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SMOKING, DRINKING AND OTHER DRUG USE AMONG DUBLIN POST-PRIMARY SCHOOL PUPILS

JOEL W. GRUBE and MARK MORGAN

Paper No. 132 November, 1986

THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE
COUNCIL, 1986 – 1987

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DUBLIN, 1986

ISBN 0 7070 0088 2

Acknowledgements

We are particularly indebted to Mrs Phil Browne for her help in completing the work reported here. Her contributions, including questionnaire production, contacting schools and typing the numerous versions of this report, were invaluable and without her good-humoured enthusiasm this project would not have been completed. We are also especially grateful to Denis Conniffe, Miriam Wiley and Kieran Kennedy for comments on an earlier draft. Thanks are due to personnel from the Department of Education (Psychological Service) and the Department of Health, the Health Education Bureau, the Medico-Social Research Board and the Irish National Council on Alcoholism, as well as the external referee, for valuable comments.

We also thank Professor B.J. Whelan for his help and advice at all stages of this research and Mr G. Keogh for his assistance in obtaining the sample of schools. We are especially grateful to Mrs Colbert-Stanley, Operations Manager of the Survey Unit, and her staff for their management of all aspects of the field operations and for the coding and preparation of the data. June Ryan provided invaluable assistance in implementing the matching procedure. We should like to thank Pat Hopkins who helped in printing the questionnaires and also M. McElhone for her editorial assistance.

Ms S. McGree was instrumental in completing the pilot studies and the initial phases of this project and in carrying out preliminary data analyses. We are most appreciative of her help. The second author is grateful to Michael Martin of the Educational Research Centre, St Patrick's College, for his assistance with data analysis.

Finally, we thank the principals, staff, teachers and students who participated in this research. Their co-operation was instrumental to the successful completion of this project and is gratefully acknowledged.

This research was funded, in part, by the Commission of the European Communities. United States Public Service Health Service grants R01DA02556 from the National Institute on Drug Abuse and T32AA07240 from the National Institute on Alcohol Abuse and Alcoholism provided support to the first author during the preparation of portions of this report.

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General Summary

Arising from the concern with smoking, drinking and drug use among young people in Ireland, The Economic and Social Research Institute, with funding from the Commission of the European Communities, undertook this study of the social-psychological factors related to substance use among Dublin post-primary school pupils. There were two main objectives of this study. First, it was intended to obtain estimates of the prevalence of smoking, drinking and drug use. Secondly, and more importantly, it was intended to gain an understanding of the variables and processes related to the acquisition of maintenance of these behaviours and thus to provide guidelines for designing more effective intervention programmes.

The Present Theoretical Model

A number of features characterise the present theoretical framework. First, the model is multivariate and specifies particular interactions among the variables. Secondly, the hypothesised causal factors are ordered according to the extent to which they *directly* influence substance use or are *mediated* through other variables. Thus, the model identifies *distal* variables which do not influence substance use directly but whose influence is entirely mediated through other variables. For example, the effects of background characteristics on smoking, drinking and drug use are considered to be mediated through their influence on personality, beliefs and attitude. On the other hand, behavioural intentions are assumed to be the only factors that directly influence substance use to any substantial extent. Of the various intermediate factors, attitude, perceived availability and normative beliefs are assumed to be more immediate than personality factors, social bonding and expectancy-value beliefs.

Methodology

The study involved a panel survey design in which the same sample completed anonymous questionnaires on three occasions. The present report considers the data from the first two phases of this study only. The sample frame consisted of 24 randomly selected post-primary schools in the greater Dublin area. Within each school all pupils from a particular class level (first year to Leaving Certificate) participated in the study. About two-thirds of

the pupils were from secondary schools and about one-third were from community, comprehensive, or vocational schools.

The survey instruments consisted of self-administered questionnaires, and respondents were simply required to circle the appropriate answer for each question. The questionnaires asked about a range of variables relating to smoking, drinking and drug use. These variables included intentions and attitudes, past behaviours, expectancy-value beliefs, normative beliefs, social bonding and background characteristics. The surveys were administered by trained interviewers from The Economic and Social Research Institute and normally the classroom teacher was absent from the testing sessions.

There were 2,927 pupils present for phase I, and 2,782 for phase II. The questionnaires from each phase were linked through the use of a self-generated code, devised from personal information supplied by each pupil. A total of 2,076 cases were thus matched across the phases. This represents a matching rate of about 75 per cent of the maximum possible number. Given normal absence rates, this figure seems very satisfactory.

Prevalence Rates

Over two-thirds of the sample had smoked cigarettes at some time in their lives, over one-third had smoked during the month prior to the survey and almost one-quarter currently were regular smokers. The median age of first smoking was about 11 years and the vast majority of initial smoking was with friends. The year between age 13 and 14 years was particularly significant as regards numbers beginning to smoke regularly. The rates of regular smoking are high in comparison to those among similar age groups in Europe, the United States and Australia.

Almost two-thirds of the students had consumed a whole drink of an alcoholic beverage on at least one occasion, nearly half had done so within the previous month and over one-third were regular drinkers. Moreover, about two-thirds of those who ever drank had been drunk at least once. In comparison with other countries, there is a relatively higher percentage of lifetime abstainers in the present group. However, the number of current regular drinkers is between the rates for high-consumption countries and those for low-consumption countries.

Finally, just over one-fifth of the students had tried drugs other than tobacco and alcohol. The most popular illicit drugs were glue or other inhalants, and marijuana. About 13 per cent of the sample had tried each of these substances. Other drugs showed much lower lifetime prevalence rates. As regards current use, 8.4 per cent of the students reported having used at least one drug during the previous month. As with the lifetime rates, inhalants and marijuana were the most frequently used drugs. Comparisons with other

countries suggest that although the rate of inhalant use is relatively high, the use of other drugs is low by international standards.

Background Characteristics

Of all of the background characteristics considered in this study, age and gender showed the most consistent associations with substance use. As expected, smoking, drinking and drug use were generally more frequent among older students and boys. However, the results also suggested that there were some interesting age by gender interactions for certain substance use behaviours. Thus, in the case of smoking, the prevalence rates for girls lagged behind those for boys by several years. That is, fewer girls than boys in the younger age groups reported they were regular smokers, but by age 17 the rates were nearly equal for the two sexes. Similarly, overall, more boys than girls were regular drug users, although the number of girls who were regular users approached that for boys among the older age groups.

Previous research suggests that socio-economic factors generally are not associated with adolescent smoking, drinking or other drug use in a systematic fashion. Consistent with this literature, the present study found that neither father's occupational status nor mother's employment outside the home related to adolescent cigarette smoking, drinking or other drug use. In contrast, those students who reported having more pocket money available to them also reported more frequent substance use. It is unclear, however, whether this latter relationship is due to socio-economic considerations, perceived availability, age or some other factor.

Perceived Parental Behaviour

The extant literature suggested that perceived parental substance use would relate only weakly with adolescent smoking, drinking and other drug use. In the present study this relationship was considered in relation to smoking and drinking. No significant association was found between perceived parental cigarette smoking and the students' own smoking. In fact, even when both parents were seen to smoke, the rate of regular smoking among the respondents was only slightly higher than when neither parent smoked. However, a slightly different pattern emerged in relation to perceived parental drinking. Specifically, there was a moderate relationship between this variable and the reported drinking of the students.

Perceived Peer Behaviour

Previous research indicated that perceptions of peer use of a particular substance would correlate strongly with personal use of that substance. This prediction was consistently borne out in the present study. Perceived sub-

stance use by best friend was consistently and strongly associated with the students' use of cigarettes, alcohol and other drugs. Although the correlations were somewhat smaller, a similar pattern emerged for perceptions of substance use by other friends. However, it may be inappropriate to consider these relationships to be due exclusively to the normative influence of peers. For example, it may be that young people who are inclined to smoke, drink or use other drugs seek out friends who also engage in these behaviours. Alternatively, they may misperceive the extent of substance use among their peers. In support of this latter interpretation, it also was found that smokers, compared with non-smokers, tended to overestimate the extent to which young people in general smoked cigarettes on a regular basis. Thus, they saw more social support for this behaviour than actually existed. Interestingly, however, even non-smokers reported that more young people smoked than actually was the case.

Perceived Parental and Peer Disapproval

Perceived disapproval of use of a particular substance and perceived example may not necessarily be consistent with one another, particularly for parents. Thus, parents may smoke cigarettes and yet strongly disapprove of this behaviour for their children. The available literature suggests that disapproval by parents should relate moderately with adolescent substance use and that peer disapproval should relate somewhat more strongly. In general, the present study corroborated these earlier findings. It is noteworthy, however, that perceptions of best friend's approval were somewhat more closely associated with substance use than were perceptions of disapproval by parents or other friends.

Expectancy-Value Beliefs

It was hypothesised that students who smoked, drank and used other drugs, compared with those who did not, would believe that these behaviours were more likely to lead to positive personal consequences and less likely to lead to negative personal consequences. They also were expected to value the positive consequences of these behaviours more and the negative consequences less than did other students. In general, the present study supported these hypothesised relationships. Thus, for example, smokers were less likely than non-smokers to agree that smoking would harm health or increase chances of getting cancer and were more likely to agree that this behaviour would make them feel more relaxed or look more grown up. To a lesser extent, they also evaluated these positive consequences more highly and these negative consequences less highly. Interestingly, it appears that there are somewhat greater differences in these beliefs for immediate and short-term consequences

(e.g., feeling relaxed, wasting money) than for long-term consequences (e.g., harming health, shortening life). Similar results were obtained for drinking and other drug use.

Attitude

On the basis of previous literature and theoretical considerations, it was hypothesised that a moderate to strong relationship would emerge between attitude or overall evaluation of substance use and actual behaviour. This hypothesis was confirmed for all three domains of substance use. As expected, a more favourable attitude was associated with an increased likelihood of smoking, drinking or other drug use.

Social Bonding

Social control theory suggests that individuals are constrained from engaging in deviant behaviours by the extent to which they are bonded to conventional social institutions such as the family, school or Church. It was expected, therefore, that substance use would be more likely when attachment or commitment to and involvement with these institutions were weakened.

Consistent with these expectations, it was found that bonding to the family (relationship with parents, importance of relationship with parents) was indeed associated with lower levels of smoking, drinking and drug use. In the case of commitment to and involvement with school, a similar pattern of results emerged. Those students who indicated lower levels of smoking, drinking and drug use also reported that they did better in school and placed more importance on doing well in school. Finally, bonding to religion (frequency of prayer and judged importance of religion) was also associated with lower levels of substance use. A comparison of the association of substance use with bonding to parents, school and religion suggests that the latter association was rather larger.

Value for Independence

The available literature suggests that those young people who place a greater value on independence may be more likely to smoke, drink or to take drugs. The present study did not support this hypothesis. The pattern of association between items designed to measure value for independence and substance use was weak and fell short of significance in most cases. However, this result probably was due to the fact that value for independence was construed in a pro-social way in the present study. That is, the hypothetical relationship may be more accurately described as one between rebelliousness and substance use. Those studies that have found an association between

value for independence and smoking, drinking or drug use generally have defined this variable in a way that suggests rejection of conventional parental and social control.

Tolerance of Deviance

The present study asked respondents about the frequency of their having sworn or cursed, lied to teachers and parents, damaged property and stolen things. Engaging in these behaviours more frequently was taken to imply tolerance of behaviours that were illicit or conventionally unacceptable. The extant literature shows that young people who smoke, drink or use drugs are frequently found to have been involved in a variety of other problem behaviours such as those listed above. Furthermore, attitudes towards deviance have been shown to correlate with substance use.

For each of the five deviant behaviours investigated in the present study, there was a significant association between reported frequency of the behaviour and use of cigarettes, alcohol and drugs. Consistent with expectations, the results indicated that respondents who reported higher levels of problem behaviour were more likely to be regular smokers, drinkers and drug users.

Predicting Substance Use Behaviours, Intentions and Attitudes

The model of adolescent substance use presented in Chapter 2 proposes that the most immediate determinants of adolescent smoking, drinking and drug use are behavioural intentions. The data relating intentions at phase I to behaviour one month later at phase II support this expectation. For boys, the correlations between intention and behaviour were .83, .57, and .53 for smoking, drinking and drug use, respectively. For girls, the corresponding correlations were .83, .63, and .62. The addition of more distal variables to the equations did not substantively improve the predictions.

The major predictors of smoking, drinking and drug use intentions were overall attitudes towards the behaviour and perceived peer behaviour. Those respondents who expressed more favourable intentions regarding smoking, drinking or drug use also had more favourable attitudes towards that behaviour and reported that their friends used that substance more frequently. Interestingly, a relatively large contingent consistency effect was found between attitudes and perceptions of peer behaviour for all three behavioural intentions. In each case, intention was greatest when respondents reported both a favourable attitude and that peers frequently used the substance in question. Somewhat smaller contingent consistency effects were found for other normative beliefs. In general, then, these results suggest that in the absence of either a supportive attitude or supportive normative beliefs, intentions are low.

The major predictors of attitude were expectancy-value beliefs. In particular, negative and positive expectancies concerning the personal consequences of a given substance use behaviour were most predictive of attitudes towards that behaviour. Evaluative beliefs were somewhat less important in this regard. Other variables such as tolerance of deviance and social bonding also contributed to the prediction of attitudes in some cases.

Recommendations

Based on the levels of usage of cigarettes, alcohol and other drugs, it was argued that there was a particular need for school programmes to combat such use. On the basis of the present findings and previous research with educational intervention programmes, it was argued that effective programmes can be designed on the basis of certain principles. First, it was stressed that "miseducation" should be avoided and that information be truthful rather than dangers be exaggerated excessively. A second important feature is that mere information does not of itself seem to be effective in deterring people from drug use. In fact, there are indications that information alone may lead in certain circumstances to more favourable attitudes and increased experimentation.

Among the most successful approaches are persuasion attempts that concentrate on the immediate consequences of drug use. For example, stressing the short-term consequences of cigarette smoking (bad breath, smelly clothes) seems to be far more effective in deterring young people from smoking than is an emphasis on health hazards. We also recommend social skills training that teaches young people to recognise and respond constructively to social pressures to smoke, drink or use other drugs. Furthermore, the fact that the majority of young people do not currently smoke, drink or use drugs may of itself be a considerable normative influence that could be mobilised against these behaviours. Interestingly, most adolescents, including the present group, overestimate the numbers of their peers who use such substances. We also recommend that community groups who are concerned with prevention should work in conjunction with schools so that parent and teacher efforts should be in harmony. Finally, we suggest that an exclusive focus on illicit drugs is inappropriate, given the levels of prevalence of smoking and alcohol use described above.

Chapter 1

INTRODUCTION AND BACKGROUND

In recent years there has been a growing concern with smoking, drinking and other drug use among young people in Ireland and with the problem of developing effective interventions to prevent or delay the onset of these behaviours.[1] In response to this concern, The Economic and Social Research Institute, with funding from the Commission of the European Communities, undertook this study of social-psychological factors related to substance use among Dublin post-primary students. The research was begun in February 1984 and data collection was completed in March 1985. The study was unique in Ireland in that it was multivariate in nature and attempted to take a comprehensive approach to predicting and understanding these behaviours. Moreover, it used a three-phase panel survey design consisting of an initial contact, a short-term follow-up and a long-term follow-up. This report, however, presents findings only from the first two phases of the project and thus focusses primarily on identifying factors that distinguish between young people who smoke, drink and use other drugs and those who do not. A later report will include data from the final phase of the study and will focus on developmental issues and on identifying factors that predict initiation to and changes in substance use behaviours.

