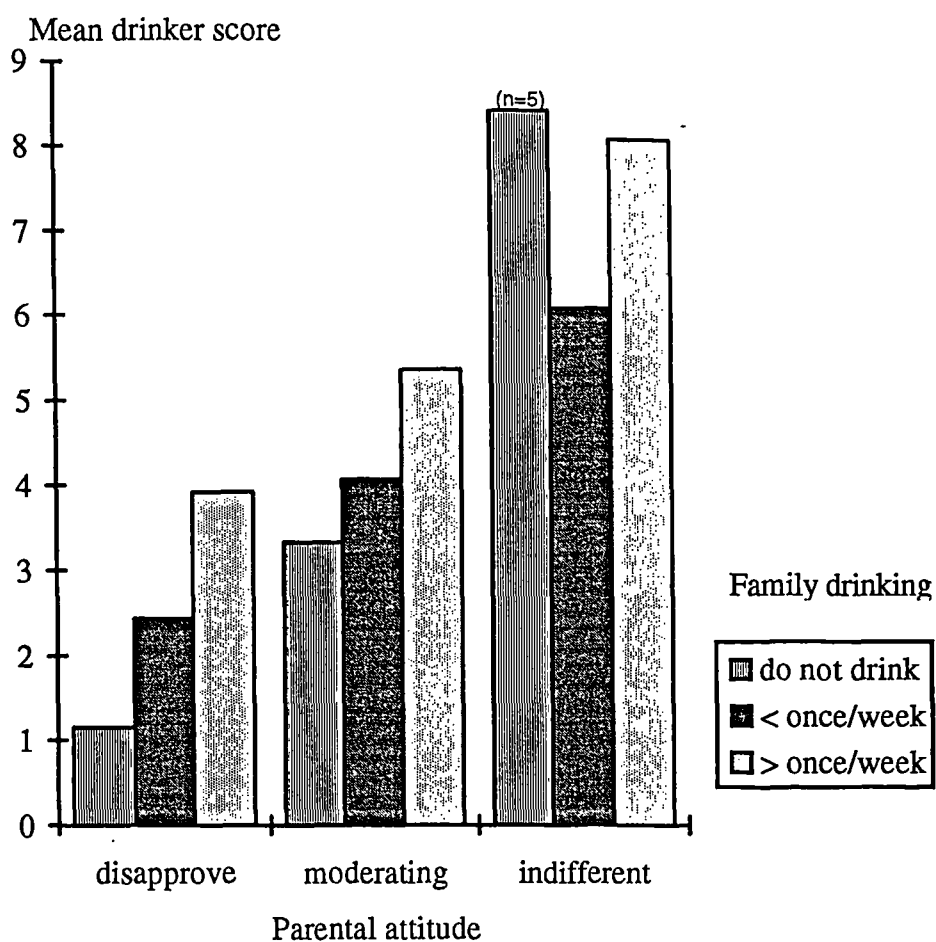


Figure 10.7: Mean drinker score: parental attitude and family drinking

The results from sub-sections (ii) and (iii) clearly point to the importance of family socialization behaviours, incorporating family process and family social learning factors, for teenage drinking behaviour. As suggested by the magnitude of the F ratios (Table 10.1) family social learning factors, particularly social reinforcement (parental attitude), were stronger statistical predictors of drinking behaviour. Bearing in mind the cross-sectional limitations of this study, these factors might be more important factors in the family socialization of drinking behaviour than the family process factors support and control. Thus in this sample of Humberside youth, alcohol-specific family behaviours were more directly related to drinking behaviour than non-alcohol-specific family behaviours. This pattern, however, may only be a function of the social acceptability of alcohol. With less socially acceptable substances (eg. cigarettes; solvents) the role of parental models and parental social reinforcement may be less salient an influence than levels of family support and control.

But one must not disregard the factors which seem less influential. There is no family situation in which family process does not exist as a socialization influence. It is the combined effect of all the family socialization influences which is important in the socialization of children and teenagers.

(iv) Selected family profiles

To illustrate the additive nature of the four family socialization factors looked at in this chapter (support, control, family models and parental attitude), the drinking behaviour of ten groups of respondents with distinct family profiles was examined. By family profile it is meant that particular set of family behaviours specified by combination of the levels of each specific family

socialization behaviour. In this analysis each family socialization variable was classified into three discrete levels - eg. low, moderate or high. With the four family socialization factors this gives a possibility of 81 separate family profiles. Of these, ten distinctive family profiles have been selected, and these are described in Table 10.5 below. Bearing in mind the low level of reported inconsistency in perceived family behaviours, seven of the family profiles selected show some consistency in family socialization patterns ((a) to (g) Table 10.5). These seven family profiles were chosen to reflect a range of different perceived family socialization environments, from consistent socialization of non-drinking to consistent socialization of heavier drinking. Sixty-four people reported disapproving parental attitudes and more frequent family drinking, and three of the family profiles ((i) to (j)) reflect this combination.

Key (see Fig 10.8)	Parental attitude	Family drinking	Family support	Family Control	N
(a)	disapprove	do not	high	high	27
(b)	disapprove	do not	moderate	moderate	43
(c)	moderating	< once/week	high	high	241
(d)	moderating	< once/week	moderate	moderate	968
(e)	moderating	< once/week	low	low	31
(f)	indifferent	> once/week	moderate	moderate	4
(g)	indifferent	> once/week	low	low	11
(i)	disapprove	> once/week	high	high	7
(j)	disapprove	> once/week	moderate	moderate	21
(k)	disapprove	> once/week	low	low	2

Table 10.5: Ten distinct family profiles

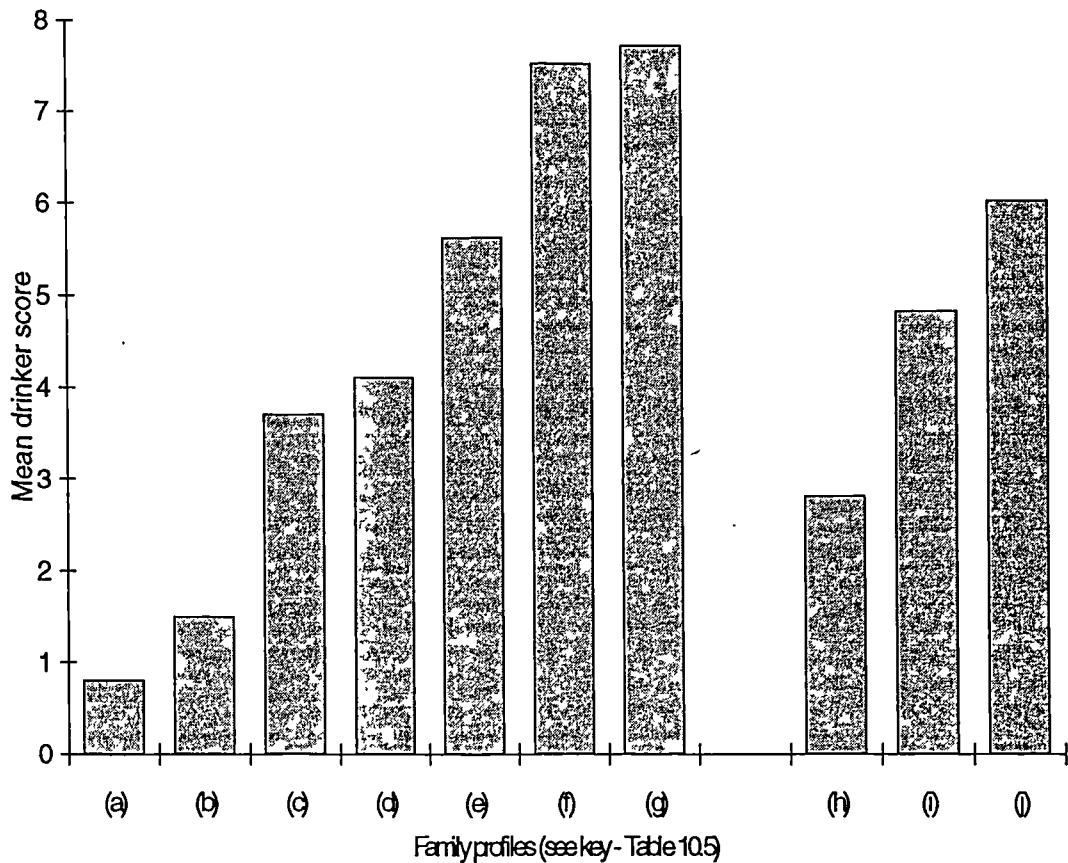


Figure 10.8: Mean drinker score: selected family profiles

Consistent and inconsistent behaviours

In chapter 5 it was mentioned that families may provide inconsistent as well as consistent socialization of alcohol use. Consistent family socialization, it was said, is a pattern or family profile of complementary behaviours. For example, a family profile of complementary socialization towards non-drinking would be parental non-drinking and disapproving parents, with high family support and control (see Figure 10.8, family profile (a) above). It was suggested that the optimal pattern of family socialization towards sensible drinking was one of functional consistency, namely complementary and moderate levels of family

behaviour - moderate parental drinking and a moderating parental attitude, and moderate levels of support and control (see Figure 10.8, family profile (d) above).

In chapter 5 it was also suggested that inconsistent or uncomplementary patterns might pose a risk for deviant drinking behaviour because of disjunctive messages and meta-messages between parent-child socialization behaviours. If this is so, such disjunctive behaviours would manifest as disordinal interactions when linked with teenage alcohol use. If there were no interactions then family socialization factors would contribute independently and additively - regardless of consistency or inconsistency.

The present results primarily support the latter picture. On the whole there was a pattern of additivity of effect. However, in Figure 10.6 those teenagers who perceived low support and low control were especially likely to be heavier drinkers. In an ordinal interaction, the combination of these two family process factors slightly potentiated the risk for heavier alcohol use. Figure 10.7 also reveals an interesting, if slight, disordinal interaction effect. Those few individuals (n=5) who reported that their parents did not drink but had an indifferent attitude were, on average, the heaviest drinkers. However, the low number of respondents in this category precludes any inferences being drawn. Figure 10.8 shows three family profiles from the group who reported a disapproving parental attitude and more frequent family drinking. These profiles support the independence/additivity model, as high support and control was linked with lower alcohol use scores than moderate and low support/control profiles. As mentioned earlier, it was not possible to test/profile more elaborate inconsistencies because few respondents reported such unusual combinations of family behaviours (e.g. inconsistent family social learning and family process behaviours).

Analysis of residuals

The previous analyses, using ANOVA, mainly revealed a pattern of additivity of effect in the relationship of family socialization variables and adolescent drinking. Moreover, the pattern of effect was predominantly linear, with lower drinking associated with 'lower' levels of family socialization. These results paved the way for more complex multivariate analyses which are detailed in the next few chapters. These analyses make use of structural equation models, using EQS (Bentler 1988), and are based on linear covariance statistics. Before going on to detail the structural equation models, it is worthwhile exploring more carefully the residuals in the relationship of the perceived family socialization factors to respondent's self-reported alcohol use. This can be carried out via the SPSS multiple regression program (Tabachnick & Fidell 1989).

The first analysis of residuals involved plotting the standardized residual from the regression against the standardized expected value. If all multivariate assumptions are met, namely normality, linearity and homoscedasticity, then the standardized residuals will be randomly distributed with a concentration of scores along the centre (Tabachnick & Fidell 1989). In Figure 10.9, a sunflower plot is shown of the standardized residual against the standardized expected value from a linear multiple regression analysis with the composite drinker score variable as the dependent variable and six predictor variables - school year, sex, support, control, family drinking index and parental attitude (the non-collapsed versions of these variables were used, as described in the previous chapter). Each leaf of the sunflower plot represents one case, and Figure 10.9 clearly shows that the standardized residuals are more or less randomly distributed. There is some indication that the residuals associated

with higher predicted values are a little more variable, but this is only slight and should not violate the assumptions of multivariate normality of the structural equations program.

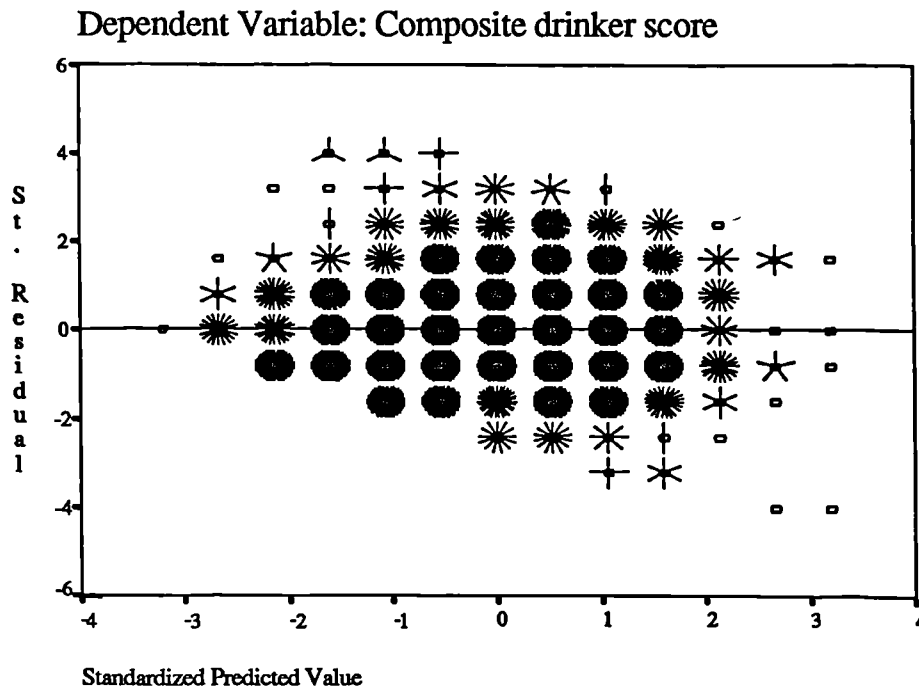


Figure 10.9: Sunflower plot of regression standardized residual against standardized predicted value (1 case=1 leaf)

Figure 10.10 shows a histogram of the distribution of the regression standardized residual, and it is clear that the residual is approximately normally distributed. Figure 10.11 supports this observation in a plot of the expected normal values against the actual normal values. Expected normal values are estimates of the z score a score should have, given its rank in the original distribution is normal. If the expected normal values of residuals correspond to actual normal values (i.e. if the distribution of residuals is

normal) the points will fall along a straight line running from the bottom left to the upper right corners of the Figure 10.11 (Tabachnick & Fidell 1989).

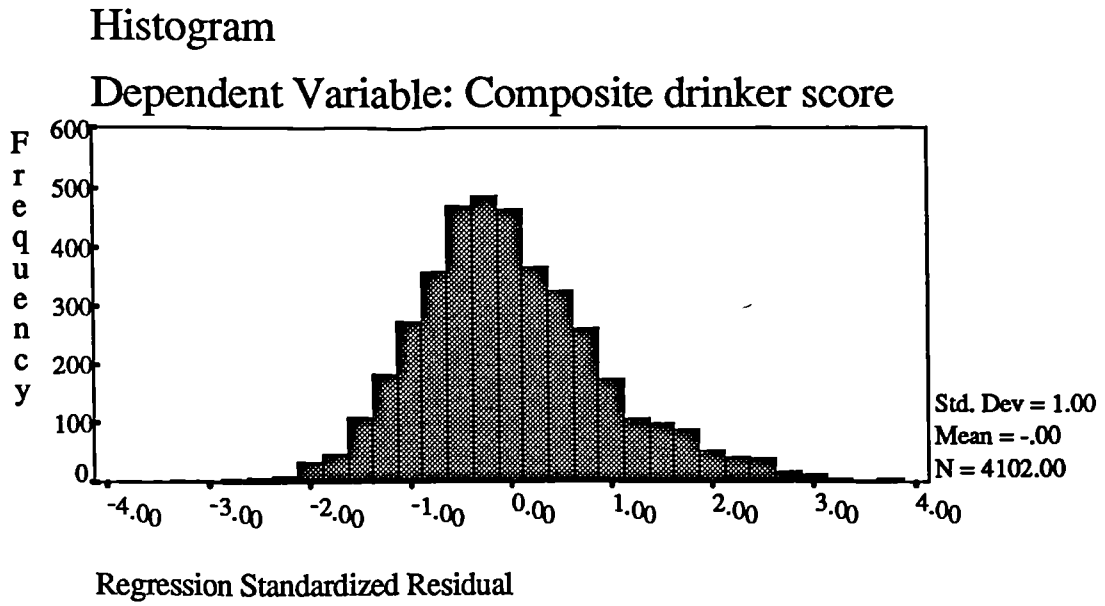


Figure 10.10: Histogram of regression standardized residual

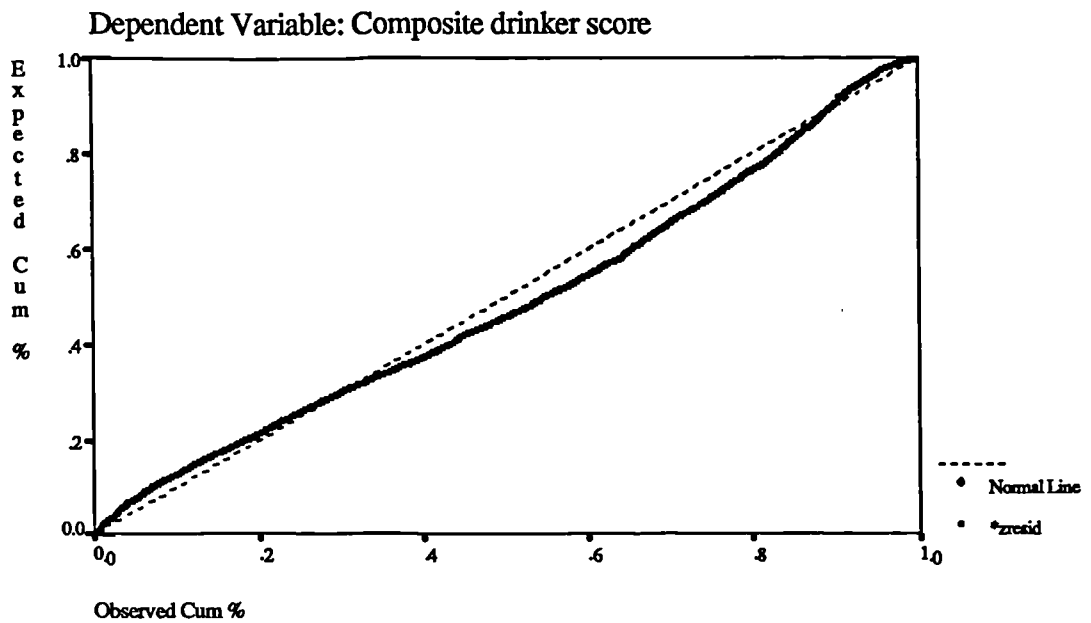


Figure 10.11: Normal probability plot of regression standardized residuals

Discussion

In summary, in the present chapter the pattern of effect of family socialization behaviours on drinking behaviour was examined using ANOVA. Both the ANOVA results and the examination of residuals suggest that linear multivariate modelling would be an appropriate analytical technique. Therefore this chapter paves the way for the use of structural equation models in the next chapters.

Hypotheses addressed in this chapter

Hypothesis:

4(g) Disjunctive messages and meta-messages, characterized by inconsistent family behaviours in relation to the hypothesized link with adolescent drinking, will result in higher levels of self-reported drinking behaviour. This pattern would be characterized by disordinal interactions between family socialization factors in the relationship with drinking behaviour.

In conclusion, the results of the ANOVA showed that disordinal interactions, characterizing inconsistent family behaviours, were not important in relation to adolescent drinking behaviour. The most important finding was that family socialization factors were primarily independent and additive in their effect. Inferences cannot be drawn from the slight disordinal interaction between parental attitude and family drinking because of the low number of subjects reporting inconsistent behaviours. In fact, consistency in family behaviours was a notable finding in this analysis.

Chapter 11: EQS models of family process variables and adolescent drinking behaviour

In this chapter the question addressed is whether perceived family process, in relation to self-reported drinking behaviour, can be reduced to dimensions of support and control, or whether the subscales of cohesion-conflict, expressiveness, authoritarian and laissez-faire provide a clearer and more useful picture. The results of these analyses guided the use of family process variables in analyses in subsequent chapters.

As suggested in chapter 8, a simple multiple-indicator, multiple-cause (MIMIC) model was specified initially to address this question. The latent variable drinking behaviour is indicated by three variables - first drinking experiences, number of reasons for drinking, and current alcohol use (these are described in detail in chapter 9) (see Figures 11.1 and 11.2). In MIMIC model #1 the causal variables are the main variables support and control (Figure 11.1) and in MIMIC model #2 the causal variables are the sub-factors of support and control: cohesion-conflict, expressiveness, authoritarian and laissez-faire (Figure 11.2). For the purpose of these comparative analyses no other variables are included in the models.

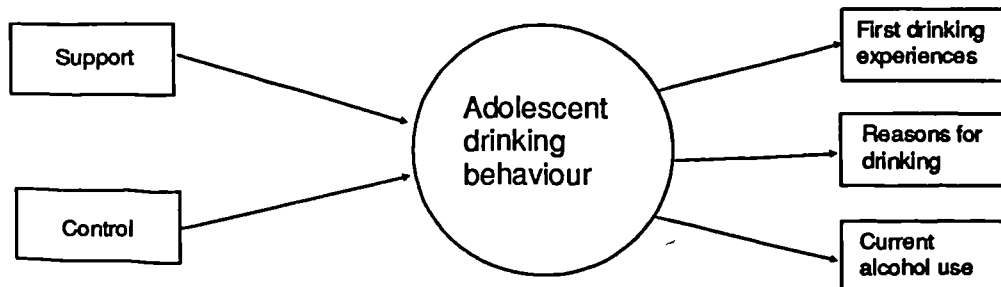


Figure 11.1: Outline of MIMIC model #1 - support and control

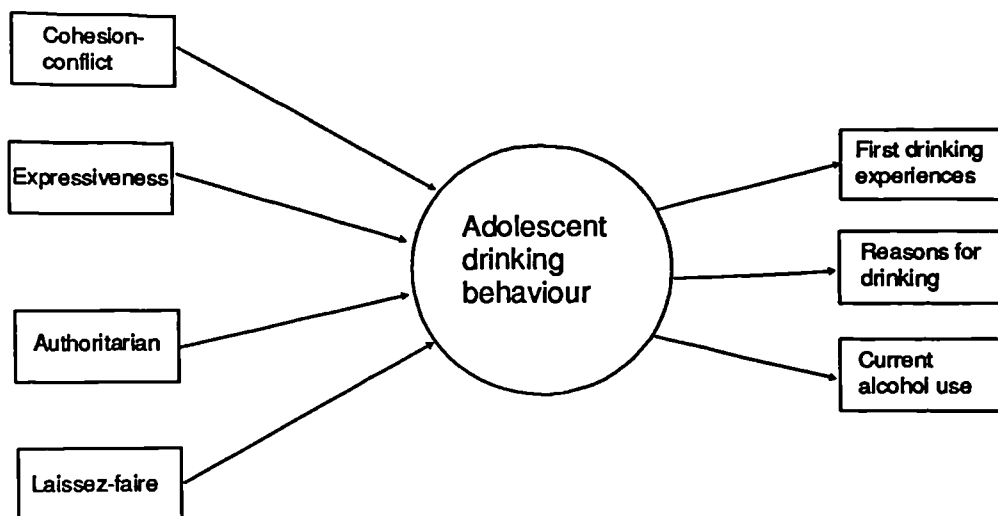


Figure 11.2: Outline of MIMIC model #2 - cohesion-conflict, expressiveness, authoritarian and laissez-faire

Table 11.1 shows the goodness of fit statistics for MIMIC model #1. Although a significant χ^2 was found, the other fit indices all suggest a good fit of the model to the data. In addition, examination of the distribution of the residuals suggests no systematic or large errors in the model (Figure 11.3).

Compare these results with those from the second model - MIMIC #2. The standardized fit indices are very similar (Table 11.2), as is the pattern of residuals (Figure 11.4). However, the χ^2 value is different. The difference in χ^2 between model #1 and model #2 is 8.42 with 4 d.f., which is not a significant change (χ^2 crit. (4 d.f., $p=0.05$) = 9.49). Therefore, these results suggest that there is no advantage to be gained from classifying family process by sub-factors of support and control. In other words, a more parsimonious description of the relationship between family process and drinking behaviour is obtained with support and control as the dimensions of family process.

Goodness-of-fit	
Sample size	4021
χ^2	18.93 with 4 d.f., $p<0.01$
AASR	0.007
NFI	0.996
NNFI	0.991
CFI	0.997

Table 11.1: Goodness-of-fit for MIMIC model #1 - support and control

Goodness-of-fit	
Sample size	3598
χ^2	27.35 with 8 d.f., $p < 0.01$
AASR	0.007
NFI	0.996
NNFI	0.992
CFI	0.997

Table 11.1: Goodness-of-fit for MIMIC model #2 - cohesion-conflict, expressiveness, authoritarian and laissez-faire

Examination of the standardized parameter estimates from model #1 (all are significant at $p < 0.01$) (Figure 11.5) suggests two important results. The first is that the latent drinking behaviour factor was measured successfully by all three indicator variables. In other words, current drinking, number of reasons for drinking, and first drinking experiences, all had high loadings on a latent, underlying, drinking behaviour factor. This latent factor could be said to represent a general drinking behaviour schema (or trait?), and in subsequently referring to this latent factor the term *more* is used to indicate relatively higher factor scores - suggesting more drinking behaviour.

The second point is that both support and control (Figure 11.5) were significantly negatively related to drinking behaviour. That is, low support and low control were linked with heavier drinking.

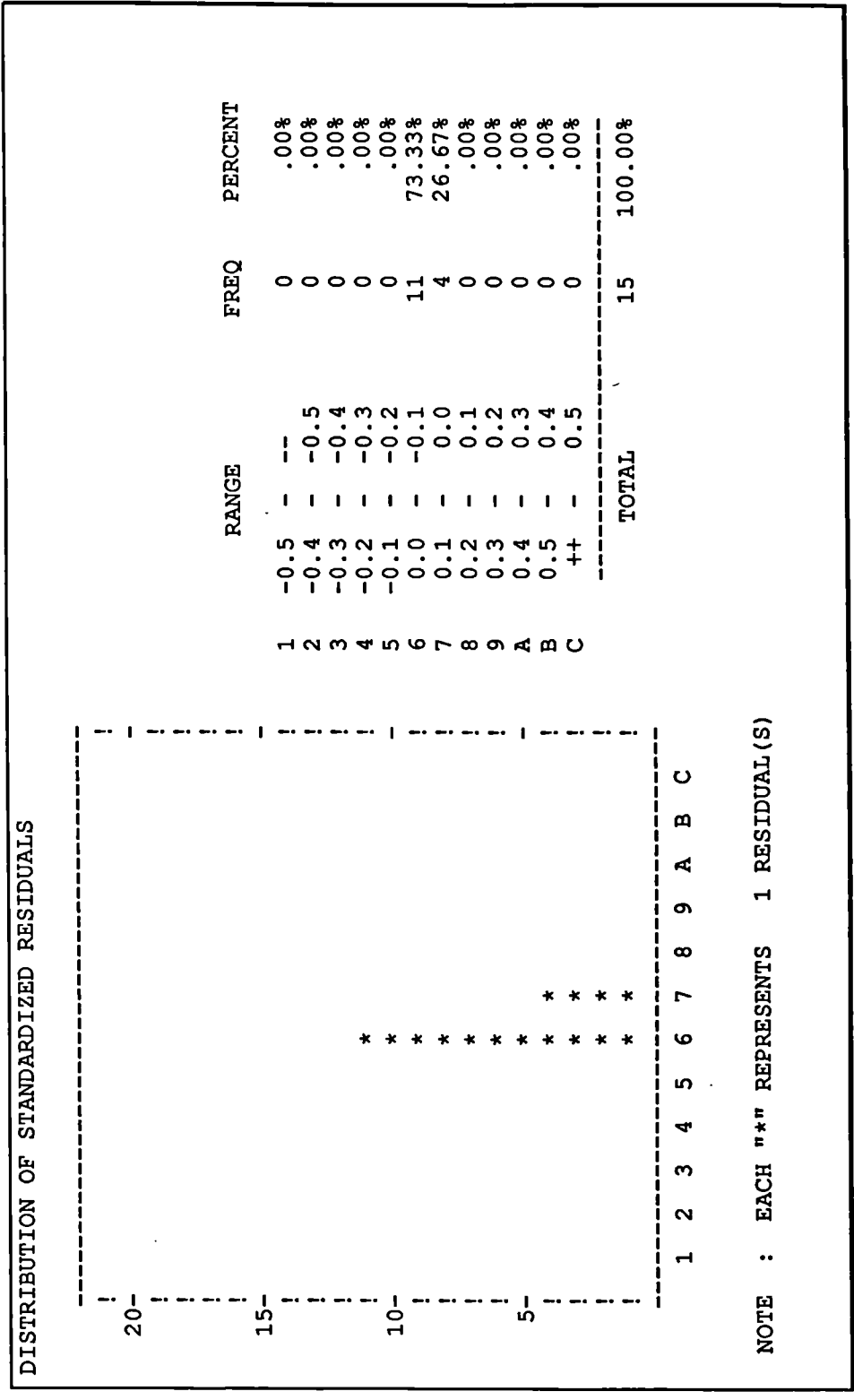


Figure 11.3: EQS output showing distribution of residual for MIMIC model #1: support and control

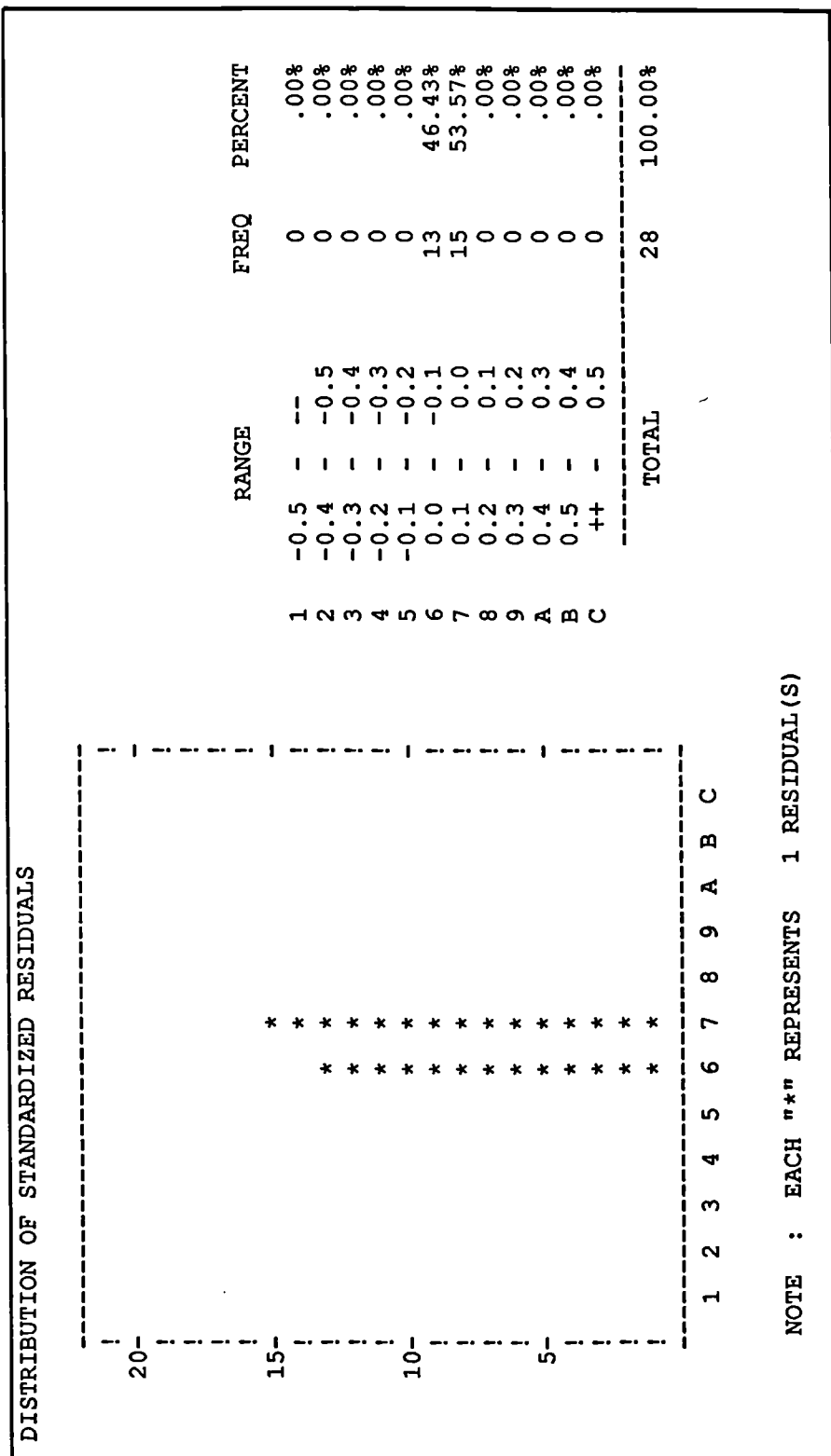


Figure 11.4: EQS output showing the distribution of residuals for MIMIC model #2 - cohesion-conflict, expressiveness, authoritarian and laissez-faire

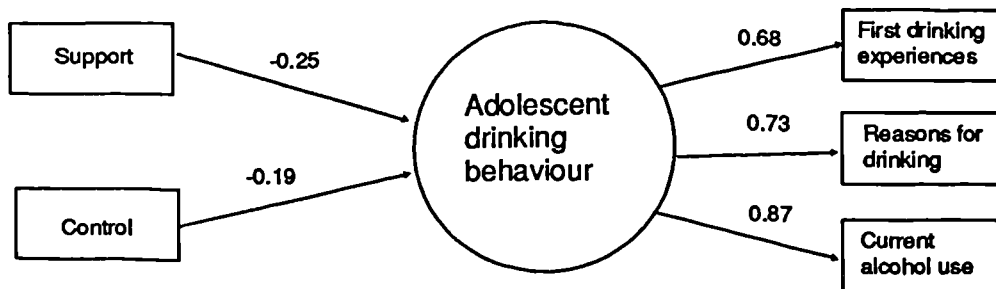


Figure 11.5: Results of MIMIC model #1 - support and control (all parameters significant at $p < 0.001$)

Examination of the standardized parameter estimates from model #2 supports the factor structure of the latent drinking behaviour variable (Figure 11.6). In addition, an interesting finding is the relative magnitude of the sub-factors cohesion-conflict to expressiveness and authoritarian to laissez-faire (Figure 11.6). This in fact demonstrates a potential problem of using these sub-factors in future EQS models of family process and drinking behaviour - multicollinearity. In the confirmatory factor analyses in chapter 8 it was demonstrated that both cohesion-conflict and expressiveness loaded highly onto a support factor, and that both authoritarian and laissez-faire loaded highly onto a control factor, suggesting that the sub-factors were highly related. What has happened in the present analyses is that the overlapping effects of the sub-factors have been ascribed to one sub-factor only, maximizing its apparent standardized parameter estimate at the expense of the other sub-factor. This is the same problem that occurs in multiple regression when variables are entered into the equation (analysis) simultaneously.

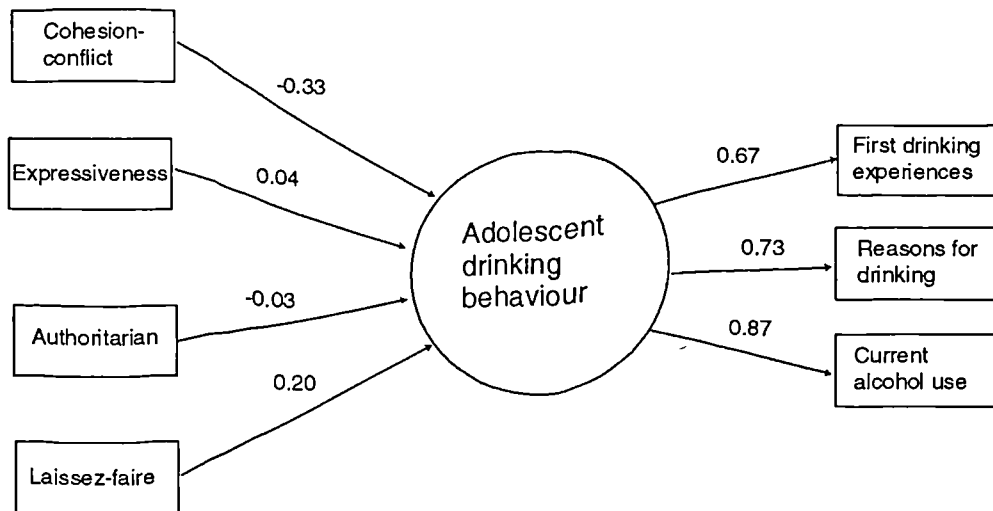


Figure 11.6: Results of MIMIC model #2 - cohesion-conflict, expressiveness, authoritarian and laissez-faire (all parameters significant at $p < 0.001$ except for expressiveness (n.s.) and authoritarian ($p < 0.05$)).

Hypotheses addressed in this chapter

Hypothesis

3(a) *There is no advantage in characterizing family process by sub-factors of support and control in relation to self-reported adolescent drinking behaviour.*

Although there was no distinction between the models in terms of goodness-of-fit, examination of the parameter estimates for model #2 raised the question of multicollinearity. In conclusion then, the results support the above hypothesis of a more parsimonious characterization of family process, and therefore the family process variable support and control will be used in all subsequent analyses rather than sub-factors of support and control.

One final point should be made before proceeding to the next chapter, where other family socialization variables are included in a more complete analysis of family socialization influences and adolescent drinking behaviour. In the models specified in this chapter, the condition of self-containment cannot be reasonably assumed to have been met (Tetrick 1992). To meet this condition it is necessary to include all relevant causes of the dependent variable(s) in the specified model. A relevant cause is one that has at least a moderate and unique effect on a dependent variable and is correlated with the other causes included in the model, and failure to meet this condition can result in biased estimates of the structural parameters. Thus, in the current analyses, the parameter estimates of support and control may not be generalizable because other important family socialization variables were not included in the specified model. In the full analyses detailed in the next chapters, the problem of self-containment is much reduced, although one can never meet this condition in an absolute sense unless all the relevant causes of an effect were known (and then there would be no need to conduct a test of the structural model) (Tetrick 1992).

Chapter 12: Structural equation models of family socialization and adolescent drinking behaviour

In this chapter the relationship of family socialization variables to adolescent drinking behaviour is examined using structural equation models. As indicated in chapter 8 (see Figure 8.3), the initial model tested will be a simple multiple indicators, multiple causes (MIMIC) model in which a latent drinking behaviour variable is indicated (measured) by self-reported first drinking experiences, reasons for drinking and current alcohol use, and is caused (influenced) by the four perceived family socialization variables (support, control, family's drinking and parental attitude) and several demographic variables (school year, sex, family structure and family size).

In the initial model, no indirect mediating effects, such as a link between school year and parental attitude, were specified. This initial model then acted as a comparative baseline for other, more developed models in which mediating effects were specified. Changes to the initial model were based on several criteria: first, any changes must be statistically justifiable, as indicated by the WALD test and the Lagrange Multiplier test; secondly, any additions to the model should be theoretically justifiable, according to the theoretical model outlined earlier in this thesis (chapter 5); and overall, the final model should be a significant improvement over the initial model - both statistically and theoretically. In addition, because of the large sample size, some parameter

estimates, even though small in size, were statistically significant. To avoid the problem of including parameters in the final model which, although significant, were relatively small and possibly trivial, an arbitrary cut-off point of 0.05 was enforced. Only those standardized parameter estimates of 0.05 or higher were therefore included in the final model.

Following the specification of the final structural equation model, several bootstrap samples were taken to demonstrate the sensitivity of the χ^2 statistic to sample size. The covariance structure of five bootstrap samples (0.2 of the overall sample size) were examined in relation to the specified final model, and the results of the bootstrap samples are detailed towards the end of the chapter.

Structural equation models

All the models were specified and analyzed in line with the recommendations of Dunn *et al* (in press). Referring to MIMIC models, they suggested that the scale of the latent variable should be fixed by setting it to that of one of the indicator variables. Also, the variances and covariances of the observed independent causal variables should be fixed at their observed values. If they were allowed to be free (i.e. parameters to be estimated) then EQS would simply find estimates equal to the observed values and give identical results for other parameter estimates, goodness-of-fit statistics etc.

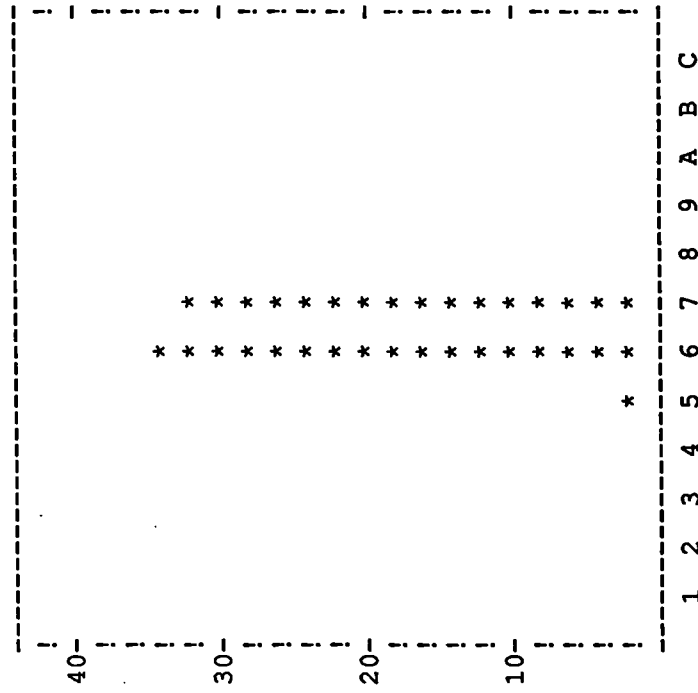
Initial MIMIC model

Table 12.1 shows the goodness-of-fit statistics for the initial MIMIC model in which all predictor variable variances and covariances were fixed at their observed values and were assumed to have independent effects on the latent drinking behaviour variable (see Figure 8.3). Although several fit indices (AASR, NFI, CFI) were adequate, the χ^2 statistic was significant and the Non-Normed Fit Index was less than 0.90, suggesting an inadequate fit to the model. Figure 12.1 shows that the distribution of the residuals for this model was acceptable - there were no clear systematic or large errors. Figure 12.2 shows the parameter estimates for this initial model.

Goodness-of-fit	
Sample size	4021
χ^2	358.11 with 16 d.f., $p < 0.01$
AASR	0.01
NFI	0.951
NNFI	0.838
CFI	0.953

Table 12.1: Goodness-of-fit for initial MIMIC model

DISTRIBUTION OF STANDARDIZED RESIDUALS



	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	2	3.03%
6	0.0 - -0.1	33	50.00%
7	0.1 - 0.0	31	46.97%
8	0.2 - 0.1	0	.00%
9	0.3 - 0.2	0	.00%
A	0.4 - 0.3	0	.00%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		66	100.00%

NOTE : EACH "*" REPRESENTS 2 RESIDUAL(S)

Figure12.1: EQS output showing distribution of residuals for initial full MIMIC model

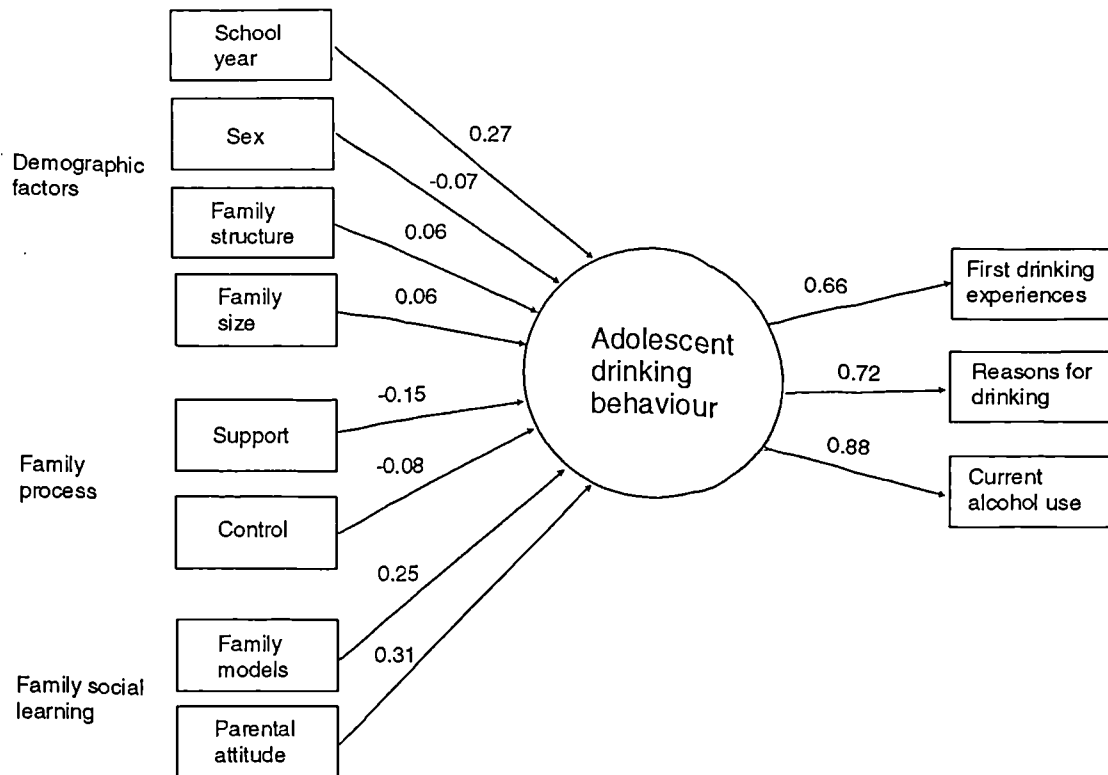


Figure 12.2: Path diagram of initial full MIMIC model (all parameters significant at $p < 0.001$)

Overall then, this model was not a good model in terms of the covariance structure of the specified variables. The Lagrange Multiplier test (LMtest) did suggest that the addition of one parameter - one which would not compromise the independence of the predictor variables - would improve the fit of the model. This parameter was the relationship between school year and reported first drinking experiences. As this relationship has already been discussed earlier (see chapter 2) the addition of this parameter in the model was theoretically justifiable. Table 12.2 shows the goodness-of-fit statistics for the initial model with the additional parameter. There is a clear change in the χ^2 value with model #2 - a highly significant drop of 212.53 for one degree of

freedom. In addition, the NNFI for model #2 is over 0.90, suggesting an adequate fit of this model. Figure 12.3 shows the distribution of the residuals, and again there are no systematic or large errors. Figure 12.4 shows the path diagram for this second model. The standardized parameter estimate for the relationship between school year and first drinking experiences was -0.22. As expected, this means that older year groups reported later first drinking experiences (first drinking experiences was coded such that low scores indicated later first drinking experiences).

This second model therefore forms the baseline model to which other models are compared. The next step in the model-building, model-testing process was to allow the predictor variables to have indirect, mediated, effects on the latent drinking behaviour variable, in line with the theoretical position stated earlier (chapter 5).

Goodness-of-fit	
Sample size	4021
χ^2	145.58 with 15 d.f., $p < 0.01$
AASR	0.007
NFI	0.980
NNFI	0.934
CFI	0.982

Table 12.2: Goodness-of-fit for MIMIC model #2

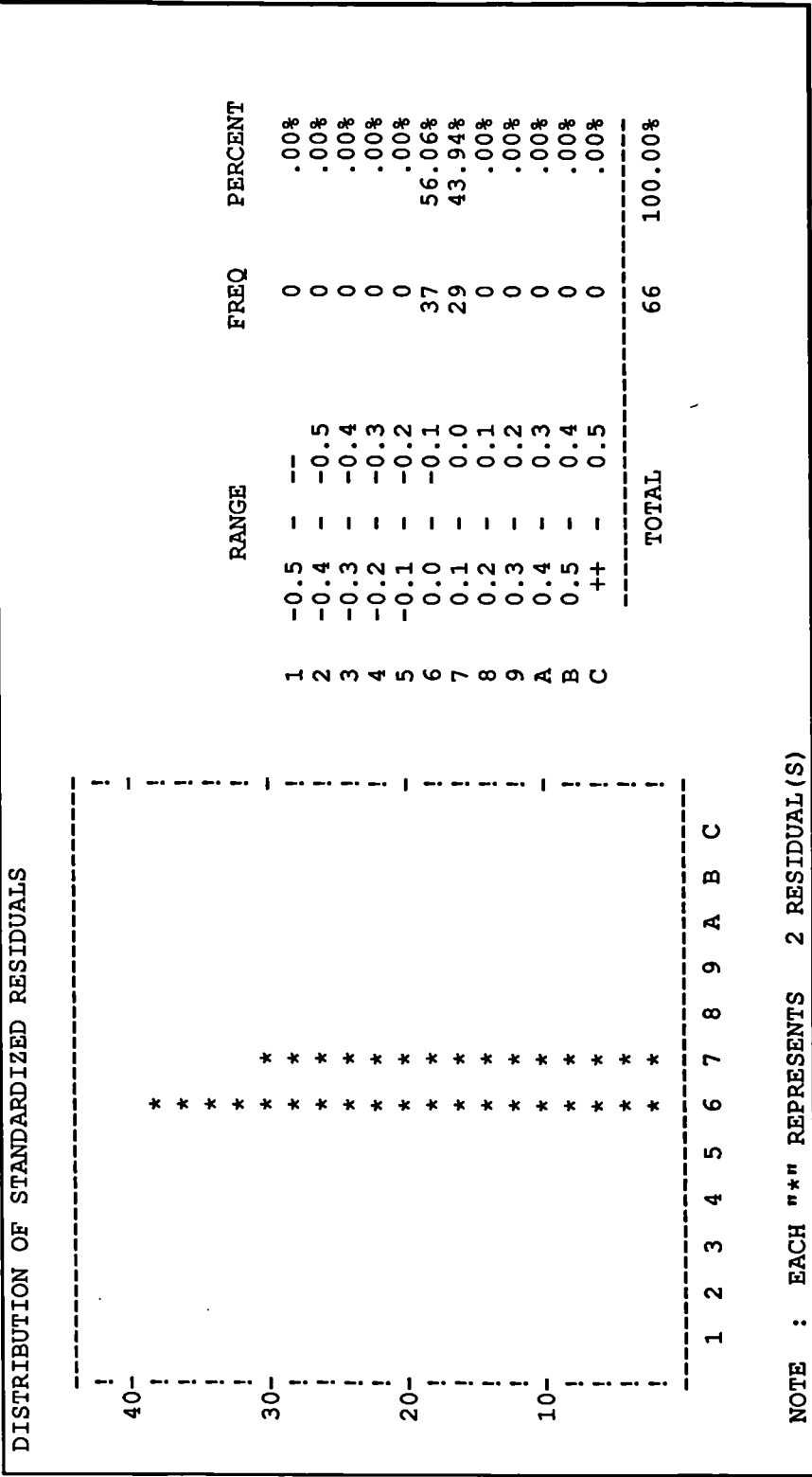


Figure 12.3: EQS output showing distribution of residuals for MIMIC model #2

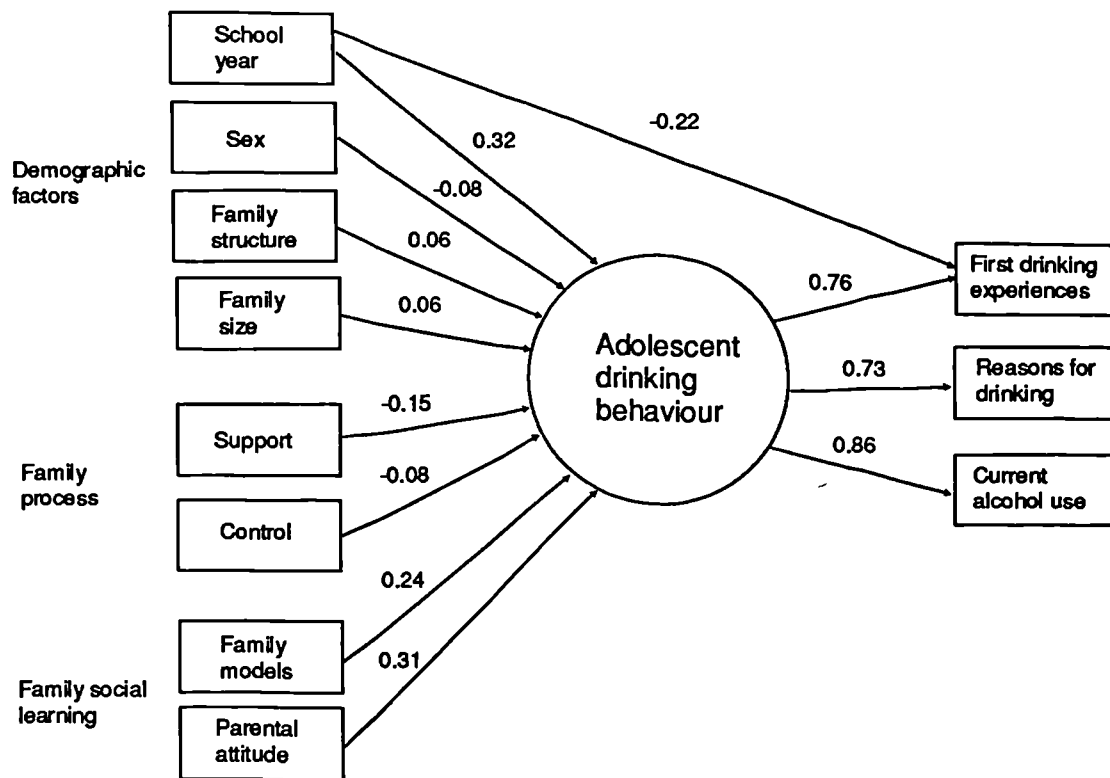


Figure 12.4: Path diagram of MIMIC model #2 (all parameters significant at $p < 0.001$)

Mediated effects

As mentioned above, the next step in applying theory to the data was to add parameters to the model which showed indirect, mediated effects of predictor variables on drinking behaviour. One parameter was added at a time, in a stepwise fashion, until a final model was specified. Parameters were added (or removed) according to the statistical criteria of the WALD statistic and the LMtest and providing they were theoretically in line with the hypothesized model (see Figure 5.2). Therefore, in addition to the direct, independent effects from the MIMIC baseline model, demographic variables were hypothesized to be mediated by both family process and family social learning variables, and

family social learning variables were hypothesized to be mediated by family process variables. For example, in addition to direct effects, perceived family models and parental attitude may also be mediated by levels of perceived support and control in their effect on adolescent self-reported drinking behaviour.

The final structural equation model proved a good fit to the data. The goodness-of-fit statistics are shown in Table 12.3, and all the fit indices are acceptable. Although significant, χ^2 was an improvement over the baseline model, whilst also having more degrees-of-freedom. More d.f. were present in this final model because many of the covariances between the predictor variables, which were allowed to be free in the baseline model, were fixed at zero in the final model. In other words, these covariances were not significantly different from zero. The distribution of residuals for this model is shown in Figure 12.5, and the path diagram in Figure 12.6.

Goodness-of-fit	
Sample size	4021
χ^2	101.44 with 32 d.f., $p < 0.01$
AASR	0.011
NFI	0.986
NNFI	0.984
CFI	0.990

Table 12.3: Goodness-of-fit for final MIMIC model

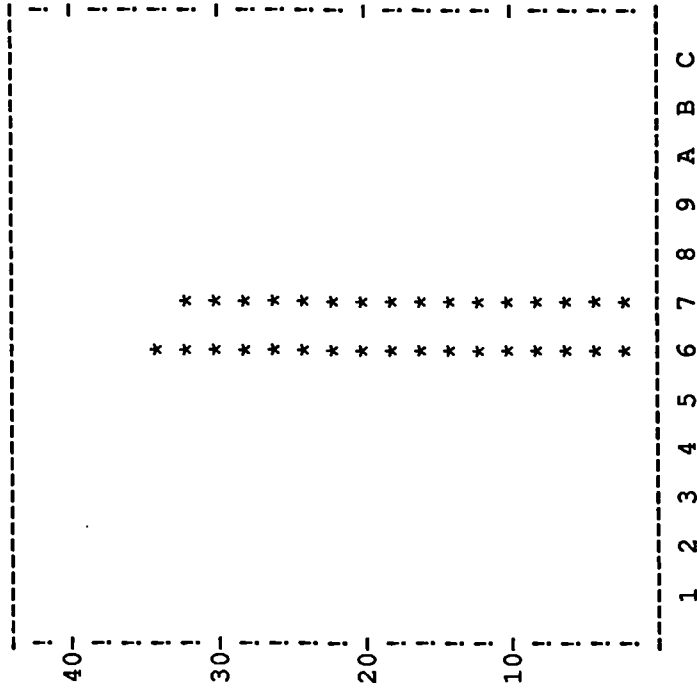
In the baseline model, all the predictor variables were specified to covary with each other. Between these variables in the final model, however, several

indirect effects on drinking behaviour were specified, and these initial predictor variable covariances were replaced with parameter estimates. Of the remaining independent variables, only three relatively small correlations were retained. These were the correlation between family structure and family models (0.04), suggesting that individuals from non-nuclear families reported slightly more frequent family drinking; between family structure and family size (0.04), suggesting that individuals from non-nuclear families had slightly larger families; and between school year and family models (0.16), suggesting that older individuals reported more frequent family drinking.

Inclusion of these correlations in the final model was specified by the statistical criteria of the LMtest. However, there should be some plausible explanation for including these correlations in the model. The small correlation between family structure and family models for drinking could be explained in terms of the tension reduction hypothesis - individuals whose natural parents are single or who live in reconstituted families may experience more stress and therefore may drink more frequently. Or it may be that parental drinking was a factor in the break-up of the family. One problem in interpreting this effect is that the questions which referred to family drinking did not distinguish between natural parents or step-parents, so it is not clear if individuals from non-nuclear families were referring to their natural or possibly their step-parents in response to these questions.

The small correlation between family structure and family size could be explained in terms of more siblings in reconstituted families. In other words, step-brothers and step-sisters contribute to a larger overall family size.

DISTRIBUTION OF STANDARDIZED RESIDUALS



NOTE : EACH "*" REPRESENTS 2 RESIDUAL(S)

	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	0	.00%
6	0.0 - -0.1	34	51.52%
7	0.1 - 0.0	32	48.48%
8	0.2 - 0.1	0	.00%
9	0.3 - 0.2	0	.00%
A	0.4 - 0.3	0	.00%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		66	100.00%

Figure 12.5: EQS output showing distribution of residuals for final MIMIC model

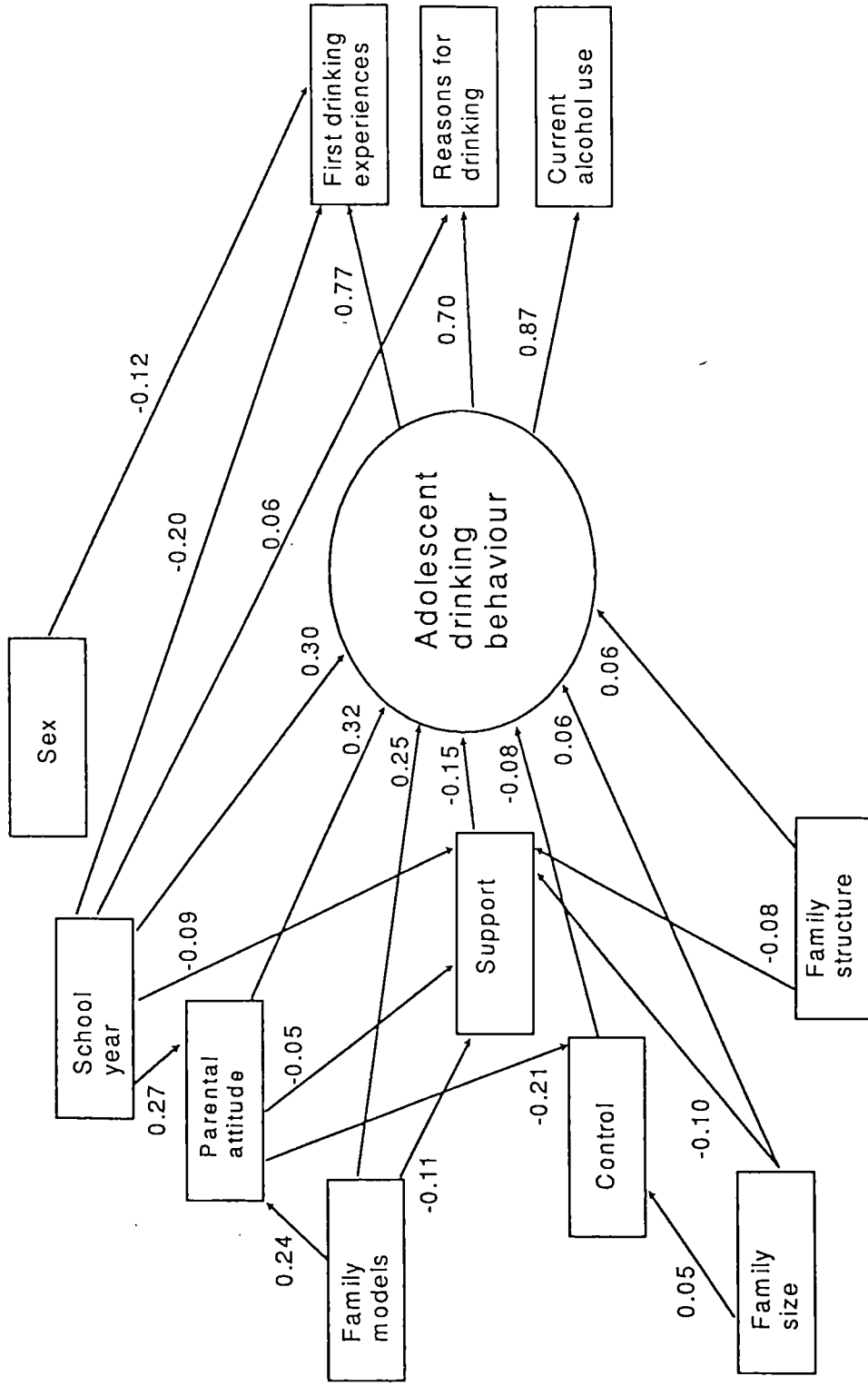


Figure 12.6: Path diagram of final MIMIC model
(all parameters are significant at $p < 0.001$)

The correlation between school year and family models is interesting in that there was no immediate reason for this relationship. However, on reflection, this relationship could be explained in terms of an increased awareness of the prevalence of family drinking as an individual grows older. This could be linked to an increased 'sharing' of drinking experiences with parents by individuals in older year groups.

Of the indirect effects, only school year and family models made reasonable contributions to the model. Both these variables were mainly mediated through parental reinforcement in their effect on the latent drinking behaviour variable (Figure 12.6).

Description of the final model

As mentioned above, the final model provided a better fit to the data than the baseline model in terms of goodness-of-fit indices. The standardized parameter estimates for the direct effects were similar to the baseline model, but in the final model several indirect effects were specified. The relevant direct and indirect effects shown in Figure 12.6 are described in detail below:

School year (SY)

- (1) SY → drinking behaviour (0.30). Older year groups reported more drinking behaviour.
- (2) SY → first drinking experiences (-0.20). Older year groups reported later first drinking experiences.
- (3) SY → reasons for drinking (0.06). Older year groups reported more reasons for drinking.

- (4) SY → support (-0.09). Older year groups reported lower perceived support.
- (5) SY → parental attitude (0.27). Older year groups reported a less restrictive parental attitude to their own drinking.
- (6) SY → parental attitude → drinking behaviour (0.09; indirect effect). As well as a direct effect, there was a relatively small but positive effect of school year on drinking behaviour mediated through parental attitude.

Sex (S)

- (1) S → first drinking experiences (-0.12). Male respondents reported earlier first drinking experiences.

Family size (FSz)

- (1) FSz → drinking behaviour (0.06). Individuals from larger families reported more drinking behaviour.
- (2) FSz → support (-0.10). Individuals from larger families perceived lower support.
- (3) FSz → control (0.05). Individuals from larger families perceived higher control.

Family structure (FSt)

- (1) FSt → drinking behaviour (0.06). Individuals who did not live with both natural parents reported more drinking behaviour.
- (2) FSt → support (-0.08). Individuals who did not live with both natural parents perceived lower support.

Family models (FM)

- (1) FM → drinking behaviour (0.25). Individuals who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → parental attitude (0.24). Individuals who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.
- (3) FM → support (-0.11). Individuals who reported more frequent family drinking perceived lower support.
- (4) FM → parental attitude → drinking behaviour (0.08; indirect effect). As well as a direct effect, there was a relatively small but positive effect of family drinking on drinking behaviour mediated through parental attitude.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.32). Individuals who reported a less restrictive parental attitude reported more drinking behaviour.
- (2) PA → support (-0.05). Individuals who reported a less restrictive parental attitude perceived lower support.
- (3) PA → control (-0.21). Individuals who reported a less restrictive parental attitude perceived lower control.

Family support (FS)

- (1) FS → drinking behaviour (-0.15). Lower perceived support was linked with more drinking behaviour.

Family control (FC)

(1) FC → drinking behaviour (-0.08). Lower perceived control was linked with more drinking behaviour.

Bootstrap samples

Although the goodness-of-fit indices for the final model were mostly satisfactory, the χ^2 statistic was significant, thus showing a significant departure of the model from the data. However, the χ^2 statistic is very sensitive to sample size, and to demonstrate this five bootstrap samples (0.2 of the overall sample size) were made and the covariance structure of these smaller samples was examined in terms of the final model. It was expected that the goodness-of-fit indices would be similar in the whole sample and bootstrap samples, and that the χ^2 statistic in the bootstrap samples would be non-significant ($p > 0.05$), also suggesting a good fit.

Table 12.4 shows the goodness-of-fit statistics for the final model for the five bootstrap samples. As expected, the five randomly selected bootstrap samples all had non-significant χ^2 in terms of the final model. In addition, the other goodness-of-fit statistics in all the bootstrap samples indicated a good fitting model.

Goodness-of-fit						
	Full sample	Bootstrap sample #1	Bootstrap sample #2	Bootstrap sample #3	Bootstrap sample #4	Bootstrap sample #5
Sample size	4021	786	868	793	809	787
χ^2 (32 d.f.)	101.44 p<0.01	39.05 p=0.18	45.20 p=0.06	33.40 p=0.40	38.78 p=0.19	37.09 p=0.25
AASR	0.011	0.015	0.017	0.014	0.016	0.017
NFI	0.986	0.976	0.971	0.978	0.972	0.974
NNFI	0.984	0.992	0.985	0.998	0.991	0.994
CFI	0.990	0.995	0.991	0.999	0.995	0.996

Table 12.4: Goodness-of-fit for five bootstrap samples in terms of the final model

Discussion

The purpose of the analyses carried out in this chapter was to test the theoretical model of adolescent drinking and family socialization influences detailed earlier in this thesis. The initial model specified main effects only, and served as a baseline with which changes to the model could be compared. Through a step-wise exclusion/inclusion process, a final structural equation model was arrived at which significantly improved on the baseline model. Although in the final model the direct effects were still the most important parameters, several mediating effects were included. The most important of these, in terms of drinking behaviour, were the indirect effects of school year and family models through parental reinforcement. Other indirect effects were relatively small, including the mediating effects of support and control for family models and parental reinforcement.

For the family social learning variables the direction of effect was from family models to parental attitude, in line with social learning theory (see chapter 4) where social reinforcement is posited as important in modelling behaviour. Thus, in the current SEM, parental attitude mediates the effect of family models for drinking on a teenager's reported drinking behaviour.

One property of the final model which merits discussion is that of effect size. Because of the sample size, significant but relatively small parameters were included in the model, even though an arbitrary cut-off point of 0.05 for parameter estimates was enforced. The smallest predictors of drinking behaviour were family size and family structure, followed by perceived family control. Although several effects were quite small, their inclusion in the model is nevertheless important because it allows an appreciation of the overall pattern of effects. The relative size and importance of parameters is a property of both theoretical and statistical models which should be examined. The issue of effect size is discussed in more detail in the final chapters of this thesis.

On a different note, one interesting property of the final model is that no effect of sex on the latent drinking behaviour variable was found. Sex was linked only to first drinking experiences, suggesting that boys reported earlier first drinking experiences than girls. However, it must be remembered that the observed (composite) measure of current alcohol use had adjusted for differential alcohol toxicity. In terms of sex differences in drinking behaviour, these seem to be restricted to earlier reported first drinking experiences for males and less current drinking by females because of differential alcohol toxicity. On the other hand, sex differences were not apparent in terms of the latent drinking behaviour variable, which represents an underlying drinking behaviour schema.

Hypotheses addressed in this chapter

Hypothesis:

2(c) Older teenagers drink more than younger teenagers.

School year was positively related to adolescent drinking, supporting this hypothesis.

Hypothesis:

2(d) There are sex differences in drinking behaviour, with boys drinking more than girls, but not markedly so.

The structural model showed that males reported earlier first drinking experiences than females, but there were no sex differences in terms of the underlying drinking behaviour latent variable.

Hypothesis:

2(e) Older teenagers report later age of first drinking experiences.

The structural model showed that respondents in older year groups reported later first drinking experiences, supporting the above hypothesis.

Hypothesis:

4(a) Levels of support, control, family models and parental reinforcement are all directly related to drinking behaviour.

The final structural equation model showed that these four family socialization factors were all significant predictors of drinking behaviour.

Hypothesis:

4(b) Low support is linked with more self-reported drinking behaviour and high support with lower levels of self-reported drinking behaviour.

There was a significant negative relationship between support and drinking behaviour - low support was linked with more drinking behaviour.

Hypothesis:

4(c) Low control is linked with more self-reported drinking behaviour and high control with lower levels of self-reported drinking behaviour.

There was a significant negative relationship between control and drinking behaviour - low control was linked with more drinking behaviour.

Hypothesis:

4(d) Adolescents who report that their parents and older sibling (if applicable) have relatively higher levels of alcohol use will themselves report higher levels of drinking behaviour.

There was a significant positive relationship between family models for drinking and drinking behaviour - respondents who reported more frequent family drinking also reported more drinking behaviour.

Hypothesis:

4(e) Adolescents who report that their parents are relatively more tolerant or indifferent towards them drinking will themselves report higher levels of drinking behaviour.

There was a significant positive relationship between parental reinforcement and drinking behaviour - respondents who reported a more relaxed parental attitude reported more drinking behaviour.

Hypothesis:

4(f) Alcohol-specific family influences (family social learning) will provide better statistical predictors of self-reported adolescent drinking behaviours than non-alcohol-specific-influences (family process).

Both parental attitude and family drinking variables were, in terms of their standardized parameter estimates, stronger predictors of drinking behaviour than family support and control.

Chapter 13: Structural equation models of adolescent drinking and family socialization influences: sex and school year groups

In this chapter the theoretical and structural model of adolescent drinking and family socialization influences, described in the previous chapter and in chapter 5, is examined for each sex and year group (apart from sixth formers as this group was too small). In looking at the individual year/sex groups the pattern of influence for younger males to older males, and for younger females to older females, could be more closely examined. There were ten year/sex groups in all: years 7, 8, 9, 10 and 11 males; and year 7, 8, 9, 10 and 11 females. The results for the males are presented first.

The presentation of the final SEM for each group follows the previous format - namely goodness-of-fit table, path diagram of SEM, and a brief written description of the significant parameters. However, as the distribution of residuals was closely centred around zero for each SEM, and to avoid cluttering up the chapter, these figures are presented in Appendix 6.

Year 7 males

Table 13.1 shows the goodness-of-fit statistics for the year 7 male respondents (aged 11-12). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.1 (in Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.1).

Goodness-of-fit	
Sample size	205
χ^2	9.88 with 8 d.f., p=0.267
AASR	0.018
NFI	0.958
NNFI	0.983
CFI	0.991

Table 13.1: Goodness-of-fit for year 7 model: males

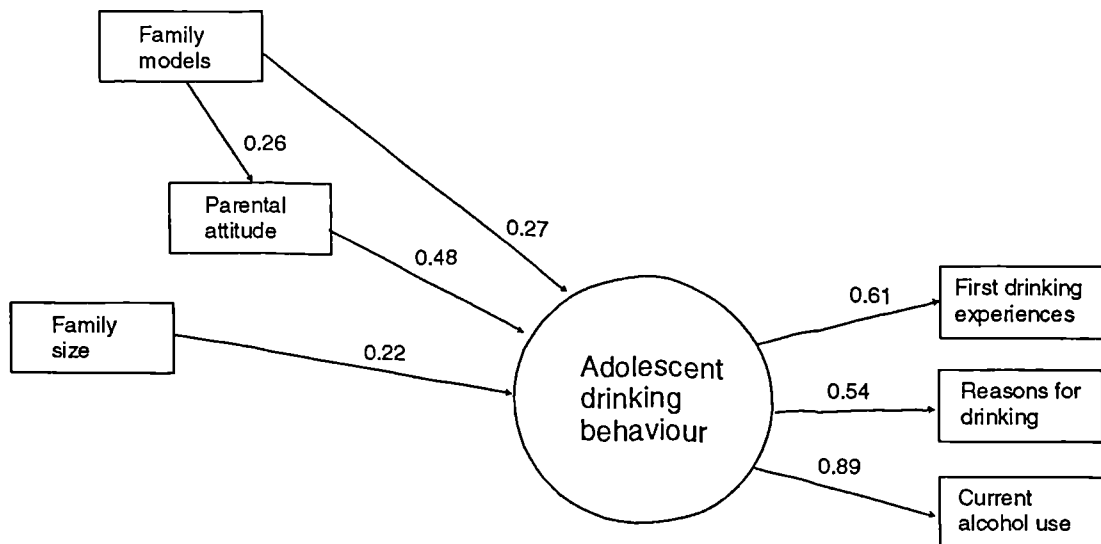


Figure 13.1: Year 7 males: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 7 males

Family models (FM)

(1) FM → drinking behaviour (0.27). Those who perceived more frequent family drinking reported more drinking behaviour.

(2) FM → parental attitude (0.26). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.

Parental attitude (PA)

(1) PA → drinking behaviour (0.48). Those who reported a less restrictive parental attitude reported more drinking behaviour.

Family size (FSz)

(1) FSz → drinking behaviour (0.22). Those from larger families reported more drinking behaviour.

Summary

- Family social learning variables were important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family process variables were not significant predictors of drinking behaviour
- Respondents from larger families reported more drinking behaviour

Year 8 males

Table 13.2 shows the goodness-of-fit statistics for the year 8 male respondents (aged 12-13). The model proved a good fit to the data, with all indices within acceptable limits except for the less robust χ^2 statistic. Figure A6.2 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.2).

Goodness-of-fit	
Sample size	637
χ^2	39.95 with 17 d.f., p=0.002
AASR	0.022
NFI	0.963
NNFI	0.964
CFI	0.978

Table 13.2: Goodness-of-fit for year 8 model: males

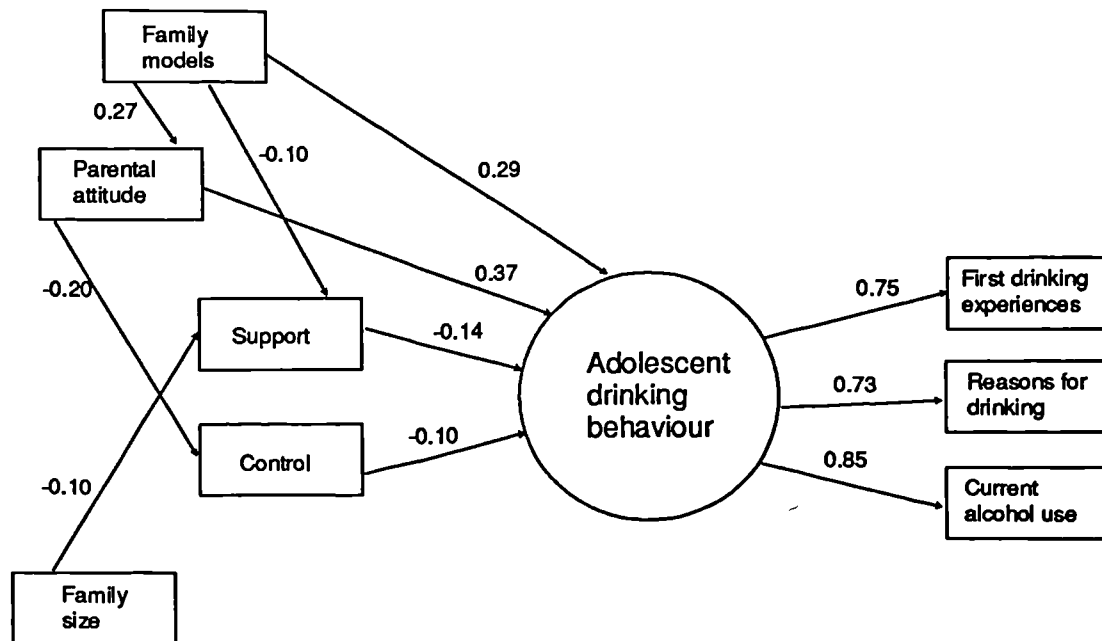


Figure 13.2: Year 8 males: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 8 males

Family models (FM)

- (1) FM → drinking behaviour (0.29). Those who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → parental attitude (0.27). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.
- (3) FM → support (-0.10). Those who perceived more frequent family drinking perceived lower support.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.37). Those who reported a less restrictive parental attitude reported more drinking behaviour.
- (2) PA → control (-0.20). Those who reported a less restrictive parental attitude perceived lower control.

Family size (FSz)

- (1) FSz → support (-0.10). Those from larger families perceived lower support.

Family support (FS)

- (1) FS → drinking behaviour (-0.14). Those who perceived lower support reported more drinking behaviour.

Family control (FC)

- (1) FC → drinking behaviour (-0.10). Those who perceived lower control reported more drinking behaviour.

Summary

- As with year 7 males, family social learning variables were important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family support and control were also significant predictors of drinking behaviour
- Family drinking influenced perceived support

- Family size was not directly linked to drinking behaviour for this group, but it did predict the level of perceived family support.

Year 9 males

Table 13.3 shows the goodness-of-fit statistics for the year 9 male respondents (aged 13-14). The model proved a good fit to the data, with all indices within acceptable limits except for the less robust χ^2 statistic. Figure A6.3 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.3).

Goodness-of-fit	
Sample size	523
χ^2	26.94 with 15 d.f., p=0.029
AASR	0.019
NFI	0.952
NNFI	0.959
CFI	0.978

Table 13.3: Goodness-of-fit for year 9 model: males

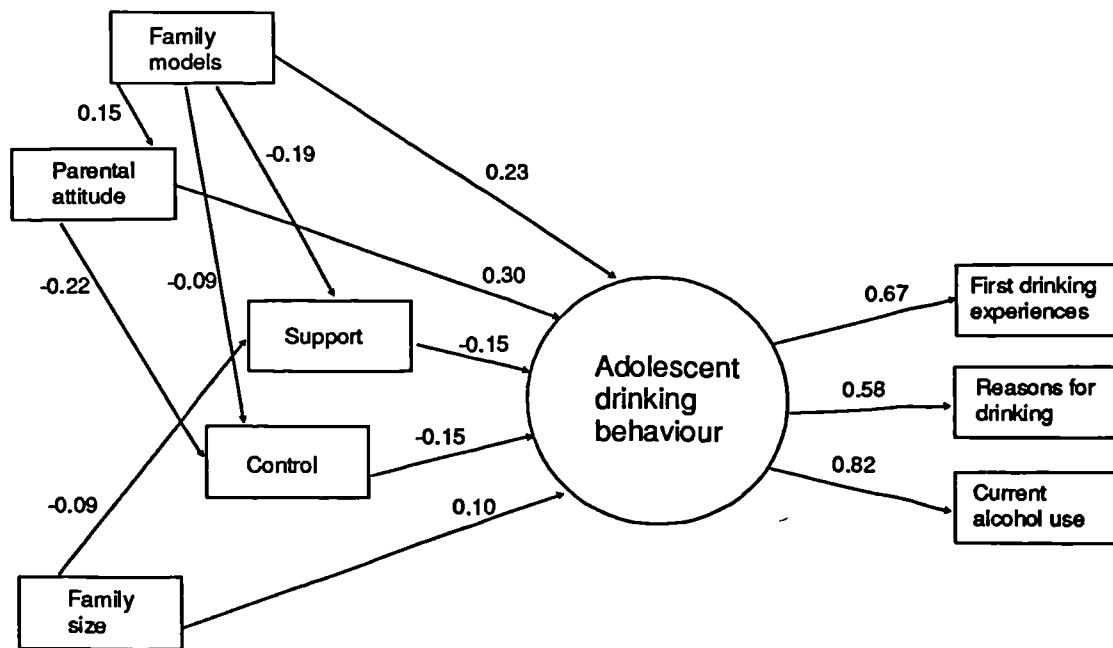


Figure 13.3: Year 9 males: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 9 males

Family models (FM)

- (1) FM → drinking behaviour (0.23). Those who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → parental attitude (0.15). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.
- (3) FM → support (-0.19). Those who perceived more frequent family drinking perceived lower support.
- (4) FM → control (-0.09). Those who perceived more frequent family drinking perceived lower control.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.30). Those who reported a less restrictive parental attitude reported more drinking behaviour.
- (2) PA → control (-0.22). Those who reported a less restrictive parental attitude perceived lower control.

Family size (FSz)

- (1) FSz → drinking behaviour (0.10). Those from larger families reported more drinking behaviour.
- (2) FSz → support (-0.09). Those from larger families perceived lower support.

Family support (FS)

- (1) FS → drinking behaviour (-0.15). Those who perceived lower support reported more drinking behaviour.

Family control (FC)

- (1) FC → drinking behaviour (-0.15). Those who perceived lower control reported more drinking behaviour.

Summary

- Family social learning factors were important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family process factors were also significant predictors of drinking behaviour
- Family drinking influenced perceived support and control

- Family size predicted perceived family support and drinking behaviour

Year 10 males

Table 13.4 shows the goodness-of-fit statistics for the year 10 male respondents (aged 14-15). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.4 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.4). Not shown in the final path model is the correlation between perceived support and control. For this group, this was a significant relationship (0.18).

Goodness-of-fit	
Sample size	314
χ^2	14.16 with 11 d.f., p=0.23
AASR	0.030
NFI	0.975
NNFI	0.989
CFI	0.994

Table 13.4: Goodness-of-fit for year 10 model: males

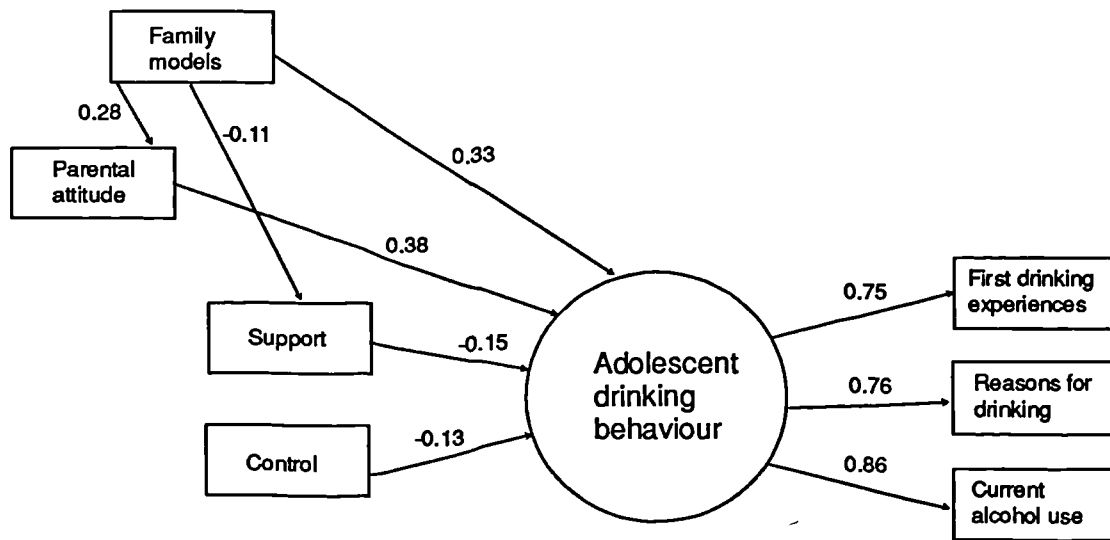


Figure 13.4: Year 10 males: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 10 males

Family models (FM)

- (1) FM → drinking behaviour (0.33). Those who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → parental attitude (0.28). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.
- (3) FM → support (-0.11). Those who perceived more frequent family drinking perceived lower support.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.38). Those who reported a less restrictive parental attitude reported more drinking behaviour.