The main objectives of the research were twofold. First, it was intended to provide more recent estimates of the prevalence of substance use among Dublin adolescents than are currently available. Secondly, and more importantly, it was also intended to provide systematic data on the social-psychological factors related to these behaviours for this population. The ultimate goal of this research was to gain a better understanding of the processes underlying smoking, drinking and other drug use among Irish adolescents and thus provide a firmer basis for designing effective preventive interventions that can be implemented for this age group.

1. The term drug is used broadly here and is intended to include not only alcohol, tobacco, opiates, amphetamines, sedatives, barbiturates, hallucinogens, cannabis, cocaine, etc., but also solvents (e.g., glue, petrol) and other potentially psychoactive substances that, strictly speaking, are not drugs.

Consequences and Prevalence of Substance Use

In part, the growing concern with adolescent smoking, drinking and drug use has resulted from a belief that these behaviours have potential serious long-term health and social costs and also from a perception that these behaviours have dramatically increased among young people. To what extent are these concerns well founded? What are the consequences of substance use and has it increased among Irish adolescents in recent years?

Social and Health Costs

The potential social and health costs associated with tobacco, alcohol and other drug use are well documented. Cigarette smoking, for example, has been identified as perhaps the single greatest preventable cause of illness and premature death among western industrialised nations. Data from the United States suggest that cigarette smokers in that country have a total death rate from cancer that is approximately twice that of the non-smoking population and the rate for heavy smokers is three to four times greater than for non-smokers (Department of Health and Human Services (DHHS), 1982). In Ireland it has been estimated that nearly two-thirds of all hospital admissions for diseases such as chronic bronchitis, emphysema, coronary heart disease and lung cancer are regular smokers and that as many as one-half of all deaths among adults in the Republic of Ireland are from smoking-related diseases (McKiernan, Hickey, Daly, Bourke and Mulcahy, 1978; Irish Medical Association (IMA), 1978).[2]

In terms of alcohol, it has been estimated that there are more than 7,000 hospital admissions in Ireland each year for alcoholism, alcohol psychoses and other causes directly related to alcohol consumption (Davies and Walsh, 1983; Walsh, 1980). In monetary terms, it has been suggested that alcohol use and abuse lead to individual and social costs in excess of £63 million yearly through preventable death and illness, job and productivity loss and other factors (Walsh, 1980).[3] Personal and psychological costs, although not easily quantifiable, appear to be equally great. For example, in a recent survey of young adults, nearly 17 per cent of young women and 30 per cent of young men reported problems at home related to drinking (O'Connor, 1978). In the same survey, approximately 18 per cent and 45 per cent of young men and women, respectively, reported that they had experienced some personal problems because of their own drinking.

2. See Cleary and Shelley (1983) for a review of medical research on smoking in Ireland.

3. More recently, Dr Dermot McCarthy, Economist, Department of Health, has estimated that the loss to the economy from abuse of alcohol was approximately £250 million in 1984 (McCarthy, 1984).

Considerably less reliable information is available about the social and health costs associated with illicit drug use in the Republic of Ireland. However, a great deal is generally known about the social, physiological and medical effects of this behaviour. Although some of the negative health and social consequences popularly associated with drug abuse and dependency have been attributed to the marginal life-style into which many drug users are forced (cf. Brecher, 1972), there is evidence that many commonly used illicit drugs do have deleterious physical consequences that cannot easily be attributed to other social-environmental factors. For example, the use of inhalants, a readily available and relatively popular drug among young people, is associated with serious neurological and motor damage resulting in an array of symptoms including ataxia, tremor, psychotic episodes, delirium, memory impairment and muscle weakness (Comstock and Comstock, 1977). Such effects have been observed even after relatively short-term regular use over a period of a few months. Similarly, smoking of cannabis or hashish, popularly considered an innocuous drug, recently has been associated with health consequences resembling those observed for cigarette smoking. Such effects include respiratory and pulmonary impairment, increased cardiovascular stress, and potentially pre-cancerous changes in lung tissue (cf. Polich, *et al.*, 1984; Jones, 1980). Of additional concern for this age group, cannabis use also has been associated with short-term impairment of learning and memory. Daily use of this drug, particularly if this use overlaps with school hours, may thus interfere with the educational process and have serious adverse consequences for a young person's later opportunities and quality of life (cf. Polich, *et al.*, 1984).

Prevalence of Substance Use Among Dublin Adolescents

To some extent, the concern with drug use among Dublin adolescents results from a popular belief that this behaviour has reached epidemic proportions. Interestingly, however, the most recent surveys suggest that illicit drug use is, in absolute terms, relatively infrequent among these young people. In 1980, for example, just over 12 per cent of Dublin post-primary school children reported that they had ever used any drugs not prescribed by a doctor (Shelley, Wilson-Davis, O'Rourke and O'Rourke, 1982). This lifetime prevalence is considerably lower than rates that have been reported for students in the United States (e.g., Johnston, O'Malley and Bachman, 1985) and some other European countries (e.g., Kandel, Adler and Sudit, 1981). However, even though the prevalence of drug use among Dublin post-primary students is relatively low, the available research also indicates that it has substantially increased in recent years: in 1970 only about 2 per cent of Dublin post-primary students reported that they had ever tried illicit drugs

(Nevin, Wilson-Davis, O'Rourke and Dean, 1971). Thus, drug use for this population has apparently increased nearly sixfold in a single decade.[4] If this trend continues, then drug use among Dublin adolescents soon will approach the levels experienced in many other European countries and in North America.

In contrast with adolescent use of illicit drugs, smoking and drinking have been of less immediate public concern, but the prevalence rates for these behaviours have long been at relatively high levels. In 1970, about 35 per cent of post-primary boys and 18 per cent of girls reported that they smoked. By 1980 these figures were 34 per cent and 26 per cent for boys and girls, respectively (Cleary and Shelley, 1983). Thus, smoking has remained at a high stable rate for post-primary boys and actually has increased for girls. Similarly, adolescent drinking appears to be relatively widespread in Dublin. In 1970, approximately 56 per cent of post-primary boys and 49 per cent of post-primary girls reported that they drank alcoholic beverages at least occasionally (O'Rourke, Wilson-Davis and Gough, 1971). Although current data are not yet available, it seems likely that increases have occurred for drinking as well as for illicit drug use and smoking.

Previous Research in Ireland

Given the apparent increases in drug use and the relatively high levels of drinking and smoking among Dublin adolescents, and the potential consequences of these behaviours, it seems imperative to develop effective interventions to prevent or delay them. However, before such interventions can be designed, there must be a basic understanding of the processes underlying experimentation with cigarettes, alcohol and other drugs by young people. Unfortunately, although these processes have been studied extensively elsewhere, very little is known about them among Irish adolescents. With few exceptions (e.g., Grube, Morgan and McGree, 1986; O'Connor and Daly, 1985; Grube, McGree and Morgan, 1984; O'Connor, 1978), most of the available research on substance use in Ireland largely has been concerned with documenting the prevalence of these behaviours and with identifying the socio-demographic characteristics of young smokers, drinkers and drug users. Moreover, many potentially relevant studies have focused on young adults (e.g., O'Connor and Daly, 1985; O'Connor, 1978) or on adult clinical populations (O'Mahony and Smith, 1984; Timms, *et al.*, 1973). Given that first experimentation with smoking, drinking and other substance use begins

4. However, some caution must be exercised in literally interpreting increases or decreases in *reported* substance use as resulting only from changes in actual usage. Changes in reporting may also reflect changes in other factors such as the social acceptability of admitting smoking, drinking or other drug use. These issues will be discussed in more depth in Chapter 3.

at a young age, these studies may not be relevant to understanding the *initiation* of these behaviours as opposed to the *maintenance* of established behaviours (cf. Flay, *et al.*, 1983; Gorsuch and Butler, 1976). It cannot be assumed that the same characteristics which distinguish adult smokers, drinkers and drug users necessarily will be relevant to young adolescents. Although some Irish studies (e.g., O'Connor and Daly, 1985) have used retrospective reports to investigate factors important at the initial phrases of substance use, the results of such studies should be replicated using contemporaneous data before they can be accepted at face value. In addition, because of cultural differences, it cannot be assumed that the factors identified as important elsewhere in Europe or in America are also important in Ireland. Recent research (Bank, *et al.*, 1985), for example, indicates that very different pathways may lead to adolescent drinking in different countries.

Although the available research in Ireland is useful because it highlights specific factors that may be important and identifies populations most at risk, it cannot by its very nature, give a complete picture of the processes that lead to the initiation and maintenance of smoking, drinking and other drug use among young people. As a result, very little is really known either about what variables are important in adolescent substance use in Ireland or about what preventive strategies should be most effective. The study presented in this report was undertaken to address these issues.

Organisation of this Report

The remainder of this report is specifically concerned with describing the theoretical framework, methods, findings and recommendations of this research project. Chapter 2 presents a detailed account of the theoretical considerations which guided this research and provides a rather extensive review of the relevant literature. The casual reader who is not overly interested in the theoretical aspects of this study may prefer to read only the introductory paragraphs and the summary to Chapter 2 before continuing with the remainder of the report. Chapter 3 describes the methods and sample used in this study and discusses some of the important methodological issues that are raised in substance use research of this type. Chapters 4, 5 and 6 present the prevalence findings for smoking, drinking and other drug use, respectively, and compare our data with the findings obtained in previous studies of substance use, both in Ireland and elsewhere. These chapters also consider the univariate differences in attitude, beliefs, personality and

background between those young people who smoke, drink or use other drugs and those who do not. Chapter 7 addresses the issue of predicting smoking, drinking and other drug use and, finally, Chapter 8 presents some recommendations as to educational interventions based both on these findings and on a consideration of successful preventive programmes developed elsewhere.

Chapter 2

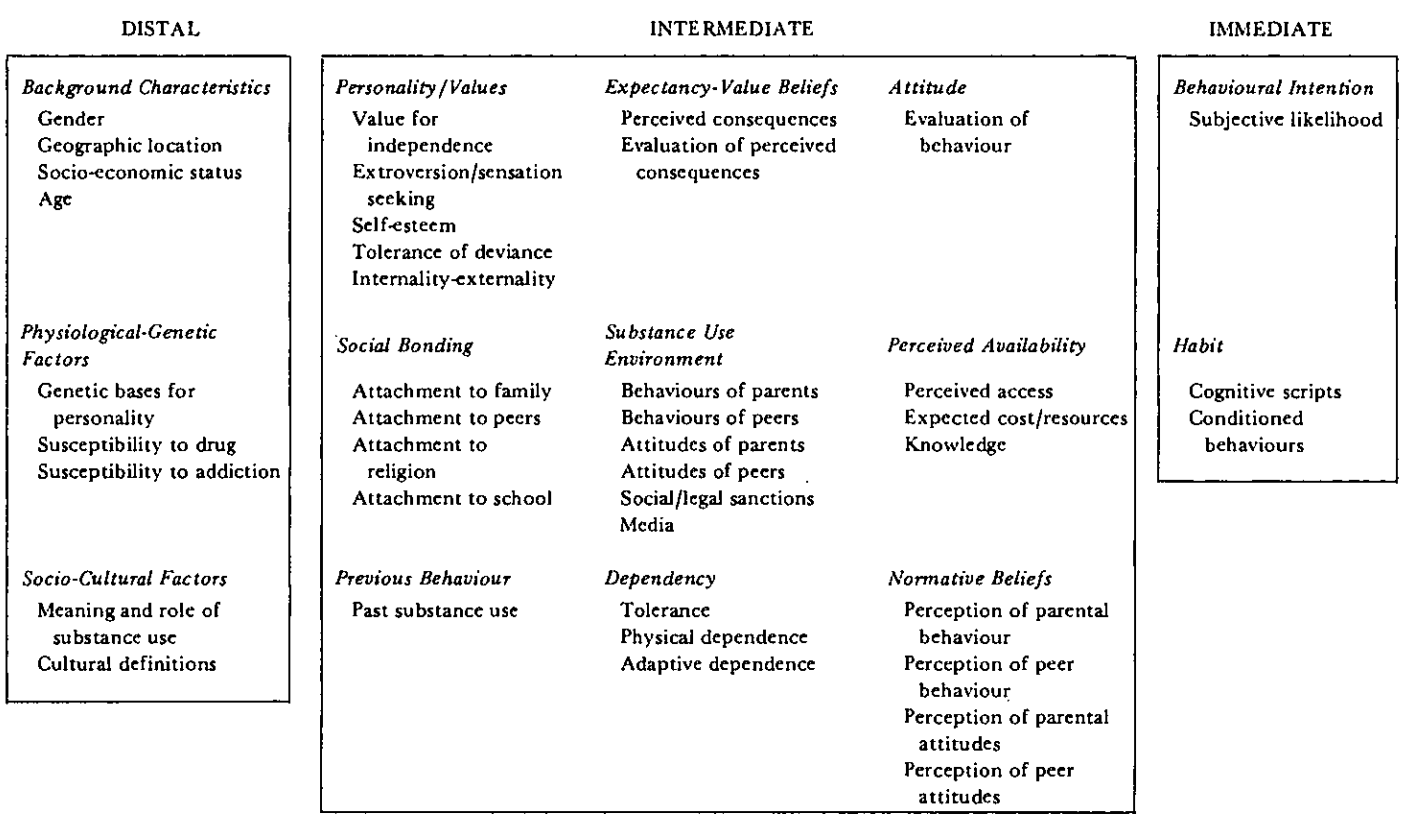
A MODEL OF ADOLESCENT SUBSTANCE USE

Why do young people smoke, drink or use other drugs? Given the potential social and health costs associated with these behaviours, this question is of great importance both in Ireland and elsewhere. Literally hundreds of studies have attempted to identify the social-psychological correlates of substance use and hundreds of variables ranging from socio-economic factors to personality characteristics have been implicated in these behaviours. Unfortunately, much of the available research, particularly in Ireland, has been strictly empirical and has lacked a sound theoretical basis for deciding what variables should be important and why. Moreover, most Irish studies, with some exceptions (e.g., O'Connor and Daly, 1985; Grube, Morgan and McGree, 1986; Grube, McGree and Morgan, 1984; O'Connor, 1978) have focused on one, or at most a few, explanatory variables. Rarely has this research been multivariate in nature and even more rarely has it allowed for interactions among variables.

This chapter describes the theoretical framework which guided this research and that we believe predicts and explains the initiation to and maintenance of substance use behaviours among adolescents. Unlike many theories dealing with these behaviours, this framework is multivariate and also specifies certain interactions among the causal factors. The major explanatory concepts are summarised in Figure 2.1.

The factors shown in this Figure are ordered from left to right according to the extent to which they primarily are seen to influence substance use directly or are mediated through other variables. The most distal variables, or those whose effects are furthest removed from adolescent substance use, appear in the left-hand column of the figure and the most immediate variables appear in the right-hand column. Variables of an intermediate nature appear in the middle columns. Thus, at one extreme, the effects of *background characteristics* and *physiological-genetic characteristics* are seen to be entirely mediated through other variables. Moreover, they are hypothesised to directly influence only variables whose effects on substance use are themselves mediated. At the other extreme, the model assumes that only two variables, *behavioural intentions* and *habit*, directly influence substance use

Figure 2.1: *Hypothesised Influences on Adolescent Substance Use*



behaviour to any substantial degree. Among the intermediate variables, *attitude*, *perceived availability* and *normative beliefs* are seen to be somewhat more immediate than the other factors. That is, they are expected to directly affect intention and habit while the effects of other intermediate variables are largely mediated through them.

Each subheading in Figure 2.1 summarises an entire class of variables. Although the variables are grouped according to conceptual similarity, it is recognised that many of those under a common subheading may be uncorrelated with one another and, moreover, may have different relationships with other variables in the model. Gender and age, for example, are both considered background characteristics, but are not expected to correlate with one another nor to have the same influence on normative beliefs. A more precise specification of the individual variables within each group and their expected effects will be given later in this chapter.