Family support (FS)

(1) FS → drinking behaviour (-0.15). Those who perceived lower support reported more drinking behaviour.

Family control (FC)

(1) FC → drinking behaviour (-0.13). Those who perceived lower control reported more drinking behaviour.

Summary

- Family social learning variables were again important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family drinking influenced perceived support
- Family process variables were significant predictors of drinking behaviour

Year 11 males

Table 13.5 shows the goodness-of-fit statistics for the year 11 male respondents (aged 15-16). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.5 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.5).

Goodness-of-fit	
Sample size	267
χ^2	26.73 with 25 d.f., p=0.37
AASR	0.029
NFI	0.927
NNFI	0.992
CFI	0.995

Table 13.5: Goodness-of-fit for year 11 model: males

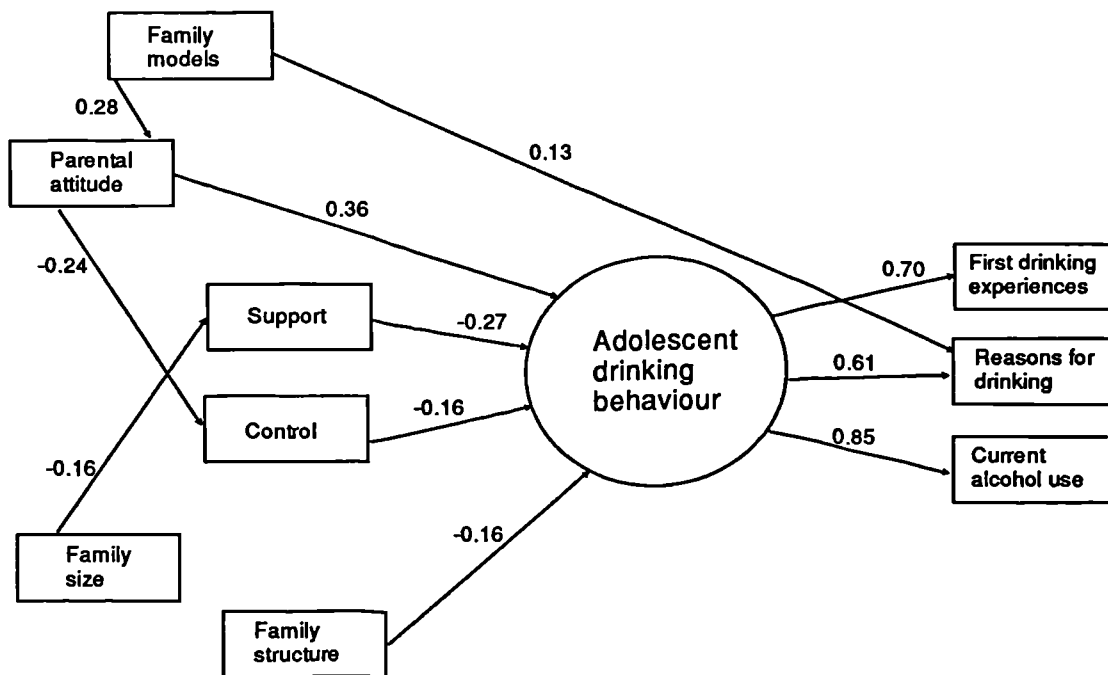


Figure 13.5: Year 11 males: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 11 males

Family models (FM)

- (1) FM → reasons for drinking (0.13). Those who perceived more frequent family drinking reported more reasons for drinking.
- (2) FM → parental attitude (0.28). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.36). Those who reported a less restrictive parental attitude reported more drinking behaviour.
- (2) PA → control (-0.24). Those who reported a less restrictive parental attitude perceived lower control.

Family size (FSz)

- (1) FSz → support (-0.16). Those from larger families perceived lower support.

Family structure (FSt)

- (1) FSt → drinking behaviour (-0.16). Those from nuclear families reported more drinking behaviour.

Family support (FS)

- (1) FS → drinking behaviour (-0.27). Those who perceived lower support reported more drinking behaviour.

Family control (FC)

(1) FC → drinking behaviour (-0.16). Those who perceived lower control reported more drinking behaviour.

Summary

- Family drinking predicted reasons for drinking but not the latent drinking behaviour variable
- Parental attitude predicted drinking behaviour and perceived control
- Family drinking predicted parental attitude to offspring's drinking
- Family process factors were significant predictors of drinking behaviour
- Family size predicted perceived family support
- Individuals from intact families reported more drinking behaviour

Year 7 females

Table 13.6 shows the goodness-of-fit statistics for the year 7 female respondents (aged 11-12). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.6 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.6).

Goodness-of-fit	
Sample size	328
χ^2	5.93 with 4 d.f., p=0.204
AASR	0.010
NFI	0.990
NNFI	0.991
CFI	0.997

Table 13.6: Goodness-of-fit for year 7 model: females

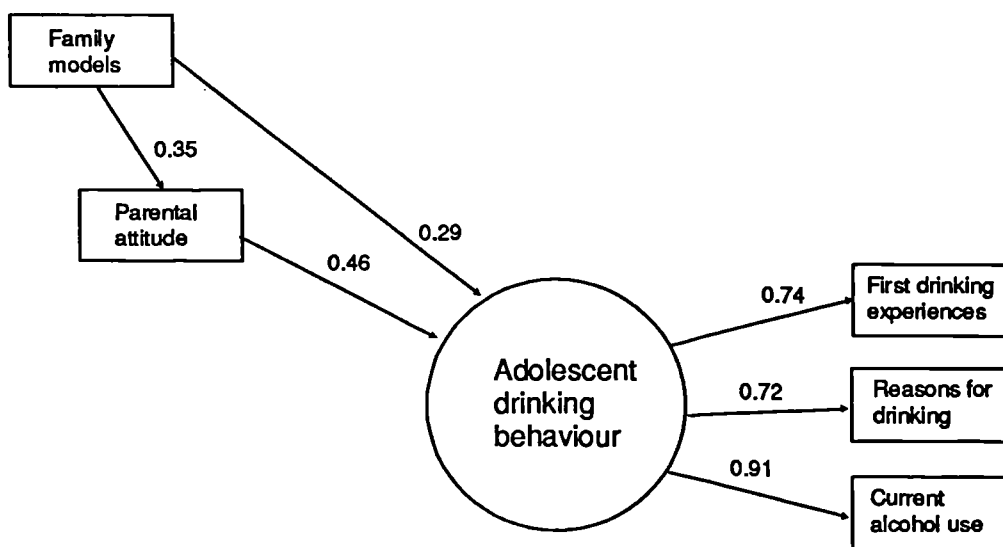


Figure 13.6: Year 7 females: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 7 females

Family models (FM)

(1) FM → drinking behaviour (0.29). Those who perceived more frequent family drinking reported more drinking behaviour.

(2) FM → parental attitude (0.35). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.

Parental attitude (PA)

(1) PA → drinking behaviour (0.46). Those who reported a less restrictive parental attitude reported more drinking behaviour.

Summary

- Family social learning variables were important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family process variables were not significant predictors of drinking behaviour

Year 8 females

Table 13.7 shows the goodness-of-fit statistics for the year 8 female respondents (aged 12-13). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.7 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.7).

Goodness-of-fit	
Sample size	327
χ^2	15.12 with 8 d.f., p=0.06
AASR	0.028
NFI	0.965
NNFI	0.968
CFI	0.983

Table 13.7: Goodness-of-fit for year 8 model: females

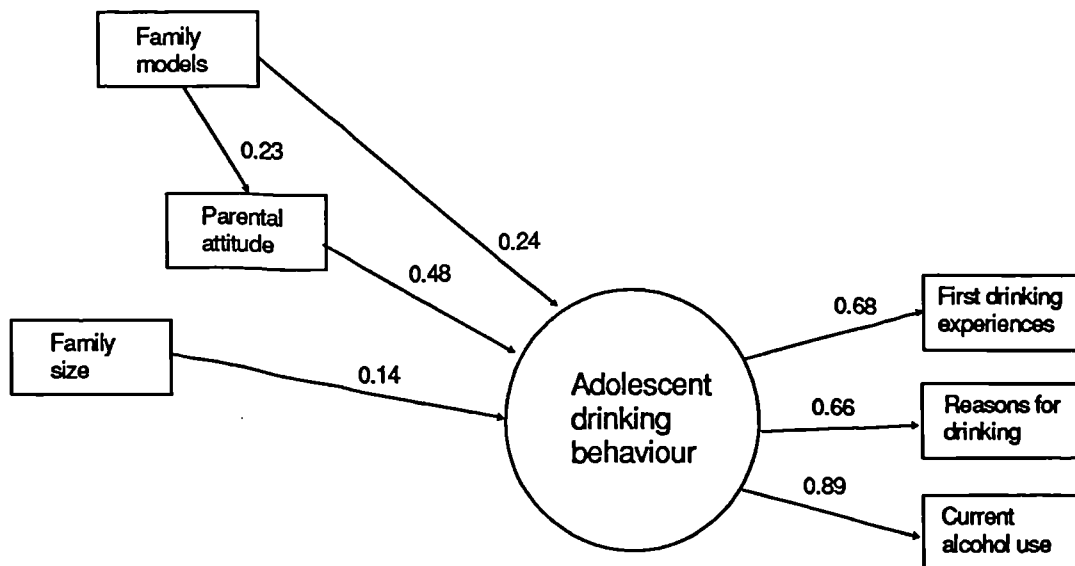


Figure 13.7: Year 8 females: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 8 females

Family models (FM)

(1) FM → drinking behaviour (0.24). Those who perceived more frequent family drinking reported more drinking behaviour.

(2) FM → parental attitude (0.23). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.

Parental attitude (PA)

(1) PA → drinking behaviour (0.48). Those who reported a less restrictive parental attitude reported more drinking behaviour.

Family size (FSz)

(1) FSz → drinking behaviour (0.14). Those from larger families reported more drinking behaviour.

Summary

- Family social learning variables were important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family process variables were not significant predictors of drinking behaviour

- Respondents from larger families reported more drinking behaviour

Year 9 females

Table 13.8 shows the goodness-of-fit statistics for the year 9 female respondents (aged 13-14). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.8 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.8).

Goodness-of-fit	
Sample size	221
χ^2	5.25 with 6 d.f., p=0.513
AASR	0.027
NFI	0.986
NNFI	1.005
CFI	1.000

Table 13.8: Goodness-of-fit for year 9 model: females

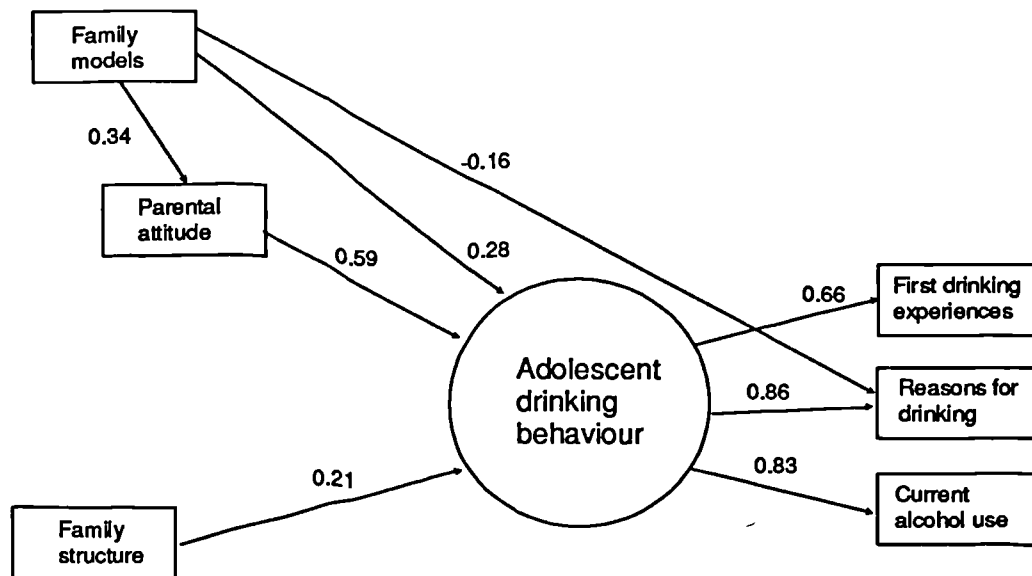


Figure 13.8: Year 9 females: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 9 females

Family models (FM)

- (1) FM → drinking behaviour (0.28). Those who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → reasons for drinking (-0.16). Those who perceived more frequent family drinking reported fewer reasons for drinking.
- (3) FM → parental attitude (0.34). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.59). Those who reported a less restrictive parental attitude reported more drinking behaviour.

Family structure (FSt)

(1) FSt → drinking behaviour (0.21). Those from non-nuclear families reported more drinking behaviour.

Summary

- Family social learning variables were important predictors of drinking behaviour
- Family drinking predicted reasons for drinking
- Family drinking predicted parental attitude to offspring's drinking
- Family process variables were not significant predictors of drinking behaviour
- Respondents from non-nuclear families reported more drinking behaviour

Year 10 females

Table 13.9 shows the goodness-of-fit statistics for the year 10 female respondents (aged 14-15). The model proved a good fit to the data, with all indices within acceptable limits. Figure A6.9 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.9).

Goodness-of-fit	
Sample size	528
χ^2	21.34 with 18 d.f., p=0.262
AASR	0.016
NFI	0.974
NNFI	0.994
CFI	0.996

Table 13.9: Goodness-of-fit for year 10 model: females

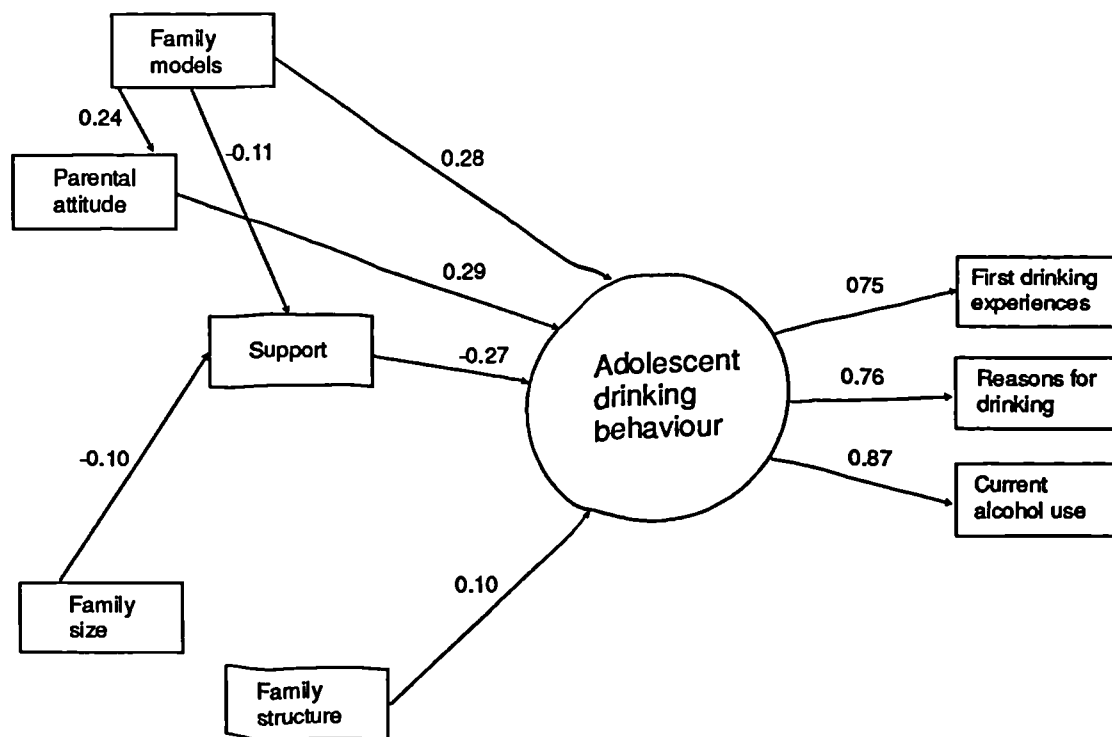


Figure 13.9: Year 10 females: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 10 females

Family models (FM)

- (1) FM → drinking behaviour (0.28). Those who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → parental attitude (0.24). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.
- (3) FM → support (-0.11). Those who perceived more frequent family drinking perceived lower support.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.29). Those who reported a less restrictive parental attitude reported more drinking behaviour.

Family size (FSz)

- (1) FSz → support (-0.10). Those from larger families perceived lower support.

Family structure (FSt)

- (1) FSt → drinking behaviour (0.10). Those from non-nuclear families reported more drinking behaviour.

Family support (FS)

- (1) FS → drinking behaviour (-0.27). Those who perceived lower support reported more drinking behaviour.

Summary

- Family social learning variables were important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family drinking influenced perceived support
- Family support, but not control, was a significant predictor of drinking behaviour
- Respondents from larger families perceived lower support
- Respondents from non-nuclear families reported more drinking behaviour

Year 11 females

Table 13.10 shows the goodness-of-fit statistics for the year 11 female respondents (aged 15-16). The model proved a good fit to the data, with all indices within acceptable limits except for the less robust χ^2 statistic. Figure A6.10 (Appendix 6) shows that the distribution of residuals for this model was uniform about zero. The final path model details the significant effects in this model (Figure 13.10).

Goodness-of-fit	
Sample size	568
χ^2	29.88 with 11 d.f., p=0.002
AASR	0.022
NFI	0.938
NNFI	0.922
CFI	0.959

Table 13.10: Goodness-of-fit for year 11 model: females

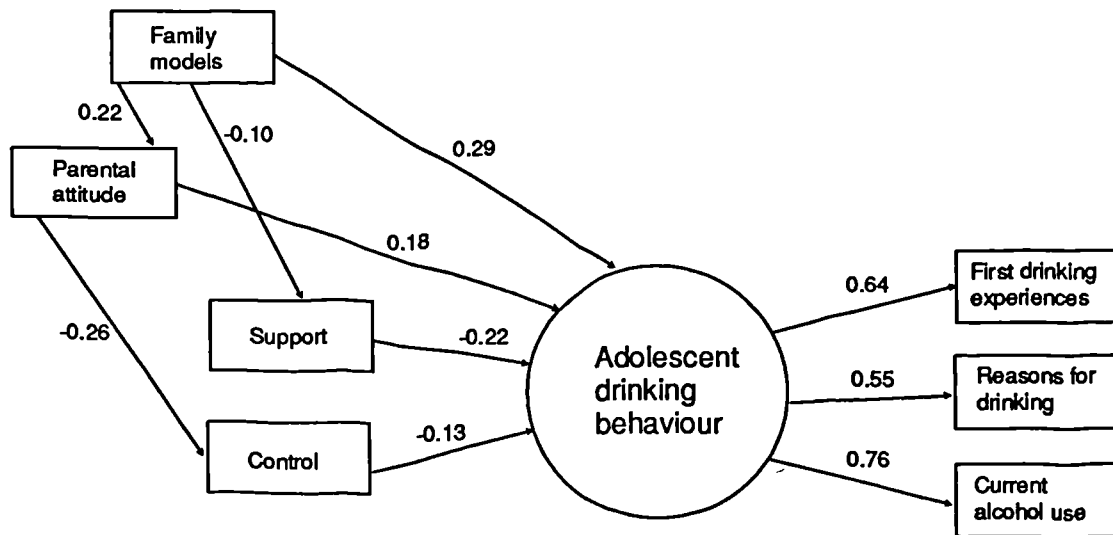


Figure 13.10: Year 11 females: path diagram
(all parameters significant at $p < 0.01$)

Description of the model: year 11 females

Family models (FM)

- (1) FM → drinking behaviour (0.29). Those who perceived more frequent family drinking reported more drinking behaviour.
- (2) FM → parental attitude (0.22). Those who perceived more frequent family drinking reported a less restrictive parental attitude to their own drinking.
- (3) FM → support (-0.10). Those who perceived more frequent family drinking perceived lower support.

Parental attitude (PA)

- (1) PA → drinking behaviour (0.18). Those who reported a less restrictive parental attitude reported more drinking behaviour.
- (2) PA → control (-0.26). Those who reported a less restrictive parental attitude reported lower control.

Family support (FS)

(1) FS → drinking behaviour (-0.22). Those who perceived lower support reported more drinking behaviour.

Family control (FC)

(1) FC → drinking behaviour (-0.13). Those who perceived lower control reported more drinking behaviour.

Summary

- Family social learning variables were again important predictors of drinking behaviour
- Family drinking predicted parental attitude to offspring's drinking
- Family drinking influenced perceived support
- Parental attitude influenced perceived control
- Family process variables were significant predictors of drinking behaviour

Discussion

In the structural models examined in this chapter, the latent drinking behaviour variable was measured by the three variables: first drinking experiences; number of reasons for drinking; and current alcohol use. In all models, current alcohol use had the highest loading on the latent variable. The two other

variables also had high factor loadings in all the models - ranging from 0.54 to 0.86. This is consistent with the SEM for the whole sample detailed in the previous chapter.

In a couple of instances - the models for year 11 males and year 9 females - family models for drinking directly predict one of the drinking behaviour measures, number of reasons for drinking. For the year 11 males this relationship is straightforward: family drinking predicts number of reasons for drinking, but not the latent drinking behaviour variable, with more frequent family drinking linked with more reasons for drinking. The picture for the year 9 females is more complex. Family drinking is positively linked with the latent drinking behaviour variable, with more frequent family drinking associated with more drinking behaviour. However, family drinking is also negatively related to the number of reasons for drinking, with more frequent family drinking linked with fewer reasons for drinking. This suggests that family drinking influences that part of the number of reasons for drinking variable which does not contribute to the latent drinking behaviour factor (Dunn *et al*, in press), in an opposite direction to that expected. There is no straightforward explanation for this apparent conflict, and this unexpected effect would need to be confirmed in further studies before any serious theoretical justification is made for it. The lack of this effect in any of the other female groups in this study suggests caution in inferring/hypothesizing this effect to other samples/populations.

Interestingly, the structural models changed quite markedly from years 7 to 11 for both males and females. In year 7 for males and years 7, 8 and 9 for females family social learning variables were important predictors of drinking behaviour. In particular, parental attitude had the biggest effect on drinking behaviour (0.48 for year 7 males and 0.59 for year 9 females).

In older year groups - years 8 to 11 for males and years 10 and 11 for females - the family process variables support and control emerged as significant predictors of drinking behaviour in the structural models. For the year 11 males, support had a standardized effect of -0.27 on drinking behaviour, and control had an effect of -0.16. For the year 10 females support had an effect also of -0.27 on drinking behaviour, but control was not a significant predictor. By year 11, both support and control were significant predictors of drinking behaviour (-0.22 and -0.13 respectively) for the females. Thus for older males and females both support and, to a lesser extent, control, were significant predictors of drinking behaviour.

The most important point to come out of these results is the relative importance of family social learning variables to family process variables, over the five year groups. As mentioned above, in the younger year groups parental attitude and family models were key predictor variables, whereas family support and control did not emerge as significant predictors until later year groups. Associated with the emergence of support and control as significant predictors is a decrease in the effect size of family social learning variables in later year groups. For males, the effect of parental attitude decreased from 0.48 to 0.36 from years 7 to 11, as support increased from 0.0 to -0.27, and control from 0.0 to -0.16. Although the effect of family models on drinking behaviour remained fairly stable from years 7 to 10, for year 11 males family drinking did not predict the latent drinking behaviour variable at all (although it did predict the number of reasons for drinking).

For females, the effect of parental attitude changed from 0.46, 0.48 and 0.59 in years 7, 8 and 9 to 0.29 and 0.18 in years 10 and 11, respectively, as support increased from 0.0 in years 7, 8 and 9 to -0.27 and -0.22 in years 10 and 11. Similarly, control increased from 0.0 in years 7 through 10 to -0.13 in year 11.

The effect of family models remained fairly similar across all five year groups for the females.

The relative increase in importance of family process variables in older year groups may reflect the increasing importance of internalized norms for behaviour in older year groups, as direct parental influence - in the form of social learning variables- decreases. In other words, support and control, which are important in the socialization of internalized norms for behaviour, become increasingly important as the direct influence of family and parents wanes in older teenagers and other influences from outside the family increase in importance. This important point will be discussed further in the concluding chapters.

Several other important results emerged from the analyses carried out and presented in this chapter. Firstly, family models consistently predicted parental attitude, across all year and sex groups. For all groups, more frequent family drinking indicated a less restrictive parental attitude to the respondent's alcohol use.

Family drinking was also an important predictor of support for males in years 8, 9 and 10 and females in years 10 and 11. For these groups, more frequent family drinking indicated lower perceived support, suggesting a direct link between family drinking behaviour and the perception of support in the family environment.

Parental attitude was a significant predictor of perceived family control for males in years 8, 9 and 11 and for year 11 females. For these groups a less restrictive parental attitude was linked to lower perceived control, suggesting that parental attitudes influenced the perception of control in the family environment.

For males, family size was also an important variable in predicting drinking behaviour (years 7 and 9) and in predicting perceived support (years 8, 9 and 11). Thus, respondents from larger families indicated more drinking behaviour and/or lower support.

One final observation of these models is the similarity between several of the models for male respondents and female respondents one year older: the predictors in the year 7 male SEM are similar to the predictors in the year 8 female SEM; the year 9 male SEM is similar to the year 10 female SEM; and the year 10 male SEM is similar to the year 11 female SEM. This suggests that the pattern of family socialization influences on adolescent drinking behaviour for males may be more advanced than for similar aged females. The particular pattern of family socialization influences for a group of males may not emerge for females until a year or more later.

Hypotheses addressed in this chapter

Hypothesis

5(a) There are no important differences in the relationship between adolescents self-reported drinking behaviour and perceived family environment for different age/sex groups.

The results presented in this chapter clearly do not support this hypothesis. In earlier age groups family social learning variables are most important, and family process variable are hardly influential. However, as adolescents get older (indicated by the older year groups in these analyses), then family process variables become more important.

Chapter 14: The influence of friends' drinking behaviour

In this chapter the perceived drinking behaviour of friends of the respondent (as reported by each respondent) is examined in relation to the respondent's own self-reported drinking behaviour. As indicated earlier (chapter 4), friends' drinking is often specified as a causal influence on own drinking behaviour, in the form of peer modelling influences, or peer-pressure. In this thesis however, it was pointed out that individuals 'share' their drinking behaviour with their friends, and that the development of drinking behaviour within the peer group is a reciprocal process. In other words, adolescents influence, and are influenced by, their friends. Thus peer socialization is much more difficult to describe in terms of causal effects than parental and family socialization influences, especially in cross-sectional studies.

Bearing this in mind, and also the cross-sectional nature of the present study, peer influences are hypothesized to be correlational rather than causal. In certain situations structural equation models can examine reciprocal causation (estimates can be found of the effect of a on b , and of b on a). These models require much more detail than it was possible to obtain in the present study and, in addition, such analyses are more appropriate for cross-lagged longitudinal studies. Therefore, in the first part of this chapter, a simple

structural equation model specifies the correlation between the respondent's reported drinking and the perceived drinking behaviour of friends.

One interesting characteristic of the responses to the questions about friends' drinking behaviour was the high number of individuals who indicated that they *did not know* how their friends drank. The second SEM in this chapter looks at the relationships between family socialization factors and drinking behaviour for the whole sample, with knowledge of friends' drinking behaviour ('*know*' vs. '*don't know*') included as an additional variable. Those individuals who reported knowledge of their friends' alcohol use would be more likely to be sharing their drinking behaviours and experiences with their peers, and so for this group peer influence would be more likely.

Friends' drinking behaviour

Two variables measured the perception of friends' drinking behaviour. These were questions about frequency of drinking and usual consumption, and the response format was similar to the questions about the respondent's frequency and usual consumption (see chapter 9). Table 14.1 shows the breakdown of the responses to each of these two questions.

The most popular response was '*don't know*', with over a quarter of the sample indicating that they did not know how often or how much their friends usually drank. Exactly 1 in 4 said that their friends drank a few times a month, and 1 in 5 that their friends usually drank one or two drinks or enough to get merry. Around 1 in 7 respondents indicated that their friends drank more than once a week, and a similar proportion said that their friends usually drink enough to get drunk. One in 10 said that their friends did not drink.

Friends' drinking behaviour	n	%
<i>(a) frequency</i>		
do not drink	475	11
every few months; special occasions	958	22
few times a month	1114	26
more than once a week	596	14
don't know	1202	28
<i>(b) usual consumption</i>		
do not drink	425	10
few sips	366	8
one or two drinks	879	20
enough to get merry	824	19
enough to get drunk	649	15
don't know	1202	28

Table 14.1: Sample distribution for perception of friends' drinking behaviour

Structural model - respondent's and friends' drinking

The measured frequency of drinking and usual consumption variables were used as indicators of current alcohol use in a measurement model of respondent's and friends drinking behaviour. The two latent variables were specified to covary freely with each other, enabling the estimation of the correlation between the respondent's drinking and the respondent's perception of how his or her friends drink (Figure 14.1).

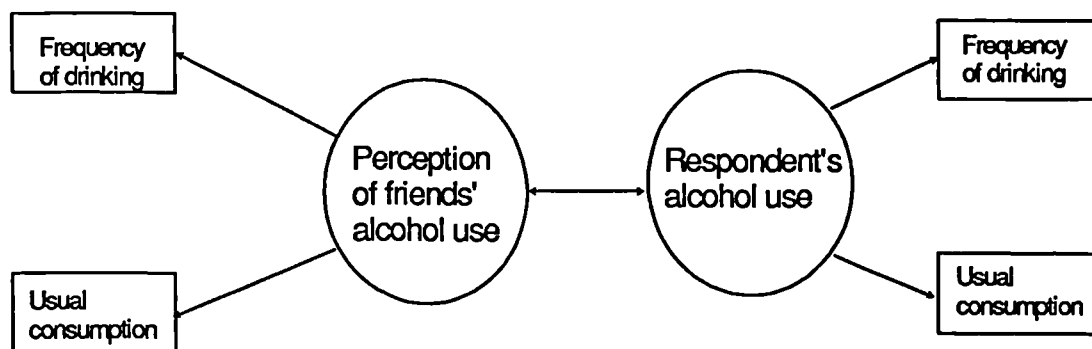


Figure 14.1: Model specification for SEM of respondent's alcohol use and respondent's perception of friends' alcohol use.

Table 14.1 shows the goodness-of-fit statistics for the above model. In this model all respondents who indicated that they did not know about their friends' alcohol use were excluded from the analyses. This left a sample of 2962 respondents. Although the χ^2 was significant, all the other fit indices suggested a good fit of the model to the data. Examination of the residuals (Figure 14.2) also suggests a good fit of the specified model. The path model showing the parameter estimates (Figure 14.3) suggests that the two latent variables - respondent's alcohol use and respondent's perception of friends' alcohol use - were measured well by the frequency and usual consumption variables. The correlation between these two latent variables was estimated to be 0.79. This is a high correlation, suggesting that respondents report their own drinking and their friends' drinking to be similar.

Goodness-of-fit	
Sample size	2962
χ^2	322.03 with 3 d.f., $p < 0.001$
AASR	0.047
NFI	0.992
NNFI	0.984
CFI	0.992

Table 14.2: Goodness-of-fit for own drinking-friends drinking SEM

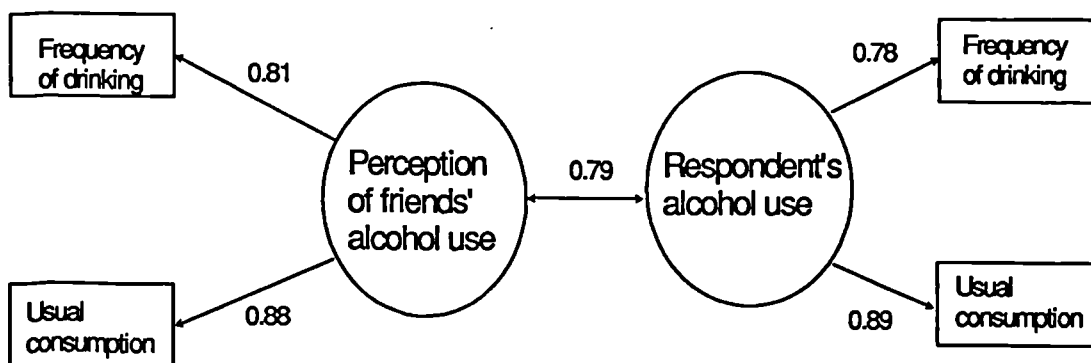
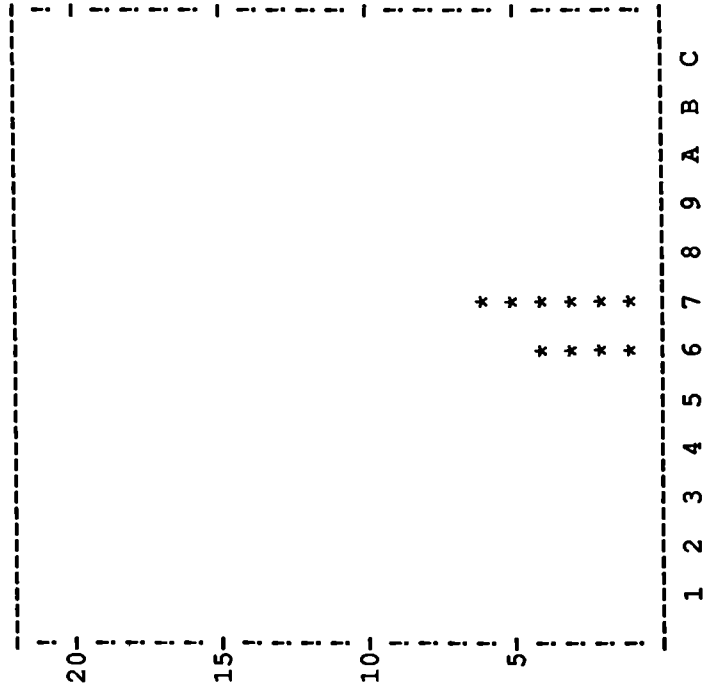


Figure 14.2: Path diagram of SEM: respondent's alcohol use and respondent's perception of friends' alcohol use (all parameters significant at $p < 0.01$)

DISTRIBUTION OF STANDARDIZED RESIDUALS



NOTE : EACH "*" REPRESENTS 1 RESIDUAL(S)

	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	0	.00%
6	0.0 - -0.1	4	40.00%
7	0.1 - 0.0	6	60.00%
8	0.2 - 0.1	0	.00%
9	0.3 - 0.2	0	.00%
A	0.4 - 0.3	0	.00%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL			10 100.00%

Figure 14.3: EQS output showing distribution of residuals for SEM of respondent's alcohol use and respondent's perception of friends' alcohol use

Family socialization and adolescent drinking: knowledge of friends' drinking

In the previous section it was found that for those who did know how their friends drink, there was a high correlation between their own self-reported alcohol use and their perception of their friends' alcohol use. But many respondents did not know how their friends drink. Knowledge of friends' alcohol use is an essential requirement for the influence of drinking behaviours between friends. If an individual does not know how his or her friends drink then it is unlikely that the friends' drinking behaviour will influence the alcohol use of that individual.

Peer influence, in the current analysis, is conceptualized as a moderating variable and operationalized as knowledge of friends' alcohol use behaviours. ('*know*' vs. '*don't know*', coded 0 and 1 respectively) The results presented here describe the structural model of family socialization, knowledge of friends' drinking, and adolescent drinking behaviour.

It was suggested earlier (chapters 2 and 4) that the influence of the family remains important despite increasing peer contact and influence as a teenager gets older. Bloom (1990) said that the increase in peer relationships in adolescence was a period of extra-satellitization rather than re-satellitization. In the present analysis, it was expected that older adolescents would be more likely to know about their friends' drinking behaviours, reflecting increasing peer contact. It was also expected that knowledge of friends' drinking behaviour would predict an individual's own drinking behaviour, reflecting increased peer relationships and socialization, but that the influence of family socialization on adolescent drinking would also remain important.

Current theories of deviance (e.g. Hirschi's Control Theory) suggest that dysfunctional family environment leads to increased identification with deviant peer groups. In the context of the present analysis, this hypothesis suggests that family socialization factors would predict knowledge of friends' drinking behaviour, reflecting increased identification with friends' who use alcohol (although this relies on the questionable assumption that alcohol users are more deviant than non-users).

Table 14.3 shows the goodness-of-fit statistics for the structural model. Although χ^2 is significant, the more robust fit statistics all reflect a good fit of the model. Figure 14.4 shows the distribution of the residuals, suggesting no large or systematic errors in the model. Figure 14.5 shows the path diagram of the SEM, depicting the parameter estimates.

Goodness-of-fit	
Sample size	4021
χ^2	111.33 with 40 d.f., p<0.01
AASR	0.011
NFI	0.986
NNFI	0.985
CFI	0.991

Table 14.3: Goodness-of-fit for SEM of family socialization factors, knowledge of friends' drinking, and adolescent drinking behaviour.

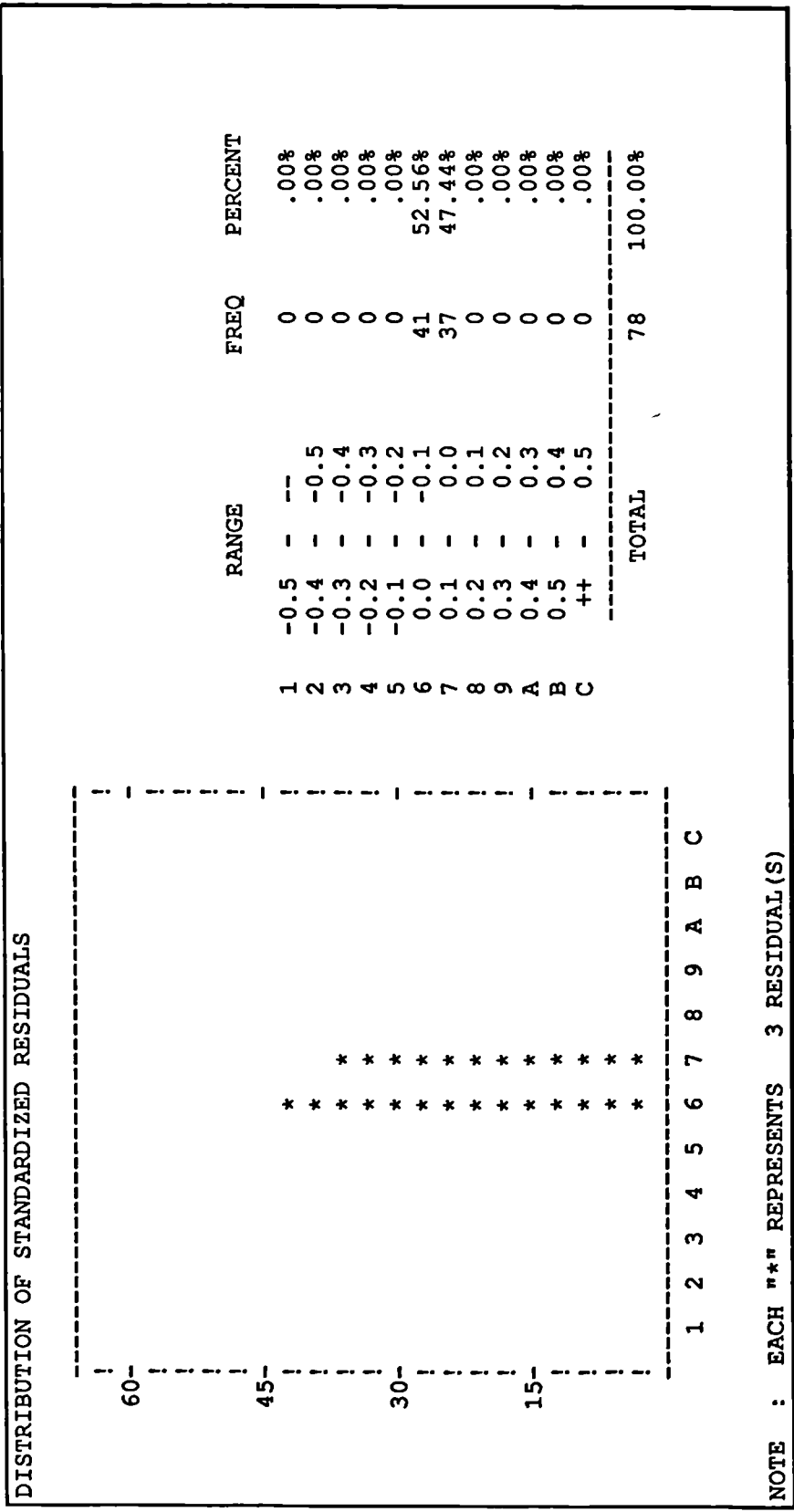


Figure 14.4: EQS output showing distribution of residuals from SEM of family socialization, knowledge of friends' drinking, and adolescent drinking behaviour

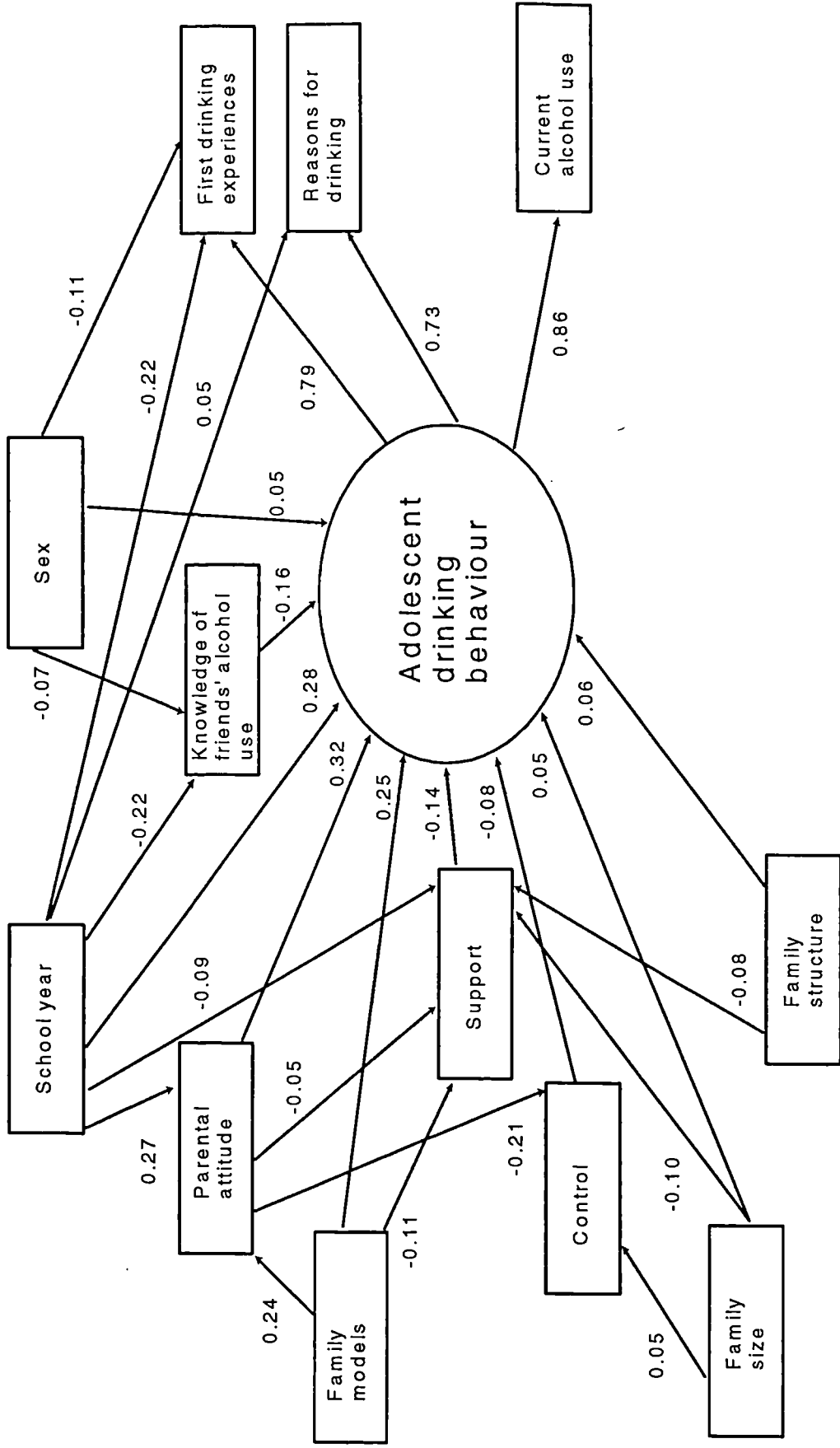


Figure 14.5: Path diagram of SEM of family socialization, knowledge of friends' drinking, and adolescent drinking behaviour (all parameters significant at $p < 0.01$)

Description of the final model

Comparing the parameter estimates from these results with those of the final model in chapter 12 suggests that, as expected, the influence of family socialization variables on adolescent drinking behaviour were not moderated by the inclusion of the knowledge of friends' alcohol use variable. Therefore, in describing this model, only those effects not previously discussed will be presented.

School year

(1) SY → knowledge of friends' alcohol use (-0.22). Older year groups were more likely to report that they knew how their friends drink.

Sex

(1) S → knowledge of friends' alcohol use (-0.07). Females were more likely to report that they knew how their friends drink.

(2) S → drinking behaviour (0.05). Male respondents reported more drinking behaviour.

Knowledge of friends' alcohol use (Kf)

(1) Kf → drinking behaviour (-0.16). Individuals who said they knew how their friends drink reported more drinking behaviour.

Discussion

In this chapter the focus has been on the perceived drinking behaviour of friends and its relationship to perceived family socialization factors and self-reported drinking behaviour. The drinking behaviour of peers is frequently put forward as an important causal influence on the development of an adolescent's drinking behaviours, although this argument was questioned earlier in this thesis. Peer influence is reciprocal, and as such it is difficult to separate out causal effects in cross-sectional studies. The result in the present chapter of a high correlation between friends' drinking and respondent's drinking simply suggests that individuals drink with their friends. Drinking is a social behaviour, so it is perfectly natural for young people to share their early drinking experiences with each other.

Although friends' alcohol use was not specified as a causal effect in the present analyses, it was argued that knowledge of friends' drinking would be an important requirement for peer influence. The results showed that school year was a significant predictor of knowledge of friends' alcohol use, with older year groups more likely to know about their friends' drinking. This reflects the increase in peer contact and relationships in older teenagers. Interestingly, females were more likely to report knowledge of friends' alcohol use than males. This ties in with earlier analyses which showed that young females were more likely to report their first drinking experiences at a friend's house (see chapter 9).

At the beginning of this chapter it was suggested that, according to control theories of deviance, dysfunctional family environments lead to increased association with deviant peer groups. Drawing from this, it was hypothesized that, in the structural model, family socialization factors would predict knowledge of friends' drinking behaviour. This was not found to be the case - family socialization was not significantly related to knowledge of friends' alcohol use. However, regarding knowledge of friends' alcohol use as an indication of identification with deviant peers is, as was pointed out earlier, a questionable assumption.

The results also showed that knowledge of friends drinking was a significant predictor of the respondent's drinking behaviour. Those that knew about their friends' alcohol use reported more drinking behaviour. This reflects the influence of shared drinking experiences on the respondent's own drinking behaviour, and is not the same as peer-pressure. It is perhaps better described as peer exposure, or peer facilitation.

Especially interesting in the results of this structural model is the size of effects relative to each other. Peer facilitation was only a small, albeit significant, predictor, of drinking behaviour, and was smaller than family social learning influences.

In summary, the results of this chapter showed that adolescent drinking behaviour correlates highly with the drinking behaviour of friends, and that knowing how your friends drink predicts more drinking behaviour by the respondent. The relationship between family socialization factors and adolescent drinking were not affected by the inclusion of this peer facilitation variable, suggesting that families remain important in the socialization of drinking behaviour despite peer socialization influence. Of course, these

conclusions need to be confirmed with longitudinal studies, as the cross-sectional analyses carried out here are limited in their scope.

Hypotheses addressed in this chapter

Hypothesis

6(a) The self-reported drinking behaviour of adolescents is closely correlated with their perception of their friends' alcohol use behaviours.

The results in the present chapter clearly show that respondents reported similar drinking behaviour for their friends. This suggests that friends drink like each other, probably sharing their drinking behaviour experiences.

Hypothesis

6(b) Individuals in older year groups are more likely to know how their friends drink.

As expected, older respondents were more likely to say that they knew how their friends were drinking.

Hypothesis

6(c) Adolescents who know how their friends drink are more likely to be drinking with their friends. This group are likely to be drinking more than individuals who do not know how their friends drink.

The results support this hypothesis - respondents who had the additional socialization influence of friends reported more drinking behaviour.

Hypothesis

6(d) Family socialization factors remain important predictors of drinking behaviour despite increased peer socialization influences.

The relationship of the family socialization variables to adolescent drinking behaviour were not moderated by the inclusion of the peer socialization variable in the SEM, supporting this hypothesis.

Chapter 15: Semi-structured interviews

In addition to the main part of the study, the large questionnaire survey, in-depth interviews were carried out with teenagers who volunteered to talk about their perceived family life and also their own drinking behaviour (Foxcroft and Lowe 1992c). Individuals were contacted through various sources, such as local youth clubs and training colleges. The interview schedule (see Appendix 8) was followed closely, and the sessions were either tape-recorded or written up from notes if the participant objected to the tape recorder.

Following the interview with each teenager, the interview transcripts and notes were written up as individual case studies. Each case study report was subsequently examined and confirmed as a true account by the interviewee, increasing the validity of the study. The protocol for the interviews (see Appendix 9) specified the design of the case study (Yin 1989), and involved five components:

- (1) *The research question:* How does family life influence the development of adolescent drinking behaviour?
- (2) *Propositions:* From family socialization theory, incorporating family process and familial social learning behaviours.
- (3) *Units of analysis:* Q. What is the case? A. The perception of family life and of family's and own drinking behaviour by an adolescent.

(4) *Linking data to propositions*: Use of 'pattern matching' (Campbell 1975).

Several pieces of information from the same case are related to the theoretical proposition.

(5) *Interpreting the findings*: How good a 'match' is the case study?

In this chapter two example case studies are reported on in detail - one from a teenager who was a heavy drinker, and one from a teenager who reported drinking sensibly. These case study reports, or histories (*italicized*), are interspersed with comments (normal text). Of course, the names of these two individuals have been changed to preserve their anonymity.

Tony

Tony is an 18-year-old apprentice joiner. He stated that he recently went through a period when he was drinking a litre bottle of vodka every day.

When he was five years old Tony's parents split up. Tony stayed with his mother, and even though his father lived in the same town, he lost all contact with him. In fact Tony's mother prohibited him from seeing his father. She told him stories about how she had been beaten up by his father. Tony knew that at least one of these stories was a lie, because he had been there at the time his mother said the incident had occurred.

There was considerable animosity from Tony's mother to his father when they separated. Tony's feelings and loyalties were clearly confused. He lived

with his mother, as his father had moved out and left them, and his mother was telling lies in order to paint a bad picture of his father. Tony was conscious and sensitive to the possibility that his mother's stories were untrue, and that his father was probably not the "ogre" he was made out to be.

For the next 10 years Tony lived with his mother. He had two older sisters. One sister never lived with them, and the other "left home as soon as she could". Tony's mother never married again. In fact she never went out, and never dated anyone else. Tony's mother was very strict. She didn't like him to go out with his friends, she preferred him to stay at home with her, and when he objected he was frequently sent to his room. Tony says that his mother really worried about him all the time. When he was in the third year of secondary school (age 13-14) she would still meet him from school. Tony found this quite humiliating, and was teased by his school friends. Tony says that his mother wouldn't let him have a life of his own. He wasn't allowed to get a job, and she didn't let him have an allowance.

That Tony's sister was described as leaving home as soon as she could suggests that she was not happy at home. Tony describes his mother as being very over-protective and strict, and it seems that she withdrew from the outside world into the relative security and stability of her own family - herself and her son. That both her husband and her daughter had left her perhaps made her fear that Tony would do the same, and that was why she was over-protective and controlling. The fact that Tony was not allowed to have a life of his own

made Tony feel that he was not getting the sort of support and independence he wanted from his mother.

At the age of 14-15 Tony started rebelling. He stayed out all night, at friends', without telling his mother. When he did go home he was punished severely and grounded. When Tony was introduced to cigarettes, by the following week he was smoking twenty a day. He said it was to relieve the pressure. Tony was occasionally drinking a few cans of beer. His mother didn't let him drink, she was scared in case he got caught for under-age drinking. His mother drank little and rarely - only on special occasions. By this time Tony had got a part-time job. He said his mother had eased off a bit by now because he was physically bigger than her. However they were still constantly arguing. After one argument Tony told his mum that he was leaving, that he was going to live with his dad. His mother "went wild", and threw him out.

As Tony approached his mid-teenage years he clearly began to feel hemmed in and controlled by his mother. He began to assert his independence from her when he started to disobey her. This transitional period was obviously one of great conflict - with his mother trying to slow down or prevent Tony's individuation by being controlling, and Tony feeling very stressed at his mother's inadequate support and excessively controlling approach. This came to a head and Tony left home to find his father.

His father, even though there had been no contact for ten years, was happy to see him. It turned out that he had tried to contact Tony,

but that Tony's mother had blocked all his efforts. Tony's father gave him a large allowance, and alcohol was freely available in the house. His father was a "big drinker", sometimes drinking "13 pints and then driving home". However Tony didn't feel any real pressure to drink, and at this time only drank moderately and socially. His father found Tony a job at the factory in which he was the manager. But Tony found it difficult arriving with the boss every day, being "the boss's son". The other workers gave Tony a hard time, so he moved back with his mother. Tony then started to go out socially with his workmates. He joined a darts team, and by this time was drinking 2 to 3 pints most nights.

Initially Tony seemed to settle in well at his father's. He might have been indulged because of the long separation between them. Tony was found a job in his father's factory, but this set up another area of conflict - he was the boss's son - and there was antagonism between his peer role and his family role during this period. To try and resolve this antagonism Tony went back to live with his mother. This resolved the antagonism by placating his peers, and he became one of their group. However, this may have distanced him from his father. Tony also described his father as a big drinker, which provided a model of excessively heavy alcohol use. That alcohol was freely available suggests that Tony's father had an approving, perhaps indifferent, attitude towards Tony's drinking.

At home Tony's mother was still trying to control him - she would take 70% of his wages for rent, and she was "always telling [him] how to behave". Tony said that he took no notice of her.

Tony decided to pack in working at his dad's factory. He said he wasn't big enough to manage the heavy manual work, and he was fed up with the early mornings. A week later, after a party in which Tony had drunk a lot of vodka (he'd never really had any spirits before), he stole a car. Tony was caught and arrested. He was bailed over providing he stayed at his mum's house. However, after another big row, his mother kicked him out. Tony had to move to a bail hostel in another town, organized by the probation service. He said his mother hated the 'stigma' of having a 'criminal' for a son. Tony lost all contact with his mother and father after he moved to the bail hostel.

Conflict still existed between Tony and his mother - it was still not a healthy supportive environment. However, although Tony's mother was still attempting strict control, this for the most part was ineffective. A week after Tony had left his father's factory he got into trouble. Many teenagers at some time or other get drunk and some even get into trouble with the law. However, what is important in Tony's case, is the lack of support and lack of direction he received from his mother and his father during this crisis period. It seemed that both Tony's parents did not want anything to do with him - he overtly states this about his mother and it is suggested covertly by the lack of contact with his father.

In the bail hostel Tony and the other residents started drinking heavily. Gradually, as the other residents were tried and sent to prison, Tony became more and more isolated and worried. His drinking increased until he was having a litre bottle of vodka every

day. Tony said that he was just becoming a wreck, that if he didn't have a drink inside him he would just lie on his bed and cry. There was nobody he could talk to, to confide in. This carried on for a couple of months (Tony was in the bail hostel for 6 months in all). When Tony finally got to court he was sentenced to 2 months imprisonment. While in prison he had no visitors at all, even though he wrote to his mother. On release the first thing that Tony did was buy a bottle of vodka. He went back to his mother, who initially welcomed him back with open arms. However, she couldn't talk about Tony's time in prison, and he was made to feel like an outcast. After three days of arguing, Tony's mother kicked him out again, and he came back to the town where he had stayed at the bail hostel. The first night he bought a litre bottle of vodka and slept rough in the park. Then he booked into a cheap hotel.

Tony's isolation from his parents and subsequent involvement with a deviant peer group probably contributed considerably to Tony's drinking problem. There was a clear lack of support from his mother, the person who brought him up, and also from his father, who had initially made him so welcome after all those years. Because of the nature of this relationship (or lack of it) with his parents Tony was not in a position to be influenced by their control attempts. We have already seen that previously his relationship with his mother resulted in ineffective control, and his father, when he played a part in Tony's life, was probably indulgent. The lack of family contact while Tony was in prison probably emphasized his feelings of being an outcast. This was not helped on Tony's return to his mother's after he completed his jail term.

By now Tony was 17, and he came into contact with a worker from a local youth organization. This worker was very supportive, encouraged Tony to lay off the vodka, and found him a job and a place to live.

Tony is now 18, and has stopped drinking the vodka. He still has a full bottle in his room, from an occasion when he nearly relapsed. With the help of the youth worker Tony realized it wasn't worth it. He realized that if he drank the vodka he would pass out - only to wake up in 12 hours and nothing would have changed. Tony has re-established contact with his father. However, he doesn't want to see his mother again. He resents her for not supporting him, and blames her for getting in the way of him and his father. He feels that if his father had been there to help, then he would never have ended up at the bail hostel, or in prison, and would never have started drinking so heavily.

The supportive youth worker helped Tony regain some organization and structure in his life. The youth worker took on the role that Tony's parents should have done. Although not in a position to exercise control in the way a parent could, the youth worker performed a skilful job in negotiating the parameters of Tony's drinking behaviour. The role of Tony's family in the development of his drinking behaviour is emphasized by Tony himself. He seems to be saying that if, during his teenage years, his mother and his father had provided better support and guidance, then he would not have got to the stage where he was drinking a litre bottle of vodka every day.

Darren

To contrast with Tony's history, we describe below the development of Darren's drinking behaviour - which could be regarded as 'sensible'.

Darren is a 17-year-old apprentice welder. He was adopted at 6 months of age and lives at home with his adoptive parents, younger sister (also adopted), and younger brother. Darren speaks warmly of his family, and expresses no desire to find his 'natural' parents. Darren's father is a crane driver, and his mother has had various part-time shop assistant jobs. They met when they were both in the army, but were both back in civvy street when Darren came along. Darren's father has never been out of work, and his mother stayed at home to look after the children. Darren's mum and dad get on well, and there have never been any major family upsets - not to Darren's knowledge anyway. Darren's mother is quite religious - she goes to church regularly. No-one else in the family is religious though, and there is no pressure to conform to any religious viewpoint.

Right from the outset we can see that Darren described his family in a positive way. He speaks warmly of his family, his parents get on well, and there is no pressure to conform to his mother's religiosity. This immediately suggests a family environment with good levels of support and control.

Darren was never in any serious trouble at school, he never played truant. When asked why not, he replied that he didn't want to be

caught and punished. He didn't feel that any punishment would be excessive, he just didn't want to be in the position where he had done something wrong and have to be punished at all. He describes a couple of instances when he was naughty - at age 10 he was caught swearing, and also disobeyed his father on another occasion. At times like this the usual form of punishment was to be grounded for a couple of nights or to have his pocket money stopped.

In the above paragraph it is clear that Darren has a healthy set of internalized norms for behaviour. In their extensive review of the parent-child socialization literature Maccoby and Martin (1983) reported on the importance of good levels of support and moderate levels of control (not too lax or too strict) for the process of internalization of norms. When Darren did break the rules he was suitably punished, indicating that his parents operated control mechanisms, but this control was not excessive. That Darren's parents were optimally supportive and moderately controlling is therefore an important factor in Darren's normative behaviour.

Darren feels closest to his mother, but is also reasonably close to his father. He feels however that he couldn't give his father a cuddle, as it isn't the "done" thing. Darren is quite happy with his family situation, and wants to carry on living at home for the time being. He has one or two minor grumbles - he has to share a room with his brother - but the loft is being converted so he will soon have a room of his own. Also Darren sometimes wears his hair in a pony tail, and his dad thinks this is scruffy. When his father first saw it, he went

out and had a short hair cut - to show Darren what a "proper haircut" looked like!

Again, the impression of warmth is conveyed in the above description. Darren recognizes that his father would feel uncomfortable if he tried to cuddle him, but seems to realise that it is not because his father does not love him, but is because of the nature of the masculine role in society - especially his father's generation. The fact that Darren's father had a "proper haircut" in response to Darren's pony-tail suggests that his father disapproves of the pony-tail, registering his disapproval in a quite humorous good-natured way, but would not insist that his son should immediately change his hairstyle. This suggests a responsive democratic family environment.

Darren had planned to go into the army, but then decided against it. Looking back, Darren says that when he left the army cadets he thinks his father was disappointed, but didn't say so. His dad was outwardly supportive and respected his decision.

When Darren was younger [age 15] his parents used to set a deadline for Darren to be in at night. This was quite early compared to Darren's friends, and they teased him about this. Darren was unhappy about this, so he decided to sit down and have a talk with his father about it. He asked his mum to put a good word in first, and then approached his dad. This discussion was quite sensible and fruitful - they agreed on a more flexible deadline. Darren says that his father then started to "loosen out", and Darren became more and more independent - he got his own set of keys.

When Darren felt restricted by parental control he felt able to sit down and negotiate the control parameters with his parents. His father seems to be the authority in the family, but he is authoritative rather than authoritarian. That the family were able to achieve a successful compromise is an important factor in the maintenance of the warm regard Darren has for his family. Bearing in mind the optimally supportive and moderately controlling family environment described above, the development of Darren's drinking behaviour is outlined below.

Darren's parents have "never been big drinkers". His father would have one or two cans of beer a couple of nights a week. There was always beer in the fridge. In the past couple of years Darren's parents have started to enjoy the occasional bottle of wine. Darren was introduced to alcohol by his parents. At the age of 9 or 10 he was given an occasional glass of wine on special occasions. When out for Sunday walks with the family they would often stop at a pub, and Darren would have a glass of shandy. At 12 years old Darren shared a can of beer when out with his father at a friend's house. At 14 or 15 he occasionally shared a bottle of cider with friends on the street. Darren first got drunk one New Year just before he left school. He was in Scotland with his family visiting relatives, and says that he was so drunk he slept all through the next day, and missed the party the following evening!

Darren's first interactions with alcohol took place with his family. He was gradually introduced to alcohol, from quite an early age, but his parents were

sensible drinkers and were sensible in the amount of alcohol Darren was given. Although Darren was allowed to get quite drunk one time, this also was with his family, and in the context of a celebration.

Darren first went into a pub without his family when he was 16. It was at Christmas, and he went at lunchtime with some friends from college. He had two pints. He didn't drink again for a while, until his parents moved house, and there were lots of kids his age living nearby. They frequently went out on Monday nights, and Darren would have 3 or 4 pints. Darren has recently started going to clubs to watch bands play - he goes perhaps a couple of times a week - and has a couple of pints each time. He tries not to get drunk - "When you're drunk you're prone to be a troublemaker - shoot your mouth off". Darren says that he never goes into a pub just to have a drink, although several of his friends drink a lot more than he does.

Darren does now drink regularly. His drinking is sensible, i.e. not more than two pints (four units) on not more than four occasions per week, and he feels no need or pressure to drink more, despite the fact that some of his peer group are heavier drinkers than he is.

Conclusions from the case studies

Family process

Tony's mother was clearly not supportive, and her control attempts were strict and latterly unsuccessful. The difference between control attempted and control achieved may help explain why some studies find a curvilinear relationship between control and drinking, and others a linear relationship. Strict control attempted but lax control achieved could be linked with heavier drinking. In both linear and curvilinear relationships lax control is associated with heavier drinking. If a study measures control attempts rather than control achieved then a curvilinear relationship may be found. Barnes *et al* (1986) used questions which seemed to assess control attempts rather than control achieved, and did find such a curvilinear relationship. This point needs to be borne in mind in future research.

Tony's father had no input for most of Tony's childhood, and when he most probably should, and could, have been there to provide support and direction, he was not. By contrast, both of Darren's parents provided good levels of support. His mother was less strict than his father, who was the power base in the family. His father, however, was flexible in his control and important issues seem to have been negotiable.

Family social learning

Through social learning influences, parents are models and reinforcers of their children's behaviour. Tony's mother was an infrequent light drinker - perhaps a glass of sherry at Christmas. She did not let Tony drink at all. His father, though, was a heavy drinker, and he let Tony drink what he wanted to. Darren's mother and father were both sensible drinkers. They initiated Darren into alcohol use in a gradual and sensible way.

To Tony, his parents comprised two extremes of drinking behaviour and attitude - infrequent/intolerant and heavy/tolerant - and neither are good models/attitudes for the development of sensible drinking behaviour. Darren's parents, on the other hand, were both sensible drinkers, and they provided good models and a moderating attitude towards the development of Darren's sensible drinking behaviour.

In summary, these two contrasting case studies support the findings from the meta-analyses and results reported on earlier. For Tony, poor perceived parental support, poor perceived parental guidance, a heavier drinking father, and an apparently indifferent paternal attitude to his drinking were dysfunctional socialization factors in the development of Tony's drinking behaviour. Furthermore, the inconsistency between the extreme parenting style of his mother on the one hand, and the indulgent but mostly absent paternal input on the other, may also have been a contributory factor in the development of Tony's heavy drinking. In Tony's case, dysfunctional family dynamics seemed to be an initial key factor in his deviant behaviour: when he needed parental support and guidance it was lacking, inappropriate parental drinking

models and inappropriate social reinforcement for drinking suggested the development of a similarly inappropriate alcohol use schema, and Tony subsequently became involved with a heavy drinking peer group

This picture contrasts with the family socialization of Darren's more sensible pattern of alcohol use. Darren perceived his family in terms of consistent socialization behaviours. He saw his family as optimal in terms of support and control - neither too low or too high - and he also reported sensible parental drinking and a moderating parental attitude to his own drinking.

These case studies, although rich in data and meaning, may not be representative of young people as a whole. Also, these example case studies have not thrown any light on the family dynamics of young non-drinkers. It was suggested earlier that non-drinkers also have extreme family socialization behaviours, given that non-drinking is a 'deviant' adolescent social behaviour.

In the following final chapters of this thesis the results from the main study are discussed in more detail, along with the conclusions from the case studies presented in this chapter.

Chapter 16: Summary and overview of the results

This chapter attempts to bring together the results from the previous chapters into a coherent integration, overview and summary. In so doing, strengths and limitations of the data are noted, and the relationship of these results to other recent empirical and conceptual work is discussed.

The chapter begins with a discussion of the adolescent drinking behaviour variables examined in this study. This is followed by comments on the structural and demographic variables and a discussion of the family socialization variables. This leads to a further discussion about the relationship of the results to the theoretical model specified in this thesis. Limitations of the current results are also pointed up.

The present results are also brought to bear on a current debate about the linear/curvilinear nature of the relationship between family process and drinking behaviours. This leads to a discussion of the links between the present concepts and the notion of social support as put forward by Lazarus and Folkman (1984). Future research directions are outlined in terms of the micro-family-environment as opposed to the macro-family-environment, and social exchange theory is proposed as potentially useful in this respect.

Adolescent drinking behaviour

First drinking experiences

The questionnaire asked respondents about their age of first drink, place of first drink, and age of first drunkenness. The two "age of first..." variables were subsequently combined into a composite 'age of first drinking experiences' variable. This variable was used as one indicator, or measure, of a latent drinking behaviour variable. It had a high loading on the latent variable in all the structural models examined in this thesis.

Whilst the composite age of first drinking experiences variable measured the latent drinking behaviour variable, it was also predicted by the school year and sex of the respondent. This suggested that, as expected, older respondents indicated later age of first drinking experiences, irrespective of the latent drinking behaviour scores. Moreover, males reported younger first drinking experiences than females. Both these results are in line with previous research.

The results also showed that self-reported earlier first drinking experiences was linked to more reasons for drinking and more current alcohol use. However, as was mentioned in chapter 2, there is a problem in separating out cause and effect. One problem with many studies which link earlier drinking with heavier later drinking is that they rely on retrospective recall, thus confusing cause and effect. It may be that heavier drinkers bias their reports of first drinking experiences due to a cognitive consistency effect (Davies 1992).

Reasons for drinking

As with the age of first drinking experiences variable, the number of reasons for drinking each individual indicated was used as a measure of the underlying latent drinking behaviour variable. It too had high loadings on the latent variable in all the structural models presented earlier.

The reasons an individual gives for drinking alcohol were described as a "common-sense" explanation of causation. Whether or not reasons are viewed as offering a complete explanation of causality is beyond the scope of this thesis (see Hewstone 1989, chapter 3, for further discussion). Suffice to say that actions which an individual carries out voluntarily, such as drinking alcohol, can be explained by that individual in terms of his or her reasons. There are, however, other possible influences, perhaps situational or sub-conscious, which may contribute to causal explanations. For example, family environment has been found to be an important factor in the internalization of norms (Maccoby and Martin 1983), and normative behaviour can be considered important in explanations of causality. It is important therefore to be aware of such influences, as well as "common-sense" reasons. As Hewstone states:

"we may make more sense of people's explanations, especially when given in social contexts, if we distinguish reasons from other internal causes, and acknowledge that, as accounts, common-sense explanations often serve to excuse and justify, and not merely to explain." (1990, pp37-38)

The use of the number of reasons variable was based on the results of the second pilot study, in which the number of reasons for drinking were

significantly related to self-reported drinking behaviour, and heavier drinkers reported more reasons for drinking. The number of reasons for drinking, it was argued, were indications of an underlying schema for alcohol. In the main study the number of reasons for drinking were significantly correlated not only with current alcohol use but also with first drinking experiences, supporting the pilot study results. In line with Davies's (1992) comments on the cognitive consistency effect, this suggested that, in the present study, first drinking experiences, reasons for drinking and current alcohol use represented an underlying schema for drinking behaviour.

Although reasons for alcohol use are described above as offering insight into the aetiology of teenage drinking, reported reasons for alcohol use may also be post-hoc rationalizations for drinking behaviour. Yet such rationalizations may become genuine reasons for further use, in the form of a self-fulfilling prophecy. If this is so then it serves to complicate research into the aetiology of alcohol use in young people. Furthermore, can young people report accurately on their mental processes? If they can, can they know that the causes of their behaviour are what they say they are? We need to learn more about the psychological and social processes through which people learn about causes and adopt cultural explanations for behaviour. *Socialized processing* refers to the fact that much of our knowledge about causes is learned through language based communications (Wells 1981). Hewstone (1989, p.210) calls for such *socialized processing* to be more thoroughly investigated in the future. One such explanation for alcohol use in young people, as put forward by academics and educationalists, is the "peer-pressure hypothesis". This theory has enjoyed considerable popularity, but has recently been called into question by Eiser *et al* (1991) and May (1991a,b). The use of the peer-pressure hypothesis may be an example of socialized processing, not necessarily by young people who tend not

to invoke peer-pressure as reasons for drinking, but by academics and educationalists who do describe peer-pressure as a powerful aetiological factor in young people's drinking behaviour.

Current alcohol use

The composite measure of current alcohol use combined the variables frequency of drinking, usual consumption, and last seven days drinking. This composite measure was the dependent variable in the ANOVA of chapter 10, in which each of the family socialization factors was collapsed into three groups to examine the pattern of effect on drinking behaviour. The results of the ANOVA showed that the relationships were mainly linear, with low support, low control, more frequent family drinking and indifferent parental attitude all linked to more current alcohol use. Furthermore, and possibly due to the low numbers of respondents reporting inconsistent family socialization behaviours, the effects were also independent and additive.

The ANOVA results, together with the analysis of residuals carried out in the same chapter, paved the way for the use of a 'theory stronger' analytical tool - structural equation models - in subsequent chapters. The composite current alcohol use variable was a measurement variable in the structural models detailed in these chapters. It loaded highly on the underlying latent drinking behaviour variable (together with first drinking experiences and number of reasons for drinking).

Composite measures

The advantage of using the composite measures of drinking behaviour described in the sections above was threefold. First, combining lower order variables into higher order variables brings not only the overlapping variance but also the unique variance from each contributory variable. Secondly, the resultant composite scores had parametric properties, desirable for subsequent statistical analysis. Thirdly, reducing the number of variables to a useful level facilitates the use and interpretation of more complex multivariate statistics. One disadvantage of using composite measures is the lack of familiarity and problem with translation back into policy recommendations. However, in the present academic thesis, it was felt that the advantages outweighed the disadvantages.

At the current time there is a lack of suitable measures of alcohol use, leading to a range of different techniques used by different researchers. An increasingly common measure, in the U.K., is the number of units consumed, but the distribution of this variable is typically highly skewed and, moreover, the recommended sensible drinking limits apply to adult drinkers, not young teenagers. Although guilty of 'adding to the pot' of different techniques, it was felt that the measures used in this study provided useful information in the present context.

In the structural models the three measurement variables of the latent drinking behaviour variable were all good indicators of this underlying factor. In turn, the latent variable was a useful dependent variable in that it was significantly predicted by a range of socialization variables in the structural models, and it was suggested that this factor represented an individual's schema for alcohol use. Because self-reports were used in this study, the way an individual reports his or her drinking behaviour reflects not only the actual

behaviour, but also their attributions and perceptions of such behaviour. Thus, the schema for drinking represents an individual's own attributions and perceptions, including any response bias to the questionnaire, and incorporating the cognitive consistency effect mentioned earlier. This self-perception is important if alcohol policy and alcohol education regards individuals as agents of their own actions and responsible for their own behaviour. Such policy and education strategies would therefore need to be more individually and cognitively focussed.

Although in the present study several different measures of drinking behaviour were taken, practical constraints meant that other interesting alcohol-related behaviours were not examined. Notwithstanding school and subject consent, it might be useful in future studies to look at problems associated with alcohol use, such as episodes of drunkenness, crime and violence, blackouts, and unprotected sex.

Demographic and structural factors

Age differences

As expected, school year was an important predictor of drinking behaviour, with older year groups drinking more than younger year groups. School year was also linked with parental attitude to their offspring's drinking, with older year groups more likely to report less restrictive parental attitudes. In chapter 6 it was argued that school year was a more important indicator of maturity and age-related status than the actual age of the respondent and, in this study, the

use of the school year of the respondent was found to be a useful measure in relation to adolescent drinking.

Alcohol use by teenagers who have left school also seems to be more a function of status than age. The second pilot study involved 430 young people aged 16-19 in Youth Training in Humberside, and the reported alcohol use of 16-17-year-olds was closer to the 18-19-year-olds than to 16-17-year-olds still at school (school years 12 and 13). Male 16-17-year-olds reported drinking on average 21.4 units of alcohol in the previous week, and male 18-19-year-olds reported drinking on average 27.8 units of alcohol in the previous week. The equivalent levels for females were 8.4 and 8.9 units respectively. Goddard and Ikin (1988), in their national sample survey, found that for male 16-17-year-olds the average previous week's consumption (using a similar retrospective diary technique) was 6.5 units. The equivalent figure for females was 4.6 units. In the 18-24 age group males reported drinking on average 21.4 units and females 8 units in the previous week.

The Youth Trainees, with the exception of older females, clearly reported a much higher average consumption than Goddard and Ikin's national sample. Although this is in line with the overall heavier drinking in the Yorkshire and Humberside region, comparisons with national sample studies should be viewed cautiously because of different methods. Although a 7-day retrospective diary technique was used in both these studies, the participants and context varied. Firstly, in Goddard and Ikin's study, questionnaires were administered to teenagers still at school and also to teenagers who had left school. However, in another national sample study, Marsh *et al* (1986) broke down their weekly drinkers into those still at school and those who had left school. Those who had left school were more likely to be weekly drinkers than those still at school. Secondly, the national sample participants were 'interviewed' in their own

home, and parents may have been present, perhaps introducing a bias into the way questions were answered. Such contextual biases have been shown to have an important effect on the actual answers respondents give (Davies & Baker 1987).

It was also argued in chapter 6 that pubertal status might be important in the development of adolescent drinking, but that age-linked social and cultural norms would be more influential. This is supported by the finding that males on the whole report earlier first drinking experiences than females, despite reaching puberty later than females (Coleman & Hendry 1991). However, the advanced pubertal status of females may indicate why, in the present results and also in other research (e.g. Sharp 1992), females in years 9 and 10 drink, on the whole, similar amounts to males. This contrasts with more alcohol use by males in younger age groups (possibly reflecting earlier first drinking experiences) and older age groups (possibly reflecting male pubertal maturity and increased social and cultural influence in terms of normative alcohol use).

Sex

The section above has already described some similarities and differences between male and female drinkers and, in interpreting the current results, it must be remembered that the 7-day diary measure controlled for sex differences in absolute levels of alcohol consumed (by classifying alcohol use according to the guidelines for males and females). In effect, this meant that subsequent comparisons between male and female drinkers controlled for differential alcohol toxicity. In these comparisons the main differences found between male and female drinkers was that males reported earlier first drinking experiences than females. In the structural model in chapter 12 there was no effect of sex on

the latent drinking behaviour variable, although in chapter 14 this effect was included in the structural model as it reached the 0.05 cut-off point.

Nevertheless, the effect was quite small.

If adult drinking patterns are anything to go by, then clear sex differences should have been predicted in adolescent drinking patterns. But two considerations modified this expectation: first, sex differences in adult alcohol use are not as marked as they once were (see chapter 2; Wechsler & McFadden 1976; Hanson 1977); and secondly, younger adolescent patterns of alcohol use are not as marked by sex differences as older adolescent and adult patterns of alcohol use (Marsh *et al* 1986).

Wilsnack and Wilsnack (1978) reviewed recent trends in male and female drinking and pointed to the reduction in differential alcohol use between the sexes, saying that this was associated with an increase in the drinking behaviour of women rather than a decrease by men. According to Wilsnack and Wilsnack (1979) this change in alcohol use by women is a function of the change in sex roles in recent times, and sex roles influence how young people drink in a variety of ways:

- by creating different opportunities for male and female teenagers to drink
- by affirming norms that obligate male and female teenagers to behave differently towards alcohol
- by arousing different needs and motives for using alcohol
- by making drinking behaviour a way to symbolize the sex roles that male and female teenagers try to adopt

By rejecting traditional models of femininity, women nowadays are much more likely to adopt sex role behaviour which has traditionally been regarded

as male behaviour. In terms of teenage alcohol use, there are now equal opportunities for male and female teenagers to drink. Indeed, it is probable that females have more opportunities to drink outside of parental influence because of their earlier pubertal development and ability to look older than they actually are, enabling them to 'cheat' the drinking age laws earlier than similar aged males. Also, because females reach puberty earlier than males, differential alcohol toxicity between males and females due to physiological differences may be less marked. Wechsler and McFadden (1976) described sex differences in alcohol use as a disappearing phenomenon when they found few consistent sex differences in patterns of alcohol use in a study of teenage drinking in two communities in the United States. The differences which were found were largely confined to beer drinking by students aged 12-13 (males were more likely to be beer drinkers). Also, in the 14-17 age group, females drank more wine and spirits than males (but no sex differences in beer drinking were found). In a more recent study with over 1500 11-16-year-old school pupils in Humberside, U.K., Sharp (1992) found that sex of respondent was not a significant predictor of alcohol use in a multiple regression which also included school year, age of first drinking experiences, drinking behaviour of significant others, reasons for drinking, and expectancies about the effects of drinking.

However, although sex differences in alcohol use may be narrowing, as was indicated in chapter 2, the bulk of the research evidence still points to some sex differences in absolute levels of teenage drinking. There are several possible reasons for this. Sex roles still differ quite markedly in some respects and heavier drinking norms, especially in older teenage groups, are predominantly male characteristics. There is a sense of bravado and machismo about going out and getting drunk with a group of friends, and this is a frequent behaviour for young males in the U.K.. Attitudes towards female drinking are quite different.

From quite a young age, drunken females are viewed more negatively than drunken males. Jahoda and Crammond (1972) reported in their study of 6-10-year-olds that both boys and girls had a more negative attitude to women drinkers, and this finding has been replicated more recently by Fossey (1993).

The fact that males are able to tolerate more alcohol than females may also contribute to the maintenance of sex differences in alcohol use. Indeed it is probable that sex differences in alcohol use will not decrease beyond the limits of differential alcohol toxicity. Thus it is not the absolute level of alcohol consumption we should consider when comparing male and female drinking, but the level of consumption adjusted for differential alcohol toxicity. In the present study a measure of teenage alcohol use was used which attempted to adjust for sex differences in sensible and heavy drinking by drawing on recommended sensible drinking limits for males and females put forward by the Royal College of Physicians (1987).

One possible consequence of this 'ceiling effect' for female alcohol use relative to male use, brought about by sex role and physiological differences, is that females may feel discriminated against in their alcohol use. An interesting thought is that females may turn to other, less discriminated substances, as a reaction to the discrimination they face with alcohol. This may be one reason why young females are more likely to be smokers than young males - a trend which seems to be growing (Lader & Matheson 1991; Smyth & Browne 1992). Females who are heavier drinkers are stereotypically portrayed negatively, whereas males who are heavier drinkers may be stereotypically portrayed positively. Thus, for females, cigarettes may offer an alternative substance which is not restricted socially or physically in the same way that alcohol is. Smoking by younger females could be an important, although potentially harmful, 'equal opportunity' substance use strategy.

Summary

In this study it was expected that teenagers in older year groups would be heavier drinkers. Also, given the recent decrease in sex differences in drinking behaviour, and that a measure of alcohol use was used which adjusted for differential alcohol toxicity between males and females, it was expected that within each school year group any sex differences would be relatively small. The results presented in this thesis supported both these predictions.

Family structure

The results of the meta-analysis (chapter 3) suggested that adolescents from non-nuclear families (where at least one natural parent was absent) were heavier drinkers, although the number of studies examined was very small. Family structure was a significant predictor in the whole sample structural model (chapter 12), but was only included as a significant predictor of drinking behaviour in some of the smaller sample structural models for each sex/school year group. Family structure was significant for year 11 males, with those individuals from nuclear families reporting more drinking behaviour. This is a curious finding, in that it goes against the conventional reasoning that "kids from broken homes" are more likely to engage in deviant behaviours. Females in school years 9 and 10 from non-nuclear families were likely to report more drinking behaviour than those from nuclear families, although not in year 11. One limitation of these results is that no information was obtained about the type or manner of parental breakup.