The framework presented here is an attempt to integrate a considerable body of social-psychological and sociological theory and research. Most of the individual variables and hypothesised causal relationships are thus based on earlier work by ourselves and others. In addition to individual empirical studies, the model is closely identified with several general theories of behaviour including recent versions of the theory of reasoned action (Liska, 1984; Bagozzi, 1982; Fishbein, 1980; Ajzen and Fishbein, 1980), social learning theory (Mischel, 1973; Bandura, 1977), as well as to theories specifically dealing with deviance and substance use such as problem behaviour theory (Jessor and Jessor, 1977) and social bonding theory (Hirschi, 1969). As a result of these ties to previous theory and research, most of the hypothesised causal links have a great deal of support in the existing literature, particularly from elsewhere in Europe and from the United States, but also to a lesser extent from Ireland. A review of the relevant literature will be presented in the following sections of this chapter as each of the individual variables is discussed.[5]

Although this model guided our research, it is important to understand that the analyses presented in this report are not intended as formal tests of it. Such tests are more appropriate for shorter technical papers. For the purposes of this report the model can be seen as a guide to what variables were considered important in adolescent substance use and why. It should also be understood that data were *not* collected for all of the variables shown in Figure 2.1. This report is concerned only with intentions, availability, attitudes, normative beliefs, social bonding, tolerance of deviance, value for

5. For other recent reviews of this literature the interested reader is referred to Chassin (1984), Flay, d'Avernas, Best, Kersell and Ryan (1983) and Kandel (1980). An excellent collection of papers concerning biological, psychological and social factors in smoking, drinking and other drug use may be found in Galizio and Maisto (1985).

independence and background characteristics as factors in adolescent substance use. Only these variables will be discussed in the text.[6] However, for the sake of completeness, the model is shown in Figure 2.1 in its entirety.

The decision to exclude some variables from this research was based on several considerations. Limitations due to the need for anonymity, the time available for data collection, the ages of the respondents and the extent of disruption to the school routine, among other things, precluded collecting complete data on all possibly relevant variables. In some cases, measures will be obtained at later phases of the project, but not at earlier phases. These variables will be treated in future reports. Other variables such as habit and dependency were considered to be of only minor importance for school-aged adolescents who are primarily at the initial stages of smoking, drinking and other drug use. Thus, they were not included in the present study, although they perhaps should be considered in future research to establish the extent to which they may or may not be relevant for this population.

Immediate Determinants of Substance Use

Behavioural Intentions

The model presented here, like many related social-psychological theories (e.g., Fishbein, 1980; Ajzen and Fishbein, 1980; Triandis, 1980), assumes that most social behaviours, including substance use, are largely a result of rational decision-making processes. Consistent with this assumption, behavioural intentions are seen to be one of the primary immediate determinants of smoking, drinking and other drug use. Behavioural intentions are conscious decisions to engage or not engage in a given behaviour. In the present model they simply refer to the students' own beliefs about how likely it is that they will smoke, drink alcohol, or use other drugs, how often they will do so and how much of these substances they will use at any given time.

The relationship between behavioural intentions and substance use behaviours is expected to be straightforward: the more favourable the behavioural intention, the greater the likelihood of and frequency of smoking, drinking or other drug use. The available research indicates that there is a high degree of consistency between measures of behavioural intentions and substance use under appropriate conditions (e.g., Chassin, *et al.*, 1984b; Fishbein, 1980, 1982; Bentler and Speckart, 1979). This consistency, however, depends upon three factors: correspondence, stability, and volition (cf. Liska. 1984; Ajzen and Fishbein, 1980; Jaccard, 1975).

6. A complete description of all of the variables shown in Figure 2.1 may be found in Grube and Morgan (1985).

Correspondence is a methodological consideration and refers to the extent to which the measurements of behaviours and behavioural intentions agree or are at the same level of generality in terms of action, context and time. When correspondence is high, then the consistency between intentions and behaviours also should be high. Conversely, when correspondence is low, consistency may be low. Measuring overall intention to drink alcoholic beverages, for example, would be appropriate if one is interested in predicting alcohol consumption in general. However, this measure would be inappropriate if one is interested in specifically predicting consumption of beer or wine. Similar considerations would apply to specification of time and place of drinking.

Stability refers to the extent to which behavioural intentions remain constant or change over time. If intention changes between the time it is measured and the time behaviour is measured, then a low degree of consistency will obtain. Thus, when behavioural intentions are not stable, they may not predict future behaviour accurately. Moreover, other variables that influence the stability of intentions, such as previous experience, age, addiction or habit, may interact with intentions in predicting future behaviours.

Finally, volition refers to the extent to which the behaviour in question is perceived to be under personal control and behavioural alternatives are available (Schifter and Ajzen, 1985). If the individual does not possess the skills or knowledge required to achieve a behavioural outcome, or if the opportunity to engage in the behaviour does not arise, then intentions may not predict performance. It also may be suggested that some substance use behaviours are not volitional in the sense that they are a result of dependency. However, although dependency may be important in some instances, it probably plays only a minor role during the initial stages of adolescent substance use. Moreover, it should be recognised that even dependency behaviours involve some degree of intention. An alcoholic, for example, may decide to take a drink or not to take a drink on any particular occasion or to seek professional help and attempt to give up drinking altogether. A confirmed smoker may decide to smoke more, or less or to quit. Some of these behavioural alternatives may require more effort or greater skills, but they are still available to the individual.

Intermediate Determinants of Substance Use

The intermediate factors shown in Figure 2.1 are hypothesised to influence substance use primarily through their effects on intention and on one another. Thus, according to our framework, in order to predict smoking, drinking and other drug use, all that is necessary is to measure substance use

intentions. However, to understand why young people smoke, drink or use other drugs it is necessary to consider the variables which underlie these more proximal determinants of behaviour. We propose that three factors, *attitude*, *perceived availability* and *normative beliefs* are most immediately important in this respect. These, in turn, are directly influenced by *expectancy-value beliefs* and somewhat less directly by *personality and values* and *social bonding*. Each of these factors will be considered here.

Attitude

Attitude as it is used in this model is defined as an individual's overall positive or negative affect towards (*like-dislike*) or evaluation of (*good-bad*) engaging in a specific behaviour (cf. Ajzen and Fishbein, 1980). It is important to note that attitude is (i) a personalised belief and (ii) directed towards a behaviour rather than an object. Thus, we are concerned with young people's attitudes towards *their own* smoking, drinking and other drug use rather than towards substance use in general or towards cigarettes, alcohol or other drugs, *per se*.

It is assumed here that attitudes primarily affect substance use behaviours indirectly through their influence on intentions: the more favourable an individual's attitude, the more favourable his or her intentions will be. However, some research suggests that attitudes may also have small direct effects on behaviour that are not mediated through intentions (e.g., Bagozzi, 1982; Bentler and Speckart, 1979; Zuckerman and Reis, 1978). In either case, the relationships between attitudes, intentions and behaviours are hypothesised to be straightforward: a more positive attitude leads to a more positive intention regarding a particular behaviour and to a greater likelihood of performing that behaviour.

The relationship between attitude and intention is governed by the same considerations of correspondence of action, context and time that applied to intention-behaviour relationships. When correspondence is lacking, the relationship tends to be small or absent. It has been shown, for example, that attitudes towards drinking in pubs do not predict drinking at parties or at home, and attitudes towards drinking beer do not predict drinking wine or spirits (Schlegel, Crawford and Sanborn, 1977). However, when it is properly measured, attitude has been found to correlate moderately to strongly with intentions and behaviours relating to cigarette smoking (e.g., Grube, Morgan and McGree, 1986; Fishbein, 1982; Chassin, *et al.*, 1981, 1984b), drinking (e.g., Budd and Spencer, 1984; McCarty, Morrison and Mills, 1983; Schlegel, Crawford and Sanborn, 1977) and other drug use (Bentler and Speckart, 1979).

Perceived Availability

Perceived availability is closely related to our earlier discussion of volition and is defined as the extent to which an individual believes he or she has (i) access to a particular substance, (ii) the resources with which to obtain it, and (iii) the knowledge necessary to use it effectively. Perceived access simply refers to the difficulty or ease that an individual thinks there would be in finding a source for a particular substance. Perceived access will vary from individual to individual depending primarily upon social and other environmental factors. In addition, certain substances should be perceived as more readily accessible than others. Most adolescents, for example, probably believe that cigarettes, alcohol and solvents are more easily obtained than other drugs. However, even when a young person believes that access to a particular drug is easy, perceived availability may be limited by other factors. For example, a young person may know where to obtain a given drug, but believe that he or she cannot afford to buy it and cannot steal or borrow it. In this case perceived availability should be low. Finally, to effectively use many substances requires some degree of knowledge. The extent to which a young person believes he or she lacks this knowledge may limit perceived availability even when access and resources are relatively unlimited.

With some exceptions (e.g., McAlister, 1983; Huba, *et al.*, 1980; Smart, 1980; Winick, 1974) most contemporary social-psychological approaches to adolescent substance use ignore the potential role of perceived (or actual) availability in the initiation and maintenance of smoking, drinking and other drug use. In the present model, however, it is seen to directly influence intentions: as perceived availability of a given substance increases, intention and thus use of that substance will also increase. In support of this contention, research has shown that perceived availability is an important predictor of alcohol and drug use by adolescents (Goodstadt, Sheppard and Chan, 1984; Johnston, O'Malley and Bachman, 1985; Smart, 1980; Smart and Goodstadt, 1977). This relationship between perceived availability and substance use, of course, provides some of the rationale for restrictions on the sale of cigarettes, alcohol and other drugs.[7]

Normative Beliefs

Normative beliefs are defined as an individual's perceptions of social pressures and specifically of the extent to which significant others prescribe

7. Legal restrictions, however, may have unintended effects. For example, the recreational use of cannabis apparently was very rare in the United States until the passage of Prohibition which greatly curtailed access to alcoholic beverages. Similarly, many of the deleterious health and social consequences associated with opiate addiction have been attributed by some to legal restrictions which force addicts into a marginal life-style. See Brecher (1972) for a discussion of these points.

or proscribe a particular behaviour. These beliefs play a major role in many theories relevant to substance use and are thought to be extremely important determinants of behaviour (e.g., Ajzen and Fishbein, 1980; Triandis, 1980; Huba, *et al.*, 1980; Jessor and Jessor, 1977). In general, it is assumed that young people who smoke, drink or use other drugs perceive greater social support for and less social pressure against these behaviours than do young people who do not engage in them.

In the simplest case, the relationship between normative beliefs and substance use behaviours may reflect the influence of actual social support and pressure. That is, young people may accurately appraise the extent to which significant others approve (or disapprove) of smoking, drinking and other drug use and as a result be more (or less) likely to engage in these behaviours themselves. Some support for this hypothesis is provided by longitudinal studies which have shown that normative beliefs predict initiation to and changes in substance use behaviours (e.g., Chassin, *et al.*, 1984b; Murray, *et al.*, 1983) and by research showing that initiation to substance use generally occurs in the presence of a peer (e.g., Grube, McGree and Morgan, 1984). Furthermore, although not perfectly correlated, evidence suggests that there is good correspondence between actual social influences and normative beliefs (e.g., Kandel, 1974, 1985; Newcomb, Huba and Bentler, 1983).

Normative beliefs, however, are not always congruent with actual levels of social pressure and support. Rather, they are susceptible to many sources of distortion and bias. In particular, longitudinal research also indicates that normative beliefs not only determine substance use behaviours among young people, but are themselves determined, in part, by an adolescent's own attitudes and behaviour. Thus, for example, young smokers tend to overestimate the extent to which their peers, parents and teachers smoke and approve of smoking (Kandel, 1974, 1985; Chassin, *et al.*, 1984a; Flay, *et al.*, 1983).

Biases in normative beliefs may result from at least three processes. First, young people who smoke, drink or use other drugs may be more receptive to social cues relating to approval of these behaviours than to disapproval. That is, in seeking to reduce uncertainty about the appropriateness of their own behaviours, they may be predisposed to selectively misperceive the attitudes and behaviours of others in such a way as to provide an illusion of greater support than actually exists (cf. Festinger, 1954). Secondly, selective friendship choices may play a role. Young smokers, drinkers and drug users may tend to seek out friends who are similar to themselves in attitude and behaviour. As a result, they may come to overestimate the extent to which smoking, drinking and drug use are generally approved by others (e.g., Kandel, 1974, 1985). Finally, an element of rationalisation through which young people attempt to justify their behaviour by reference to the behaviours and attitudes

of others cannot be discounted. Regardless of such biases, research suggests that it is primarily through normative beliefs, rather than directly, that social influences affect substance use behaviours. How others are perceived appears to be more important than their actual attitudes and behaviours in determining substance use (Newcomb, Huba and Bentler, 1983).

Our model specifies that there are two distinct normative beliefs which are important in determining substance use intentions: perceived approval and behavioural norms. Perceived approval consists of beliefs about the verbal approval or disapproval of others for a particular behaviour, and behavioural norms consist of beliefs about the extent to which others engage in the behaviour themselves. These types of normative belief may or may not always be consistent with one another. Parents, for example, may be perceived as overtly proscribing smoking for their children, and at the same time convey social acceptance of this behaviour through their own smoking. In addition, there may be conflicting normative beliefs concerning different people. Parents may be perceived as disapproving of cannabis use, but this behaviour might be perceived as highly approved by siblings or peers. We therefore expect not only that there are separate dimensions of normative belief corresponding to perceived approval and perceived behaviour on the part of others, but also that there are dimensions corresponding to the major reference groups that an individual has. Support for both of these expectations has been reported elsewhere (Grube, Morgan and McGree, 1986; Grube, McGree and Morgan, 1984; Biddle, Bank and Marlin, 1980).

Normative beliefs are hypothesised to affect substance use in at least two ways. First, they are expected to directly influence intentions. The more supportive an individual's normative beliefs are of the use of a given substance, the more favourable his or her intention towards using that substance will be. Support for this hypothesis is well established. Perhaps the most consistent finding in the extant literature is that perceived approval and behavioural norms are among the best predictors of substance use intentions and behaviours among young people. This relationship has been observed in predicting level of substance use in cross-sectional studies (e.g., Grube, Morgan and McGree, 1986; Grube, McGree and Morgan, 1984; Hirschman, Leventhal and Glynn, 1984; Budd and Spencer, 1984; Newcomb, Huba and Bentler, 1983; Budd, Bleiker and Spencer, 1983; Chassin, *et al.*, 1981; O'Connor, 1978) and in predicting initiation to and changes in substance use in panel design and longitudinal studies (e.g., Chassin, *et al.*, 1984b; Chassin, *et al*, 1984a; Kaplan, Martin and Robbins, 1984; Pulkkinen, 1983; Murray, Swan, Johnson and Bewley, 1983; Jessor and Jessor, 1977; Jessor, 1976).

Secondly, normative beliefs may interact with attitude in determining intentions and behaviour. Specifically, two forms of interaction between

attitudes towards substance use and normative beliefs have been described. On the one hand, it appears that in most instances *contingent consistency*, or the presence of both a supportive attitude and supportive normative beliefs, is a necessary condition for adolescent substance use behaviours to be expressed (Grube, Morgan and McGree, 1986; Andrews and Kandel, 1979). On the other hand, however, a *reactance effect* also may be possible to the extent that smoking, drinking or other drug use are assertions of independence from authority. Thus, in at least one case, substance use behaviours were found to be most likely in the presence of a supportive attitude and when parents disapproved (Grube, Morgan and McGree, 1986).