One final point - it was interesting to note that family structure was, on the whole, not linked to perceived family socialization behaviours, although this may be a reflection of perceptual rather than actual observation. It may be the

case that individuals from non-nuclear families are constrained more (or less) rigorously by family rules and guidelines about, for example, time to come in at night, or about going out alone. However such *actual* differences may not become apparent when measuring perceived levels of support and control if these individuals regard such constraints as normal. In fact the same point could be also made about differences between males and females in family socialization behaviours - actual differences may not become apparent when measuring perceived levels of support and control if females regard such constraints as normal.

Family size

Family size was a significant predictor of drinking behaviour for younger males and for females in year 8. For these groups, more drinking behaviour was linked to bigger families. These individuals probably have more older siblings, and it could be that individuals from larger families begin drinking more, or earlier, because of increased socialization from older siblings. In chapter 9 the modelling influence of an older sibling was highly significantly related to the respondent's own alcohol use. If there were several older siblings then this effect may be magnified.

Barnes (1990) suggested that as the number of siblings increases, the family becomes more complex in terms of role relationships and may experience increasing levels of frustration:

"Thus, as sibling numbers increase, parents may exert more coercive control attempts and less supportive behaviours toward the child, resulting in more adolescent problem behaviours." (p.145)

The present results provide some support for Barnes's contention. In years 8, 9 and 11 for males and year 10 for females, family size was significantly linked to support and/or control, with larger families predicting lower levels of support and control.

Future studies might also take into account spacing of children and birth order. Both these variables were suggested by Barnes (1990) as potentially important variables for family socialization behaviours. As the spacing between siblings increases, then parents may be able to relax their discipline and provide higher support, leading to more positive adolescent behaviours. Similarly, first-borns may receive more parental nurturance than later-borns, again resulting in more positive adolescent behaviours (Peterson & Rollins 1987).

Family socialization behaviours

Family process

Whilst family support and control were significant predictors of drinking behaviour in the whole sample structural model (chapter 12), when the sample was broken down into the school year/sex sub-groups it became apparent that there was a developmental trend in the importance of these family process variables in the relationship with drinking behaviour. In general, support was a (statistically) more important predictor of drinking behaviour than control. The results showed that support and control were not significant predictors in the younger year groups but became increasingly important predictors in older

year groups for both males and females. It was initially expected that, due to the continuing importance of family process behaviours throughout adolescence (Coleman & Hendry 1991; see chapters 2 and 3), support and control would be influential in all age groups. This hypothesis was based on the rejection of the 'traditional' model of adolescence, in which families were said to play a decreasing role in the socialization of their maturing offspring.

The present results in fact suggest that some family behaviours have an *increasing* role to play in the socialization of teenagers. Family process behaviours represent the characteristics of family relationships, and positive family relationships have been pointed up as important in the internalization of normative behaviour, and in the development of conscience and moral behaviour (Rollins & Thomas 1979; Maccoby & Martin 1983). In this sense, it is these internalized norms which are important for the development of sensible drinking behaviour. A normal and sensible approach to alcohol use thus depends on positive family socialization behaviours. Alcohol education (and research) could take into account the results from this study in the development of initiatives which involve the fostering of normative and sensible adolescent drinking behaviour.

In fact, research looking into the development and establishment of normative adolescent alcohol use is the subject of a recent initiative from the National Institute on Alcohol Abuse and Alcoholism, U.S.A. (NIAAA, March 1992). This initiative states:

"Since [the] previous research efforts [into alcohol education] have yielded equivocal results, there is much to learn about what prevention strategies might be more effective.....the NIAAA is

especially interested in applications directed at norm-setting and norm-enforcement by parents and families..." (pp.2-3)

Although support and control were not significant predictors of drinking behaviour for the youngest males and females, it is quite possible that these family process behaviours are important for subsequent drinking behaviours. Thus, support and control at time 1 may influence drinking behaviour at time 2. It is likely that levels of support and control are fairly consistent throughout childhood and adolescence, and the significance of support and control in predicting drinking behaviour in later year groups is a reflection of socialization over a much longer period of time. Of course, longitudinal studies would help in the further examination of patterns of socialization over time and consequent adolescent social behaviours.

In the present thesis the measurement of control has relied on the operationalization of this concept from the items of the Bloom Family Functioning Scales (Bloom 1985) and the Family Environment Scale (Moos & Moos 1986). Others, however, have pointed to the distinction between inductive and coercive control (Barnes 1977; Barnes & Farrell 1992; Rollins & Thomas 1979). Coercive behaviours, for example, include parental hitting, threatening and yelling, whereas inductive control is characterized by more structured behaviours, such as parents explaining why something was wrong and how they expect the adolescent to behave in the future. In addition, parental rules also indicate parental control attempts, for example time to be in at night, rules about homework, friends, etc. Barnes and Farrell (1992) also point to parental monitoring as a related, but distinct, aspect of parental control.

It might be useful in future research to look more closely at these possibly important distinctions in type of parental control, although these factors did not

emerge in the factor analyses carried out in this thesis (but this is possibly due to the properties of the items chosen in this study).

Family social learning

In all school year and sex groups, the most important predictor of drinking behaviour was parental attitude. More tolerant or indifferent parental attitudes predicted more drinking behaviour. A clear indication of the salience of this variable was apparent in the structural model for the whole sample (chapter 12), in which parental attitude and school year were similarly related to adolescent drinking behaviour (both had parameter estimates of around 0.30).

However, the relative importance of parental sanction changed from younger to older year groups. As family process behaviours became more important in older year groups, then the size of the relationship of parental attitude to drinking behaviour decreased, suggesting a decrease in direct parental influence (alcohol-specific) accompanied by an increase in indirect parental influence (non-alcohol-specific). This transitional pattern is described in more detail in the next section.

In the present study the parental attitude measure consisted of a four-point variable. In future studies it would be useful to look more closely at parental attitude, in particular discriminating between parental moderation, explicit parental encouragement, and parental indifference. It might also be beneficial to look at the attitude of each parent individually. This more general point is discussed in greater detail in a later part of this chapter ("The micro-analytic approach").

The effect of perceived family models on the drinking behaviour of adolescents was also an important influence. In all year groups, except for year

11 males, the composite family drinking index was a significant predictor of adolescent's drinking behaviour, with more frequent family drinking predicting more adolescent drinking behaviour.

Interestingly, for year 11 males the family drinking index was not a significant predictor of the latent drinking behaviour variable. It may be that family models were less salient in this older male age group as socialization from other family variables (support and control) and from peers became more influential. This relationship needs to be examined in further studies before drawing any firm conclusions.

Transitional influence of family socialization behaviours

As mentioned above, family process behaviours and family social learning behaviours were found to change in importance across different year/sex groups. This transitional pattern is shown clearly in Figure 16.1 (males) and Figure 16.2 (females). Figure 16.1 and 16.2 summarize the findings of chapter 13 in terms of the effect of family process and family social learning variables on the latent drinking behaviour variable. Figure 16.1 shows the change in the standardized parameter estimates between years 7 and 11 for males, and Figure 16.2 shows the same comparison for females.

Whilst for males the transition appears to begin with the year 7 group, for females both family process and family social learning variables remain fairly stable until year 9, when a similar pattern of increasing family process and decreasing parental reinforcement influence occurs.

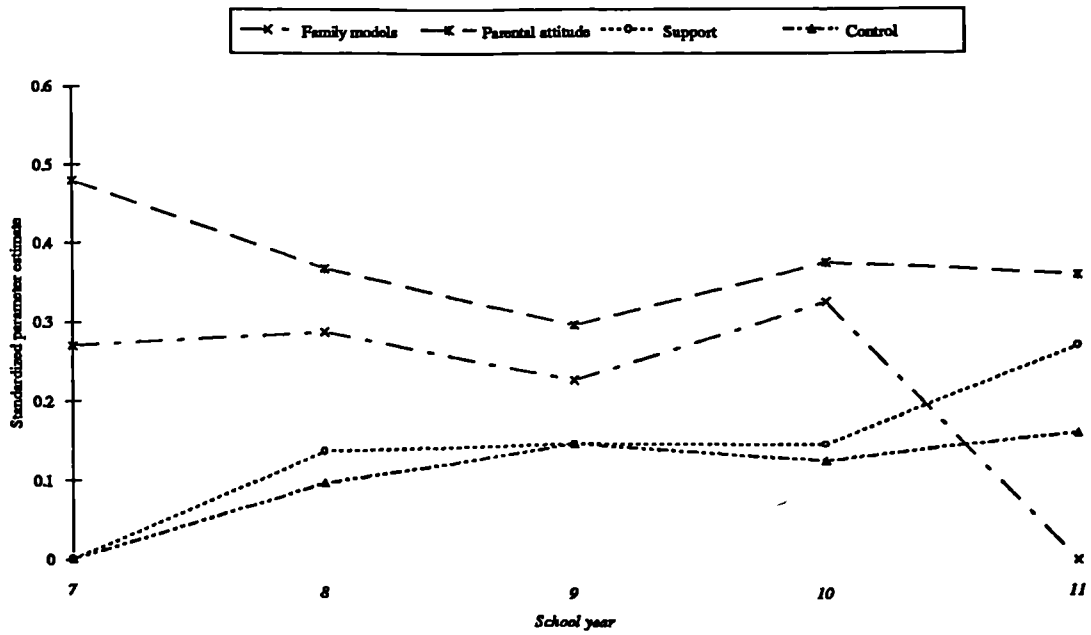


Figure 16.1: Adolescent drinking behaviour and family socialization factors: transitional effects (males)

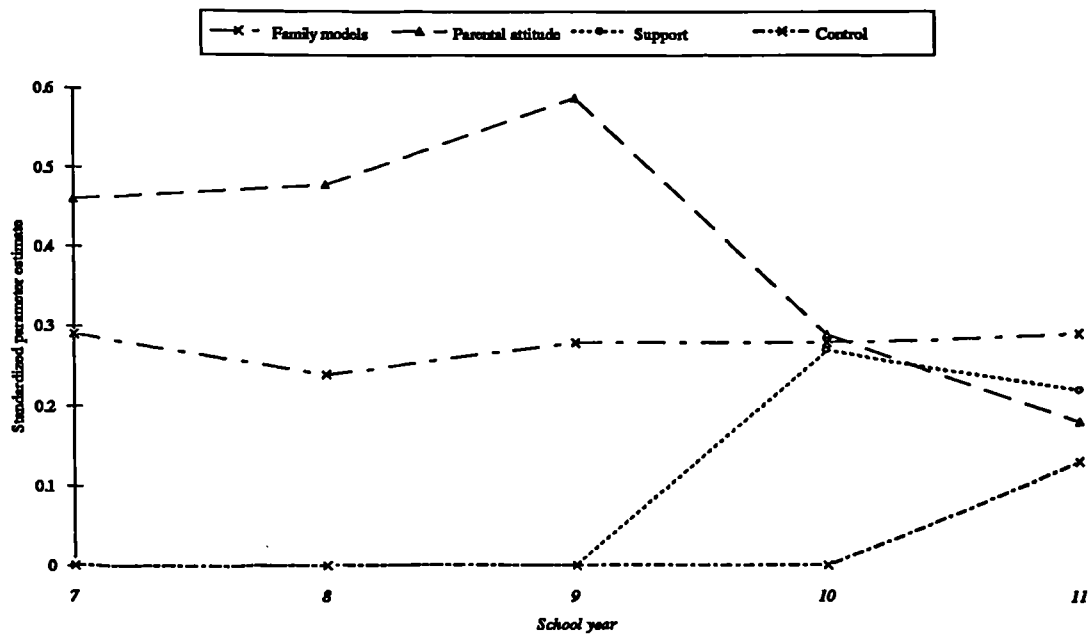


Figure 16.2: Adolescent drinking behaviour and family socialization factors: transitional effects (females)

Both family process and parental reinforcement variables could be described as important factors in normative social influence, as opposed to modelling or imitative effects (Bank *et al* 1985). Family support and control have already been described above as important for the development of internalized norms for behaviour. Parental reinforcement, on the other hand, is an example of instrumental social influence, in which an adolescent's drinking behaviour is affected by parental sanctions (Bank *et al* 1985).

The distinction between internalized and instrumental normative social influence is an important one, as some researchers argue that adolescent drinking is influenced mainly by instrumental factors (e.g. Forslund & Gustafson 1970), whilst others suggest that adolescent drinking is largely a product of internalization (e.g. Whitehead & Harvey 1974). Bank *et al* (1985) noted that it was:

"difficult to find studies in which these two forms of influence have been opposed as predictors of adolescent drinking." (p.164)

The results from the current study suggest that instrumental and internalized normative influences follow a complementary path in early adolescence. It seems that instrumental influence is important in younger groups, but, as adolescents grow older and gain more autonomy, instrumental influences decrease and internalized norms for behaviour increase in importance.

This is an important result because it shows, and generally raises the issue of, developmental transitions in the family socialization of adolescent drinking. Such transitions have not, to any great extent, previously been considered in the literature. In fact it is difficult to find studies which have examined or presented results detailing such transitions. It would be illuminating to look further at this

phenomenon in other teenage samples, including older teenagers to see how these transitions develop.

Bank *et al* (1985) also suggested that studies which compared modelling and normative social influence were hard to find, despite research evidence supporting both types of influence. The present results suggest that *both* modelling and normative factors are important independent influences on adolescent drinking behaviour.

Friends' drinking

Although the major part of this thesis has focussed on the influence of the family on the socialization of adolescent drinking behaviour, chapter 14 looked at the drinking behaviour of friends. In particular, whether or not an individual knew about his or her friends' drinking was argued to be an important requirement for peer socialization influence. The results suggested that those individuals who knew how their friends drink reported more drinking behaviour themselves. However, the pattern of family socialization influences was not affected or diminished by the inclusion of this peer facilitation variable in the analysis, pointing to the maintenance of family socialization influences despite increased drinking by friends. In other words, family and peer influences seem to be independent in their effect.

Effect size

It was mentioned in the results chapters that even quite small correlations or parameter estimates were significant because of the large sample size. However,

this is a strength of the present research rather than a weakness. It is generally true that as N increases there is a greater probability of rejecting the null hypothesis. This is because when the null hypothesis is false, and therefore ought to be rejected, increasing the sample size increases statistical power (see chapter 6). Thus a larger sample size is a strength in terms of testing the null hypothesis because it increases accuracy and decreases error rate (in this case type II errors). Moreover, if the null hypothesis is true, a larger sample size does not increase the probability of rejecting the null hypothesis, and also does not increase the size of the estimated effect.

Research in the social sciences generally comes up with "small" effect sizes (Cohen 1977; Miller 1991). The present study, which looked at demographic and psycho-social indicators of drinking behaviour, was no exception to this. Perhaps the best indication of the relative importance of particular predictor variables in the present study is to compare them to the effect of school year. Age (or school year) of young people is typically the most important predictor of drinking behaviour in many studies of adolescent alcohol use. In this study school year predicted drinking behaviour with a standardized parameter estimate of 0.30 (chapter 12). Parental attitude was similar in size, and family modelling influences were slightly lower. Family support was about half the size and control around a quarter of the size.

There are situations, though, when too much power in a study leads to the acceptance of essentially trivial significant effects. For example, in the present study, an arbitrary cut-off point of 0.05 was imposed in the structural models - parameter estimates below 0.05 were not reported - despite the fact that some parameter estimates below 0.05 were statistically significant.

Deciding on acceptable levels of power and whether results are trivial or not depends on the research questions being investigated. Rosenthal (1991) and

Rosenthal and Rubin (1982) discussed in some detail the practical importance of the estimated effects size. They felt that:

"neither experienced behavioural researchers nor experienced statisticians had a good intuitive feel for the practical significance of such common effect size estimators as r^2 , ω^2 , ϵ^2 , and similar estimates." (Rosenthal 1991, p.133)

For example, Rimland (1979) suggested that the Smith and Glass (1977) meta-analysis of psychotherapy outcome studies meant the end of psychotherapy because the effect size was equivalent to 0.32 accounting for "only" 10% of the variance. However, as Rosenthal and Rubin (1982) pointed out, this is equivalent to a 32% increase in the probability of successful treatment outcome for individuals undergoing psychotherapy. Small effect sizes take on increasing importance as the impact of "success" or "failure" increases, for example in biomedical research. Rosenthal (1991) reports the results of a study on the effect of aspirin on reducing heart attacks. This study (N=22,071) was ended prematurely because it was found that aspirin was so effective in reducing heart attacks that it would be unethical to continue to give half the subjects a placebo. The r^2 for this important effect was 0.0011 (an r of 0.034).

Family systems and social support

To recap, in this thesis it is argued that extremes of family socialization behaviours are dysfunctional for the socialization of normative adolescent drinking behaviour. It was suggested that this clarified the family systems

viewpoint on extremes of family functioning, as the range of normality of the 'target' variable is a key consideration (see chapter 3). Thus extremes of cohesion or support, of control or adaptability, of parental attitude and of family drinking, were linked with excessive drinking or non-drinking/very low levels of drinking (untypical of most adolescents in the U.K.).

Farrell and Barnes (1993) have recently argued that higher cohesion is linked with more positive outcome behaviours, and as such is consistent with social support theory (Lazarus & Folkman 1984). Whilst this may be true for some outcome behaviours, there is now an increasing body of evidence pointing to the potential negative effects of overly supportive relationships. For example, when family members become overly-protective, intrusive and excessively indulgent and self-sacrificing, they often discourage autonomy and personal responsibility for self-care (Coyne & DeLongis 1986). In a more recent paper Barrera *et al* (1993) also point to the potential negative effects of overly-supportive relationships:

"With few exceptions, the first generation of social support research was focussed primarily on the positive contributions of social networks and did not examine concurrently their role in hindering adjustment. However, some subsequent work considered the downside of supportive social relationships. These discussions identified several distinct ways social support networks could contribute to maladjustment. Even when a donor intends support to be helpful and the recipient perceives it to be positive, help can have negative effects on the recipient such as depletion of self-esteem."

(p.602)

Whilst the current results do not refute the conclusions of Farrell and Barnes, a main point in the present thesis is that the overall pattern of socialization influences is important, not just one or another on its own. If high support is linked with high control, disapproving parents and non-drinking families, then in this context high support is seen to be contributory to the development of non/very low levels of adolescent drinking.

In chapter 10 the family profile which was associated with the lowest mean drinker score was high support, high control, disapproving parental attitude and non-drinking parents/families. It was suggested that this extreme was dysfunctional for the socialization of normative adolescent drinking behaviour. On the other hand, moderate levels of these family socialization behaviours were all linked to normative, mid-range, adolescent drinking behaviour.

The micro-analytic approach

In looking at family systems in this study, the focus has been on the family system as a whole and on macro-properties of the system (Broderick 1990). For example, looking at the calendar time process of socializing children rather than the clock time process of family interactions and communications. The 'composite' variable and latent variable approach adopted in this thesis also embodied this wholeness, or gestalt approach. However, it would also be useful, if technically and methodologically more difficult, to look at the relationship between sub-systems and also to focus on clock time interactions. In particular the nature of social exchanges between family members could be examined in line with social exchange theory and related to the perception of

the calendar time variables, such as support, control, family drinking and parental attitude.

The micro-analytic approach might also be more fruitful in investigating the role of consistency and inconsistency in family relationships. In chapter 5 it was suggested that consistent family socialization was a pattern or family profile of complementary behaviours. For example, a family profile of complementary socialization towards non-drinking would be parental non-drinking and disapproving parents, with high family support and control, and that the optimal pattern of family socialization towards sensible drinking was one of functional consistency, namely complementary and moderate levels of family behaviour - moderate parental drinking and a moderating parental attitude, and moderate levels of support and control.

In chapter 5 it was also suggested that inconsistent or uncomplementary patterns might pose a risk for deviant drinking behaviour because of disjunctive messages and meta-messages between parent-child socialization behaviours. If this is so, such disjunctive behaviours would manifest as disordinal interactions when linked with teenage alcohol use. If there were no interactions then family socialization factors would contribute independently and additively - regardless of consistency or inconsistency.

The present results primarily support the latter picture. On the whole there was a pattern of additivity of effect. However, in chapter 10 the results showed that those teenagers who perceived low support and low control were especially likely to be heavier drinkers. In an ordinal interaction, the combination of these two family process factors slightly potentiated the risk for heavier alcohol use. There was also an interesting, if slight, disordinal interaction effect between the family social learning variables. Those few individuals (n=5) who reported that their parents did not drink but had an

indifferent attitude were, on average, the heaviest drinkers. However, the low number of respondents in this category precludes any inferences being drawn. As mentioned earlier, it was not possible to test/profile more elaborate inconsistencies because few respondents reported such unusual combinations of family behaviours.

The case studies (chapter 15) also raised the question of inconsistent family socialization behaviours. Tony's heavier drinking was related to a pattern of inconsistent (and extreme) socialization from his parents, contrasting with Darren's sensible alcohol use and consistent family socialization behaviours.

Therefore, inconsistencies in family behaviours need to be assessed more fully on two levels. First, research is needed which supplements the present results in terms of inconsistencies between distinct family socialization behaviours. Secondly, inconsistencies between different family members and sub-systems in their socialization behaviours should be considered. From the case studies the potential problem of conflicting family messages was highlighted (eg. father is a heavy drinker, mother a non-drinker; father is indifferent, mother disapproves of offspring drinking). These inconsistent family behaviours may be particularly important for the many individuals who are offspring of a problem drinking parent. It may be that these adolescents would identify with the parent whose behaviour more nearly matches their own desires, or with whom they have the better relationship.

Methodology

Whilst in this chapter several points have been made about the methodological constraints of the present study, one of the most important strengths, and also limitations, of the survey method is that it relies on individual's self-reported behaviour and ultimately their perception of the behaviour they are asked to report. This subjective environment can be thought of as each individual's lifespace (Lewin 1951). This viewpoint does give insight into an individual's attributions and aspirations concerning such behaviours, but it may not reflect their actual behaviours. This is an important consideration if one is going to make policy recommendations or decisions based on the results of research into self-reported behaviour and perceived family life. It is important to gain information from other family members and to relate their perceptions to the observer's or respondent's perception before any interventions are carried out. If it is the perception which is dysfunctional rather than the family environment, then interventions aimed at the family may be damaging.

To this end, it would be useful to conduct further research with whole families which, bearing in mind methodological constraints of such research, would supplement the results from the present study and add to the knowledge base of adolescent drinking and family socialization influences.

Comments on the theoretical model

The model described in chapter 5 was generally supported by the results of the research presented in this thesis. Family process and family social learning variables were found to predict adolescent drinking behaviour. Demographic variables were also found to predict drinking behaviour. Some indirect,

mediating, effects were also found. However, these indirect effects were typically small in comparison to the independent effect of each predictor variable. In conclusion, and bearing in mind limitations of method, the results of the present study showed that family socialization factors were predominantly independent and additive in their effect on adolescent drinking behaviour.

It is true, though, that the results are only as good as the underlying theory. Whilst the theory presented in this thesis embodies much of current knowledge, it is also possible that alternative models may ultimately prove more useful, but this thesis has put forward a particular perspective on the development and maintenance of adolescent drinking behaviour, namely the influence of family socialization behaviours.

In summary, in this penultimate chapter the results from the study have been brought together and discussed. This overview and interpretation of the results has also included some potential avenues for future research, discussion of the results in relation to current work by other researchers, and some implications of the results. This theme is continued in the next, and concluding chapter, where the results are discussed in a more general way, with reference to future policy and research directions.

Chapter 17: General comments, conclusions and implications

Normative adolescent alcohol use

Although young problem drinkers are a major source of concern, surveys have consistently portrayed teenage drinking as a normal development in the context of the psychosocial environment. Drinking is predominantly a social behaviour and is widely regarded as a key indicator of adult status.

This thesis has developed and emphasized a theme of normative adolescent alcohol use. It is suggested that this is the only sensible approach, given that adult alcohol use is widespread, acceptable and even encouraged. Whilst some have proposed that:

"young people's drinking is essentially different to the drinking behaviour of adults" (O'Connor 1984, p.159),

this thesis argues that adolescent drinking is an adult-like teenage behaviour, albeit an immature one for some individuals. The development of alcohol use by adolescents should be regarded as a normal developmental transitional behaviour between childhood abstinence and adult drinking.

We cannot expect teenagers to learn how to drink sensibly and appropriately overnight, as they pass the legal drinking age threshold. To some extent English law achieves this by permitting adolescent drinking only under certain conditions, or only when supervised by an adult. In addition, the 'blind-eye' turned to problem free under-age drinking by many groups in our society, including parents and police, serves to facilitate the learning process.

There have been numerous surveys of adolescent drinkers. Most have looked at questions of who, when, where, what and why? Most socio-demographic studies consistently report that teenage drinking starts early, is generally widespread, but surprisingly few alcohol abuse problems emerge. In this thesis it is argued that in distinguishing between 'normal' teenage drinking and problem drinking, it is likely that psychosocial aspects - rather than socio-demographic factors - are more important.

On the whole, it is inappropriate to portray alcohol use as a deviant behaviour, and it is also inappropriate to encourage teenagers not to drink. However, some researchers and commentators have tried to do just this. For example, an editorial in the *Journal of the Royal Society of Health* (1991, p.2) describes alcohol as a "*food, a drug, a tonic substance, and a social plague*". In the *Journal of Drug Education*, Stumphauzer (1983, p.40) suggests that adolescent abstainers have a social skill worthy of serious study so that:

"(1) this skill could be further encouraged in these teenagers. (2) the process of learning abstinence could be understood; and, (3) this social skill, if there is one, could be taught to other young people in terms of drug education or prevention."

These attitudes remind one of the sensationalism in many media reports of teenage drinking. Alcohol use is not a "social plague", nor should abstinence be regarded or encouraged as a "social skill", at least not in western 'drinking' societies. On the contrary, parents and families should teach their children and teenagers how to drink. It is not adolescent drinking which is the problem, but the failure to teach some young people *how to drink sensibly*.

However, there is also a down-side to the apparent laxity in enforcing the U.K. drinking laws for minors. Some teenagers, because of inadequate socialization, do not develop sensible and appropriate teenage drinking behaviour, and the opportunities therefore to misuse alcohol are many.

Alcohol misuse

How should this problem be approached? Two main schools of thought address this issue. One suggests that the way to prevent problem drinking is to make alcohol more unavailable to the population, either through raising taxes, or in the case of young drinkers, through raising the legal drinking age. Apart from the obvious 'freedom of choice' implications involved in restricting what is historically and currently *for many* a pleasurable and safe activity, it seems rather heavy handed, perhaps perverse, to try and reduce the problem drinking of a few by targeting everybody.

The second school of thought predominates in the U.K.. This suggests that the way to tackle problem drinking, including adolescent problem drinking, is to educate and help people rather than control them. Now this is not an easy option. One cannot just simply tell people not to do something because it is wrong or dangerous. Such an approach, typified by the 'Just Say No' campaign,

fails to address the complex aetiology involved in the development of alcohol and substance abuse.

It is necessary to understand the complexities of socialization into drinking behaviour, and to this end a programme of continuing research needs to inform alcohol policies. In this thesis a particular set of ideas and research have been brought to the debate. It was suggested that the influence of family life is central to the socialization of adolescent alcohol use, whether it is optimal socialization and sensible drinking, or dysfunctional socialization and deviant patterns of alcohol use. The family is an important psychosocial influence in the development of social skills: skills which are important in the largely social activity of drinking alcohol. Therefore this thesis has focussed on psychosocial influences of family life, rather than on socio-demographic variables which are external to family life.

Reasons for drinking

Attribution retraining (Forsterling 1985) is one method of countering some of the less attractive "common-sense" explanations of alcohol use. This method generally involves changing inappropriate attributions of failure, for example blaming self, to more positive attributions, for example to try harder. In the second pilot study it was found that high alcohol users were more likely than others to give as reasons for drinking 'to get drunk', 'I like the effects', and 'it cheers me up'. If these reasons can be changed, through attribution retraining, so that they are seen as inappropriate reasons for drinking, and better reasons for drinking are encouraged, for example 'liking the taste', or 'for celebrations', then this may encourage more sensible alcohol use. Such attribution retraining

can be carried out in both pre-intervention and intervention stages of alcohol use. Alcohol education for young people, in the school, the community, and the family, should emphasize acceptable and appropriate reasons for drinking.

For individuals with an alcohol use problem, and with an inappropriate alcohol use schema, attribution retraining could also be beneficial. In this context, attribution retraining does not necessarily have to be individual or client focused. Influential groups, such as the family, may contribute and benefit both the client and themselves by changing their self-attributions for alcohol use.

On a related note, expectancy effects of alcohol use are linked to reasons for drinking. If one drinks to get drunk, then this sets up a certain expectancy about the outcome of drinking. McMurrin (1991) suggests that the identification of alcohol related expectancies may help in the development of cognition-modification components of alcohol interventions, and enable better matching of clients with programmes.

Socially competent drinking

Competent adolescent drinking should be the desired goal of adolescent alcohol education. Although at first glance this might seem a strange thing to say (since a competent drinker might be viewed as someone who drinks a lot - an 'accomplished' drinker), this is not the case. Competence in fact refers to the ability of an individual to behave in an appropriate and acceptable way. The Oxford English Dictionary defines competence as being "properly qualified". In this sense competent drinking is drinking in a properly qualified way. Thus socially competent drinking implies sensible and appropriate (problem-free)

drinking behaviour. Competence can also be measured on other levels. Healthily competent individuals do not compromise their health, for example with excessive alcohol use or with risky alcohol associated behaviour. Psychologically competent individuals do not compromise their psychological functioning, for example with excessive alcohol use. So how do we socialize social, health and psychological competence for alcohol use by teenagers?

Family socialization

Family life plays an important socialization role for teenage alcohol use. This thesis has described how family dynamics incorporate non-alcohol-specific and alcohol-specific socialization behaviours. The results showed that moderate support, moderate control, moderate levels of family drinking and a moderating attitude by parents to their offspring's alcohol use all contribute to sensible, normative, adolescent drinking behaviour. Low support, low control, heavier parental drinking and parental indifference to their offspring's drinking were linked with heavier drinking. This is in line with family systems theory which suggests that extremes of family behaviour leads to inadequate functioning: in this case in terms of heavier drinking. Importantly, for family theory in general as well as adolescent drinking research, this thesis has also clarified the family systems perspective concerning the other extreme of these family behaviours. If, for example, we take adolescent drinking behaviour, then not only is heavy drinking a deviant behaviour, but so is non-drinking by adolescents in a culture which condones teenage drinking and in which most adolescents do in fact drink. Thus, it was predicted and found that high support, high control, parental non-drinking and parental disapproval towards

their offspring's actual or potential alcohol use was linked with self-reported non-drinking or low drinking by adolescents.

In conclusion, good family dynamics have a positive social influence on teenage drinking. This knowledge should inform alcohol education policy and strategies, but not only should teenagers themselves be targeted for alcohol education, but parents and families as well. In line with family systems theory, behaviour is a function of the whole family system, and as such the whole family system needs to be considered when trying to encourage teenagers to drink sensibly.

Boundaries

Traditionally, most approaches to family dynamics have focussed exclusively on psychosocial interactions and relationships. In structural family systems theory for example, boundaries within the family system are defined by psychological relationships. But boundaries also exist beyond the psychosocial plane. Physical boundaries, such as the geographical layout of the home, confine and restrict, to some extent dictate, the nature of psychosocial boundaries and relationships.

The interaction between psychosocial and spatial boundaries in the home environment throws some light on the anomalous finding of strict levels of control being associated with heavier or problem drinking, which was commented on in chapter 3 (c.f. Barnes *et al* 1986; Rollins & Thomas 1979). Although this was not replicated in the large general sample survey, the results of a recent boundary enforcement study (Lowe & Sibley 1992; Lowe *et al* 1993) suggest a possible reason for this pattern. A tentative conclusion from the

boundary enforcement study of self-reported problem drinkers was that rigid rules and strict parental control were linked to restrictions on physical space in the home. In those households where there were no restrictions on physical space, rules and discipline tended to be relaxed. It might be that 'overcrowding' and associated strict levels of control are linked with (potential) problem drinking. This hypothesis merits further consideration and investigation. The distinction between attempted control and achieved control was also pointed up as a possible factor which should also be considered in future research (see chapter 15).

Peer groups

Peer influences are frequently reported as an important aetiological factor in the development of teenage drinking, sometimes as more influential than family socialization. However, recent conceptions of peer pressure may be criticized as being too simplistic. In fact peer-self influences are reciprocal and voluntary. To suggest that teenagers should resist peer pressure to drink implies that these teenagers are somehow coerced into drinking. This is a naive proposition. Young people want to drink alcohol as part of their social behaviour, and the peer group provides an opportunity to do so. This is supported by the finding that most teenagers give appropriate and positive reasons for drinking (Foxcroft & Lowe 1993; see chapters 7 and 9).

At the same time the peer group should not be discounted from research into teenage drinking. Peer groups provide an active opportunity for young people to drink in a variety of different ways. If drinking by a teenager and his or her peers is 'deviant' or problematical, then we need to know why. Why do

individuals choose to drink in a deviant way with their peers? We can again turn to the socializing influence of parents and family as one potentially important influence.

Firstly, teenagers may choose to drink with friends who have similar alcohol use schema. If individuals have a deviant alcohol use schema, due perhaps in part to dysfunctional family socialization, then these teenagers are perhaps more susceptible to influence from deviant peer groups (in that they choose to mix with and behave like these peers) than to influence from an inadequately socializing family. Such peer groups may set their own standards of behaviour, and may try to compensate for poor family identity by maximizing their group identity. This might involve taking on more deviant behaviours as a peer group. By "deviancy amplification" (Cohen 1972), labelled as deviant these groups may in fact become more deviant.

As far as alcohol education is concerned, we need to encourage young people how to drink properly (optimal family socialization) rather than preventing them from starting to drink problematically (resistance to peer pressure). Moreover, if peer pressure is a form of propaganda against which counter propaganda (in the form of "Just say No" messages and campaigns, for example) is being directed, then many young people may be just as (or even more) likely to "say no" to these messages, which are in any case more indirect and diffuse than the immediate face-to-face impact of peer pressure.

Other substance use

The model of family dynamics proposed in this thesis is not just specific to teenage alcohol use. Other substance use behaviours are also learned

behaviours, and as such socialization influences are important. However, the balance of influence between non-substance-specific family behaviours and substance-specific family behaviours may vary depending on the particular substance, age of the individual, and the prevailing social and cultural norms for that substance. Alcohol use is regarded in western countries as a socially acceptable and generally positive social behaviour, and alcohol-specific family influences are especially important, as indicated by the present results.

Kandel and her colleagues, in their stage theory of substance use, suggest that alcohol is the first step, or stage, on the road to further substance misuse (eg. marijuana, solvents, cocaine, heroin, crack). Normal adolescent drinking is widespread however, and perhaps amongst older teenagers perhaps even more widespread than is adult drinking. One could argue therefore that teenage drinkers are more likely *not* to develop further substance use behaviour since the majority do not go on to use these other substances. What Kandel's data actually suggest is that *deviant* alcohol use in adolescence (eg. use of hard liquor) is predictive of other substance use and abuse.

Smoking, however, is perceived more and more these days as a negative social behaviour, and parental attitudes to their offspring's smoking may contrast with their own smoking behaviour. As such, family process influences may take on more importance for teenage smoking, to the extent that dysfunctional levels of support and control might lead to deviant smoking behaviour, probably shared with a smoking peer group. But there may be a complexity involved here due to the sex of the individual. It was pointed out in the last chapter that young females smoke more than young males, and it was tentatively suggested that this might be part of an 'equal opportunity' substance use strategy by females. Thus, in the absence of such a 'strategy', males might be more susceptible than females to family socialization influences for smoking.

Supporting this hypothesis, we found in a recent study (Foxcroft & Lowe 1992d) that levels of support and control were linked to teenage smoking behaviour by males but not by females. This finding needs to be followed up with more specific research studies, but there are some important implications if this is indeed true.

Other substances, such as solvents, marijuana, MDMA, tranquilizers, cocaine, heroin, probably do not feature strongly as substance-specific family behaviours. Few parents or families will model such behaviours, and parental attitudes are likely to be negative and possibly poorly informed. Therefore family *process* behaviours such as support and control may be implicated more strongly in the family socialization of these substance use behaviours.

Implications

There are a number of implications from this thesis in relation to the role of the family in alcohol research, education, prevention and intervention strategies. The suggestions made below are, however, only tentative, and parents, health educators, planners and related professionals, together with interested teenagers, may well reach different conclusions of their own on the basis of the observations presented.

Inter-disciplinary research

The role of physical boundaries within the home environment and the implications of these boundaries for family dynamics were mentioned above. In fact, these studies brought together the distinct academic disciplines of psychology and geography. However, both psychological and geographical research could benefit from closer links with *cultural anthropology*, from which many of the theoretical arguments on boundary issues derive, and where there is now considerable interest in the home environment.

Indeed, this thesis has tried to look at adolescent drinking and family life from the perspective of different academic disciplines. There is a great potential to improve knowledge by the collaboration of researchers and the bringing together of ideas from previously distinct academic disciplines. Although such ideas may have developed fairly independently, and the language and terminology used appear completely different, if we peel back the outer layers we may in fact reveal similarities or indeed helpful distinctions.

This does not only apply to models, theories and ideas. Research methods are traditionally quite narrow and conventional within each distinct discipline when compared to the variety of methods used across all social science disciplines. The expertise brought to the study of adolescent drinking and family life from different research methods within different academic disciplines should be beneficial. To this end, a certain amount of deconstruction is needed and, as Bernstein (1971) points out, researchers need to negotiate and cross the boundaries between distinct academic and research areas.

Methodology

In crossing boundaries there is more opportunity to employ a sensible mix of research methods. In the present research questionnaires were used which led to descriptive and subsequently more analytic findings (via multivariate techniques). Another perspective was provided by case studies from semi-structured interviews. These qualitative data enhance the richness of observations and complement the quantitative and statistically more powerful surveys and questionnaire data.

Cultural aspects

In the U.S.A. the level of under-age drinking has generally been found to be much less than in Great Britain. Only about 80 per cent of American adolescents aged 16 or over were reported to have consumed an alcoholic beverage (Rachal *et al* 1980, cited by Plant *et al* 1985). In Great Britain the level is nearer 95 per cent. Bearing this in mind, it is interesting to note the cultural variation in parent-child relations between England and the U.S.A. (Devereux 1970), when lower support and looser control were found in English families. Intuitively, this accords with the results of the meta-analysis in chapter 3, in which the majority of studies came from the U.S.A. That is, higher support and firmer control were found to be associated with lower drinking levels.

Social competence, it was pointed out, is strongly influenced by family socialization, and distinctions can be drawn between social competence in different cultures. For example, in the U.K. autonomous individuals with good social skills and independence of thought are stereotypically viewed more positively. At the same time British culture tends to tolerate, perhaps respect,

individual differences in behaviour, and there is relatively little pressure for everyone to conform to a certain social or cultural stereotype. To quote an English proverb: "*You can't put a square peg into a round hole*", suggesting that people are generally different from each other, and that it isn't necessary to try and make everybody conform to a given norm, i.e. a round hole. In western cultures individuality is emphasized, whereas, for example, Japanese culture encourages conformity to group norms, and everyone belongs to one group. There is great social pressure in Japan to conform to certain culturally stereotyped roles. To quote a Japanese proverb: "*The nail that protrudes must be hammered into the wood*".

In this sense optimal socialization behaviours may vary cross-culturally. It was suggested earlier that it was the range of functionality of the target behaviour which was important for the structural systems model of family functioning. In Japanese society and culture the range of normality of adolescent alcohol and substance use may vary from that in western societies, and it may be that optimal levels of support and control also vary cross-culturally. Other family behaviours may also be more prominent in other cultures and therefore need to be considered, for example the religiosity of the family which may have direct implications for alcohol use.

Given the established cultural variation in both adolescent drinking behaviour (Rachal *et al* 1980; Bank *et al* 1985) and parent-child relations (Devereux 1970), then it would be folly to directly compare results from different studies in different countries. Research is needed in other countries to discover the pattern and impact of family dynamics on adolescent alcohol use in a particular country. Comparative studies which use similar methods/measurements in different countries would benefit from triangulation with within-culture studies, enhancing the validity of the research. Even within

countries there may be regional variations (Marsh *et al* 1986; Fogelman 1978), and it would be wise to take measurements from different regions within different countries.

The ideas and research elaborated in this thesis have undoubtedly been tainted by my own 'Brito-centric' perceptions and by a predominantly western society research knowledge base. It would be illuminating to examine these ideas in different societies and cultures, from both a within-culture and a between-culture (comparative) perspective.

For example, on an anecdotal level, within Europe different countries have different social and cultural traditions regarding both family relationships and alcohol use. This is sometimes stereotyped as ranging from Anglo-Saxon behaviours in Northern Europe (typically less family centred and more binge or session drinking), to the Mediterranean cultures of Southern Europe (where there is a tradition of high family closeness and loyalty and lighter but more frequent alcohol use).

A large scale comparative study of family socialization and adolescent drinking over, say, a range of different European countries would offer scope for testing the generality of the family links and influences established so far, as well as perhaps providing further useful observations for alcohol education and intervention programmes.

Parenting skills

In the U.K. "parentcraft" classes are run by health service workers (Health Visitors and Midwives) for prospective parents. The aim of these classes is to teach prospective parents how to look after a new-born baby, and how to deal

with any problems that may arise. These health service workers also provide a comprehensive (and free) follow-up service after the baby is born.

This "parentcraft" service provides a useful model for a preventative strategy when dealing with potential or actual adolescent problem behaviours.

Parenting skills are not only needed when children are very young, they are needed throughout all the growing-up years. Adolescence is in fact a period when parenting skills are very important, a period of intense boundary negotiation and transitional behaviours.

There is no reason why health care workers or family workers could not provide parentcraft classes for parents of adolescents or for parents and adolescents. These need not necessarily be run for every family with a teenager, but perhaps for those who feel they need to develop and improve their parenting skills.

Family therapy

Adolescent alcohol and substance misuse does create numerous individual and social problems. How can we help those individuals who misuse alcohol and other substances? One possibility would be to take the whole family system and address the problem there. In this context family dynamics involving psychological, social and spatial boundaries could be examined and re-negotiated. This of course needs to be facilitated by a professional and skilled family therapist. Before doing this however, a full assessment must be made of the problem. It is possible that the family might not be implicated: breaking up with a girlfriend or being bullied at school might be predisposing factors for some problem drinking individuals. However, in such cases families may still have a role to play. Even if family dynamics are not directly related to the

problem behaviour, the family provides a useful resource for social support. Coping behaviours could be developed on a family basis rather than on an individual basis.

Research directions

The models and ideas presented in this thesis are at a relatively early stage of development. Future research, using a variety of methods, needs to be undertaken so that these models and ideas can be refined. There are several directions in which research needs to go. One is to test further the concepts and confirm the results presented so far. Another is to extend the research on adolescent alcohol use to other, distinct, adolescent substance use behaviours, and indeed to other adolescent social behaviours (eg. dating, sports, leisure, diet). It would also be useful to look at family influences together with other influences on adolescent drinking, to build up an overall picture of the complex aetiology.

A useful direction would be to consider these ideas and results in terms of the family health and illness cycle (Doherty & McCubbin 1985; Doherty & Campbell 1988), a model which looks at the impact of the family on health and illness; the impact of health and illness on the family; and families use of health care. Also, as has already been mentioned, the family socialization of an alcohol use schema might be a fruitful area for future research.

Finally, as suggested earlier, other research has shown that heavy drinking in adolescence is generally not predictive of problem drinking in early adulthood (Bagnall 1991). In other words not all heavy teenage drinkers become heavy adult drinkers - it appears to be a transient phenomenon for some.

Nevertheless, there are some young people who continue to drink heavily into

their adulthood. There are also young people who do not drink heavily as teenagers, but go on to become heavy drinkers as adults.

Longer term heavy drinking by these individuals, throughout their adult lives, places a great burden on societies, both socially and financially. Family and home life dynamics might be implicated in the continued heavy drinking of some young people, and also in the development of adult problem drinking in individuals who did not drink problematically as teenagers. A fruitful area for future research therefore, supplementing the current work and that of other researchers in the field, would be a prospective longitudinal study.

Conclusions

To wrap up, the focus in this thesis has been on teenage drinking as a normative developmental transition, in which the influence of family life has been highlighted. This approach has implications for intervention strategies aimed at adolescent alcohol abuse/misuse, and, in terms of prevention, for alcohol education and guidance.

Although this thesis has concentrated on family dynamics, this is only one factor, albeit an important one, in the multi-factorial aetiology of the development of alcohol use. This should not be forgotten. Nevertheless, the aim in this thesis has been to demonstrate the importance of family life for the positive socialization of adolescent drinking.

On the whole, alcohol use by young people in the U.K. is not a problem for themselves or for others. Family socialization appears to be quite robust, and it is possibly only the extremes of family dynamics and psychosocial interactions which lead to extremes of adolescent drinking behaviour for some individuals, be it alcohol abuse or abstention.

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Appendix 1: Initial version of questionnaire

YOUNG PEOPLE, DRINKING, AND FAMILY LIFE

The purpose of this questionnaire is to discover what young people think about drinking alcohol, and how they drink. Also, there are questions about life at home. We realize that most of you are underage so your answers will be kept confidential - no-one from the school or college will be allowed to see your answers.

To make sure no-one can tell who filled in this questionnaire, do not put your name or anything else that might identify you on any part of the paper.

Please answer all the questions that you can as quickly and as honestly as possible. Try not to spend too long on any one question. All of the questions which ask about your drinking refer to alcoholic drinks. If you have any problems please ask for help.

REMEMBER THAT THIS QUESTIONNAIRE IS ANONYMOUS.

**D. FOXCROFT
UNIVERSITY OF HULL
1991.**

Answer the questions by writing in your answer, or by circling the correct letter(s).

1. How old are you?

2. Are you a boy or a girl?

- a) Boy b) Girl

3. Whom do you live with?

- a) Father b) Stepfather
c) Mother d) Stepmother
e) Guardian e.g. Aunt, Uncle, Foster Parents
f) Other

4. When did you last have an alcoholic drink?

- a) Never had one
b) Over 6 months ago
c) 2 to 6 months ago
d) 1 week to 2 months ago
e) Within the past 7 days

5. If you drink, how much do you usually like to drink?

- a) Never had a drink
b) Don't *usually* drink
c) Just a few sips
d) Enough to get merry
e) Enough to get drunk

6. How old were you when you had your first proper ALCOHOLIC drink without your parents/guardians - more than just a taste or a sip? (This includes cider, and shandy made out of real beer - not cans from the sweet shop)

- a) Less than 8 years old
b) 8 - 10
c) 11 - 13
d) 14 - 16
e) Never had a proper alcoholic drink

7. Where were you at the time of this first drink?

- a) At home
- b) A friend's house
- c) Pub/club
- d) Street/park
- e) None of the above
- f) Never had a drink

8. When are you going to have your next drink?

- a) As soon as I can
- b) This week
- c) In the next 1 to 4 weeks
- d) In the next 1 to 3 months
- e) Not in the near future

If you drink, why do you drink alcoholic drinks?

Please circle TRUE or FALSE for each statement. (If you don't drink then go to Question 20).

- | | | | | | |
|---------------------------|------|-------|---------------------------------------|------|-------|
| 9. Like the taste | TRUE | FALSE | 15. To be sociable | TRUE | FALSE |
| 10. To escape problems | TRUE | FALSE | 16. To celebrate | TRUE | FALSE |
| 11. To be confident | TRUE | FALSE | 17. Because I'm under pressure/stress | TRUE | FALSE |
| 12. To feel relaxed | TRUE | FALSE | 18. I like the effects | TRUE | FALSE |
| 13. To get drunk | TRUE | FALSE | 19. It cheers me up | TRUE | FALSE |
| 14. Because my friends do | TRUE | FALSE | | | |

20. How often do you drink?

- a) I don't drink
- b) Only on special occasions
(e.g. birthdays, weddings etc.)
- c) Every few months
- d) A few times a month
- e) More than once a week

21. If your father/guardian drinks, how often does he drink?

- a) He doesn't drink
- b) Only on special occasions
(e.g. birthdays, weddings etc.)
- c) Every few months
- d) A few times a month
- e) More than once a week
- f) Don't know / Does not apply

22. If your mother/guardian drinks, how often does she drink?

- a) She doesn't drink
- b) Only on special occasions
(e.g. birthdays, weddings etc.)
- c) Every few months
- d) A few times a month
- e) More than once a week
- f) Don't know / Does not apply

23. If your older brother or sister drinks, how often do they drink?

- a) They don't drink
- b) Only on special occasions
(e.g. birthdays, weddings etc.)
- c) Every few months
- d) A few times a month
- e) More than once a week
- f) Don't know / Does not apply

24. How often do your friends drink?

- a) They don't drink
- b) Only on special occasions
(e.g. birthdays, weddings etc.)
- c) Every few months
- d) A few times a month
- e) More than once a week
- f) Don't know / Does not apply

25. What do your parents think about your drinking?

- a) I do not drink
- b) They don't like me drinking at all
- c) They only like me to drink when they say I can
- d) They think I should drink gradually more as I get older
- e) They don't mind. I drink whatever, whenever, and wherever
I want to
- f) They don't know

26. How old were you when you first got merry or drunk?

- a) Less than 8 years old
- b) 8 - 10
- c) 11 - 13
- d) 14 - 16
- e) I've never been drunk

In the following questions, you are to say whether you agree or disagree with each statement about your family. There are 4 possible answers, listed below. Circle the correct answer for each question. **Circle only one answer.**

Strongly Disagree with the statement.
Disagree with the statement.
Agree with the statement.
Strongly Agree with the statement.

e.g. We never argue in our family *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

27. In my family we really help and support one another *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

28. In my family you can get away with almost anything. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

29. In my family we feel free to say what is on our minds. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

30. We hardly ever fight in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

31. We can do whatever we want to in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

32. There is a strong emphasis on following rules in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

33. It's often hard to find things when you need them in our house. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

34.
If there's a disagreement in my family,
we try hard to smooth things over
and keep the peace.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

35.
Parents make all of the important
decisions in my family.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

36.
We rarely volunteer when something
has to be done at home.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

37.
In my family we are full of life
and good spirits.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

38.
I don't think any family could get on
with each other better than my family.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

39.
There's a feeling of
togetherness in my family.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

40.
In my family we aren't punished
or told off when we do something
wrong.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

41.
In my family we discuss problems
and usually feel good about the
solutions.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

42.
In my family we never get so
angry that we throw things.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

43.
There is very little group spirit
in my family.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

44.
Being on time is very
important in my family.

*Strongly
Disagree* *Disagree* *Agree* *Strongly
Agree*

45. There are set ways of doing things at home.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
46. Nobody orders anyone around in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
47. My family enjoys being around other people.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
48. I don't think anyone could possibly be happier than my family and I when we're together.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
49. My family always does things together.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
50. Its hard to know what the rules are in my family because they are always changing.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
51. My family does not discuss its problems.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
52. In my family we hardly ever lose our tempers.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
53. In my family we make sure our rooms are neat and tidy.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
54. Each persons duties are clearly defined in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
55. In my family we are severely punished for anything we do wrong.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>

56. In my family we enjoy mixing with other people. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

57. My family have all the qualities I've always wanted in a family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

58. Family members strongly encourage each other to stand up for their rights. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

59. We really get along well with each other. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

60. It's not clear what will happen when rules are broken in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

61. In my family it's important for everyone to express their own opinion. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

62. In my family we never hit each other. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

63. Washing up is done straight after eating in our house. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

64. Family members don't often back each other up. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

65. There are very few rules in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

66. As a family, we have a large number of friends. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

67. My family is as well adjusted as any family in this world could be.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
68. There are a lot of spontaneous discussions in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
69. In my family we seem to avoid contact with each other when at home.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
70. There is clear leadership in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
71. We don't tell each other about our personal problems.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
72. There is plenty of time and attention for everyone in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
73. In my family we rarely criticize each other.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
74. We are generally pretty sloppy around the house.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
75. There is strict punishment for anyone breaking the rules in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
76. My family likes having parties.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
77. My family could be happier than it is.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>

78. We are not really encouraged to speak up for ourselves in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

79. Activities in my family are pretty carefully planned. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

80. "Work before play" is the rule in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

81. Family members have strict ideas about what is right and wrong. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

82. We come and go as we want to in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

In the following pages:-

Beginning YESTERDAY and working backwards through the week, mark how much you had to drink on each day.

TUESDAY

Did you have an alcoholic drink of any kind at any time on TUESDAY?

TICK ONE

NO

YES

Did you drink any

ring the number of . . . PINTS

BEER NO YES

LAGER

CIDER

ETC

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE NO YES

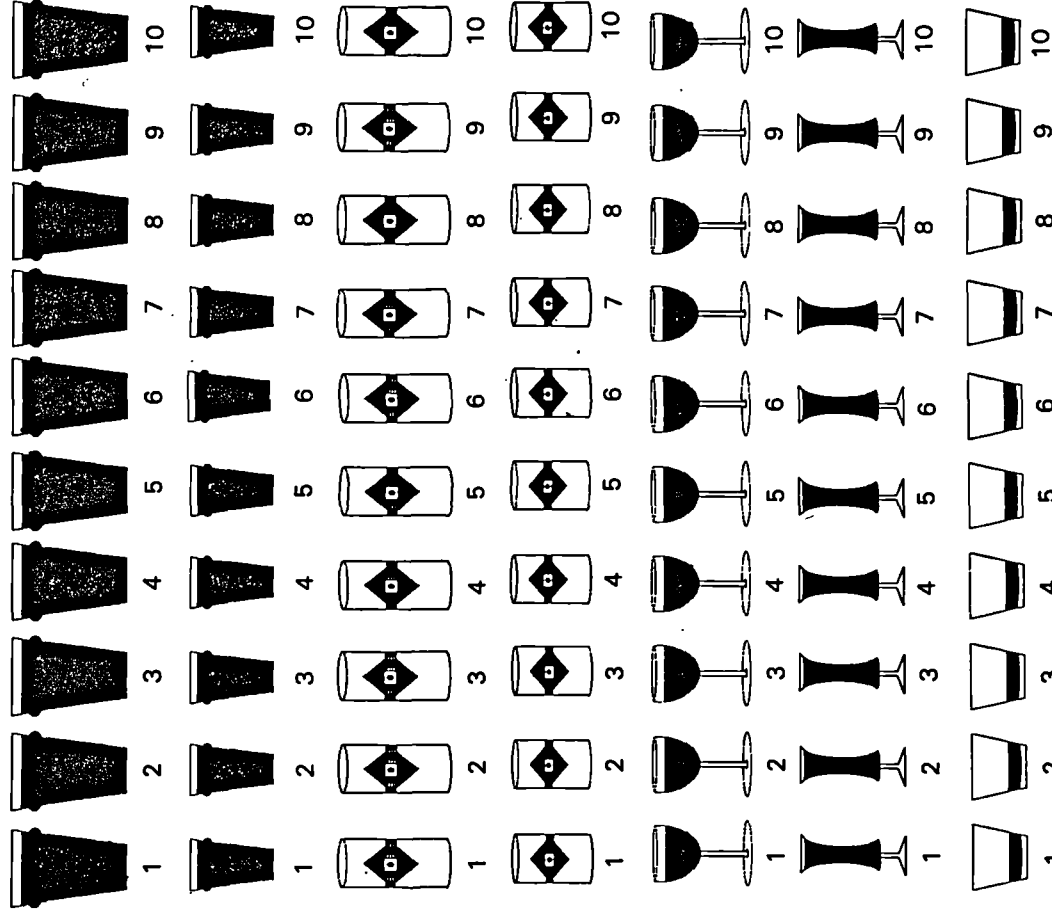
ring the number of glasses you drank

MARTINI NO YES
SHERRY
ETC

ring the number of glasses you drank

SPIRITS & NO YES
LIQUEURS

ring the number of glasses you drank
(if you had a double, count that as two glasses)



MONDAY

Did you have an alcoholic drink of any kind at any time on **MONDAY**?

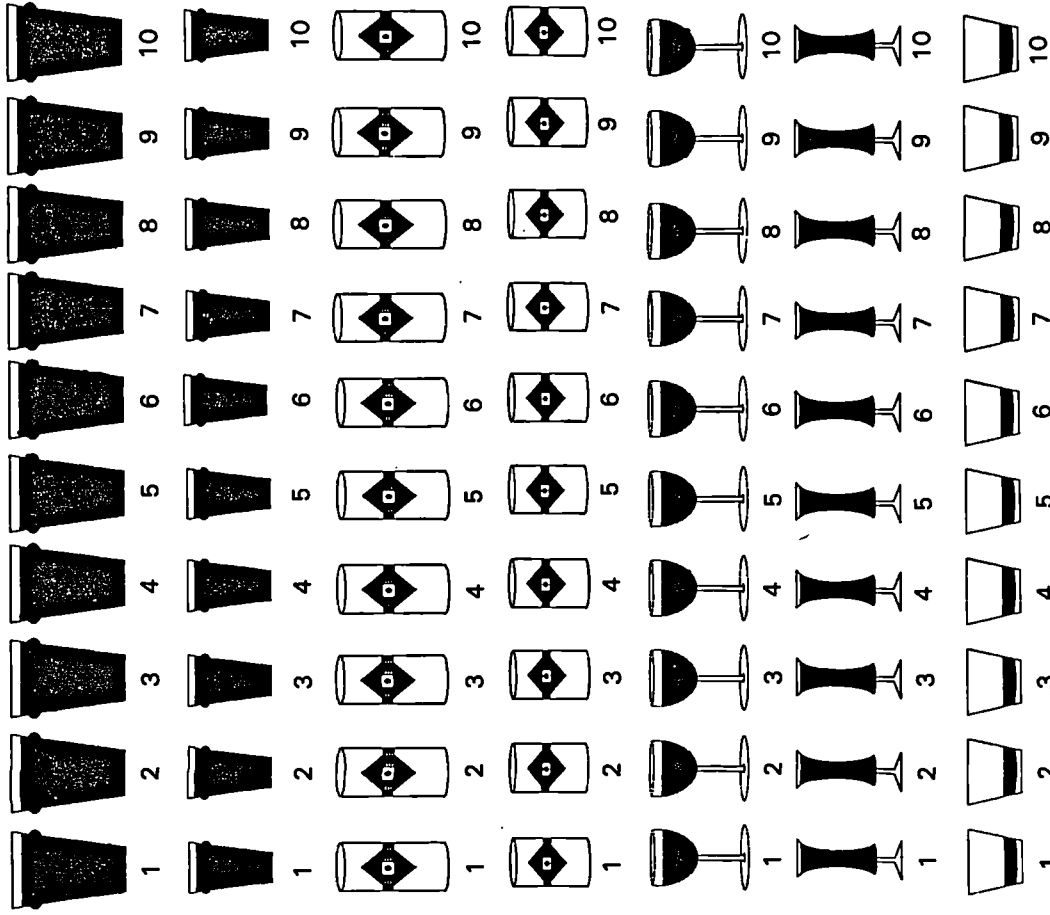
TICK ONE

NO
YES

Did you drink any.....

BEER **NO** **YES**
LAGER
CIDER
ETC

ring the number of . . . PINTS



. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE **NO** **YES**

ring the number of glasses you drank

MARTINI
SHERRY
ETC **NO** **YES**

ring the number of glasses you drank

SPIRITS &
LIQUEURS **NO** **YES**

ring the number of glasses you drank
(if you had a double, count that as two glasses)

SUNDAY

Did you have an alcoholic drink of any kind at any time on SUNDAY?

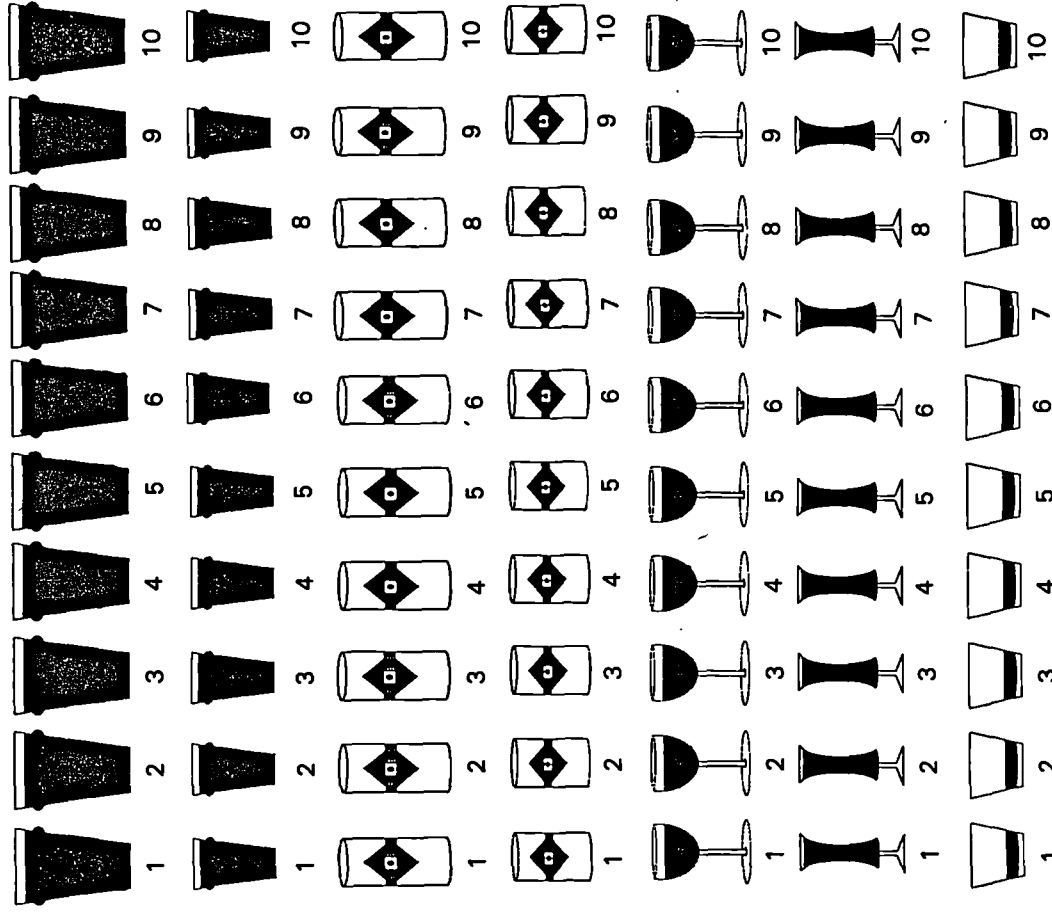
TICK ONE

NO
YES

Did you drink any

BEER NO YES
LAGER
CIDER
ETC

ring the number of ... PINTS



... and HALVES

... and LARGE CANS

... and SMALL CANS

WINE NO YES

ring the number of glasses you drank

MARTINI NO YES
SHERRY
ETC

ring the number of glasses you drank

SPIRITS & LIQUEURS NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)

SATURDAY

Did you have an alcoholic drink of any kind at any time on SATURDAY?

TICK ONE

NO
YES

Did you drink any.....

BEER NO YES

LAGER
CIDER
ETC

ring the number of ... PINTS

... and HALVES

... and LARGE CANS

... and SMALL CANS

WINE NO YES




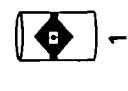
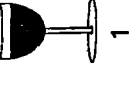




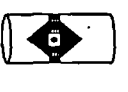

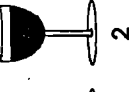




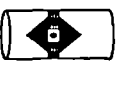
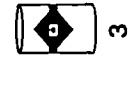
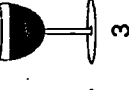




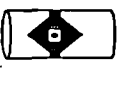
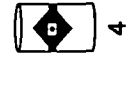





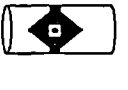

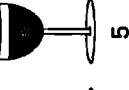





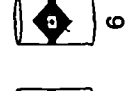
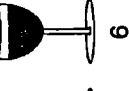



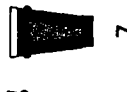
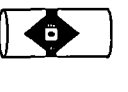
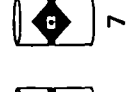
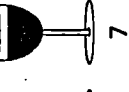






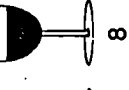





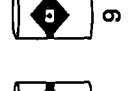
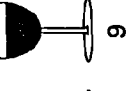






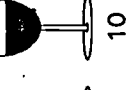


ring the number of glasses you drank

MARTINI
SHERRY
ETC NO YES

ring the number of glasses you drank

SPIRITS &
LIQUEURS NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)

						
1	1	1	1	1	1	1
						
2	2	2	2	2	2	2
						
3	3	3	3	3	3	3
						
4	4	4	4	4	4	4
						
5	5	5	5	5	5	5
						
6	6	6	6	6	6	6
						
7	7	7	7	7	7	7
						
8	8	8	8	8	8	8
						
9	9	9	9	9	9	9
						
10	10	10	10	10	10	10

FRIDAY

Did you have an alcoholic drink of any kind at any time on FRIDAY?

TICK ONE

NO

YES

Did you drink any

NO YES

ring the number of . . . PINTS

BEER
LAGER
CIDER
ETC
. . . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE
ring the number of glasses you drank

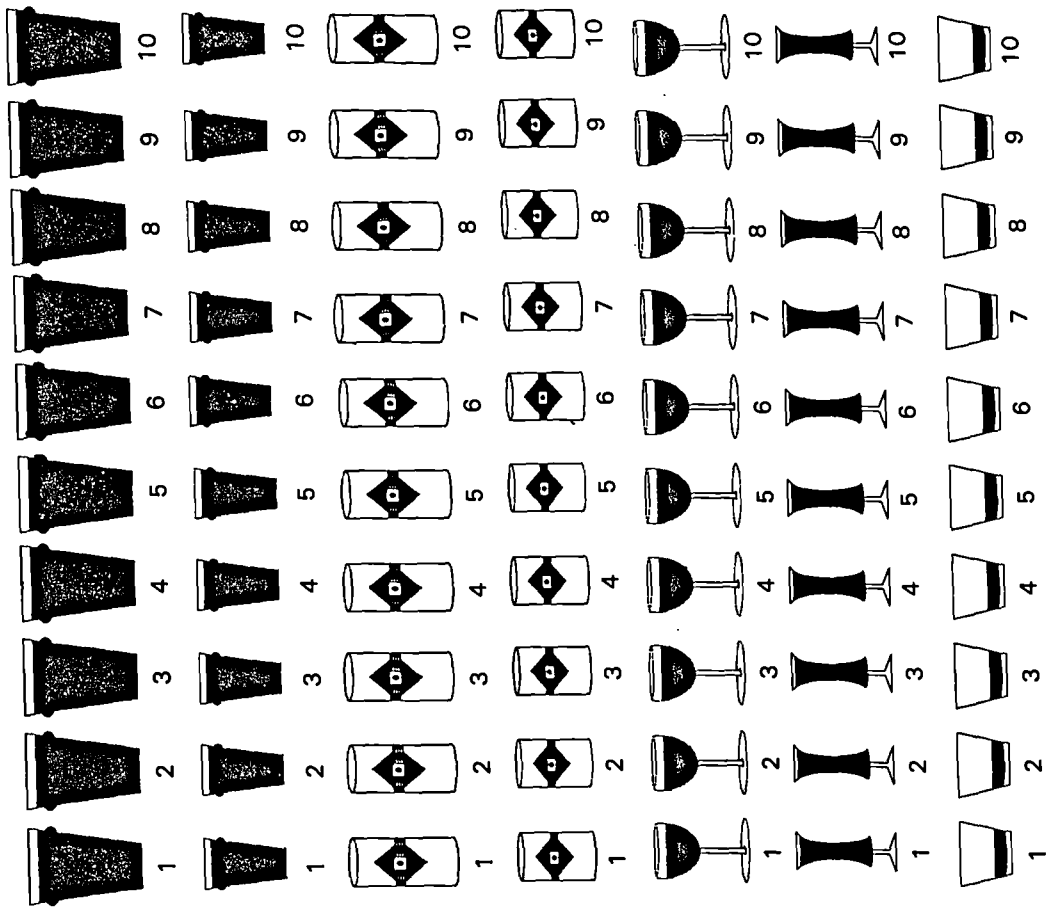
NO YES

MARTINI
SHERRY
ETC
ring the number of glasses you drank

NO YES

SPIRITS &
LIQUEURS
ring the number of glasses you drank
(if you had a double, count that as two glasses)

NO YES



THURSDAY

Did you have an alcoholic drink of any kind at any time on THURSDAY?

TICK ONE

NO
YES

Did you drink any

ring the number of . . . PINTS

BEER NO YES

LAGER

CIDER

ETC

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE

NO YES

ring the number of glasses you drank

MARTINI

SHERRY

ETC




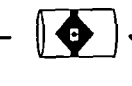
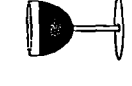








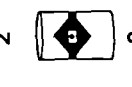









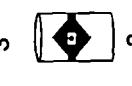
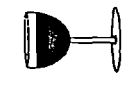

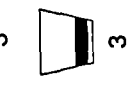





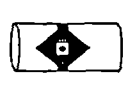
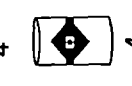
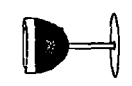







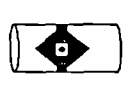

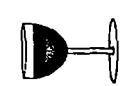





NO YES

ring the number of glasses you drank

SPIRITS &
LIQUEURS

NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)

	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10

WEDNESDAY

Did you have an alcoholic drink of any kind at any time on WEDNESDAY?

TICK ONE

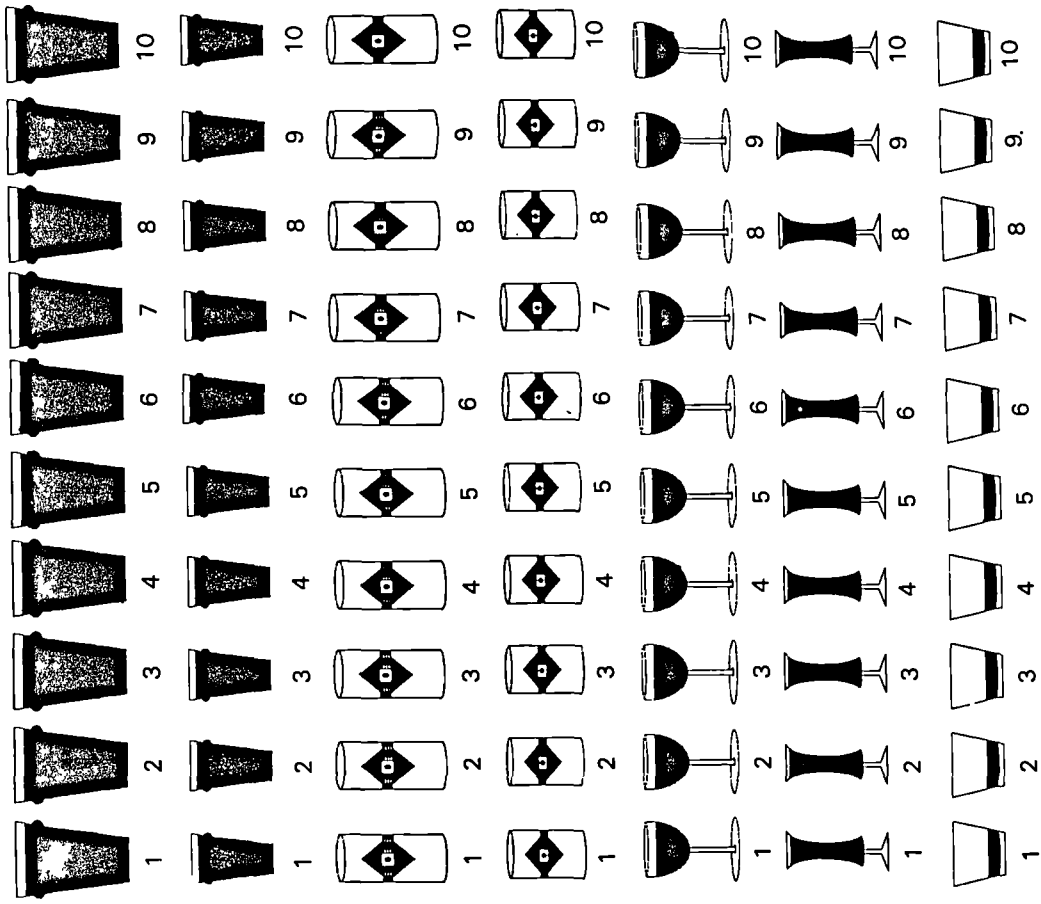
NO

YES

Did you drink any.....

NO YES

ring the number of . . . PINTS



BEER
LAGER
CIDER
ETC

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE

NO YES

ring the number of glasses you drank

MARTINI
SHERRY
ETC

NO YES

ring the number of glasses you drank

SPIRITS &
LIQUEURS

NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)

Finally, on the next page:-

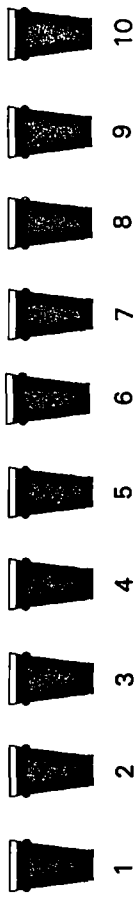
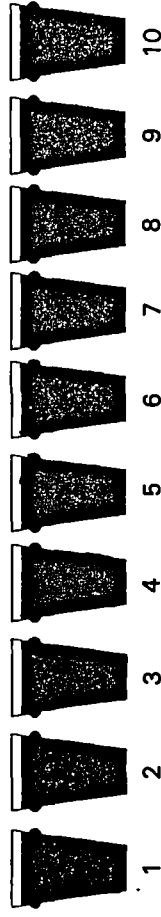
If you did NOT have an alcoholic drink in the past week, mark how much you had to drink on your last drinking occasion.

Did you drink any.....

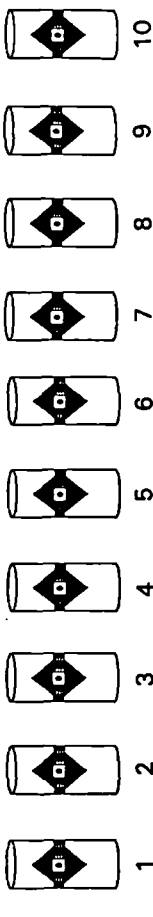
ring the number of ... PINTS

NO YES

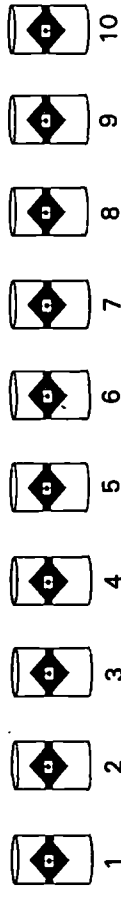
BEER
LAGER
CIDER
ETC



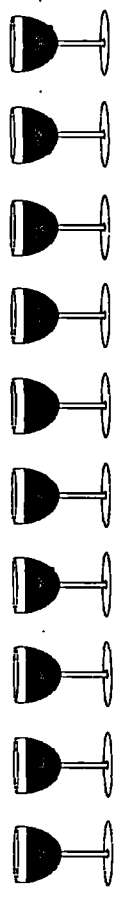
... and HALVES



... and LARGE CANS



... and SMALL CANS



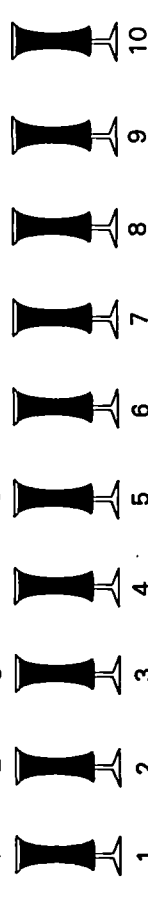
WINE NO YES

ring the number of glasses you drank

MARTINI
SHERRY
ETC

NO YES

ring the number of glasses you drank



SPIRITS &
LIQUEURS

NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)



Appendix 2: Factor loadings for family scales in pilot study II

Scales derived from the factor analysis of the family items in pilot study II. Six factors were extracted, accounting for 39.3% of the variance.

Factor 1: Cohesion-conflict (alpha=0.83)	Factor loading	communality (h^2)
We really get along well with each other	0.61	0.48
In my family we never get so angry that we throw things	0.61	0.47
There's a feeling of togetherness in my family	0.60	0.58
We hardly ever fight in my family	0.58	0.46
In my family we never hit each other	0.57	0.40
My family always does things together	0.54	0.42
In my family we hardly ever lose our tempers	0.52	0.48
In my family we are full of life and good spirits	0.51	0.38
In my family we really help and support one another	0.51	0.37
In my family we rarely criticize each other	0.49	0.34
If there's a disagreement in my family we try hard to smooth things over and keep the peace	0.46	0.34

Factor 2: Authoritarian (alpha=0.72)	Factor loading	communality (h^2)
There is strict punishment for anyone breaking the rules in my family	0.63	0.50
There is clear leadership in my family	0.49	0.26
It's hard to know what the rules are in my family as they are always changing	0.48	0.28
There are set ways of doing things at home	0.44	0.36
There is strong emphasis on following rules in my family	0.43	0.35
Family members have strict ideas about what is right and wrong	0.42	0.26
Work before play is the rule in my family	0.39	0.32
Each persons duties are clearly defined in my family	0.38	0.39

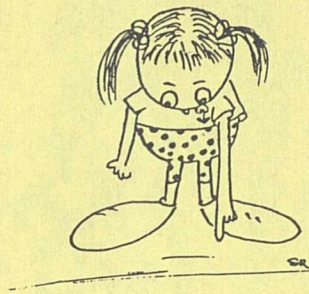
Factor 3: Laissez-faire (alpha=0.70)	Factor loading	communality (h^2)
We can do whatever we want to in my family	0.64	0.45
In my family you can get away with almost anything	0.60	0.38
We come and go as we want to in my family	0.55	0.42
In my family we aren't punished or told off when we do something wrong	0.52	0.35
There are very few rules in my family	0.48	0.35
Nobody orders anyone around in my family	0.45	0.44
In my family we are severely punished for anything we do wrong	-0.32	0.42

Factor 4: Sociability (alpha=0.57)	Factor loading	communality (h^2)
My family enjoys being around other people	0.74	0.58
As a family we have a large number of friends	0.60	0.43
My family likes having parties	0.37	0.32

Factor 5: Organization (alpha=0.57)	Factor loading	communality (h^2)
In my family we make sure our rooms are neat and tidy	0.63	0.46
Washing up is done straight after eating in our house	0.58	0.34
We are generally pretty sloppy around the house	-0.50	0.41
It's often hard to find things when you need them in our house	-0.45	0.36
We rarely volunteer when something has to be done at home	-0.41	0.27

Factor 6: Expressiveness (alpha=0.77)	Factor loading	communality (h^2)
We don't tell each other about our personal problems	-0.64	0.52
In my family we feel free to say what is on our minds	0.63	0.45
My family does not discuss its problems	-0.62	0.54
In my family it's important for everyone to express their own opinion	0.54	0.43
We are not really encouraged to speak up for ourselves in my family	-0.45	0.26
Family members don't often back each other up	-0.38	0.31
There are a lot of spontaneous discussions in my family	0.38	0.22
There is plenty of time and attention for everyone in my family	0.35	0.51
There is very little group spirit in my family	-0.35	0.32

Appendix 3: Final questionnaire



YOUNG PEOPLE, DRINKING, AND FAMILY LIFE

The purpose of this questionnaire is to discover what young people think about drinking alcohol, and how they drink. Also, there are questions about life at home. We realize that most of you are underage so your answers will be kept confidential - no-one from the school or college will be allowed to see your answers.

To make sure no-one can tell who filled in this questionnaire, do not put your name or anything else that might identify you on any part of the paper.

Please answer all the questions that you can as quickly and as honestly as possible. Try not to spend too long on any one question. All of the questions which ask about your drinking refer to alcoholic drinks. If you have any problems please ask for help.

REMEMBER THAT THIS QUESTIONNAIRE IS ANONYMOUS.

DAVID FOXCROFT
UNIVERSITY OF HULL



9. Where were you at the time of this first drink without your parents/guardians?



- a) At home
- b) A friend's house
- c) Pub/club
- d) Street/park
- e) None of the above
- f) Never had a drink

10. When are you going to have your next drink?

- a) As soon as I can
- b) This week - next 7 days
- c) In the next 1 to 4 weeks
- d) In the next 1 to 3 months
- e) Not in the near future

If you drink, **why** do you drink alcoholic drinks?

Please circle **TRUE** or **FALSE** for each statement. (If you don't drink then go to Question 22).

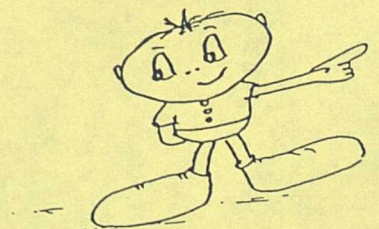
- | | | | | | |
|---------------------------|-------------|--------------|---------------------------------------|-------------|--------------|
| 11. Like the taste | TRUE | FALSE | 17. To be sociable | TRUE | FALSE |
| 12. To escape problems | TRUE | FALSE | 18. To celebrate | TRUE | FALSE |
| 13. To be confident | TRUE | FALSE | 19. Because I'm under pressure/stress | TRUE | FALSE |
| 14. To feel relaxed | TRUE | FALSE | 20. I like the effects | TRUE | FALSE |
| 15. To get drunk | TRUE | FALSE | 21. It cheers me up | TRUE | FALSE |
| 16. Because my friends do | TRUE | FALSE | | | |

22. How often do you drink?

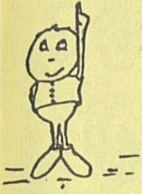
- a) I don't drink
- b) Every few months / Special occasions (e.g. birthdays, weddings etc.)
- c) A few times a month / Once a week
- d) More than once a week

23. If your father/guardian drinks, how often does he drink?

- a) He doesn't drink
- b) Every few months / Special occasions (e.g. birthdays, weddings etc.)
- c) A few times a month / Once a week
- d) More than once a week
- e) Don't know / Does not apply



24. If your mother/guardian drinks, how often does she drink?



- a) She doesn't drink
- b) Every few months / Special occasions (e.g. birthdays, weddings etc.)
- c) A few times a month / Once a week
- d) More than once a week
- e) Don't know / Does not apply

25. If your older brother or sister drinks, how often do they drink?
(If you have both an older brother and sister, answer for the one you are closest to)

- a) They don't drink
- b) Every few months / Special occasions (e.g. birthdays, weddings etc.)
- c) A few times a month / Once a week
- d) More than once a week
- e) Don't know / Does not apply

26. How often do your friends drink?

- a) They don't drink
- b) Every few months / Special occasions (e.g. birthdays, weddings etc.)
- c) A few times a month / Once a week
- d) More than once a week
- e) Don't know / Does not apply

27. How much do your friends usually like to drink?

- a) They do not drink
- b) Just a few sips
- c) Only one or two drinks
- d) Enough to get merry
- e) Enough to get drunk

28. What do your parents/guardians think about you drinking alcohol?

- a) They don't think I should drink at all
- b) They think I should drink only when they say I can
- c) They don't mind as long as I don't drink too much
- d) They aren't bothered. I drink whatever, whenever, and wherever I want to

29. How old were you when you first got merry or drunk?

- a) I've never been drunk
- b) 14 - 16
- c) 11 - 13
- d) 8 - 10
- e) Less than 8 years old





In the following questions, you are to say whether you agree or disagree with each statement about your family. There are 4 possible answers. Circle the correct or the nearest answer for each question. **Circle only one answer.**

e.g.

We never argue in our family

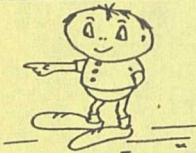
*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

START HERE:-



30.

In my family we really help and support one another

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

31.

In my family you can get away with almost anything.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

32.

In my family we feel free to say what is on our minds.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

33.

My family does not discuss its problems.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

34.

We don't often fight in my family.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

35.

We can do whatever we want to in my family.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

36.