There also is evidence that the different types of normative belief may vary in their importance as predictors of adolescent smoking, drinking and drug use. Generally speaking, the available research indicates that behavioural norms are considerably more important than normative approval in determining adolescent substance use and that normative beliefs about peers are much more important than beliefs about parents (Grube, Morgan and McGree, 1986; Kandel, 1985). However, this latter pattern may hold only in the short term and for specific behaviours. That is, peers may have more of an immediate influence during adolescence, but parents may be more important in determining the long-term attitudes and values of their children (cf. Kandel, 1985). In addition, the influence of parents on adolescent substance use may be less direct than that of peers. For example, parents may influence friendship choices and the general social environment to which their children are exposed.

Expectancy-Value Beliefs

Expectancy-value beliefs consist of two components: (i) perceptions of the likelihood that a behaviour will have specific *personal* consequences and (ii) evaluations of these consequences. These two components are hypothesised to interact with one another such that the more likely an individual believes it is that a given behaviour will have positively valued consequences, the more favourable he or she will be predisposed towards that behaviour. Conversely, the more likely an individual believes it is that a behaviour will have negatively valued consequences, the more unfavourably he or she will be predisposed. Expectancy-value beliefs are assumed to influence behaviour primarily through their effect on attitudes. However, it recently has been suggested (e.g., Bagozzi, 1981, 1982) that expectancy-value beliefs may also influence intentions by evoking cognitive scripts or other related processes.

The relationships between expectancy-value beliefs and substance use attitudes, intentions and behaviours have been substantiated in a number of studies. Thus, for example, smokers are less likely than non-smokers to

believe that smoking increases their chances of cancer, harms their health or offends others. Conversely, they are more likely to believe that it will increase their popularity, make them feel relaxed, and help them concentrate (e.g., Bauman and Chenoweth, 1984; Bauman, Fisher, Bryan and Chenoweth, 1984; Grube, McGree and Morgan, 1984; Kleinke, Staneski and Meeker, 1983; Fishbein, 1982; Eiser, Sutton and Wober, 1979; Jaccard, 1975). Similarly, smokers also evaluate the negative consequences of smoking less negatively than do non-smokers and the positive consequences more positively (Grube, McGree and Morgan, 1984; Fishbein, 1982). Similar differences in expectancy-value beliefs have been reported for drinking (e.g., Bauman, Fisher, Bryan and Chenoweth, 1985; Budd and Spencer, 1984; McCarty and Kaye, 1984; McCarty, Morrison and Mills, 1983; Christiansen and Goldman, 1983; Hicks, 1980) and other drug use (Goodstadt, Sheppard and Chan, 1984; Budd, Bleiker and Spencer, 1983). Interestingly, differences between smokers and non-smokers in beliefs about the health consequences of smoking did not emerge in one study when the smoking of others, rather than own smoking, was the focus (Kristiansen, Harding and Eiser, 1983). That is, smokers were just as likely as non-smokers to believe that smoking was related to cancer or cardiovascular disease for others. This latter finding reinforces the importance of investigating personalised beliefs (*my* smoking increases *my* chances of getting lung cancer) rather than general beliefs.

Personality and Values

Personality characteristics and values play a central role in many theories of deviance (e.g., Kaplan, 1980; Jessor and Jessor, 1977) and literally hundreds of studies have considered the role of these variables in substance use. Unfortunately, there have been considerable problems with much of this research. Often, relationships reported in one study are not replicated and occasionally the opposite relationships are obtained in other studies (cf. Kandel, 1980; Flay, *et al.*, 1983).

Despite these shortcomings, some consistent and meaningful results have been obtained and it is possible to draw some conclusions regarding the role of personality and values in adolescent smoking, drinking and other drug use. In this report we will consider two value orientations or personality dimensions that consistently have been found to relate to these behaviours: value for independence and tolerance of deviance. It is recognised that these dimensions may be closely interrelated. For example, it has been suggested (Gorsuch and Butler, 1976) that they may be reflections of a more general personality organisation which might be labelled conventionality-unconventionality. None the less, for reasons of conceptual clarity, these personality dimensions will be discussed separately here.

Value for Independence. Values, in the context of personality, are defined as beliefs that a given ideal end-state of existence or ideal mode of behaviour is socially and personally preferable (Rokeach, 1973). It is proposed here that those young people who place a greater value on being independent are more likely to engage in smoking, drinking and other drug use. Evidence for this hypothesis comes from a number of sources. For example, in a recent review of research (Rokeach and Grube, 1985) it was concluded that two of the most consistent value differences between young smokers and non-smokers were for *independent* and *obedient*. Those young people who were smokers, or who indicated that they intended to try smoking, placed a greater value on being independent and a lower value on being obedient than did non-smokers. Value for independence also has been found to distinguish adolescents who use drugs (Jessor and Jessor, 1977; Carman, 1974) and who drink alcohol (Jessor and Jessor, 1977). Related characteristics such as need for autonomy and rebelliousness, also have been implicated in substance use behaviours (McAlister, Krosnick and Milburn, 1984; Brook, Whiteman and Gordon, 1981, 1983; Stewart and Livson, 1966).

It is expected that value for independence will affect substance use behaviours primarily through its effects on value-expectancy and normative beliefs. Specifically, young people placing a high priority on independence should evaluate certain perceived consequences of substance use, such as feeling grown-up, more positively and should be more likely to seek out peers who engage in deviant behaviours.

Tolerance of Deviance. Tolerance of deviance is defined as a favourable general attitude towards deviant or problem behaviours. This general attitude is expected to be closely related to lowered self-esteem and a perception that deviant behaviour is self-enhancing (cf. Kaplan, 1980; Jessor and Jessor, 1977). Tolerance of deviance is similar to value for independence, but goes beyond it in that it implies an overt acceptance of behaviours that are seen as illicit and conventionally unacceptable.

Tolerance of deviance most frequently has been measured behaviourally. Thus, for example, research shows that substance use behaviours tend to be inter-correlated and that young people who smoke, drink or use other drugs typically engage in other socially sanctioned behaviours such as sexual intercourse and truancy (e.g., Pulkkinen, 1983; Murray, *et al.*, 1983; Rooney and Wright, 1982; Jessor and Jessor, 1977). Attitudes towards deviance also have been investigated more directly in a number of studies. In general, the results of these studies are in agreement with those using behavioural indicators; young people who are more accepting of deviant behaviour in themselves

and others are more likely to smoke, drink alcohol and use other drugs (Brook, *et al.*, 1983; Jessor and Jessor, 1977).

It is assumed in the present model that the effects of tolerance of deviance on substance use behaviours are primarily mediated through expectancy-value beliefs and normative beliefs. Young people who are more accepting of deviance should be more likely to positively evaluate the consequences of substance use, select friends who themselves smoke, drink or use other drugs, and thus perceive normative support for these behaviours. Consistent with this hypothesis, research indicates that when these more immediate factors are controlled, tolerance of deviance has a negligible effect on substance use (e.g., McLaughlin, *et al.*, 1985).

Social Bonding

A social control perspective (e.g., Kaplan, Martin and Robbins, 1984; Kaplan, 1980; Hirschi, 1969) would suggest that individuals are constrained from engaging in deviant behaviours by the extent to which they are bonded to conventional institutions of society such as family, school or Church rather than to peers. Weakened social bonding is seen to result from negative self-evaluations that are developed in the course of participation in conventional social group interactions. These negative self-evaluations lead to a loss of motivation to conform to the norms of those conventional groups, an increase in motivation to deviate from these norms and an increase in acceptance of deviant groups and behaviour patterns through which self-esteem can be restored. Thus, according to this perspective, the more that social bonding to traditional institutions is weakened and bonding to peers is strengthened, the greater the likelihood that an individual will engage in deviant behaviour, including smoking, drinking and other drug use.

Within the present model, social bonding is conceptualised as consisting of three closely related processes: attachment, commitment and involvement (cf. Krohn, Massey, Skinner and Lauer, 1983; Hirschi, 1969). Attachment refers to the affective bonds between individuals or between an individual and an institution. How well young people get along with their parents or how much they like school or Church are examples of attachment. In contrast, commitment refers to the extent to which an individual believes the relationship with another is important or values a given social institution and its goals. Examples of commitment include believing that it is important to get along with one's parents or do well in school. Finally, involvement refers to the time or effort one expends within the context of a given relationship or social institution. Engaging in family or Church activities, or studying and doing well in school are examples of involvement.

Social bonding is seen to influence substance use behaviours primarily

because the young person who is bonded to conventional institutions seeks to avoid the negative evaluations that deviance from traditional norms would bring from conventional sources of social support and, moreover, has come to personally value socially approved goals (Krohn, *et al.*, 1983; Hirschi, 1969). However, it also has been suggested that bonding to conventional institutions such as the Church or family may reduce exposure to deviant models and social pressures to engage in deviant behaviours or may strengthen resistance to such models and pressures (Leventhal and Cleary, 1980; Gorsuch and Butler, 1976). On the basis of these considerations, social bonding is thus expected to influence substance use behaviours primarily through its effects on expectancy-value beliefs and normative beliefs.

There is considerable evidence that social bonding is related to adolescent substance use attitudes and behaviours in the expected manner. Thus, for example, young people who report a high degree of attachment to their parents are less likely to smoke, drink or use other drugs (Chassin, *et al.*, 1981, 1984a; Krohn, *et al.*, 1983; Rooney and Wright, 1982; Pulkkinen, 1983; Kandel and Adler, 1982; Kandel, Kessler and Margulies, 1978; Jessor and Jessor, 1977; Kandel, 1975). Similarly, young people who like school, participate in school activities and get better grades engage in substance use behaviours less frequently than do other adolescents (Goodstadt, Sheppard and Chan, 1984; Chassin, *et al.*, 1984a; Ahlgren, *et al.*, 1982; Rooney and Wright, 1982; Ensminger, Brown and Kellam, 1982; Jessor and Jessor, 1977). Consistent findings also have been reported for Church attendance and religiosity (Gary and Berry, 1984; Christiansen and Goldman, 1983; Jessor and Jessor, 1977; Kandel, 1975). Social bonding has been considered in only a few studies in Ireland. However, the available research in the Irish context indicates that bonding to religion and, to a lesser extent, to parents is negatively related to drinking practices among young adults (O'Connor, 1978) and self-reported standing in school is similarly related to smoking among adolescents (O'Rourke, *et al.*, 1983).

However, although social bonding variables are related to smoking, drinking and other drug use, it also has been found that they add little to the prediction of these behaviours when expectancy-value and normative beliefs are included in the model (Goodstadt, *et al.*, 1984; Kandel and Adler, 1982; Rooney and Wright, 1982; Chassin, *et al.*, 1981; Schlegel, *et al.*, 1977). This pattern is, of course, consistent with our assumption that the effects of social bonding on substance use are primarily mediated through these more immediate beliefs. Other evidence suggests that social bonding variables may be more important in the initial stages of substance use than in later stages (Chassin, *et al.*, 1984b). That is, weakened bonds to parents, religion and school and strengthened bonds to peers may increase the likelihood of trying, but not necessarily

continuing smoking, drinking or other drug use.

Distal Determinants of Substance Use

Background characteristics are the most distal factors related to substance use to be considered here. This is not to imply that these variables are not important. For example, the specification of the background differences related to smoking, drinking and other drug use may be especially important because knowledge of such factors could help identify populations most at risk and towards which educational interventions should be targeted. However, it does mean that the effects of these variables are entirely mediated through more immediate factors such as personality, normative beliefs and expectancy-values.

Background Characteristics

Background characteristics are defined to include all of the relevant socio-demographic factors that might be related to the initiation and maintenance of substance use. However, we are concerned here only with the potential effects of age, gender and socio-economic factors. Because most of the available studies in Ireland have been epidemiological in nature, more is known about the relationships between substance use and these background characteristics among Irish adolescents than any other variables in our model, with the possible exception of normative beliefs. Studies conducted elsewhere also have provided a great deal of information about these relationships in other cultures. However, some caution must be exercised in extrapolating from earlier studies in Ireland or from studies in other countries to the present situation. The relationships between background characteristics and substance use appear to vary across cultures and change within cultures over time. Thus, it is not possible to assert with any confidence that previous findings will be replicated here. In order to explain and anticipate such relationships, a more complete specification of the theoretical links between background characteristics and the more immediate determinants of substance use would be necessary. Such an explication goes far beyond the purposes of this chapter. Therefore, for the most part we will simply describe the background differences that have been reported previously, rather than making specific hypotheses.

Gender. In general, gender differences in adolescent substance use appear to be historically and culturally bound and depend upon the particular drug under consideration. In the United States, for example, boys tend to use alcohol and most illicit drugs more often than do girls (Johnston, O'Malley

and Bachman, 1985). This gender difference is especially large for current and heavy use of these substances. However, despite these overall differences, the relationship between gender and substance use is actually a complicated one. For example, although American boys report more frequent current drug use, nearly equal numbers of boys and girls report having used some drugs within the past year (Johnston, *et al.*, 1985). In addition, when individual classes of drugs are considered rather than overall drug use, certain of them are used more frequently by girls than by boys. Thus, more American girls than boys now use stimulants and smoke cigarettes on a regular basis (Johnston, *et al.*, 1985). Finally, some apparent differences in substance use behaviour actually may reflect the physical differences between boys and girls. Thus, for example, in one study it was found that while boys generally reported that they drank more alcohol in absolute terms than girls did, the two sexes did not differ in the amount consumed per kilogram of body weight (Gabrielli and Plomin, 1985).

The results of studies from other countries are also mixed. For example, Aitken (1980) found no significant differences in smoking behaviours for boys and girls in Scotland nor did Pulkkinen (1983) in Finland. Other research indicates that French boys smoke and drink only slightly more frequently than French girls, while Israeli boys tend to smoke and drink substantially more frequently than Israeli girls (Kandel, Adler and Sudit, 1981). Relatively large gender differences in the use of illicit drugs also were found in these latter two countries.

In Ireland, gender differences in adolescent substance use appear to be more pronounced and consistent than in the United States, Scotland, France and Finland and in that respect resemble those reported for Israel. In recent surveys of Irish primary and post-primary school children, boys reported considerably higher lifetime and current rates of smoking, drinking and use of all classes of illicit drugs when compared with girls (Grube, McGree and Morgan, 1984; Shelley, O'Rourke, Wilson-Davis and O'Rourke, 1984; O'Rourke, O'Byrne, Condren and Wilson-Davis, 1983; Shelley, Wilson-Davis, O'Rourke and O'Rourke, 1982).

The fact that gender differences in substance use appear to be culturally and historically bound, suggests that they largely reflect differences in sex-role socialisation. It is likely, for example, that boys are more encouraged to take risks and to be adventurous and independent. There also may be certain cultural expectations that result in different patterns of smoking, drinking and drug use among males and females. However, sex-linked biological differences that relate to personality cannot be discounted completely (cf. Zuckerman, 1979). By and large, then, it is expected that the effects of gender on substance use will be mediated through differences in personality,

social bonding, normative beliefs, and expectancy-values. However, there may also be certain interactions involving gender. In particular, girls may be more influenced by parental disapproval and by family social bonds, while boys may be more influenced by peers (Grube, McGree and Morgan, 1984; Ensminger, *et al.*, 1982).

Socio-economic Factors. Contrary to popular belief, there is very little evidence that socio-economic factors are systematically related to adolescent substance use behaviours (cf. Kandel, 1980). The findings of studies which have considered such variables are often confusing and frequently conflict with one another. Thus, studies carried out in Scotland (Aitken, 1980) and in France and Israel (Adler and Kandel, 1981; Kandel, Adler and Sudit, 1981) have failed to demonstrate any relationship between socio-economic factors and adolescent substance use. In the United States very small associations between socio-economic indicators and adolescent substance use have been found in some studies (e.g., Johnston, *et al.*, 1985; Jessor, *et al.*, 1980), but not in others (e.g., Keyes and Block, 1984).