It's important to follow rules in my family.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*

37.

If there's a disagreement in my family, we try hard to smooth things over and keep the peace.

*Strongly
Disagree*

Disagree

Agree

*Strongly
Agree*





38. In my family we make sure our rooms are neat and tidy. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

39. In my family we are full of life and good spirits. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

40. There's a feeling of togetherness in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

41. In my family we aren't punished or told off when we do something wrong. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

42. In my family we never get so angry that we throw things. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

43. It's often hard to find things when you need them in our house *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

44. There are set ways of doing things at home. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

45. Nobody orders anyone around in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

46. My family always does things together. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

47. In my family we hardly ever lose our tempers. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

48. Washing up is done straight after eating in our house. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*





49. Each persons duties are clearly set out in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

50. In my family we are severely punished for anything we do wrong. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

51. We really get along well with each other. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

52. In my family it's important for everyone to express their own opinion. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

53. In my family we never hit each other. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

54. Family members don't often back each other up. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

55. We rarely volunteer when something has to be done at home. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

56. There are very few rules in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

57. There are a lot of discussions in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

58. There is clear leadership in my family. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

59. We don't tell each other about our personal problems. *Strongly Disagree* *Disagree* *Agree* *Strongly Agree*



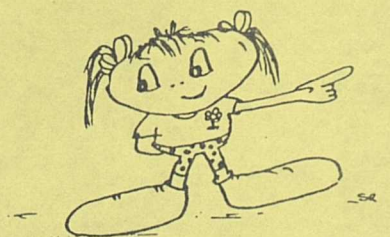


60. We are generally pretty sloppy around the house.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
61. There is plenty of time and attention for everyone in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
62. In my family we don't often criticize each other.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
63. There is strict punishment for anyone breaking the rules in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
64. "Work before play" is the rule in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
65. Family members have strict ideas about what is right and wrong.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
66. We come and go as we want to in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
67. Its hard to know what the rules are in my family, as they are always changing.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
68. There is very little group spirit in my family	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
69. We are not really encouraged to speak up for ourselves in my family.	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>



In the following pages:-

Beginning YESTERDAY and working backwards through the week, mark how much you have had to drink on each day



THURSDAY

Did you have an alcoholic drink of any kind at any time on THURSDAY?

TICK ONE

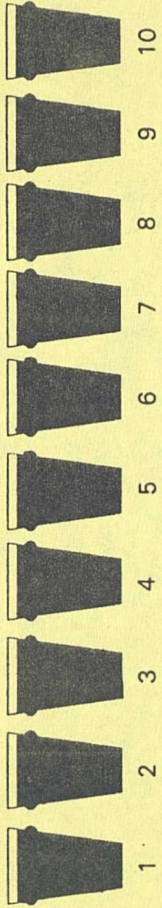
NO
YES



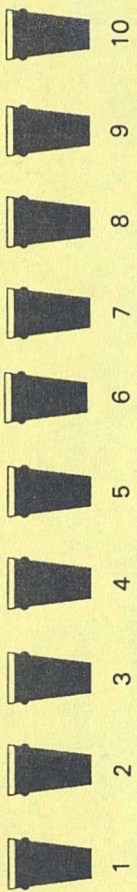
Did you drink any

BEER NO YES
LAGER
CIDER
ETC

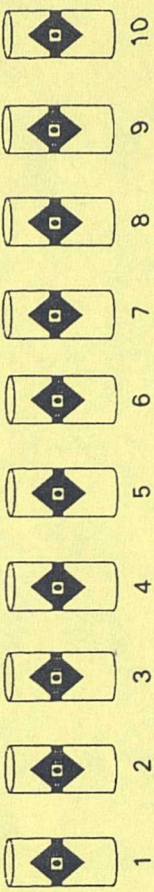
ring the number of . . . PINTS



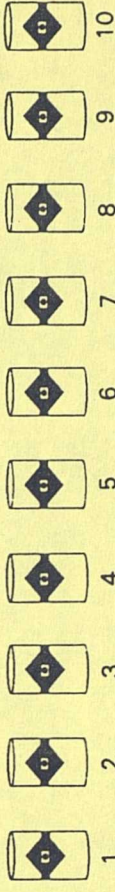
. . . and HALVES



. . . and LARGE CANS

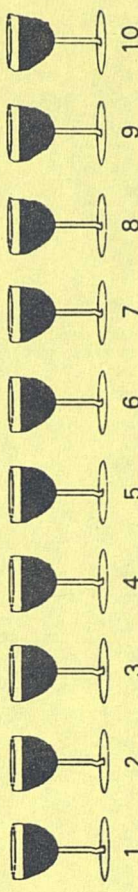


. . . and SMALL CANS



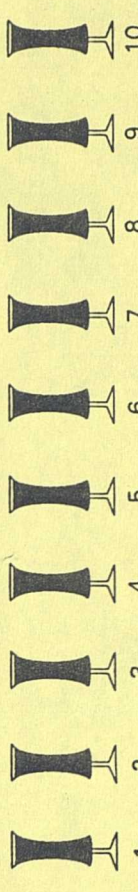
WINE NO YES

ring the number of glasses you drank

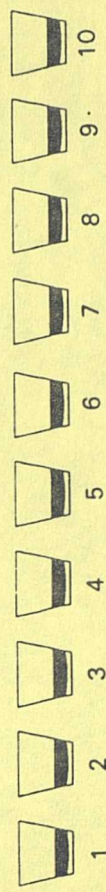


MARTINI NO YES
SHERRY
ETC

ring the number of glasses you drank

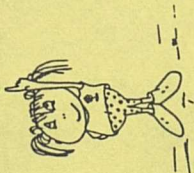


SPIRITS & NO YES
LIQUEURS
(if you had a double, count that as two glasses)



WEDNESDAY

Did you have an alcoholic drink of any kind at any time on WEDNESDAY?



TICK ONE

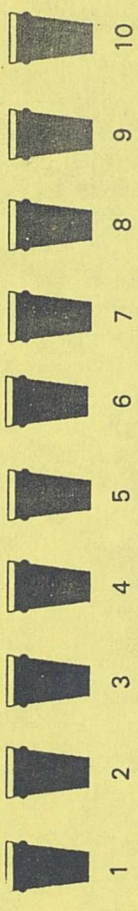
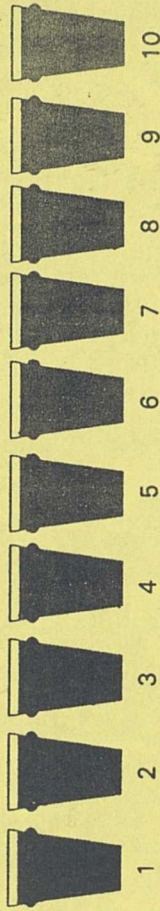
NO
YES

Did you drink any

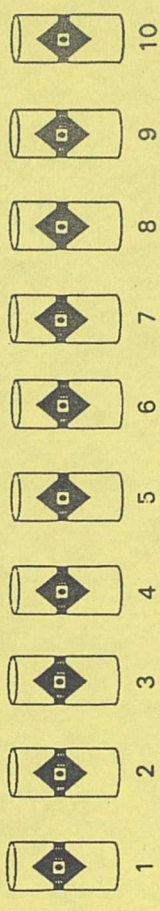
BEER
LAGER
CIDER
ETC

NO YES

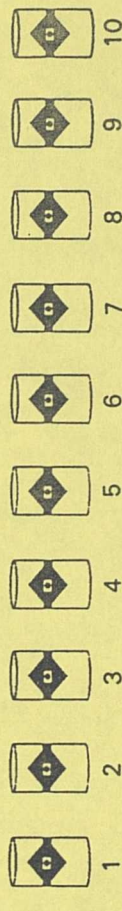
ring the number of . . . PINTS



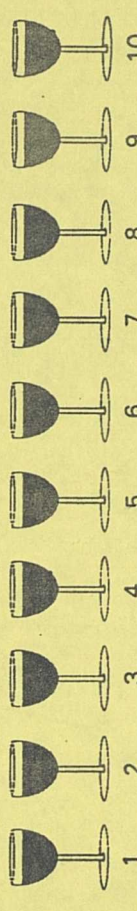
. . . and HALVES



. . . and LARGE CANS



. . . and SMALL CANS



WINE

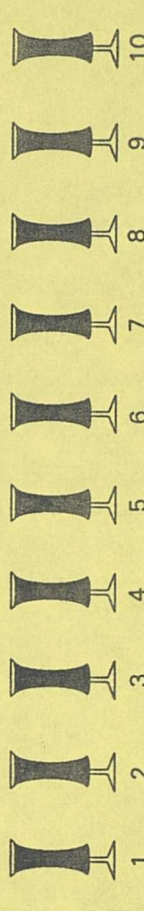
NO YES

ring the number of glasses you drank

MARTINI
SHERRY
ETC

NO YES

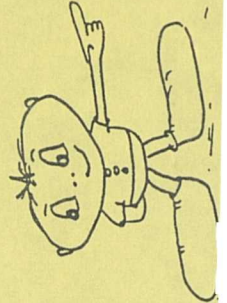
ring the number of glasses you drank



SPIRITS &
LIQUEURS

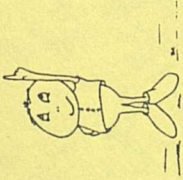
NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)



TUESDAY

Did you have an alcoholic drink of any kind at any time on TUESDAY?



TICK ONE

NO
YES

Did you drink any

BEER NO YES

LAGER
CIDER
ETC

ring the number of . . . PINTS

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE

NO YES

ring the number of glasses you drank

MARTINI
SHERRY
ETC

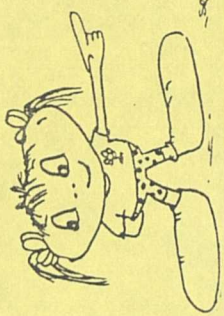
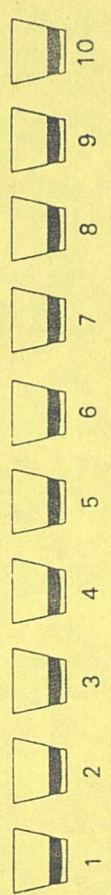
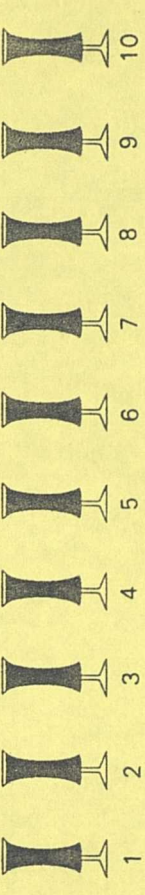
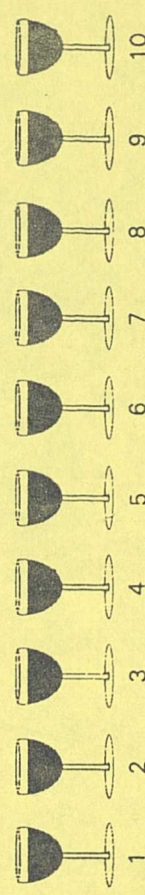
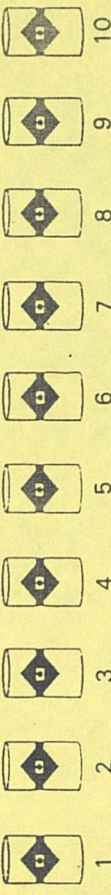
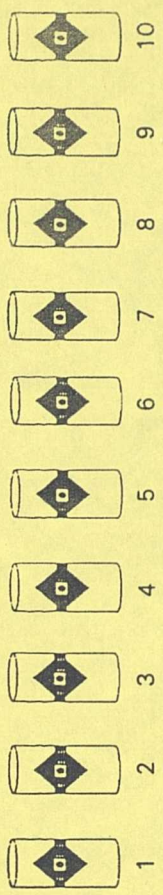
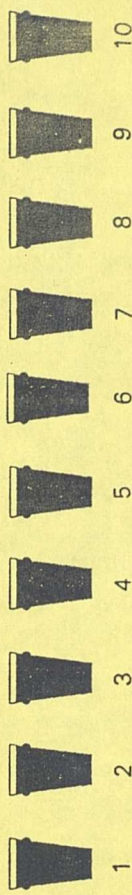
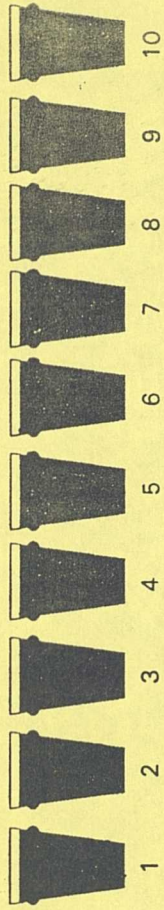
NO YES

ring the number of glasses you drank

SPIRITS &
LIQUEURS

NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)

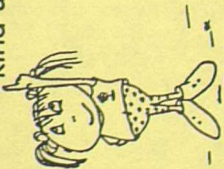


MONDAY

Did you have an alcoholic drink of any kind at any time on MONDAY?

TICK ONE

NO
YES



Did you drink any.....

NO YES

BEER
LAGER
CIDER
ETC

ring the number of . . . PINTS

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE

NO YES

ring the number of glasses you drank

MARTINI
SHERRY
ETC

NO YES

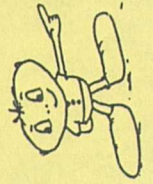
ring the number of glasses you drank

SPIRITS &
LIQUEURS

NO YES

ring the number of glasses you drank
(if you had a double, count that as two glasses)

	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10

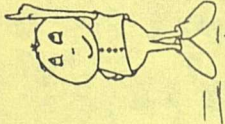


SUNDAY

Did you have an alcoholic drink of any kind at any time on SUNDAY?

TICK ONE

NO
YES



Did you drink any

BEER NO YES
LAGER
CIDER
ETC

ring the number of . . . PINTS

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE NO YES

ring the number of glasses you drank

MARTINI NO YES
SHERRY
ETC

ring the number of glasses you drank

SPIRITS & NO YES
LIQUEURS

ring the number of glasses you drank
(if you had a double, count that as two glasses)

	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10





SATURDAY

Did you have an alcoholic drink of any kind at any time on SATURDAY?

TICK ONE

NO
YES

Did you drink any

NO YES

BEER
LAGER
CIDER
ETC

ring the number of . . . PINTS

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

NO YES

WINE

ring the number of glasses you drank

NO YES

MARTINI
SHERRY
ETC

ring the number of glasses you drank

NO YES

SPIRITS &
LIQUEURS

ring the number of glasses you drank
(if you had a double, count that as two glasses)

	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10
	1		2		3		4		5		6		7		8		9		10



FRIDAY

Did you have an alcoholic drink of any kind at any time on FRIDAY?

TICK ONE

NO

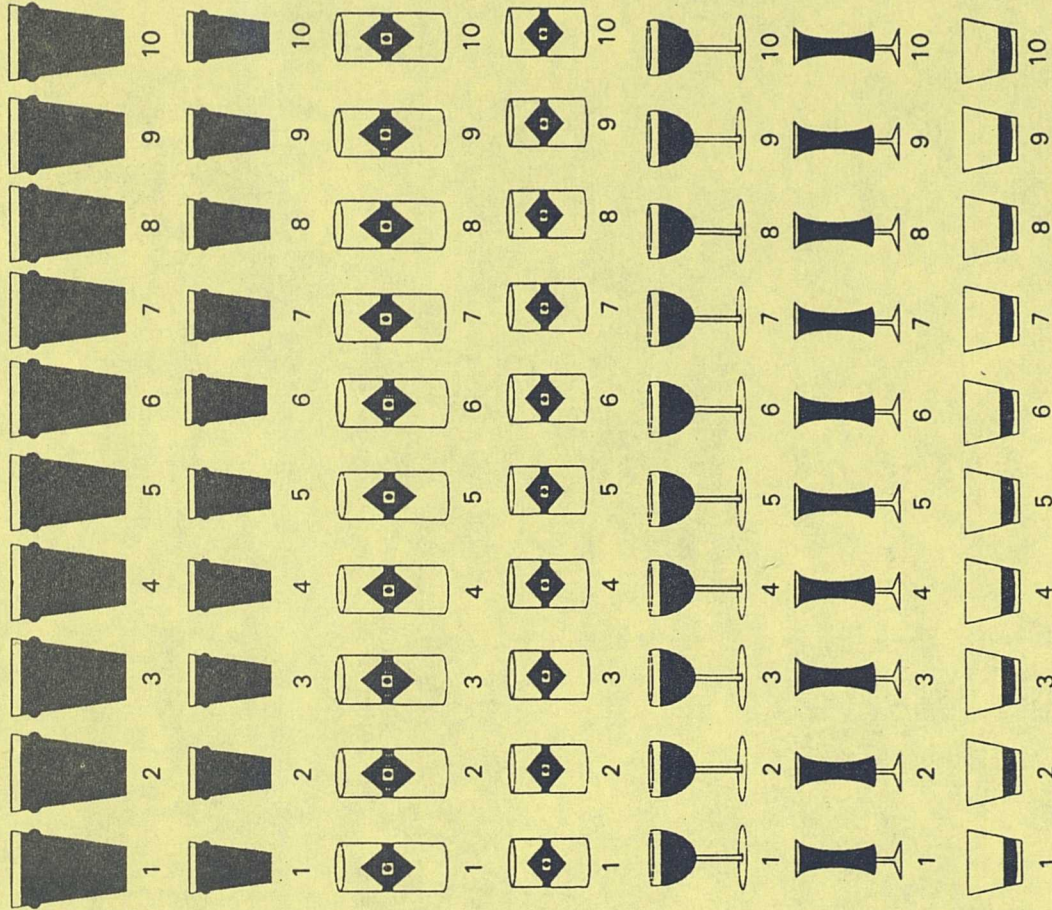
YES



Did you drink any

NO YES

ring the number of . . . PINTS



BEER
LAGER
CIDER
ETC

. . . and HALVES

. . . and LARGE CANS

. . . and SMALL CANS

WINE NO YES

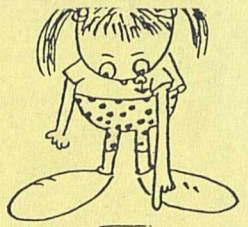
ring the number of glasses you drank

MARTINI
SHERRY
ETC NO YES

ring the number of glasses you drank

SPIRITS &
LIQUEURS NO YES
(if you had a double, count that as two glasses)





What are **YOUR** thoughts on young people, drinking, and family life. (Use the rest of this page to write down what **YOU** think).



Appendix 4: Draft letter to parents

Dear Parent(s),

Researchers from Hull University have contacted the school and have asked permission to come and give out a questionnaire about young people's alcohol use. While this may be considered to be a sensitive area, the researchers have stated that confidentiality and anonymity are guaranteed, i.e. once the questionnaire is filled in, then there is no possible way to trace it back to who filled it in.

The Local Education Authority and the School have examined the questions, and are satisfied that they are not too difficult or intrusive for the pupils to answer. The researchers have made it clear that if any pupil finds any question, or set of questions, too difficult to answer, then the pupil does not have to answer those questions. We are therefore willing to invite the researchers from the University of Hull into this school.

If you do **not** wish your child to fill in this questionnaire, then you are advised to fill in the slip at the bottom of this page and return it to me as soon as possible.

Yours faithfully,

Headteacher

TEAR OFF AND RETURN IF YOU DO NOT WANT YOUR CHILD TO TAKE PART:-

Dear Headteacher,

I am *not* happy for my son/daughter _____ to fill in this questionnaire.

(signed) _____

Appendix 5: Administration Guidelines

Young People, Drinking, and Family Life Questionnaire

Administration Guidelines

Teachers should familiarize themselves with the questionnaire and with these guidelines before administering the questionnaire. This questionnaire should be completed in a supervised classroom and should take between 20 and 35 minutes for everyone to complete.

(1) Introduction to pupils. The questionnaire is in three parts. Hold up questionnaire and offer a brief description:-

part 1 - basic background questions (age, sex, who do you live with, if you drink - age of first drink etc)

part 2 - series of statements about families (down left hand side of page), with 4 potential answers "strongly disagree", "disagree", "agree" or "strongly agree" with the statement for YOUR family. Emphasize that there are no right or wrong answers, as everyone's family is different. Also, it is important to answer each question as quickly as possible - give the answer that is your **FIRST REACTION** and move on quickly to the next question.

part 3 - seven "drinking diary" pages. If you have had a drink in the past 7 days, what did you drink. Starting yesterday (first page) and working **BACKWARDS** through the past 7 days indicate by circling the type and quantity of drinks (pints, halves, cans, wine, sherry, spirits). If you are not sure what or how much you drank, write it down on the page. If you did not have a drink tick "NO" and move on to the next page/previous day.

(2) General instructions to pupils.

(i) The questionnaire is confidential - no-one from the school, from home, police, etc. are allowed to see the answers, **THE QUESTIONNAIRE IS FOR RESEARCH ONLY.**

(ii) The questionnaire is anonymous - individual questionnaires cannot be traced back to who filled it in. Names are **NOT** to be written on the questionnaire.

These two factors are designed so that the questionnaire is **PRIVATE** (needs emphasizing +++). This should encourage you to tell the truth. As it is private, the questionnaire should be filled in on your own - not with a group of friends. If you have any questions put your hand up. When everyone has finished the questionnaires will be sealed into large envelopes, awaiting collection by the researchers.

(iii) Only give one answer for every question apart from Question 3, (Who do you live with?) when you need to tick (or circle) all those that apply. If in any question you find you can't decide between answers, make a quick decision and go for the nearest one (or the one which happens most of the time).

(iv) It's important to work through the questionnaire as quickly as you can, at all times giving the answer that is your first reaction and then moving on to the next question.

BEGIN THE QUESTIONNAIRE

[Teachers should keep a low profile while the questionnaire is being completed, as it is a confidential and private exercise, unless specific requests for help are made]*

(3) Open-ended question. As individuals begin to finish, draw their attention to the final page, which asks what their thoughts are. This is their chance to say what they think about young people, drinking and family life, without having the set answers as in the rest of the questionnaire. People can write, draw pictures or cartoons, write down jokes, in fact however they want to express their thoughts. (again emphasize that this is PRIVATE, and that no-one will be able to find out 'who did what!'). Everyone should be encouraged to put something down on this final page - to express their opinion.

Finally, thank all participants for taking part. Collect all the questionnaires together and place them in the envelopes provided, and seal the envelopes in the presence of the pupils.

If the pupils wish to know the purpose of the questionnaire, then briefly - we are giving out this questionnaire in many schools throughout Humberside. The results should give us lots of information about young people's drinking behaviour which will enable the development of better and more effective alcohol education packages.

Guidelines re: specific requests for help

* Specific questions may refer to:-

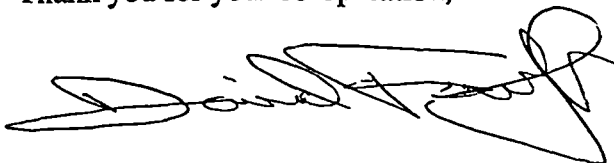
(i) Pupils asking what a specific question means (e.g. what does '*fight*' mean in Q.34). At all times pupils should make their own interpretations of questions, in other words "*it means what you (the pupil) thinks it means*".

(ii) Q 8 & 9 - the category "*Never had a drink*" means never had a drink without parents/guardians.

(iii) Q 27 - If the respondent does not know how much his/her friends usually drink, they should write in "don't know".

(iv) Q 28 - If the respondent has never had a drink, they should answer this question as 'what their parents/guardians would think if they did drink'.

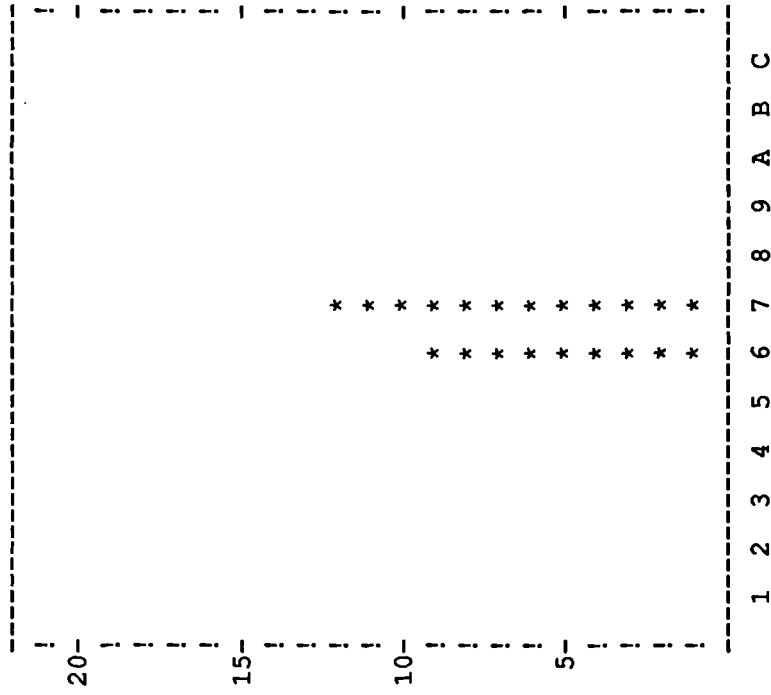
Thank you for your co-operation,



David Foxcroft
Hull University

**Appendix 6: EQS residual distributions from
structural models of each year/sex group
(Chapter 13)**

DISTRIBUTION OF STANDARDIZED RESIDUALS

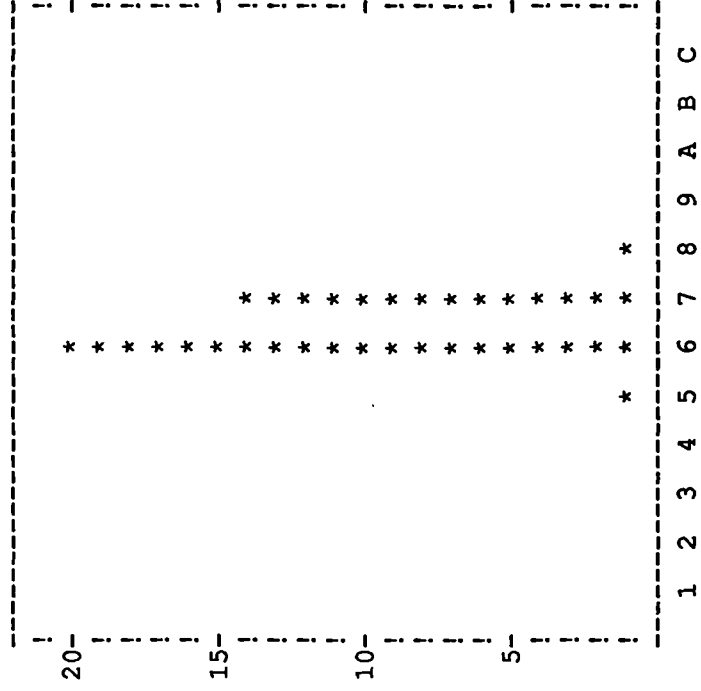


	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	0	.00%
6	0.0 - -0.1	9	42.86%
7	0.1 - 0.0	12	57.14%
8	0.2 - 0.1	0	.00%
9	0.3 - 0.2	0	.00%
A	0.4 - 0.3	0	.00%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		21	100.00%

NOTE : EACH "*" REPRESENTS 1 RESIDUAL(S)

Figure A6.1: EQS output showing distribution of residuals for year 7 males SEM

DISTRIBUTION OF STANDARDIZED RESIDUALS

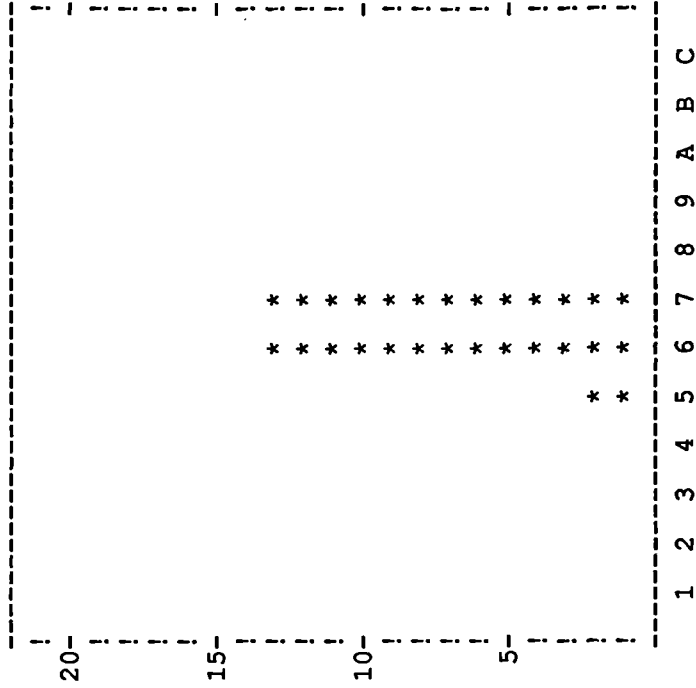


	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0,	.00%
5	-0.1 - -0.2	1	2.78%
6	0.0 - -0.1	20	55.56%
7	0.1 - 0.0	14	38.89%
8	0.2 - 0.1	1	2.78%
9	0.3 - 0.2	0	.00%
A	0.4 - 0.3	0	.00%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		36	100.00%

NOTE : EACH "*" REPRESENTS 1 RESIDUAL(S)

Figure A6.2: EQS output showing distribution of residuals for year 8 males SEM

DISTRIBUTION OF STANDARDIZED RESIDUALS



NOTE : EACH "*" REPRESENTS 1 RESIDUAL(S)

	RANGE	FREQ	PERCENT
1	-0.5 -	0	.00%
2	-0.4 -	0	.00%
3	-0.3 -	0	.00%
4	-0.2 -	0	.00%
5	-0.1 -	2	7.14%
6	0.0 -	13	46.43%
7	0.1 -	13	46.43%
8	0.2 -	0	.00%
9	0.3 -	0	.00%
A	0.4 -	0	.00%
B	0.5 -	0	.00%
C	++ -	0	.00%
TOTAL		28	100.00%

Figure A6.3: EQS output showing distribution of residuals for year 9 males SEM

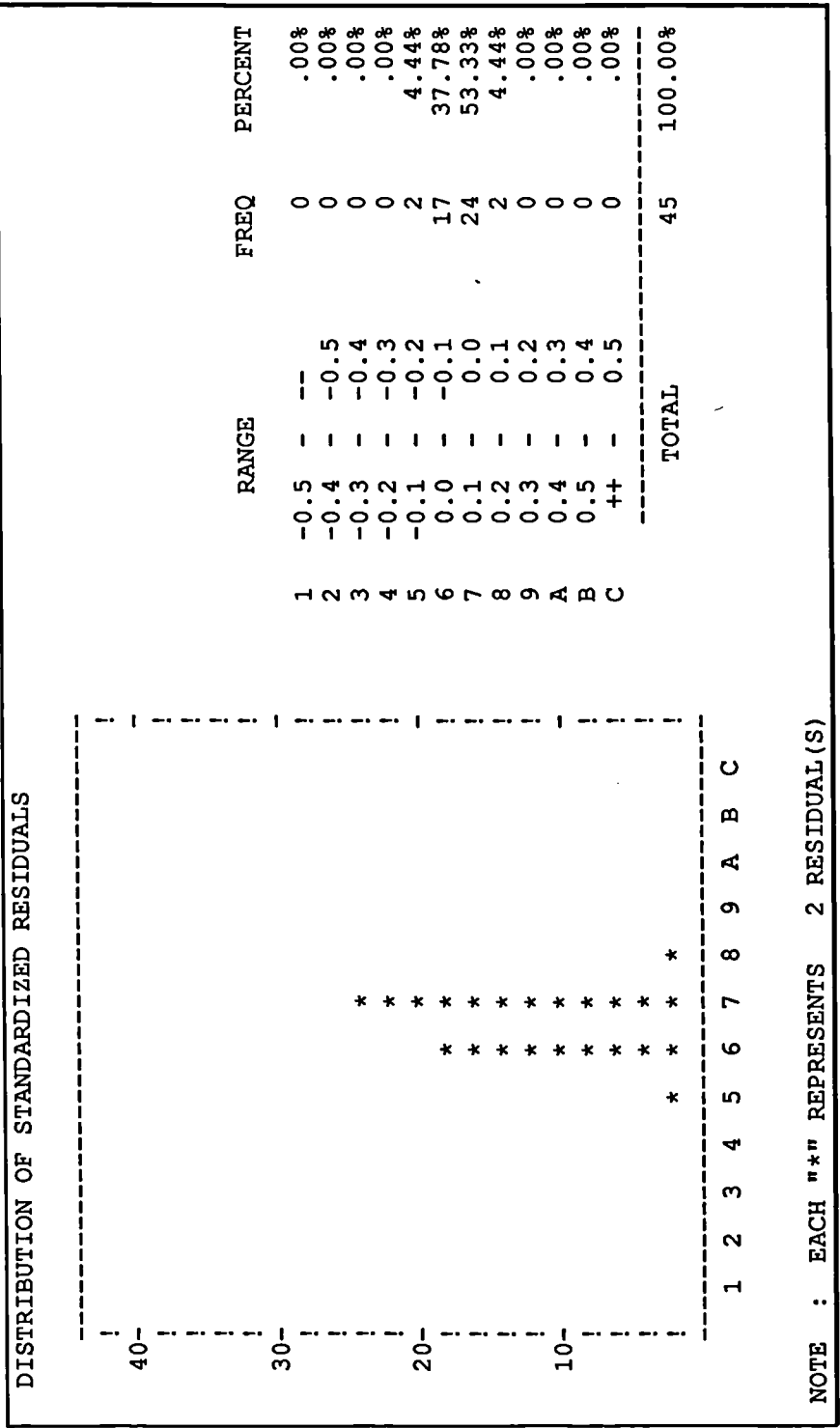


Figure A6.5: EQS output showing distribution of residuals for year 11 males SEM

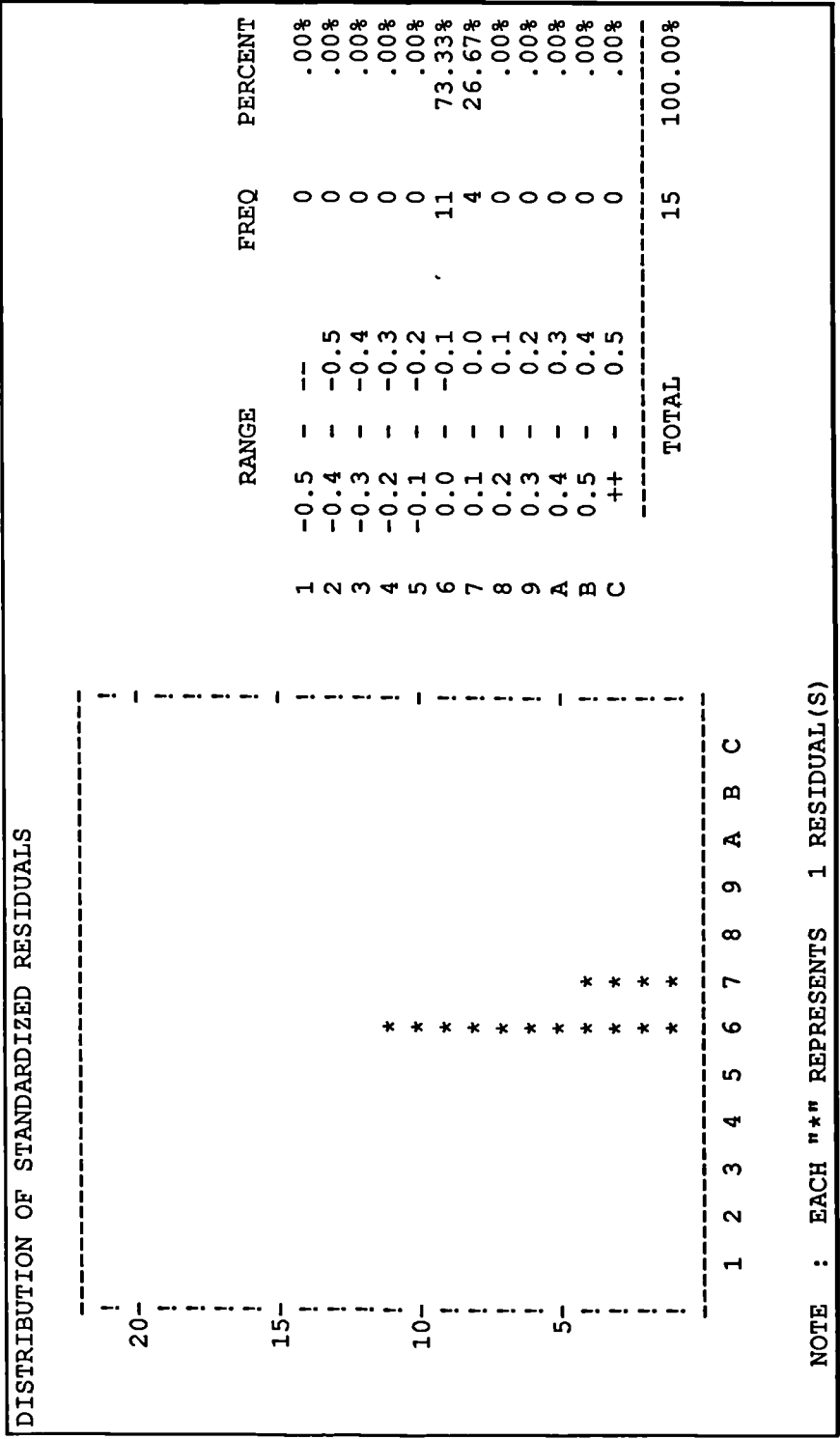


Figure A6.6: EQS output showing distribution of residuals for year 7 females SEM

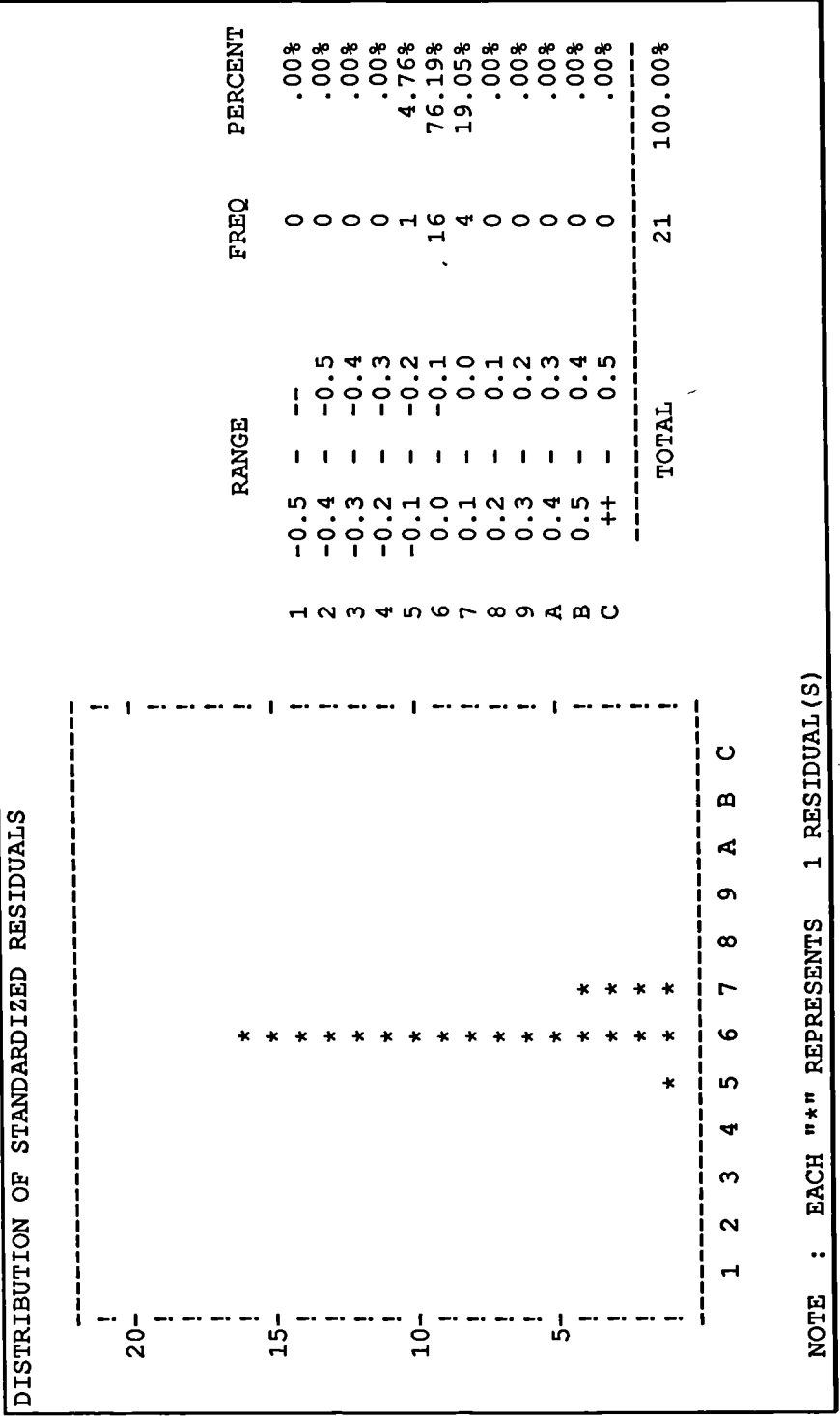


Figure A6.7: EQS output showing distribution of residuals for year 8 females SEM

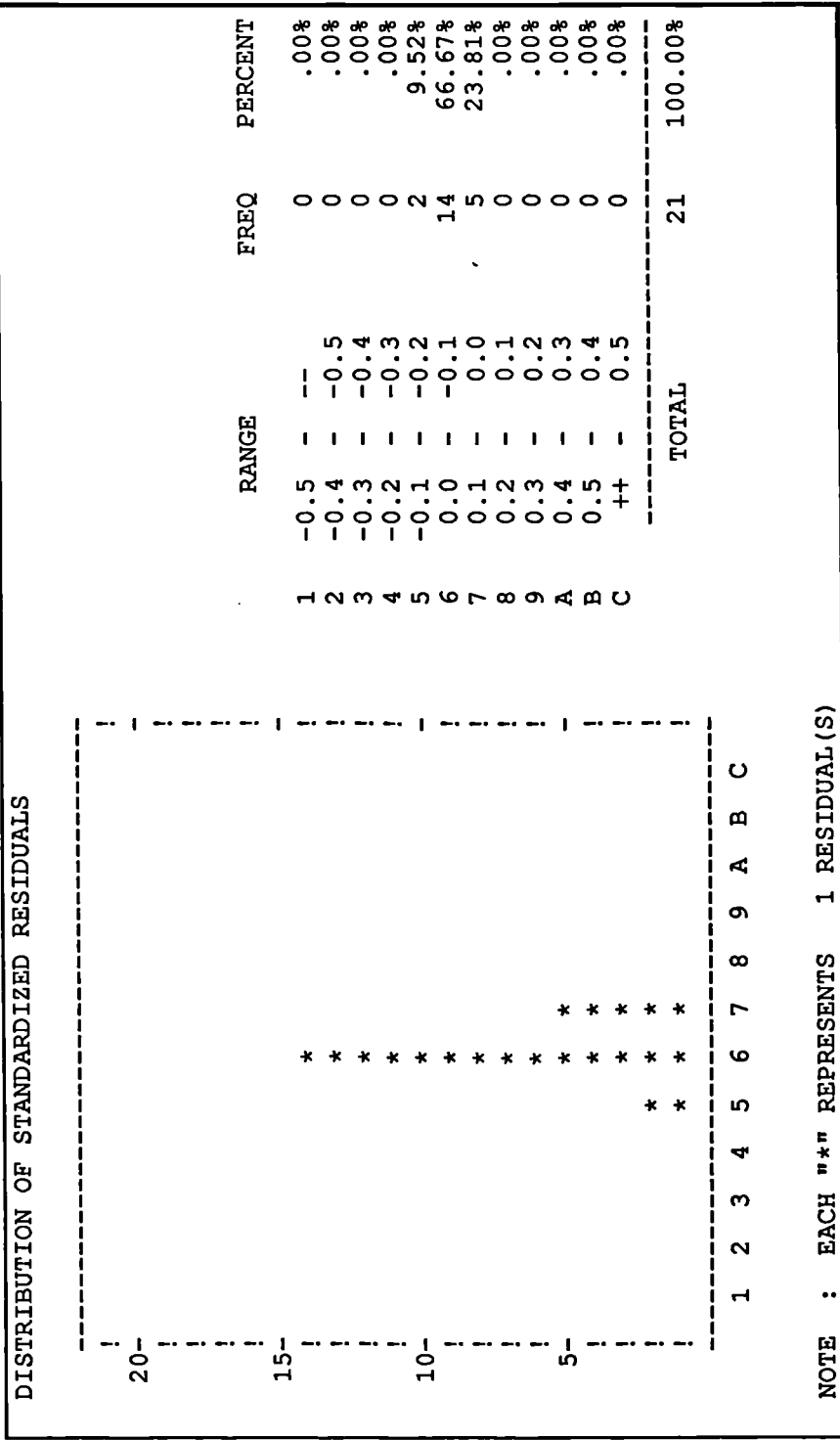


Figure A6.8: EQS output showing distribution of residuals for year 9 females SEM

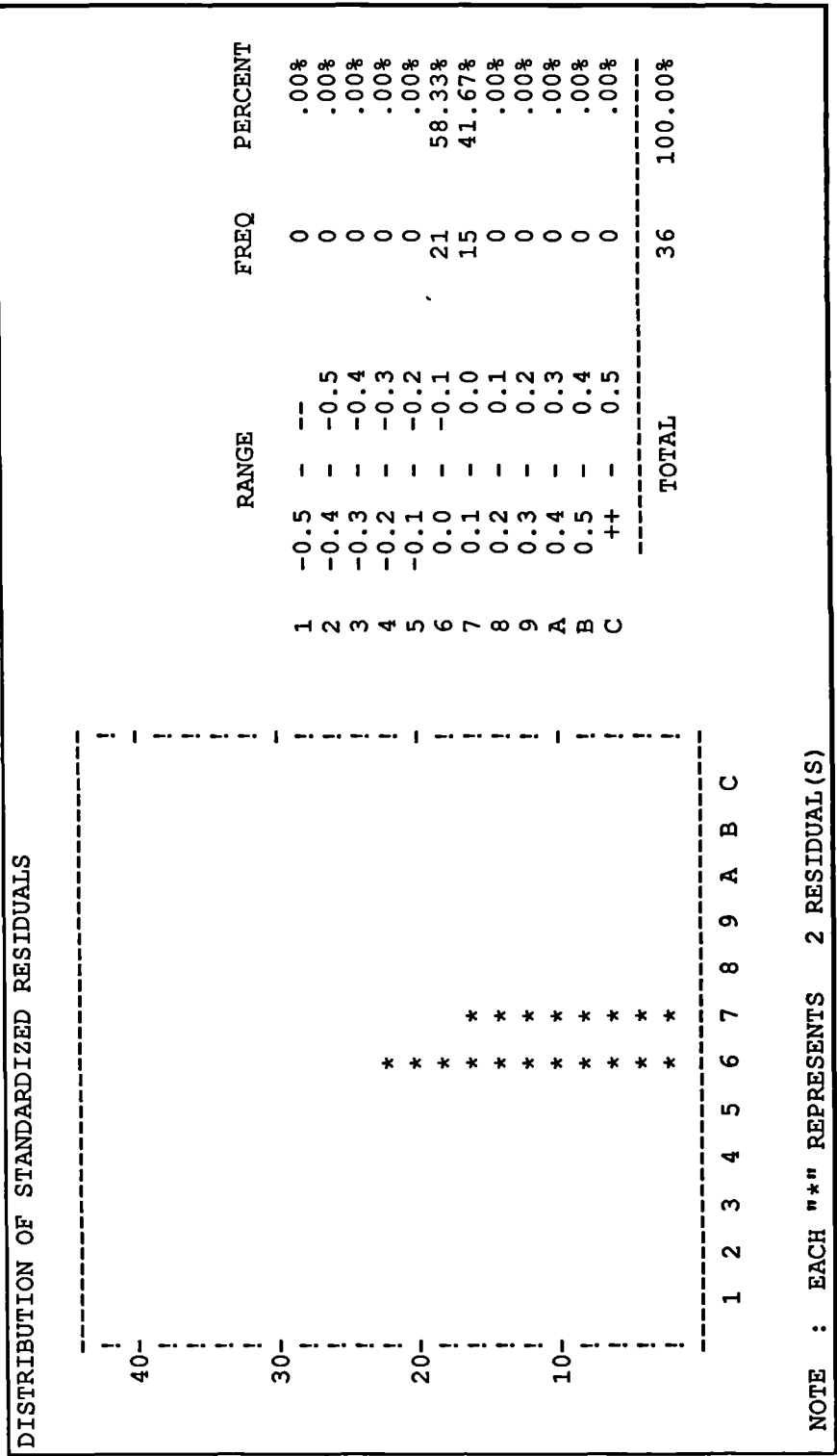
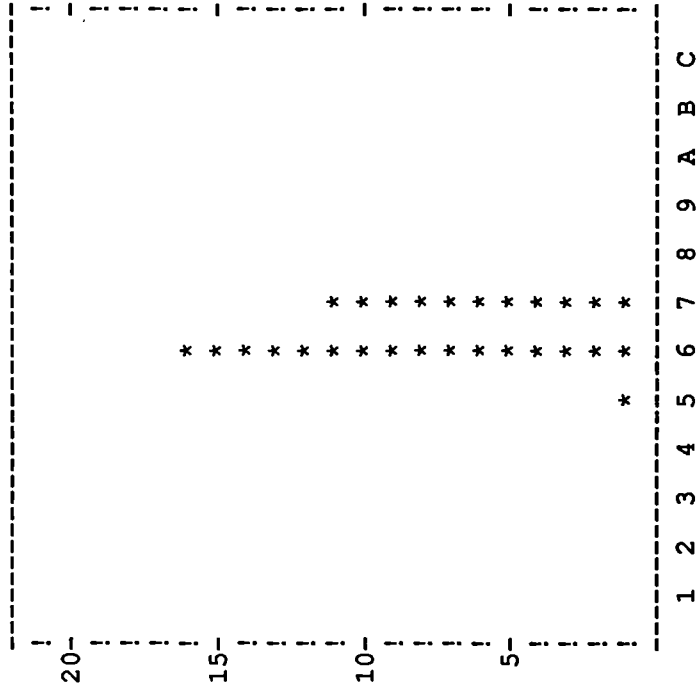


Figure A6.9: EQS output showing distribution of residuals for year 10 females SEM

DISTRIBUTION OF STANDARDIZED RESIDUALS



	RANGE	FREQ	PERCENT
1	-0.5 - --	0	.00%
2	-0.4 - -0.5	0	.00%
3	-0.3 - -0.4	0	.00%
4	-0.2 - -0.3	0	.00%
5	-0.1 - -0.2	1	3.57%
6	0.0 - -0.1	16	57.14%
7	0.1 - 0.0	11	39.29%
8	0.2 - 0.1	0	.00%
9	0.3 - 0.2	0	.00%
A	0.4 - 0.3	0	.00%
B	0.5 - 0.4	0	.00%
C	++ - 0.5	0	.00%
TOTAL		28	100.00%

NOTE : EACH "*" REPRESENTS 1 RESIDUAL(S)

Figure A6.10: EQS output showing distribution of residuals for year 11 females SEM

Appendix 7: Correlation matrices for variables used in structural equation models

Correlation matrix for whole sample (Chapter 8)

Listwise Deletion of Missing Data

N of Cases = 3860

Correlations:

	FAM30	FAM31	FAM32	FAM33	FAM34	FAM35
FAM30	1.0000	.1389	.2215	.2767	.2488	.1297
FAM31	.1389	1.0000	-.0294	.1361	.0239	.4094
FAM32	.2215	-.0294	1.0000	.2734	.0754	-.0712
FAM33	.2767	.1361	.2734	1.0000	.0902	.1363
FAM34	.2488	.0239	.0754	.0902	1.0000	-.0146
FAM35	.1297	.4094	-.0712	.1363	-.0146	1.0000
FAM36	.2375	.2779	.0322	.1436	.1038	.2565
FAM37	.3867	.1436	.1948	.2520	.2597	.1305
FAM39	.3513	.0985	.2195	.2391	.2381	.0549
FAM40	.4804	.1637	.2097	.3161	.2689	.1244
FAM41	.0655	.2584	-.0356	.0747	-.0583	.2556
FAM42	.1740	.0534	.0513	.1270	.2876	.0504
FAM44	.1319	.1580	.0122	.0374	.0465	.1324
FAM45	-.1834	.0618	-.1392	-.0882	-.2379	.0939
FAM46	.3479	.1132	.1281	.1654	.2123	.0986
FAM47	.2419	-.0074	.0705	.0776	.3945	-.0154
FAM49	.1643	.1338	.0421	.0546	.0949	.0734
FAM50	-.0090	.0758	-.1163	-.1126	-.0893	.0568
FAM51	.4281	.0933	.2049	.2283	.3188	.0692
FAM52	.2651	.0608	.3662	.2514	.0943	.0635
FAM53	.2450	.0473	.1583	.1141	.3065	.0589
FAM54	.2464	.1216	.1228	.2200	.1153	.1066
FAM56	-.0223	.2117	-.0646	.0242	-.0516	.1767
FAM57	.2611	.1102	.2088	.2548	.1188	.1106
FAM58	.0109	.0972	-.0544	-.0633	-.0361	.0891
FAM59	.2592	.0911	.2185	.3404	.1075	.0735
FAM61	.3761	.1278	.2241	.2715	.2620	.1120
FAM62	.2532	.0305	.0871	.1225	.2747	.0309
FAM63	-.0273	.0769	-.0641	-.0997	-.0871	.0632
FAM64	.0887	.1513	-.0237	-.0148	.0275	.1129

	FAM30	FAM31	FAM32	FAM33	FAM34	FAM35
FAM65	.0514	.1466	-.0317	-.0372	-.0042	.1520
FAM66	.0965	.2685	-.0453	.0999	.0370	.3032
FAM67	-.1829	-.0790	-.0906	-.1402	-.1457	-.0920
FAM68	.3283	.1389	.1843	.3063	.1840	.1250
FAM69	.1977	.0970	.2235	.2690	.0613	.0607

	FAM36	FAM37	FAM39	FAM40	FAM41	FAM42
FAM30	.2375	.3867	.3513	.4804	.0655	.1740
FAM31	.2779	.1436	.0985	.1637	.2584	.0534
FAM32	.0322	.1948	.2195	.2097	-.0356	.0513
FAM33	.1436	.2520	.2391	.3161	.0747	.1270
FAM34	.1038	.2597	.2381	.2689	-.0583	.2876
FAM35	.2565	.1305	.0549	.1244	.2556	.0504
FAM36	1.0000	.2492	.1897	.2592	.1469	.0984
FAM37	.2492	1.0000	.3657	.4282	.0640	.2290
FAM39	.1897	.3657	1.0000	.5033	-.0056	.1783
FAM40	.2592	.4282	.5033	1.0000	.0425	.2436
FAM41	.1469	.0640	-.0056	.0425	1.0000	-.0589
FAM42	.0984	.2290	.1783	.2436	-.0589	1.0000
FAM44	.3353	.1619	.1166	.1596	.1061	.0051
FAM45	.0124	-.2050	-.1966	-.1930	.1707	-.2151
FAM46	.2371	.3517	.3344	.4315	.0049	.1670
FAM47	.0948	.2564	.2536	.2777	-.1520	.3075
FAM49	.2855	.1903	.1731	.2021	.0334	.0518
FAM50	.1668	-.0556	-.0674	-.0522	.1522	-.1207
FAM51	.1911	.3810	.4358	.5053	-.0058	.2537
FAM52	.1769	.3121	.3065	.3442	.0190	.0873
FAM53	.0863	.2426	.2353	.2565	-.0805	.3542
FAM54	.0940	.2059	.1936	.2469	.0636	.1061
FAM56	.2495	.0345	-.0084	.0182	.1578	-.0714
FAM57	.1986	.2864	.2413	.2865	.0160	.1107
FAM58	.1540	.0058	.0115	.0147	.0422	-.0635
FAM59	.1118	.2514	.1961	.2961	.0375	.0777
FAM61	.1953	.3794	.3922	.4609	.0228	.2234
FAM62	.1543	.3099	.2857	.3024	-.0600	.2241
FAM63	.2036	-.0327	-.0449	-.0405	.1241	-.1086
FAM64	.2611	.1197	.0821	.1254	.1163	.0464
FAM65	.2739	.0870	.0299	.0581	.1274	.0078
FAM66	.2336	.1592	.0576	.1269	.1981	.0504
FAM67	-.0597	-.1825	-.1469	-.1941	-.0525	-.1272
FAM68	.1371	.3266	.3358	.4094	.0943	.1761
FAM69	.0477	.2025	.1948	.2367	.0781	.0950

	FAM44	FAM45	FAM46	FAM47	FAM49	FAM50
FAM30	.1319	-.1834	.3479	.2419	.1643	-.0090
FAM31	.1580	.0618	.1132	-.0074	.1338	.0758
FAM32	.0122	-.1392	.1281	.0705	.0421	-.1163
FAM33	.0374	-.0882	.1654	.0776	.0546	-.1126
FAM34	.0465	-.2379	.2123	.3945	.0949	-.0893
FAM35	.1324	.0939	.0986	-.0154	.0734	.0568
FAM36	.3353	.0124	.2371	.0948	.2855	.1668
FAM37	.1619	-.2050	.3517	.2564	.1903	-.0556
FAM39	.1166	-.1966	.3344	.2536	.1731	-.0674
FAM40	.1596	-.1930	.4315	.2777	.2021	-.0522
FAM41	.1061	.1707	.0049	-.1520	.0334	.1522
FAM42	.0051	-.2151	.1670	.3075	.0518	-.1207
FAM44	1.0000	.0525	.1798	.0632	.3192	.1929
FAM45	.0525	1.0000	-.1773	-.3118	-.0247	.1217
FAM46	.1798	-.1773	1.0000	.2908	.2709	.0483
FAM47	.0632	-.3118	.2908	1.0000	.1822	-.0347
FAM49	.3192	-.0247	.2709	.1822	1.0000	.2163

	FAM44	FAM45	FAM46	FAM47	FAM49	FAM50
FAM50	.1929	.1217	.0483	-.0347	.2163	1.0000
FAM51	.0772	-.2581	.3834	.3505	.1357	-.0878
FAM52	.1284	-.1454	.2365	.1625	.1029	-.0447
FAM53	.0229	-.2792	.1936	.3477	.0422	-.1418
FAM54	.0262	-.0625	.1533	.0981	.0337	-.1054
FAM56	.2335	.1565	.0366	-.0500	.2219	.1575
FAM57	.1677	-.0833	.2826	.1220	.2069	-.0135
FAM58	.1877	.1518	.0408	-.0085	.1646	.1669
FAM59	.0389	-.1185	.2381	.1562	.0779	-.0895
FAM61	.0834	-.2241	.3712	.2613	.1669	-.0858
FAM62	.0937	-.2682	.2864	.3606	.1747	-.0254
FAM63	.2318	.1457	.0327	-.0416	.2079	.4562
FAM64	.2473	.0529	.1229	.0742	.2551	.2141
FAM65	.2536	.0877	.0702	-.0064	.1956	.2434
FAM66	.1335	.0778	.1227	.0145	.1196	.0795
FAM67	-.0113	.0889	-.1334	-.1479	-.0676	.1148
FAM68	.0368	-.1353	.2834	.1515	.0671	-.1485
FAM69	-.0063	-.0528	.1354	.0541	-.0325	-.1685

	FAM51	FAM52	FAM53	FAM54	FAM56	FAM57
FAM30	.4281	.2651	.2450	.2464	-.0223	.2611
FAM31	.0933	.0608	.0473	.1216	.2117	.1102
FAM32	.2049	.3662	.1583	.1228	-.0646	.2088
FAM33	.2283	.2514	.1141	.2200	.0242	.2548
FAM34	.3188	.0943	.3065	.1153	-.0516	.1188
FAM35	.0692	.0635	.0589	.1066	.1767	.1106
FAM36	.1911	.1769	.0863	.0940	.2495	.1986
FAM37	.3810	.3121	.2426	.2059	.0345	.2864
FAM39	.4358	.3065	.2353	.1936	-.0084	.2413
FAM40	.5053	.3442	.2565	.2469	.0182	.2865
FAM41	-.0058	.0190	-.0805	.0636	.1578	.0160
FAM42	.2537	.0873	.3542	.1061	-.0714	.1107
FAM44	.0772	.1284	.0229	.0262	.2335	.1677
FAM45	-.2581	-.1454	-.2792	-.0625	.1565	-.0833
FAM46	.3834	.2365	.1936	.1533	.0366	.2826
FAM47	.3505	.1625	.3477	.0981	-.0500	.1220
FAM49	.1357	.1029	.0422	.0337	.2219	.2069
FAM50	-.0878	-.0447	-.1418	-.1054	.1575	-.0135
FAM51	1.0000	.3036	.3549	.2283	-.0468	.2473
FAM52	.3036	1.0000	.2132	.1669	-.0016	.2885
FAM53	.3549	.2132	1.0000	.1456	-.0432	.1671
FAM54	.2283	.1669	.1456	1.0000	.0471	.1638
FAM56	-.0468	-.0016	-.0432	.0471	1.0000	.0850
FAM57	.2473	.2885	.1671	.1638	.0850	1.0000
FAM58	-.0535	.0126	-.0596	-.0591	.1233	.1117
FAM59	.2665	.2407	.1134	.2530	.0591	.2089
FAM61	.4468	.3071	.2794	.2387	-.0229	.2750
FAM62	.3412	.1808	.2969	.1243	-.0540	.1475
FAM63	-.0671	-.0443	-.1047	-.0938	.2599	.0364
FAM64	.0787	.0805	.0274	.0070	.1913	.1486
FAM65	.0071	.0360	-.0153	-.0312	.2062	.1145
FAM66	.0722	.0220	.0343	.0880	.2172	.0917
FAM67	-.2052	-.1013	-.1797	-.2057	-.0115	-.0792
FAM68	.3647	.2584	.2036	.3110	.0338	.2282
FAM69	.2094	.2618	.1361	.2350	-.0202	.1740

	FAM58	FAM59	FAM61	FAM62	FAM63	FAM64
FAM30	.0109	.2592	.3761	.2532	-.0273	.0887
FAM31	.0972	.0911	.1278	.0305	.0769	.1513
FAM32	-.0544	.2185	.2241	.0871	-.0641	-.0237
FAM33	-.0633	.3404	.2715	.1225	-.0997	-.0148

	FAM58	FAM59	FAM61	FAM62	FAM63	FAM64
FAM34	-.0361	.1075	.2620	.2747	-.0871	.0275
FAM35	.0891	.0735	.1120	.0309	.0632	.1129
FAM36	.1540	.1118	.1953	.1543	.2036	.2611
FAM37	.0058	.2514	.3794	.3099	-.0327	.1197
FAM39	.0115	.1961	.3922	.2857	-.0449	.0821
FAM40	.0147	.2961	.4609	.3024	-.0405	.1254
FAM41	.0422	.0375	.0228	-.0600	.1241	.1163
FAM42	-.0635	.0777	.2234	.2241	-.1086	.0464
FAM44	.1877	.0389	.0834	.0937	.2318	.2473
FAM45	.1518	-.1185	-.2241	-.2682	.1457	.0529
FAM46	.0408	.2381	.3712	.2864	.0327	.1229
FAM47	-.0085	.1562	.2613	.3606	-.0416	.0742
FAM49	.1646	.0779	.1669	.1747	.2079	.2551
FAM50	.1669	-.0895	-.0858	-.0254	.4562	.2141
FAM51	-.0535	.2665	.4468	.3412	-.0671	.0787
FAM52	.0126	.2407	.3071	.1808	-.0443	.0805
FAM53	-.0596	.1134	.2794	.2969	-.1047	.0274
FAM54	-.0591	.2530	.2387	.1243	-.0938	.0070
FAM56	.1233	.0591	-.0229	-.0540	.2599	.1913
FAM57	.1117	.2089	.2750	.1475	.0364	.1486
FAM58	1.0000	-.0771	-.0487	-.0481	.2269	.1630
FAM59	-.0771	1.0000	.2819	.1708	-.0889	-.0030
FAM61	-.0487	.2819	1.0000	.3303	-.0906	.0770
FAM62	-.0481	.1708	.3303	1.0000	-.0058	.0821
FAM63	.2269	-.0889	-.0906	-.0058	1.0000	.2794
FAM64	.1630	-.0030	.0770	.0821	.2794	1.0000
FAM65	.2281	-.0525	.0049	-.0122	.3266	.3555
FAM66	.0293	.1341	.0992	.0505	.1083	.1737
FAM67	.0944	-.1834	-.2288	-.1372	.0978	-.0135
FAM68	-.1080	.2976	.3692	.1755	-.1474	.0030
FAM69	-.0942	.2823	.2449	.0732	-.1716	-.0456

	FAM65	FAM66	FAM67	FAM68	FAM69
FAM30	.0514	.0965	-.1829	.3283	.1977
FAM31	.1466	.2685	-.0790	.1389	.0970
FAM32	-.0317	-.0453	-.0906	.1843	.2235
FAM33	-.0372	.0999	-.1402	.3063	.2690
FAM34	-.0042	.0370	-.1457	.1840	.0613
FAM35	.1520	.3032	-.0920	.1250	.0607
FAM36	.2739	.2336	-.0597	.1371	.0477
FAM37	.0870	.1592	-.1825	.3266	.2025
FAM39	.0299	.0576	-.1469	.3358	.1948
FAM40	.0581	.1269	-.1941	.4094	.2367
FAM41	.1274	.1981	-.0525	.0943	.0781
FAM42	.0078	.0504	-.1272	.1761	.0950
FAM44	.2536	.1335	-.0113	.0368	-.0063
FAM45	.0877	.0778	.0889	-.1353	-.0528
FAM46	.0702	.1227	-.1334	.2834	.1354
FAM47	-.0064	.0145	-.1479	.1515	.0541
FAM49	.1956	.1196	-.0676	.0671	-.0325
FAM50	.2434	.0795	.1148	-.1485	-.1685
FAM51	.0071	.0722	-.2052	.3647	.2094
FAM52	.0360	.0220	-.1013	.2584	.2618
FAM53	-.0153	.0343	-.1797	.2036	.1361
FAM54	-.0312	.0880	-.2057	.3110	.2350
FAM56	.2062	.2172	-.0115	.0338	-.0202
FAM57	.1145	.0917	-.0792	.2282	.1740
FAM58	.2281	.0293	.0944	-.1080	-.0942
FAM59	-.0525	.1341	-.1834	.2976	.2823
FAM61	.0049	.0992	-.2288	.3692	.2449

	FAM65	FAM66	FAM67	FAM68	FAM69
FAM62	-.0122	.0505	-.1372	.1755	.0732
FAM63	.3266	.1083	.0978	-.1474	-.1716
FAM64	.3555	.1737	-.0135	.0030	-.0456
FAM65	1.0000	.1310	.0482	-.0337	-.0735
FAM66	.1310	1.0000	-.1219	.1486	.0880
FAM67	.0482	-.1219	1.0000	-.2841	-.2518
FAM68	-.0337	.1486	-.2841	1.0000	.3919
FAM69	-.0735	.0880	-.2518	.3919	1.0000

Correlation matrix for whole sample (Chapter 11)

Listwise Deletion of Missing Data

N of Cases = 3769

Correlation:

	SUPPORT	CURRDRNK	NUMREAS	CONTROL	AUTH
SUPPORT	1.000	-.207	-.205	.071	.134
CURRDRNK	-.207	1.000	.645	-.182	-.152
NUMREAS	-.205	.645	1.000	-.141	-.105
CONTROL	.071	-.182	-.141	1.000	.871
FRSTEXP	-.188	.598	.494	-.166	-.128
LFAIRE	-.022	-.161	-.137	.835	.458
AUTH	.134	-.152	-.105	.871	1.000
EXPRESS	.851	-.111	-.118	.056	.056
COHCONF	.917	-.239	-.230	.068	.167

	EXPRESS	COHCONF	FRSTEXP	LFAIRE
SUPPORT	.851	.917	-.188	-.022
CURRDRNK	-.111	-.239	.598	-.161
NUMREAS	-.118	-.230	.494	-.137
CONTROL	.056	.068	-.166	.835
FRSTEXP	-.109	-.212	1.000	-.157
LFAIRE	.039	-.064	-.157	1.000
AUTH	.056	.167	-.128	.458
EXPRESS	1.000	.571	-.109	.039
COHCONF	.571	1.000	-.212	-.064

Correlation matrix for whole sample (Chapters 12 and 14)

Listwise Deletion of Missing Data

N of Cases = 4021

Correlation:

	YEAR	SEX	USLYDRNK	FREQDRNK	PRNTATT	SUPPORT							
YEAR	1.000	.038	.419	.317	.326	-.105							
SEX	.038	1.000	-.032	-.061	-.016	-.003							
USLYDRNK	.419	-.032	1.000	.635	.395	-.191							
FREQDRNK	.317	-.061	.635	1.000	.401	-.202							
PRNTATT	.326	-.016	.395	.401	1.000	-.104							
SUPPORT	-.105	-.003	-.191	-.202	-.104	1.000							
CONTROL	-.084	.005	-.162	-.160	-.221	.068							
FMLYDRNK	.151	.013	.306	.391	.281	-.141							
FAMSIZE	-.043	.010	.018	-.014	-.056	-.087							
NUCFAM	.004	.008	.070	.036	.021	-.062							
FRNDDRNK	.367	-.035	.444	.534	.319	-.164							
FRNDUSDR	.491	-.021	.653	.497	.352	-.199							
KNOWFRND	-.028	.012	-.016	.001	.014	-.016							
							CONTROL	FMLYDRNK	FAMSIZE	NUCFAM	FRNDDRNK	FRNDUSDR	KNOWFRND
YEAR							-.084	.151	-.043	.004	.367	.491	-.028
SEX							.005	.013	.010	.008	-.035	-.021	.012
USLYDRNK							-.162	.306	.018	.070	.444	.653	-.016
FREQDRNK							-.160	.391	-.014	.036	.534	.497	.001
PRNTATT							-.221	.281	-.056	.021	.319	.352	.014
SUPPORT							.068	-.141	-.087	-.062	-.164	-.199	-.016
CONTROL							1.000	-.087	.057	-.011	-.099	-.102	-.028
FMLYDRNK							-.087	1.000	-.028	.041	.300	.254	.034
FAMSIZE							.057	-.028	1.000	.053	.021	.028	-.008
NUCFAM							-.011	.041	.053	1.000	.031	.053	-.014
FRNDDRNK							-.099	.300	.021	.031	1.000	.650	.432
FRNDUSDR							-.102	.254	.028	.053	.650	1.000	.005
KNOWFRND							-.028	.034	-.008	-.014	.432	.005	1.000

Correlations for school year/sex subgroups (Chapter 13)

Year 7 males

Listwise Deletion of Missing Data

N of Cases = 205

Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.080	.499	.248	-.016	.259	-.001
SUPPORT	-.080	1.000	-.156	-.211	.021	-.173	-.081
CURRDRNK	.499	-.156	1.000	.490	-.044	.366	.202
NUMREAS	.248	-.211	.490	1.000	.011	.137	.051
CONTROL	-.016	.021	-.044	.011	1.000	.031	.093
FMLYDRNK	.259	-.173	.366	.137	.031	1.000	.005
FAMSIZE	-.001	-.081	.202	.051	.093	.005	1.000
NUCFAM	.054	-.033	.096	.082	.149	.086	-.085
FRSTEXP	.345	-.117	.525	.411	.013	.263	.145

	NUCFAM	FRSTEXP
PRNTATT	.054	.345
SUPPORT	-.033	-.117
CURRDRNK	.096	.525
NUMREAS	.082	.411
CONTROL	.149	.013
FMLYDRNK	.086	.263
FAMSIZE	-.085	.145
NUCFAM	1.000	.185
FRSTEXP	.185	1.000

Year 8 males

Listwise Deletion of Missing Data

N of Cases = 328

Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.063	.518	.373	-.132	.351	-.090
SUPPORT	-.063	1.000	-.114	-.111	.139	-.144	-.158
CURRDRNK	.518	-.114	1.000	.650	-.113	.417	.011
NUMREAS	.373	-.111	.650	1.000	-.054	.357	.015
CONTROL	-.132	.139	-.113	-.054	1.000	-.086	.138
FMLYDRNK	.351	-.144	.417	.357	-.086	1.000	.057
FAMSIZE	-.090	-.158	.011	.015	.138	.057	1.000
NUCFAM	-.056	-.120	.006	-.008	.003	-.034	-.026
FRSTEXP	.413	-.125	.676	.558	-.130	.283	-.006

	NUCFAM	FRSTEXP
PRNTATT	-.056	.413
SUPPORT	-.120	-.125
CURRDRNK	.006	.676
NUMREAS	-.008	.558
CONTROL	.003	-.130
FMLYDRNK	-.034	.283
FAMSIZE	-.026	-.006
NUCFAM	1.000	.068
FRSTEXP	.068	1.000

Year 9 males

Listwise Deletion of Missing Data
 N of Cases = 680
 Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.129	.435	.335	-.203	.282	-.068
SUPPORT	-.129	1.000	-.151	-.204	.135	-.077	-.107
CURRDRNK	.435	-.151	1.000	.636	-.171	.369	-.014
NUMREAS	.335	-.204	.636	1.000	-.175	.298	-.016
CONTROL	-.203	.135	-.171	-.175	1.000	-.066	.051
FMLYDRNK	.282	-.077	.369	.298	-.066	1.000	-.032
FAMSIZE	-.068	-.107	-.014	-.016	.051	-.032	1.000
NUCFAM	.062	-.074	.046	.093	.020	.053	.011
FRSTEXP	.326	-.222	.620	.530	-.174	.285	.019

	NUCFAM	FRSTEXP
PRNTATT	.062	.326
SUPPORT	-.074	-.222
CURRDRNK	.046	.620
NUMREAS	.093	.530
CONTROL	.020	-.174
FMLYDRNK	.053	.285
FAMSIZE	.011	.019
NUCFAM	1.000	.087
FRSTEXP	.087	1.000

Year 10 males

Listwise Deletion of Missing Data
 N of Cases = 327
 Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.034	.447	.334	-.202	.228	-.094
SUPPORT	-.034	1.000	-.121	-.106	.118	-.132	-.082
CURRDRNK	.447	-.121	1.000	.589	-.124	.297	.091
NUMREAS	.334	-.106	.589	1.000	-.103	.294	-.012
CONTROL	-.202	.118	-.124	-.103	1.000	.004	.090
FMLYDRNK	.228	-.132	.297	.294	.004	1.000	-.041
FAMSIZE	-.094	-.082	.091	-.012	.090	-.041	1.000
NUCFAM	.048	-.120	.037	.061	-.024	-.055	.021
FRSTEXP	.416	-.156	.598	.408	-.198	.201	.064

	NUCFAM	FRSTEXP
PRNTATT	.048	.416
SUPPORT	-.120	-.156
CURRDRNK	.037	.598
NUMREAS	.061	.408
CONTROL	-.024	-.198
FMLYDRNK	-.055	.201
FAMSIZE	.021	.064
NUCFAM	1.000	.016
FRSTEXP	.016	1.000

Year 11 males

Listwise Deletion of Missing Data

N of Cases = 523

Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.099	.283	.208	-.231	.154	.054
SUPPORT	-.099	1.000	-.207	-.144	.016	-.190	-.102
CURRDRNK	.283	-.207	1.000	.502	-.186	.286	.109
NUMREAS	.208	-.144	.502	1.000	-.126	.154	.132
CONTROL	-.231	.016	-.186	-.126	1.000	-.121	-.001
FMLYDRNK	.154	-.190	.286	.154	-.121	1.000	.045
FAMSIZE	.054	-.102	.109	.132	-.001	.045	1.000
NUCFAM	.015	-.073	.068	.000	-.014	.105	.053
FRSTEXP	.356	-.134	.548	.360	-.215	.218	.080

	NUCFAM	FRSTEXP
PRNTATT	.015	.356
SUPPORT	-.073	-.134
CURRDRNK	.068	.548
NUMREAS	.000	.360
CONTROL	-.014	-.215
FMLYDRNK	.105	.218
FAMSIZE	.053	.080
NUCFAM	1.000	.106
FRSTEXP	.106	1.000

Year 7 females

Listwise Deletion of Missing Data

N of Cases = 281

Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.189	.648	.588	-.251	.389	-.190
SUPPORT	-.189	1.000	-.097	-.155	.140	-.089	-.121
CURRDRNK	.648	-.097	1.000	.651	-.235	.472	-.145
NUMREAS	.588	-.155	.651	1.000	-.240	.379	-.068
CONTROL	-.251	.140	-.235	-.240	1.000	-.193	.031
FMLYDRNK	.389	-.089	.472	.379	-.193	1.000	-.069
FAMSIZE	-.190	-.121	-.145	-.068	.031	-.069	1.000
NUCFAM	.082	-.117	.152	.151	-.030	.132	-.047
FRSTEXP	.462	-.192	.534	.493	-.181	.377	.032

	NUCFAM	FRSTEXP
PRNTATT	.082	.462
SUPPORT	-.117	-.192
CURRDRNK	.152	.534
NUMREAS	.151	.493
CONTROL	-.030	-.181
FMLYDRNK	.132	.377
FAMSIZE	-.047	.032
NUCFAM	1.000	.194
FRSTEXP	.194	1.000

Year 8 females

Listwise Deletion of Missing Data
 N of Cases = 314
 Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.172	.451	.367	-.101	.280	-.140
SUPPORT	-.172	1.000	-.224	-.214	.184	-.119	.030
CURRDRNK	.451	-.224	1.000	.661	-.195	.414	-.080
NUMREAS	.367	-.214	.661	1.000	-.136	.310	-.089
CONTROL	-.101	.184	-.195	-.136	1.000	-.057	-.009
FMLYDRNK	.280	-.119	.414	.310	-.057	1.000	-.106
FAMSIZE	-.140	.030	-.080	-.089	-.009	-.106	1.000
NUCFAM	.011	-.229	.091	.102	-.051	.030	.051
FRSTEXP	.371	-.227	.647	.598	-.166	.337	-.099

	NUCFAM	FRSTEXP
PRNTATT	.011	.371
SUPPORT	-.229	-.227
CURRDRNK	.091	.647
NUMREAS	.102	.598
CONTROL	-.051	-.166
FMLYDRNK	.030	.337
FAMSIZE	.051	-.099
NUCFAM	1.000	.061
FRSTEXP	.061	1.000

Year 9 females

Listwise Deletion of Missing Data
 N of Cases = 528
 Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.063	.316	.242	-.269	.240	-.001
SUPPORT	-.063	1.000	-.305	-.237	.010	-.101	-.095
CURRDRNK	.316	-.305	1.000	.653	-.167	.316	.052
NUMREAS	.242	-.237	.653	1.000	-.123	.291	.021
CONTROL	-.269	.010	-.167	-.123	1.000	-.135	.109
FMLYDRNK	.240	-.101	.316	.291	-.135	1.000	-.080
FAMSIZE	-.001	-.095	.052	.021	.109	-.080	1.000
NUCFAM	-.044	.000	.051	.071	.029	-.017	.041
FRSTEXP	.309	-.187	.643	.572	-.141	.273	.072

	NUCFAM	FRSTEXP
PRNTATT	-.044	.309
SUPPORT	.000	-.187
CURRDRNK	.051	.643
NUMREAS	.071	.572
CONTROL	.029	-.141
FMLYDRNK	-.017	.273
FAMSIZE	.041	.072
NUCFAM	1.000	.092
FRSTEXP	.092	1.000

Year 10 females

Listwise Deletion of Missing Data
 N of Cases = 267
 Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	-.055	.373	.223	-.235	.227	.036
SUPPORT	-.055	1.000	-.205	-.207	-.106	-.113	-.156
CURRDRNK	.373	-.205	1.000	.547	-.202	.190	.166
NUMREAS	.223	-.207	.547	1.000	-.065	.230	.064
CONTROL	-.235	-.106	-.202	-.065	1.000	.000	.071
FMLYDRNK	.227	-.113	.190	.230	.000	1.000	.037
FAMSIZE	.036	-.156	.166	.064	.071	.037	1.000
NUCFAM	.023	-.024	.139	.119	-.033	-.008	.204
FRSTEXP	.276	-.237	.589	.443	-.163	.085	.113

	NUCFAM	FRSTEXP
PRNTATT	.023	.276
SUPPORT	-.024	-.237
CURRDRNK	.139	.589
NUMREAS	.119	.443
CONTROL	-.033	-.163
FMLYDRNK	-.008	.085
FAMSIZE	.204	.113
NUCFAM	1.000	.158
FRSTEXP	.158	1.000

Year 11 females

Listwise Deletion of Missing Data
 N of Cases = 568
 Correlation:

	PRNTATT	SUPPORT	CURRDRNK	NUMREAS	CONTROL	FMLYDRNK	FAMSIZE
PRNTATT	1.000	.056	.223	.019	-.261	.218	-.029
SUPPORT	.056	1.000	-.151	-.170	-.063	-.096	-.042
CURRDRNK	.223	-.151	1.000	.436	-.153	.272	.009
NUMREAS	.019	-.170	.436	1.000	-.040	.191	-.047
CONTROL	-.261	-.063	-.153	-.040	1.000	-.089	.073
FMLYDRNK	.218	-.096	.272	.191	-.089	1.000	-.075
FAMSIZE	-.029	-.042	.009	-.047	.073	-.075	1.000
NUCFAM	.012	-.072	.074	.073	-.032	.066	.076
FRSTEXP	.231	-.154	.465	.349	-.155	.240	.042

	NUCFAM	FRSTEXP
PRNTATT	.012	.231
SUPPORT	-.072	-.154
CURRDRNK	.074	.465
NUMREAS	.073	.349
CONTROL	-.032	-.155
FMLYDRNK	.066	.240
FAMSIZE	.076	.042
NUCFAM	1.000	.118
FRSTEXP	.118	1.000

Appendix 8: Semi-structured interview schedule

Interview Topics

1. Family History

Structure, size, pattern
Mobility, SES

2. Family Process (past & present)

Parent-parent relations
Parent-sibling relations
Parent-subject relations

? Supportive behaviours - love, affection, cohesion.....

? Controlling behaviours - discipline, punishment, freedom, autonomy.....

Satisfaction with family life

3. Family Models (past & present)

Paternal drinking
Maternal drinking
Sibling drinking

4. Family attitudes

To own use
To other's use
To offspring's use - including subject

5. Subjects drinking

First drink - when, where, from who
Development of drinking
Present drinking
Friend's drinking
Attitudes to alcohol
Future drinking intentions
Exposure to alcohol education
Other drug use

6. Domestic Environment

Physical/psychological structure at home - notion of boundaries within home environment

7. Other

Occupation, age, sex
Trouble with authorities, truancy
Ambitions

Appendix 9: Case study protocol

Case Study Protocol

Case Study Design

1. Research Question

How and why do families influence the development of young people's drinking behaviour?

2. Propositions

Theoretical model based on Family Socialization Theory: two elements

- (i) Family Process - Support and Control
- (ii) Familial Social Learning - Models and Attitudes

3. Units of Analysis

Q. What is the case?

A. Young people - adolescents. The perception of family life and of family's and own drinking behaviour.

Three types of young drinker:-

- (a) abstainers
- (b) sensible/moderate drinkers
- (c) heavy drinkers

4. Linking data to propositions

Use "pattern matching" (Campbell, 1975, cited in Yin, p.34).

- several pieces of information from the same case are related to the theoretical proposition.

5. Interpreting the Findings

How good a "match" (see 4.) is the case study?