The research in Ireland has also produced mixed findings. In one study father's occupation was found to be related to smoking among boys, with smoking rates being highest among sons of semi- and unskilled manual workers (e.g., Wilson, 1969). However, no such differences were found for girls, and other studies have failed to find such a relationship for either sex (Grube, McGree and Morgan, 1984). Finally, no relationship between father's occupational status and drug use has been found in previous studies of Dublin adolescents (Shelley, *et al.*, 1982). Interestingly, however, income and occupation do appear to be related to smoking and drinking behaviours among Irish adults (Joint National Media Survey, 1984; Cleary and Shelley, 1983; O'Connor, 1978). Socio-economic factors, therefore, may be more important for the continuance of these behaviours than for their initial stages during adolescence.

In sum, the available literature suggests that the relationship between family socio-economic characteristics and adolescent substance use will be small or non-existent. It seems likely that this relationship, if it exists, is mediated through differences in social bonding, expectancy-values, normative beliefs and possibly personality.

Age. Of all the background characteristics that have been investigated, age has the strongest and most consistent relationship with substance use (cf. Kandel, 1980). Smoking, drinking and illicit drug use all appear to increase with age throughout adolescence into young adulthood, and then tend to moderate thereafter (e.g., Kandel and Logan, 1984; Montgomery,

Borgatta and Borgatta, 1983; Fitzgerald and Mulford, 1983; Goodstadt, Chan and Sheppard, 1982). These changes appear to be both developmental and generational. That is, they reflect changes in substance use that are directly related to increasing age or maturity and to changes in acceptance of substance use that result from different socialisation experiences for different generations.

Research in Ireland has not yet considered changes in substance use throughout the life cycle from a longitudinal perspective. However, the available cross-sectional evidence indicates a similar pattern of increase and then moderation with age (Cleary and Shelly, 1983). Considering only Irish adolescents, research suggests that smoking, drinking and illicit drug use generally increase with age. For example, among Dublin boys, regular smoking appears to increase up to about 14 years where it remains constant until about 18 years, at which time another sharp increase is observed. Among Dublin girls, regular smoking seems to increase up to 16 years, after which it remains reasonably constant (O'Rourke, *et al.*, 1983). Regular drinking also shows substantial age-related increases (O'Rourke, Gough and Wilson-Davis, 1974). Both Dublin boys and girls show very low rates of drinking as they enter adolescence which increase rapidly with each passing year. However, the drinking rates for boys appear to increase somewhat more rapidly than those for girls. Use of drugs other than alcohol and tobacco show a very similar pattern to that for drinking: both boys and girls initially report very low rates of drug use which increase throughout adolescence, with boys increasing their use somewhat more rapidly than girls (Nevin, Wilson-Davis, O'Rourke and Dean, 1971; Shelley, *et al.*, 1982).

As with the other background variables, the effects of age on substance use are expected to be largely mediated rather than direct. We anticipate that age mainly influences substance use through its effects on personality, social bonding, value expectancies and normative beliefs. In the case of personality, it is of interest that value for independence shows increases throughout adolescence and then decreases thereafter which parallel developmental changes in substance use (Rokeach, 1973). We also expect that older adolescents are exposed to more substance using models among their peers and in advertising than are younger adolescents, and thus develop more favourable expectancy-values and normative beliefs concerning smoking, drinking and other drug use. Finally, it is likely that as adolescents grow older, social bonding with parents decreases, they become more independent of their parents and are more influenced by peers (Berndt, 1979). As a result, parental influences on substance use may be more important for younger than for older adolescents while the opposite is true for peer influences (Pulkkinen, 1983; Krosnick and Judd, 1982).

Summary

This chapter describes the model of adolescent substance use that guided this research project. The variables in this framework are ordered from those considered most directly related to substance use to those whose effects are entirely mediated through other factors. The primary immediate determinants of smoking, drinking and illicit drug use considered in this study are *behavioural intentions*. Behavioural intentions are simply conscious decisions to engage or not engage in a given behaviour. In the present context, they refer to a student's own expectations about the likelihood that he or she will smoke, drink or use drugs and how often. These intentions, in turn, are a direct consequence of *attitude*, *perceived availability* and *normative beliefs*. Attitude, in the present model, refers to a student's affect towards or evaluation of engaging in a given substance use behaviour. Perceived availability is defined as the extent to which the student believes he or she has (i) access to a particular substance, (ii) the resources with which to obtain it, and (iii) the knowledge necessary to use it. Normative beliefs concern perceptions of social proscriptions and prescriptions regarding substance use behaviours. In particular, they refer to beliefs about the extent to which parents and peers approve or disapprove of smoking, drinking and drug use and the extent to which these significant others engage in these behaviours themselves. Somewhat less directly related to substance use are *expectancy-value beliefs*. Expectancy-values consist of beliefs about the likelihood that a particular behaviour will have specific personal consequences and evaluations of these consequences. Expectancy-value beliefs are anticipated to influence substance use primarily through their effects on the more immediate determinants of intention and especially on attitude. *Personality and values* and *social bonding* are considered somewhat less immediate yet. In the case of personality, value for independence and tolerance of deviance are considered to be especially important for adolescent substance use. It is expected that adolescents who place a high value on being independent also will be more likely to smoke, drink and use other drugs. For social bonding, the model assumes that close bonds to parents, school and religion inhibit substance use while closer bonds to peers are associated with more frequent substance use. The effects of value for independence and social bonding are expected to be largely mediated through normative beliefs and expectancy-value beliefs. Finally, *background characteristics* such as age, gender and socio-economic characteristics are considered the most distal determinants of substance use and are expected to be entirely mediated through more proximal factors.

Chapter 3

METHODOLOGY

This chapter describes the research methods used in this study and considers some major issues that generally arise in research on adolescent substance use. Specifically, the following topics will be discussed: (i) the development and pilot testing of the questions, questionnaire formats and instructions; (ii) the characteristics of the sample; (iii) the nature of the final survey instruments; (iv) the administration of the survey; (v) the procedures for matching respondents over time; and finally, (vi) the evidence concerning the reliability and validity of self-reports of adolescent smoking, drinking and drug use. Each of these issues will be considered in turn.

Pilot Studies

During the year prior to the implementation of the Dublin smoking, drinking and drug use project, a series of pilot studies were undertaken. The purpose of these pilot studies was threefold. First, they were intended to test the survey questions and questionnaire format. Secondly, they were designed to provide some preliminary information about the processes related to smoking, drinking and drug use which could be used to design specific questions and to refine our theoretical approach. Finally, they were used to test the research procedures, especially the instructions and the method for matching questionnaires over the panel phases.

The June 1983 pilot study was an investigation of smoking beliefs and behaviours among students in sixth class in 26 Dublin primary schools and was implemented. The main objectives of this study were to test the instructions and the question formats and wording, and to provide some basic information concerning the processes underlying smoking for this age group. The results of this study indicated that the instructions and questions were easily understood and that the questionnaire format was appropriate. In addition, analyses of the data obtained in this study suggested some changes in our theoretical approach which were incorporated into the main project. In particular, the data from this study indicated that attitude-normative belief interactions might be important in understanding and predicting adolescent substance use behaviours. A more complete description of this

study and findings is reported elsewhere (Grube, McGree and Morgan, 1984; Grube, Morgan and McGree, 1986).

The spring 1983 pilot study was undertaken with students from a first year class at a Dublin College of Education. This pilot study involved two testing sessions about one month apart and included questions relating to smoking, drinking and marijuana use. The primary objectives were to obtain additional data relating to our theoretical approach and to test the use of a self-generated code as a technique for matching anonymous questionnaires over time, a crucial feature of the main study. The results of the second pilot study indicated that the self-generated code procedure worked very well and that it was feasible for the main study. Additional refinements in the questionnaire design and in our theoretical approach were achieved also. Some of the findings from this study are also reported elsewhere (Grube, Morgan and McGree, 1986).

The autumn 1983 pilot study was conducted using two first year post-primary classes from a suburban Dublin school. This study was intended to identify the most salient expectancy beliefs concerning smoking, drinking and drug use for the student population. The pupils in these classes responded to a series of open-ended questions asking what they thought were the most important reasons why some young people decided to smoke, drink and use drugs and others did not. Content analyses of the responses to these questions resulted in a list of the most common positive and negative consequences that the students associated with these behaviours. For example, in the case of drugs, the most frequently mentioned negative consequences included effects on health, getting in trouble with parents or authorities, getting hooked or addicted, and cost. The most frequently mentioned positive consequences included such things as feeling good, escaping problems, impressing friends and doing something adventurous, or fun. Similar beliefs were elicited concerning smoking and drinking. The responses to these questions were then used to formulate specific expectancy-value belief items that were incorporated into the final questionnaires. The students also were asked to name the drugs they thought were most frequently used by young people. The responses to this question were used to supplement the published research on drug preferences among Irish adolescents and to ensure that all of the most popularly used substances were included in the drug use questions on the final surveys.

In addition to these structured pilot studies, informal interviews were undertaken with student teachers from a Dublin College of Education who were recently returning from their field placements. These student teachers were asked to give their views on the prevalence of smoking, drinking and other drug use among primary and post-primary pupils and were asked which

drugs they thought were most commonly used by these young people. This information was used to supplement the previous pilot studies and to further establish the inclusiveness of the drug use questions.

The Dublin Smoking, Drinking and Drug Use Study

The primary objectives of this study were (i) to obtain current prevalence data for smoking, drinking and other drug use among Dublin post-primary students and (ii) to investigate the social-psychological processes underlying the initiation to and maintenance of these behaviours. The study used a three-phase survey design in which the same sample of students completed anonymous questionnaires on three occasions: an initial contact, a short-term (1 month) follow-up and a long-term (1 year) follow-up. However, because of normal school absences, not all students completed all phases of the survey. The study was begun in February 1984 and data collection was completed in March 1985. This report, however, is limited to a consideration of the data from phases I and II only. Phase III will be the subject of a future report dealing with developmental issues and changes in substance use behaviour. Although phases I and II occurred relatively close in time, the one month lag was considered important for the purposes of this study. First, it allowed us to investigate the short-term stability of substance use behaviours and to establish the test-retest reliability of our measures. Secondly, it allowed us to address certain theoretically important questions -- in particular, the extent to which prior intentions were related to later behaviour. Finally, by collecting data on two occasions, we were able to take into account the potentially biasing effects of absenteeism on estimated prevalence rates by combining data from the two sessions.

Sample

The target area for the study was the greater Dublin area and the basis for the sample was the official Department of Education list of post-primary schools within this area. Boarding schools and schools for special education were omitted from this list before the initial sample was obtained. The sampling unit consisted of grades or classes within schools. That is, for each post-primary class level a sample of schools was obtained, stratified for gender, composition, size, and type of school (secondary, comprehensive/community or vocational). A total of 24 schools was thus selected to be invited to participate in the study. Letters describing the study were sent to the principals of these schools and all but two agreed to participate. The reason for refusal in the first instance was that another survey was being conducted at that time. In the second instance the principal was concerned with com-

munity relations and did not want his school to be associated with a study of substance use. These two schools were replaced from the original sampling list by other schools matched on the stratification characteristics.

Within each selected school, all students from the appropriate class level were considered eligible for inclusion in the study. Thus, for any given school, the respondents consisted of all of the first year class or all of the second year class or all of the Intermediate Certificate class. In the case of schools where the respondents were pupils from the senior cycle, both years were included. Thus, in any school where Leaving Certificate students were surveyed, the fifth year class also took part in the study. Apart from this latter constraint, the selection of a class in a given school was made on a random basis.

At phase I, 2,927 students were present on the day of testing and completed the survey. At phase II, data were obtained from 2,782 students. The characteristics of the students who completed a survey either at phase I or phase II are shown in Table 3.1. As can be seen in Table 3.1, the students were nearly evenly divided between boys (51.5 per cent) and girls (48.5 per cent). In terms of age, there were slightly fewer students 13 years old or under and the 15 years old relative to other ages. The students ranged from just over 11 years old to just over 19 years old. In fact, the vast majority of the students were between 12 and 18 years old and the median age of the students was 15.1 years. Regarding socio-economic background, slightly more of the students reported that their fathers were in skilled manual occupations compared with other occupations, and somewhat fewer reported that their fathers were in routine manual or routine non-manual occupations. Table 3.1 also shows that slightly fewer students were in Intermediate Certificate classes and Leaving Certificate classes relative to the other class levels. Finally, about two-thirds of the students were from secondary schools and about one-third were from community, comprehensive or vocational schools.

Survey Instruments

On the basis of the pilot studies and also drawing upon the relevant literature from Ireland and abroad, final survey instruments were devised for each of the structured questionnaires. For the most part, the format was relatively simple, with the respondents being asked to circle the appropriate answer or number for each question. Written instructions within each questionnaire assured the respondents' complete anonymity and confidentiality. Furthermore, the cover of the survey specifically instructed the respondents *not* to put their names on the questionnaires.

The questionnaires were designed to measure a wide range of variables relating to smoking, drinking and drug use. These variables included behaviours,

Table 3.1: *Sample Characteristics*

	Sample Breakdown	
	N	*Per cent*
	Gender	
Male	1,837	51.5
Female	1,732	48.5
	Age group	
13 years or under	649	17.9
14	799	22.0
15	610	16.8
16	776	21.4
17+	799	22.0
	Father's occupation	
Professional/Administrative	385	11.8
Managerial	333	10.2
Higher non-manual	454	13.9
Lower non-manual	338	10.4
Routine non-manual	241	7.4
Skilled manual	876	26.9
Semi-skilled manual	403	12.4
Routine manual	227	7.0
	Class in school	
First year	821	22.6
Second year	789	21.7
Intermediate Certificate	572	15.7
Fifth year	858	23.6
Leaving Certificate	593	16.3
	Type of school	
Girls' Secondary	1,120	30.8
Boys' Secondary	1,130	31.1
Mixed Sex Secondary	140	3.9
Community/Comprehensive	974	26.8
Vocational	269	7.4

Note: Due to absence from school, the totals (above) are greater than for any one phase of the survey.

intentions and attitudes, normative beliefs, expectancy-value beliefs, social bonding, acceptance of deviance, value for independence, and background characteristics. Because of the constraints imposed by the ages of the respon-

dents and the testing situation, it was impossible to measure all of these variables during a single session. Thus, although the questionnaires for each phase overlapped somewhat, they emphasised slightly different issues. The questionnaires for phases I and II are included in Appendix A.

The questionnaire for phase I initially asked the respondents if they had ever smoked a cigarette and, if so, at what age they had first smoked and with whom. Further questions enquired as to how many cigarettes, on the average, they had smoked each day during the past month and how many they intended to smoke each day during the next month. Attitude towards smoking was assessed with three items (*pleasant-unpleasant, enjoyable-unenjoyable, like-dislike*). The students also were asked to indicate how many cigarettes they believed their mother, father, best friend and other good friends smoked each day and the extent to which these others would approve or disapprove if the respondent were to smoke. Expectancy-value beliefs regarding cigarette smoking were measured by asking the students to indicate how likely they thought it was that each of 14 consequences would happen to them personally if they were to smoke (*certain it would-certain it would not*) and then to evaluate each of these consequences (*very good-very bad*).

Lifetime drinking rates were ascertained by asking the respondents whether they had ever had a *whole* drink of any alcoholic beverage. Other related items enquired as to the age at which the student had first taken a whole drink, and with whom the first drink was consumed. They also were asked to indicate how often they had felt drunk, the particular types of drinks they had consumed, their frequency of drinking during the past month and the usual number of drinks they consumed on any one occasion.

With regard to drugs, the students were asked to indicate whether they had ever used each of ten listed substances to get "high" or to try to get "high". The list included glue or solvents, marijuana, heroin, cocaine, LSD, barbiturates, speed, psilocybin ("magic" mushrooms), cough syrup or other drugs. In the latter case, they were asked to specify the particular drug they had tried. Additional items enquired as to age of first drug use, drug use during the past month and drug use intentions for the next month.

A further set of questions pertained to religious, school, family and peer bonding. The students were asked to indicate on five-point scales how often they prayed on their own and how important religion was to them personally. In a similar fashion, they were also asked how well they thought they did in school relative to other students; how important they felt it was to do well in school; how well they got along with their parents and friends; and how important they thought it was to get along with these people.

Finally, some background information was sought. Questions of this nature asked the students' date of birth, gender and amount of pocket

money available to them each week. Mother and father's occupations also were ascertained and coded into one of eight occupational status categories using an adaptation of the Hall-Jones scale (MacGréil, 1977, pp. 594-600). Finally, three items were included solely as part of a self-generated identification code that was used to link each student's questionnaires over the phases: number of older brothers, number of older sisters and first letter of mother's Christian name.

The questionnaire for phase II was similar to that from phase I, but emphasised beliefs about alcohol and drugs somewhat more. The students were asked about their smoking during the previous month and how likely they thought it was that they would be smoking a year later. Similar questions were asked about alcohol and drugs. Additional questions addressed the perceived drinking of parents and friends and the perceived approval/disapproval by these others for drinking. Similarly, the perceived drug use of friends was measured as was perceived approval/disapproval of parents and friends for drug use. Parental drug use, however, was not ascertained. Further items related to attitudes towards and expectancy-value beliefs about the positive and negative consequences of drinking and drug use.

In addition, the questionnaire from phase II also addressed value for independence and acceptance of deviance. Value for independence was measured by asking the students to rate on five-point scales the importance of "getting things done my own way", "saying what I think even if other people do not agree" and "getting a job done on my own without help from others". Acceptance of deviance was measured by having the students indicate on five-point scales how often they had "sworn or cursed", "lied to a teacher", "lied to a parent", "purposely damaged other people's property" and "taken things that did not belong to me". A final group of items consisted of the questions about background characteristics and those pertaining to the self-generated code.

Survey Administration

It was arranged with the participating schools for all pupils in the appropriate class levels to be tested at the same time. With the exception of one school, the survey materials were completed in the students' regular classroom setting. The exception was a community school that required the students to complete the questionnaires as a group.

In all cases the surveys were administered by trained and experienced interviewers from The Economic and Social Research Institute. In general, the teachers were not present during the testing sessions. However, in some cases when disciplinary problems were anticipated or when the school authorities requested it, the teacher remained in the classroom while the

surveys were administered. In those cases the teacher was present, but participated minimally in the procedures.

Before each testing session began, the interviewer explained the purpose of the study in general terms and reassured the students as to the anonymity and confidentiality of their responses to the survey. Specifically, the interviewer gave the following information and instructions:

> Your class is one of many in Dublin picked by random chance to participate in a study of post-primary students. Today I am asking you to complete a questionnaire about cigarette smoking, drinking and drug use. It is important that you answer all of the questions in the survey truthfully. Please do not put your name anywhere on the questionnaire. Your answers are completely confidential. We are interested in overall averages and not in any one person. Nobody will ever be able to find out how you answer the questions. Please work carefully, reading all instructions, but also work as quickly as you can. We have only about ____ minutes to finish. Note that there are questions on both sides of each page. I would appreciate it if you work by yourselves and do not share your answers with the people sitting around you. Are there any questions? Please open your booklet, read the instructions on the inside of the cover, and then begin. If you have any questions, raise your hand and I will come to you. When you finish, just wait quietly.

Further instructions inside the questionnaire reiterated the anonymous and confidential nature of the survey and provided specific guidelines for how to complete the questionnaire materials. The reports of the test administrators suggested that the respondents generally found the survey to be interesting and that a majority of the students had no difficulties, either with the content of the questions or with following the instructions.

Phase II of the survey was carried out approximately one month after phase I with the same classes in the same schools and with the same procedures. The only differences between the phases related to the content of the questionnaire. However, because of normal absences from school, some students who completed the first phase were not present for phase II and vice versa.

Matching Procedure

Because the students did not put their names on the questionnaires and since many of the most interesting research questions involved linking a given respondent's answer from phase I with his or her answers from phase II, it was essential to devise a method of matching questionnaires across the two phases. This was accomplished through the use of a self-generated code

and an off-one matching procedure (Kearney, Hopkins, Mauss and Weisheit, 1984). There were seven elements to this code: gender, day, month and year of birth, number of older brothers, number of older sisters and first initial of mother's Christian name. These elements were used to match the questionnaires from phase I with those from phase II within each school and class level.

After eliminating eight cases with duplicate codes and 36 cases with missing data on two or more code elements, 1,677 pairs of questionnaires with perfect matches on all seven elements were obtained. A second search was then undertaken which allowed questionnaires to be matched if they were identical in all code elements but one. This procedure has been shown to significantly increase the rate of matching while adding a negligible number of erroneous matches (Kearney, *et al.*, 1984). The rationale behind this procedure is that most or all off-one matches are a result of respondent errors or errors in data preparation. In the present case most of the off-one matches resulted from missing data on one of the code elements or from obvious coding or data entry errors (i.e., a birth month entered as '4' rather than '11'). Allowing the codes to differ by one element led to an additional 399 sets of matched questionnaires after eliminating 10 duplicate matches. The matching procedure was not pursued further (e.g., off-two) because the probability of mismatching questionnaires may become too great. Therefore, a total of 2,076 matched sets of questionnaires from phase I and phase II were obtained. This number represents approximately 75 per cent of the maximum number of possible matches. Given a usual absence rate of 10-15 per cent, the self-generated code appeared to be reasonably successful.

The effects of the matching procedure on sample bias were investigated by comparing the responses on the questionnaires that were matched perfectly with the off-one matches and the non-matched questionnaires. Interestingly, some small significant differences were obtained among these groups. In terms of background characteristics, somewhat fewer males were perfectly matched (42.8 per cent) relative to females (51.4 per cent), $\chi^2(2) = 33.92$, $p < .001$, and those students who received more pocket money each week were less likely to be exactly matched, $H(2) = 25.65$, $p < .001$. In terms of explained variance, however, these differences were very small. A somewhat larger effect was associated with type of school. Fewer of the cases from comprehensive, community or vocational schools were matched compared with those from secondary schools, $\chi^2(4) = 140.42$, $p < .001$. About 3.5 per cent of the variance in matching success was accounted for by school type.

More interestingly, the matching groups showed significant differences in their reported substance use behaviours for the month prior to the surveys and in their substance use intentions for the next month. These differences

are summarised in Tables 3.2 and 3.3.[8] As can be seen in these tables, the exactly matched cases reported that they smoked, drank and used other drugs less frequently than the unmatched cases. They also had significantly less positive intentions towards these behaviours. In general, the off-one matches appear to be intermediate to the other groups on these variables. However, the differences among the matching groups tend to be relatively small, accounting for about 3 per cent of the variance at most. Even so, they do suggest that those students who are more likely to smoke, drink or use drugs also were more likely to be absent from school during one of the testing sessions. Thus, relying upon data collected at only one session may lead to an underestimate of the prevalence of substance use behaviours. Combining of data from both testing sessions for purposes of estimating rates of prevalence should help to reduce the effects of this absentee bias.

To what extent did the off-one procedure introduce bias through *mismatching* cases from the two phases? Although this question could not be investigated directly, it was addressed by comparing the test-retest reliabilities for exact and off-one groups on the substance use and intention measures. If substantial error were introduced by mismatches, then we would expect these reliabilities to be demonstrably lower for the off-one group. Table 3.4 displays the results of these analyses. It can be seen in Table 3.4 that the reliabilities for these measures are relatively comparable for the two groups. In no case is the reliability for the off-one group substantially below that for the exact match group. In fact, in the case of drug use and drug use intentions, they are slightly higher. Thus, it appears that the off-one procedure does not appreciably increase error in the data because of mismatching.

Reliability and Validity in Studies of Substance Use

One of the major methodological issues faced by this research concerns the extent to which self-reports of adolescent substance use can be considered reliable and valid indicators of actual behaviours. If these self-reports are not reasonably reliable and valid, then the findings concerning both the prevalence of and the processes underlying smoking, drinking and other drug use may be misleading. Fortunately, the available evidence suggests that self-report measures of substance use can be both reliable and valid when they are obtained under appropriate conditions.

8. For the purposes of these comparisons, the data from phases I and II were combined. Specifically, the responses from phase I were used as an indicator of substance use behaviours and intentions unless these data were missing for a given student. In those cases, the responses from phase II were substituted. The exception to this procedure was for smoking intentions which were ascertained only at phase I. Additional analyses of the phase I and II data, considered separately, substantially confirmed the findings reported here.

Table 3.2: *Mean Rankings of Matched and Unmatched Cases on Reported Frequency of Substance Use Behaviour*

Substance	*Matching Group*			*H*	η^2_H
	Exact	*Off-One*	*Unmatched*		
Cigarettes	1,667.6	1,818.5	1,973.1	91.63***	.03
Cider	1,728.8	1,797.2	1,889.2	45.11***	.01
Beer	1,673.3	1,826.0	1,942.4	73.42***	.02
Wine	1,747.7	1,827.1	1,848.9	14.56**	<.01
Spirits	1,727.1	1,817.2	1,878.6	29.26***	.01
Glue/Solvents	1,744.6	1,768.4	1,872.6	70.77***	.02
Cannabis	1,732.6	1,768.4	1,880.5	76.92***	.02
Heroin	1,780.2	1,777.0	1,832.5	55.46***	.02
Cocaine	1,775.4	1,782.5	1,831.7	48.64***	.01
LSD	1,777.0	1,769.0	1,836.3	50.15***	.01
Barbiturates/Sedatives/ Tranquillisers	1,781.5	1,770.5	1,831.0	33.82***	.01
Speed	1,768.1	1,768.0	1,845.2	64.17***	.02
Psilocybin	1,777.1	1,780.4	1,829.6	35.77***	.01
Cough Syrup	1,770.5	1,773.9	1,837.0	41.95***	.01
Other	1,768.7	1,772.9	1,807.1	26.89***	.01

Note: Test statistic is Kruskal-Wallis *H* corrected for ties and η^2_H is a measure of explained variance. A higher mean ranking indicates more frequent substance use.

* $p < .05$
** $p < .01$
*** $p < .001$

Reliability

Reliability concerns the degree to which measures are influenced by unsystematic or random error. Reliability usually is examined in two ways: internal consistency and test-retest consistency. On the one hand, internal consistency refers to the extent to which responses to related items within the same instrument agree with one another. On the other hand, test-retest reliability refers to the extent to which an individual's responses are stable over time.

In general, a high degree of internal reliability is obtained for self-reports of substance use. For example, Single, Kandel and Johnson (1975) found a high degree of consistency between responses to lifetime and current use questions in a study of New York high school students. The proportion of inconsistent responses was very low, never exceeding .5 per cent for any drug and most often amounting to .01-.02 per cent. Other studies have

Table 3.3: *Mean Rankings of Matched and Unmatched Cases on Substance Use Intentions*

Substance	Matching Group			H	η^2_H
	Exact	*Off-One*	*Unmatched*		
Cigarettes	1,393.4	1,484.7	1,554.1	32.64***	.01
Cider	1,736.3	1,803.8	1,831.0	13.02**	<.01
Beer	1,674.6	1,826.7	1,914.2	56.23***	.02
Wine	1,753.2	1,786.2	1,806.2	3.84	–
Spirits	1,723.2	1,781.4	1,857.4	23.28***	.01
Glue/Solvents	1,758.8	1,752.2	1,853.3	54.78***	.02
Cannabis	1,731.4	1,781.6	1,878.1	72.92***	.02
Heroin	1,771.5	1,772.0	1,823.6	44.03***	.01
Cocaine	1,773.7	1,784.4	1,819.1	29.76***	.01
LSD	1,769.9	1,765.0	1,829.6	47.76***	.01
Barbiturates/Sedatives/ Tranquillisers	1,770.7	1,773.4	1,831.1	49.00***	.01
Speed	1,764.9	1,763.4	1,835.5	56.46***	.02
Psilocybin	1,778.4	1,777.3	1,816.3	20.67***	.01
Cough Syrup	1,768.6	1,760.9	1,834.4	43.43***	.01
Other	1,769.6	1,780.4	1,804.1	23.39***	.01

Note: Test statistic is Kruskal-Wallis H corrected for ties and η^2_H is a measure of explained variance. A higher mean ranking indicates more frequent substance use.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 3.4: *Test-Retest Reliabilities of Substance Use and Intention Measures for Exact and Off-One Matched Cases*

Variable	Group		
	Exact	*Off-one*	*Total Sample*
Smoking	.84	.81	.83
Drinking	.72	.70	.72
Drinking intention	.74	.66	.73
Drug use	.51	.57	.53
Drug use intention	.56	.67	.59

reported similar findings (e.g., Kandel, Adler and Sudit, 1981).

In the present study the degree of consistency between reported lifetime and current substance use was very high also. The percentage of respondents who said they had never used a particular substance, but then indicated that they, in fact, had used it within the past 30 days ranged from 0 per cent for smoking to .5 per cent for drinking beer. Moreover, the consistency among related items measuring substance use behaviours and intentions is remarkably high. As can be seen in Table 3.5, the internal reliability coefficients (α) ranged from .98 for the phase II items concerning drug use intentions during the next year to .70 for the phase II items concerning drinking intentions during the next month. The average reliability coefficient for the substance use and intention scales was .81. Thus, it is apparent that the students were not simply responding to these questions in a random fashion.

The test-retest reliability of self-reports of substance use also appear to be relatively good. Single, *et al.* (1975), for example, calculated the number of respondents whose response to lifetime prevalence questions at the second phase of a panel study were inconsistent with their responses at the first phase. Over a six-month interval they found a very low rate of inconsistent

Table 3.5: *Consistency Among Substance Use Items*

Scale	*Number of Items*	*N*	*Reliability Coefficient*
	Phase I		
Ever drink alcoholic beverage	4	2,904	.81
Frequency of drinking past month	4	2,864	.73
Number of drinks usually consumed	4	2,828	.77
Drinking intentions next month	4	2,757	.78
Ever used drugs	10	2,867	.78
Frequency of drug use past month	10	2,841	.79
Drug use intentions next month	10	2,846	.76
	Phase II		
Frequency of drinking past month	4	2,734	.71
Drinking intentions next month	4	2,731	.70
Likelihood of drinking next year	4	2,613	.87
Frequency of drug use past month	10	2,648	.92
Drug use intentions next month	10	2,682	.93
Likelihood of drug use next year	10	2,676	.98

Note: Reliability coefficient is Chronbach's Alpha corrected for bias (Kristoff, 1969).

response, ranging from .4 to 3.4 per cent for the drugs listed. Furthermore, the rates of inconsistency were comparable with those observed for other questions unrelated to drug use. Similarly, Hindelang, *et al.* (1981) also present evidence on the test-retest reliability for drug use and other forms of deviant behaviour for a sample of Seattle adolescents. On the average, test-retest reliabilities of .8 were obtained for these items over short intervals. Interestingly, the reliabilities found for the drug use and deviant behaviour items were as high or higher than those for items relating to other behaviours. Finally, Plant and his colleagues (Plant, Peck and Samuel, 1985) report test-retest reliabilities of .8 to .9 for smoking and .4 to .6 for drinking and drug use over a three-month period among Scottish adolescents.

The test-retest reliabilities for the substance use scales used in this study are shown in Table 3.4 and as shown above, seem not to have been reduced by the matching procedure. In general, these reliabilities are reasonably good and resemble those obtained in previous studies. For the smoking and drinking measures they range in the .70s and .80s for the total sample. The test-retest reliabilities for the drug use measures are somewhat lower, ranging only in the .50s. However, most of the apparent instability in these measures is, in fact, due to respondents moving from one category of use into an adjacent category (e.g., from using one drug once during the previous month to using no drugs). Extreme changes (e.g., from non-use to multiple drug use or vice versa) were relatively rare. On the average, only 3.1 per cent of the respondents showed such extreme changes on the smoking, drinking and drug use scales. Thus, some of the apparent instability in these measures reflects actual changes in the behaviours of the students rather than random fluctuations or unreliability.

Validity

In contrast to reliability, validity concerns the extent to which a measure is biased by factors or processes other than those it is intended to reflect. It is assumed that there are two major threats to the validity of measures of adolescent substance use. On the one hand, there may be a tendency for some adolescents to under-report the extent to which they smoke, drink or use other drugs because these behaviours are often illegal or strongly disapproved of by adults. On the other hand, however, a desire to appear grown up or to conform to presumed peer pressure may result in over-reporting by other adolescents. The validity of self-reports of substance use has been investigated by comparing them with other criterion variables such as official reports, collateral reports, physiological measures or self-reports obtained under conditions designed to maximise truthfulness.

The studies that have tended to show the lowest validity for self-reports of

substance use behaviours are those which have compared self-reports with official records such as police reports and court appearances. For example, Hindelang, *et al.* (1981) correlated self-reports of drug use with police and court records. The correlations varied by sex and race, with a mean of .51 and a range from .26 to .60. Similarly, in several studies of adult drinking pattens, Sobell and Sobell (1978) compared self-reports with law enforcement and alcohol treatment records. They reported only moderate agreement between the measures. Surprisingly, however, the self-reports tended to indicate higher frequencies of the target behaviours than did the official records. That is, the respondents admitted to arrests and hospitalisations for which there were no records.

These two studies illustrate the difficulties of using official records as a criterion for establishing the validity of self-reports. Specifically, there are good reasons to doubt the validity of these records themselves. First, official records often relate only to the extreme problem behaviours associated with substance use (e.g., alcoholism, addiction). Secondly, such records are often incomplete or inaccessible and, finally, such records may be biased because the probability of arrest or hospitalisation may be related to other variables in addition to substance use (e.g., socio-economic status).

Studies using reports of collateral observers as the criteria for validity have been more encouraging. For example, Bauman and Koch (1983) compared adolescents' self-reports of smoking with reports by their mothers. The level of agreement was over 90 per cent. Similarly, a recent review (Midanik, 1982) indicates that there generally is good agreement between self-reports and those of other observers, although there is a tendency for collaterals, and especially peers, to report somewhat higher levels of substance use than indicated by self-reports. However, it is unclear to what extent this discrepancy can be attributed solely to invalidity of the self-reports. Collateral reports also may suffer from a number of methodological problems. For example, given that parents and other adults usually disapprove of adolescent substance use, there may be a tendency on the part of adolescents to hide these behaviours from these individuals. Thus, parents may not have accurate knowledge of their children's smoking, drinking and other drug use. Parents' reports on the behaviour of their children also may be influenced by social desirability considerations: they may not want to admit to others that their children engage in proscribed behaviours such as smoking, drinking and drug use. Similarly, peers may be reluctant to inform on the behaviours of their friends. Finally, biased perceptions also may influence collateral reports. For example, a peer who is a smoker may overestimate the number of cigarettes smoked by a friend.

Perhaps the most credible method for establishing the validity of self-

reports of adolescent substance use involves comparing these reports with physiological measurements. In general, physiological measures show good agreement with self-reports. For example, Pechacek, *et al.* (1984) examined the relationship between anonymous verbal reports and three physiological indices of smoking among adolescents: carbon monoxide level in the blood, serum cotinine (the primary metabolite of nicotine), and thiocyanate (a major by-product of cigarette smoke). Overall, the correlations between self-reports and the physiological measures were as high as those among the physiological measures. That is, the self-reports appeared to show as much convergent validity as the physiological measures. However, the most striking feature of their results is that the correlations between the self-reports and the physiological measures depended upon age, being much lower among the younger age groups. Furthermore, the younger students consistently displayed lower levels of thiocyanate and carbon monoxide than older students, even at the same levels of self-reported smoking. It was suggested that these differences might reflect the fact that young smokers usually do not inhale fully.

In the case of drinking, blood alcohol tests can provide an excellent index against which verbal reports can be verified, and several studies have examined the relationship between self-reports of drinking and level of blood alcohol (e.g., Polich, 1982; Armor, *et al.*, 1978). These studies have demonstrated moderate agreement between verbal reports of problem drinkers and blood alcohol indices. The major problem, however, is that blood alcohol concentration has a short duration and is, therefore, only of value as an index within a few hours of the time of drinking.

It has been suggested that biological or physiological measures may provide viable alternatives to self-reports that avoid problems of social desirability and other response biases in studies of adolescent substance use (e.g., Luepker, Pechacek, Murray, Johnson, Hund and Jacobs, 1981). However, the usefulness of physiological measures in such studies is limited by several factors. First, although assay techniques are well developed for cigarette smoking and drinking, they are less so for other substances. Thus, their applicability is limited at the present. Secondly, as previously indicated, the results of physiological assays may be affected by the speed with which a given substance is metabolised and by individual differences in the way in which the substance is used. Thirdly, some physiological indicators may be influenced by other environmental factors. Carbon monoxide levels in the blood, for example, may be affected by exposure to automobile exhaust, heater fumes or secondary cigarette smoke. Finally, cost and inconvenience may be serious limitations to the use of physiological measures in large scale studies. In general, they are very expensive to obtain, are time-consuming

and require a great deal of co-operation from respondents (cf. Hansen, Malotte and Fielding, 1985). These latter considerations alone may prohibit the use of such measures for many research purposes.

Another approach to establishing the validity of self-reports is to investigate the effects of special procedures that presumably enhance truthfulness. The randomised response technique (Tracy and Fox, 1981; Warner, 1965) is one such procedure that attempts to make it apparent to respondents that their anonymity cannot be compromised. Thus, one variation of this technique instructs respondents, on the basis of some random event to which the researcher is blind, to answer a question either truthfully or to give a predetermined response regardless of the truth. For example, respondents might be asked to secretly roll a die and answer "yes" to a question about drug use if the outcome is a one, "no" if the outcome is a two and to answer truthfully otherwise. Although the researcher cannot determine if a given respondent is actually a drug user or not, population parameters can be estimated by applying elementary principles of probability theory.

Recent substance use studies indicate that a high level of agreement usually exists between conditions utilising the randomised response technique and conditions in which the respondents are simply assured of anonymity. For example, in a recent study of Iowa adolescents (Akers, *et al.*, 1983), the reported lifetime smoking rates were 43.4 per cent for an anonymous questtionnaire and 41.4 per cent with a randomised response procedure. Among high school seniors, the rates were 57.8 per cent and 62.1 per cent for the two methods, respectively. Moreover, there is evidence that a substantial proportion of respondents may fail to follow randomised response instructions, thus biasing population estimates based on this method to an unknown extent (Edgehill, *et al.*, 1982).

Another technique that has been suggested for enhancing the validity of self-reports involves convincing the respondents to a survey that the researcher has some independent method for verifying the accuracy of their answers. Under such conditions it is assumed that the respondents will be more likely to tell the truth, rather than be caught lying. Generally, however, no such method of verification exists or else is not fully implemented, and thus the technique has been named the "bogus pipeline" to the truth (Jones and Sigall, 1971). The bogus pipeline has been implemented in several studies of adolescent smoking by collecting saliva samples, describing the methods by which nicotine can be detected in such samples, and then informing the students that such tests will be used to verify their survey responses. Some studies have shown modest increments in the reporting of smoking behaviours using this technique under conditions of non-anonymity (Murray, *et al.*, in press; Luepker, *et al.*, 1983; Evans, *et al.*, 1977). However, other studies

have shown no differences between bogus pipeline and anonymous conditions (Murray and Perry, in press; Hansen, *et al.*, 1985; Akers, *et al.*, 1983).

A number of conclusions seem warranted concerning the reliability and validity of self-reports. First, the evidence suggests that the reliability of self-reports of substance use behaviours can be quite good. Internal and test-retest reliability have been found to be reasonably high. In the present case, the internal consistency among the measures of substance use was very good and very few respondents have inconsistent responses to the survey items. Similarly, the test-retest reliabilities were good for smoking and drinking, but somewhat low for drug use. However, to some extent the apparent moderate test-retest reliability for the drug use measures appears to be due to actual changes in behaviour rather than to inadequacies in the measuring instruments.

The validity of self-reports of adolescent substance use also appears to be good under appropriate circumstances. Although some under- or over-reporting may occur, agreement between simple verbal reports and other measures of smoking, drinking and drug use generally is quite good. Furthermore, in those studies where discrepancies have emerged, there are reasons to suspect that the alternative or criterion measures themselves may lack validity. A crucial consideration, however, appears to be the extent to which the respondents to a survey believe that their answers truly are anonymous and confidential. In general, the studies that have reported poor validity for self-report measures, or improved validity when using randomised response or bogus pipeline procedures appear to be those which have not carefully implemented conditions of anonymity and confidentiality (cf. Murray and Perry, in press).

In the present study, it was deemed unfeasible to use the more cumbersome and expensive alternatives to self-reports. However, great care was exercised to ensure that the students perceived that their answers on the surveys were strictly anonymous and confidential. Both written and verbal instructions reinforced these beliefs and the students were explicitly told *not* to place their names on the materials.

Final Methodological Considerations

Although the present study is perhaps the most systematic investigation yet undertaken of social-psychological factors related to substance use among Irish adolescents, there are some important limitations to it. In particular, it should be borne in mind that the prevalence findings described in the following chapters apply only to post-primary students in the Dublin area. Based on previous research, we can be relatively certain that the prevalence rates will be considerably lower in other cities and towns and in rural areas (Shelley,

et al., 1982, 1984).[9] Another group of adolescents necessarily excluded from this study are those who have dropped out of school at the minimum school leaving age. The exclusion of these young people from the sample also may be a very important consideration in interpreting the prevalence figures. It may be argued that young people who leave school are more likely to be involved in smoking, drinking and other drug use. To the extent to which this is true, our figures will underestimate the substance use rates for the total population of Dublin young people.

Although these limitations apply to our estimates of prevalence, it is less certain that they are of great importance in our understanding of the *processes* underlying smoking, drinking and other drug use. We have no reason to expect that different processes lead to these behaviours among school leavers or rural adolescents as opposed to Dublin students. These questions, however, should be addressed in future research.

In terms of the participation of schools and pupils, the present study compares very favourably with even the best research on substance use. It has been estimated (Bachman, *et al.*, 1981) that on the average only 60 to 80 per cent of schools invited to participate in such research do so. In the present study, over 90 per cent of the schools we contacted agreed to take part. Although we cannot accurately estimate the extent to which the students co-operated in the study, there were very few overt refusals. Moreover, the matching rate of 75 per cent is consistent with attrition rates encountered in other studies because of absences and related factors (Bachman, *et al.*, 1978).

As regards the biasing effects that absences from school might have on our findings, it has been argued that those absent on a given day may be more likely to be involved with tobacco, alcohol and drugs. Such differences between absentees and those who are better attenders may result from a number of factors, including, possibly, a higher frequency of illnesses among young smokers, drinkers and drug users or a lower commitment to school. Because our study was carried out on two separate days several weeks apart, we have the opportunity to test this hypothesis by comparing those present on both days with those absent on one of the days. As we have already seen, those who were unmatched and thus apparently absent for one of the testing sessions did report more frequent substance use and more favourable intentions towards these behaviours. However, because of the panel design of our study, we can take this potential bias into account by combing measures from the two sessions, something that previous research in Ireland has been unable to do.

9. Financial constraints prevented the survey from being carried out on a nationwide basis.

Chapter 4

CIGARETTE SMOKING

This Chapter describes the main findings relating to the prevalence of cigarette smoking among Dublin post-primary school children and to the circumstances under which first experimentation with smoking occurs. Initial univariate analyses of the differences between smokers and non-smokers in terms of background characteristics, belief, personality and social bonding are presented also.

Prevalence of Cigarette Smoking

Lifetime Prevalence

Table 4.1 shows the lifetime prevalence rates of cigarette smoking for each age group, from 13 to 17 years, as ascertained from the question "Have you ever smoked a cigarette?". As can be seen in this table, a substantial majority of the students, 67.1 per cent, indicated that they had tried smoking at least once in their lives. As expected, lifetime smoking rates increase considerably with age, $\chi^2(4) = 80.94$, $p < .001$. Thus, about 52 per cent of students 13 years or younger had smoked compared with 74 per cent of those 17 years or older. However, it also is apparent that initial experimentation with smoking begins at a relatively young age for many adolescents. The median age of first smoking was 11.4 years and over 80 per cent of those who had smoked tried their first cigarette before 13 years of age. The years between 10 and 13 seem especially important in this regard: fully two-thirds of those who had smoked first did so during these years.

In order to examine the situation surrounding initial smoking experiences, those pupils who reported having tried cigarettes were asked with whom they had first smoked. The vast majority reported that they had first smoked with friends (80.8 per cent), while at the other extreme, only a small minority had first smoked with parents (2.2 per cent). A relatively small percentage reported having first smoked with brothers (6.6 per cent), sisters (5.4 per cent) or other relatives (4.6 per cent). Finally, 11.1 per cent were alone on the first occasion they tried a cigarette.[10] These data clearly indicate that the peer

10. These percentages add to more than 100 because some subjects were in more than one category, e.g., they may have smoked with brothers *and* friends.

Table 4.1: *Lifetime Smoking Rates by Age Group*

Age Group	*Ever Smoked*	
	Yes	*No*
13 years or younger	51.9	48.1
	(271)	(251)
14 years	64.8	35.2
	(408)	(222)
15 years	70.0	30.0
	(350)	(150)
16 years	73.2	26.8
	(456)	(167)
17 years or older	73.6	26.4
	(477)	(171)
All age groups	67.1	32.9
	(1,962)	(961)

Notes: 1. Main table entries are row percentages and numbers in parentheses are cell sizes.
2. These data are based on phase I only, since the question on lifetime smoking was asked only in this phase.

group is of central importance in the initiation of smoking – a theme that will reappear in the discussion of normative beliefs.

Current Prevalence

As regards current smoking, the students were divided into three categories based upon how often they had smoked during the previous month. *Regular smokers* were defined as those who reported smoking at least one cigarette daily, *occasional smokers* as those who smoked during the previous month, but not daily, and *non-smokers* as those who had not smoked at all. Because questions concerning previous month's smoking were asked at phase I and phase II of data collection, it was possible to utilise information from both phases in categorising the students. Specifically, the response for phase I was used unless it was missing for a given student. In this latter case, the response to the same item from phase II was used. The percentage of students in each of the current smoking categories is shown in Table 4.2.

As with the lifetime rate, current smoking increased systematically with age, $\chi^2(8) = 93.14$, $p < .001$. The year between 13 and 14 appears to be particularly important in this regard. Whereas 73.1 per cent of the 13 year

Table 4.2: *Current Smoking Status by Age-Group*

Smoking Group	*Age Group*					
	≤13	*14*	*15*	*16*	*17+*	*Total*
Non-smoker	73.1 (474)	63.2 (504)	61.1 (372)	57.3 (445)	61.0 (487)	62.9 (2,282)
Occasional smoker	14.4 (93)	14.9 (119)	14.1 (86)	11.7 (91)	9.0 (72)	12.7 (461)
Regular smoker	12.5 (81)	21.9 (175)	24.8 (151)	30.9 (240)	29.9 (239)	24.4 (886)

Notes: 1. Main table entries are column percentages and numbers in parentheses are cell sizes.
2. As explained in the text, phase I information was used unless it was missing, in which case the response to the same item for phase II was used.

olds are non-smokers, this figure drops to 63.2 per cent by age 14 and remains more or less stable thereafter. Conversely, only 12.5 per cent of the 13 year olds are regular smokers compared with 21.9 per cent of the 14 year olds. Interestingly, the number of occasional smokers tends to decrease somewhat after age 14 as the number of regular smokers increases and the number of non-smokers remains unchanged. This pattern suggests that those who are occasional smokers at a young age probably become regular smokers as they get older and further indicates the critical nature of experimental smoking during early adolescence.

Comparison with Earlier Irish Studies

A more complete understanding of smoking patterns of Dublin adolescents can be obtained by comparing the results reported here with those of earlier studies. Considering younger adolescents first, a survey of sixth class students in Dublin primary schools (Grube, McGree and Morgan, 1984) found that 48.6 per cent of them had smoked at some time during their lives. As regards current smoking rates, almost 9 per cent of the primary school pupils were regular smokers (smoked every day during the previous month) while a further 12 per cent were occasional smokers (smoked during the previous month but not every day). This earlier study also revealed the crucial importance of the years between 13 and 14 for transition to regular smoking. While 8.8 per cent of the 13 year olds were regular smokers, the corresponding figure for 14 year olds was 27.6 per cent.

Turning to older adolescents, the most extensive data concerning smoking patterns among Dublin post-primary students are provided by series of sur-

veys conducted by O'Rourke and his colleagues. The most recent of these studies (O'Rourke, *et al.*, 1983) presents data from about 5,000 post-primary pupils obtained between November 1980 and February 1981. This study was in turn preceded by similar surveys in 1967 (O'Rourke, O'Sullivan, and Wilson-Davis, 1968a, 1968b) and in 1970 (O'Rourke, Wilson-Davis and Gough, 1971).

The question on lifetime smoking in the previous studies is directly comparable to that in the present study ("Have you ever smoked?"/Have you ever smoked a cigarette?"). Thus, a direct comparison can be made between the lifetime prevalence rates reported in those studies and those reported here. However, as regards *current smoking*, the conceptualisation is rather different, with regular smokers being defined as those who smoke on holidays, at parties, etc. Thus, while it is possible to make comparisons regarding the *relationship* between current smoking and other variables, it is not possible to treat them as similar enough to establish prevalence trends.

In relation to lifetime smoking, about 70 per cent of the pupils in 1980-1981 had tried smoking compared to the present estimate of 67.1 per cent. The comparable lifetime smoking rates were approximately 61 per cent in 1967 and 68 per cent in 1970. Overall; these figures indicate that the number of young people trying cigarettes has been quite stable in recent years. However, there are some indications of some positive changes in smoking patterns among the younger age groups. For example, 48.1 per cent of those aged 13 and younger had never smoked in our study while the corresponding figure in 1980-81 was about 36 per cent, thus suggesting that smoking may be losing favour among younger adolescents. Interestingly, as in the present study, the year between 13 and 14 also emerged in this previous research as being of critical importance for increases in frequent smoking.

In addition to these contemporaneous studies of adolescent smoking in Ireland, some retrospective data on initial smoking experiences by young adults are available also (O'Connor and Daly, 1985). Consistent with our findings, these data suggest that more young adults had their first experience with smoking between 11 and 15 than at any other age. However, they also indicate that some experimentation continues into late adolescence and young adulthood, especially for young women. Approximately one-third of the smokers in this study reported that they first smoked between 16 and 20 years of age and an additional 10 per cent said they first did so after the age of 20. Interestingly, however, the lifetime smoking rate in this sample was about 79 per cent, which is just slightly higher than that of our oldest age group.

A study of a random sample of 3,000 fifth formers in secondary schools in Northern Ireland (McGuffin, 1983) also provides some basis for comparison.

Questions concerning cigarette smoking were included as part of a large survey pertaining to a wide range of health-related behaviours. There are several strong features of this study, particularly its use of a sample drawn from throughout the whole of the Six Counties, stratified by gender, type of school location, and religious affiliation. Furthermore, since the pupils in the study were still in the compulsory schooling age group, it might be expected to give a representative picture of prevalence of smoking.

Based on the question, "Do you smoke now?" (*yes-no*), it was estimated that 27 per cent of the sample were smokers. However, it is impossible to more precisely identify categories of smokers on the basis of this question. On the one hand, if the respondents who responded "yes" to this question were those who smoked every day, then they would be regular smokers by our definition and the percentage is, in fact, very similar to that for the same age group in our sample. If, on the other hand, it is assumed that this figure also includes occasional smokers, then it is considerably lower than that reported here. Unfortunately, the absence of quantity and time-referenced measures makes such comparisons a matter of conjecture.

Comparison with Studies Outside Ireland

An obvious question is how the smoking rates for Dublin post-primary pupils compare with those for similar adolescents in other countries. Although such cross-national comparisons are difficult to make and must be interpreted cautiously, they are of great interest. In this context, four studies from Great Britain provide data that are reasonably comparable to those obtained in the present one. Thus, Todd (1986) reported that 19 per cent of 15 year old boys, 21 per cent of 16 year old boys and 25 per cent of 17 year old boys were regular smokers. The corresponding figures for girls were 18 per cent, 19 per cent and 20 per cent. These figures are well below those reported above. Another study (Rawbone, Keeling, Jenkins, and Guz, 1978) involved about 11,000 secondary school pupils in an area of outer London. The major difference emerging between our results and those of the London study lies in the distribution of pupils in the smoking categories. Although the definition of regular smokers was very similar to the present one, a lower percentage of such smokers was found at every age group. In contrast, a much higher proportion of students was classified as experimental smokers (about 30 per cent) at all age groups. As a result, the overall percentages of smokers were very similar to those reported in the present study. Recent smoking rates in Scotland also have been reported (Aitken, 1980) based on personal interviews with 384 boys and girls. The results indicate a remarkably low rate of reported smoking. For example, 62 per cent of 14 year olds indicated that they had *never tried* a cigarette, 24 per cent had tried a

cigarette and only 4 per cent "smoked now". Significantly, it was reported that some children were embarrassed by the questions – an outcome that underlines the importance of confidentiality and anonymity in obtaining information on adolescent substance use. Finally, prevalence rates have been reported for pupils in 33 randomly selected schools in two English cities (Ledwith, 1984). Among pupils of average age 11.5 years, 1.5 per cent were regular (daily) smokers while at 13.5 and 15.5 years the corresponding figures were 11.5 per cent and 19 per cent. These rates are, of course, well below those emerging in the present study.

Recent data on adolescent smoking also are available for other European countries. For example, prevalence rates for Norway, Finland and Austria are reported by Aaro, Kannas, Ledwith, Lorant and Rimpela (1984). In the Norwegian sample the percentages of regular smokers were 0.5, 4,5 and 19.5 at ages 11.5, 13,5 and 15.5 years, respectively. The corresponding figures for Finland were 1 per cent, 8 per cent, and 21 per cent, while in Austria less than 1 per cent were regular smokers at 11.5 years, 3.5 per cent were regular smokers at age 13.5 years, while at age 15.5 years 10.5 per cent were regular smokers. These rates are all well below those found in the present study. Finally, Kandel, Adler and Sudit (1981) provide a recent comparison of French and Israeli adolescents. Their main measures of smoking are directly comparable to those in the present study. It emerged that 82 per cent of the French respondents had smoked at some time during their lives while 64 per cent had smoked during the previous month. The corresponding figures for the Israeli adolescents were 46 per cent and 16 per cent. These figures place the Dublin group between the high rates for the French and the lower rates for the Israelis.

A number of very comprehensive studies are available from the United States. In particular, the series of annual surveys carried out by Johnston, O'Malley and Bachman (e.g., 1984, 1985) have extensively examined substance use among high school seniors in random samples of schools country-wide. These studies can be directly compared with the present one because identical question wordings were used. However, it is necessary to remember that the figures reported by Johnston, *et al.*, refer to high school *seniors* who should be compared to our oldest age group. Such a comparison suggests a somewhat higher lifetime smoking rate and very much higher current smoking rate among adolescents in Dublin than among those in the United States. For example, the high school seniors of 1984 had a lifetime smoking rate of 69.7 per cent compared to 73.6 per cent in the present study. Furthermore, the percentage who had smoked cigarettes during the previous month was 29.3 per cent in the United States. Perhaps the most important difference is in the regular smoking category, 18.7 per cent of the high school seniors

smoked every day during the previous month while the corresponding figure for our 17 year olds is 29.9 per cent.

An interesting feature of these annual surveys in the United States concerns the apparent decline in cigarette smoking among young people in that country, particularly for boys. Adolescent smoking appears to have reached a peak there about 1976-1977 and has shown a decline since. Regular smokers dropped from 28.8 per cent in 1977 to 21.2 per cent in 1983 and to 18.7 per cent in 1984. Johnston, *et al.*, suggest that these declines have been a response to perceived increases in peer disapproval of smoking and to a greater awareness of the consequences of smoking.

Adolescent smoking rates in Australia have been described (Homel, Flaherty, Treblico, and Dunoon, 1984) from a survey which paralleled the present one in terms of sampling, age group and questions. It appears that lifetime and current smoking rates are substantially lower in Australia than in Dublin. Only 39.0 per cent of the 13 year olds had ever smoked compared to the Dublin figure of 51.9 per cent. This difference held for all age levels. At ages 14, 15, 16 and 17 the lifetime rates among Australian youth were 55.1 per cent, 57.2 per cent, 62.9 per cent, and 57.7 per cent, respectively. The corresponding figures in the present study were 64.8 per cent, 70.0 per cent, 73.2 per cent and 73.6 per cent. Similarly, there are more regular smokers at every age group in the present study. It was reported that 6.7 per cent, 16.5 per cent, 24.8 per cent, and 23.5 per cent of the Australian pupils aged 13 to 17 years, respectively, were regular smokers. While the differences are not as great as between the United States and Ireland, these smoking rates are considerably lower than those for the present sample.

Finally, a small number of studies from Third World countries indicate prevalence rates that are below those in developed countries. For example, a study by Robles, Martinez and Moscosco (1980) in Puerto Rico indicated that 18 per cent of the 13 to 17 year old adolescents had smoked at some time in their lives. Research in Senegal (D'Hondt and Vandewiele, 1983) suggests rates that are similar to Puerto Rico but on the increase.

Background Characteristics

Gender

Table 4.3 shows lifetime smoking rates by age for boys and girls and Table 4.4 shows the breakdown of current smoking categories by gender. Overall, 70.7 per cent of boys compared to 63.4 per cent of girls had smoked at some time. Similarly, more boys than girls were regular smokers, as can be seen in the current smoking table. However, what is most striking about this

table is that the difference between males and females is dependent on age. At younger ages, more boys have tried a cigarette and many more boys are regular smokers. However, by age 17, these differences have completely disappeared. That is, development of smoking among girls appears to parallel, but lag behind, that of boys by several years. It can be seen the percentage of regular smokers has almost reached its peak by age 15 among boys, while a significant increase in smoking occurs among girls between 15 and 17. An additional 12.0 per cent of the girls became regular smokers during these years.

Table 4.3: *Lifetime Smoking Rates by Age and Gender*

Age Group	*Boys*	*Girls*
13 years or younger	59.5	45.6
	(113)	(141)
14 years	66.9	62.6
	(178)	(223)
15 years	72.8	68.1
	(171)	(179)
16 years	74.6	71.1
	(279)	(177)
17 years or older	74.1	73.0
	(277)	(200)
Total	70.7	63.4
	(1,018)	(920)

Note: Main entries are percentages of each age group who had smoked at any time. Cell sizes are given in parentheses.

The data on smoking in sixth classes in Dublin primary schools also strongly supports the contention that boys begin to smoke earlier than girls (Grube, McGree and Morgan, 1984). Only 35.1 per cent of girls in that study had tried a cigarette compared with 65.7 per cent of boys. Furthermore, 13.9 per cent of the boys were regular smokers while only 4.6 per cent of the girls were in this category.

The gender by age interaction found in the present study also replicates the pattern reported previously (O'Rourke, *et al.*, 1983). An examination of the smoking figures from this earlier study shows a substantial overall difference between boys and girls in terms of regular smoking (34 per cent *vs.* 26 per cent). However, this difference seems mainly due to the relatively

Table 4.4: *Current Smoking by Age and Gender*

Age Group	*Smoking Category*		
	Non-smoker	*Occasional Smoker*	*Regular Smoker*
		Boys	
13 years or younger	71.7 (175)	14.3 (35)	13.9 (34)
14 years	63.9 (218)	10.6 (36)	25.5 (87)
15 years	60.5 (182)	9.6 (29)	29.9 (90)
16 years	56.9 (221)	10.5 (50)	32.6 (155)
17 years or older	63.3 (299)	7.8 (37)	28.8 (136)
Total	62.4 (1,145)	10.2 (187)	27.4 (502)
		Girls	
13 years or younger	76.4 (281)	14.4 (53)	9.2 (34)
14 years	63.5 (278)	18.5 (81)	18.0 (79)
15 years	61.7 (187)	18.8 (57)	19.5 (59)
16 years	58.1 (173)	13.8 (41)	28.2 (84)
17 years or older	57.7 (187)	10.8 (35)	31.5 (102)
Total	63.9 (1,106)	15.4 (267)	20.7 (358)

Note: Main table entries are row percentages and numbers in parentheses are cell sizes.

smaller percentage of girls smoking between ages 12 to 15. At age 17 the difference in smoking between males and females was minimal (34 per cent *vs.* 31 per cent regular smokers), but at ages 12, 13, and 14 years, about 10 per cent more boys were smokers. Interestingly, in research conducted in 1967 and 1970 (O'Rourke, *et al.*, 1968a, b, 1971) it emerged that there was

an overall difference in smoking rates between Dublin boys and girls at *all* ages. It would seem, therefore, that gender differences in smoking among Irish adolescents have gradually decreased in recent years as more girls in the older age groups have become smokers.

The picture emerging from the international literature is consistent with this pattern and suggests that, recently, gender differences in cigarette smoking generally are declining, non-existent or even the reverse of the traditional findings. For example, Aitken (1980) found no difference between Scottish boys and girls in terms of smoking nor did Pulkkinen (1983) in Finland. Kandel, Adler and Sudit (1981) found minimal differences between the sexes in France (86 per cent *vs.* 79 per cent lifetime rates), although for Israel, boys had a higher rate of smoking (52 per cent *vs.* 36 per cent lifetime rates). In the United States the trends are especially striking (Johnston, *et al.*, 1985). In 1975, males were smoking more than females and this was particularly true in relation to heavy smoking (more than 10 cigarettes daily). However, by 1976, as many girls were smoking as boys. Since then girls have overtaken boys in monthly rates, so that by 1979, 38 per cent of the girls had smoked during the previous month compared with 32 per cent of the boys. Even with the drop in overall rates of smoking in the United States over the last few years, girls continue to smoke more. Thus, the monthly prevalence for 1984 was 26.0 per cent for boys and 32.0 per cent for girls.

Father's Occupational Status

Table 4.5 gives a breakdown of the smoking categories by father's occupational status. A chi-square analysis showed no significant association between smoking and occupational status, $\chi^2(14) = 9.08, p > .05$. The extant literature tends to confirm that there is a minimal association between adolescent smoking and indicators of family socio-economic status. Neither Aitken (1980) in Scotland nor Kandel, Adler and Sudit (1981) in France and Israel found any association between initiation to smoking and status measures of parental occupation. In the United States, Bachman, *et al.* (1981) found only a tiny association between father's educational level and smoking. Furthermore, a recent study in California (Keyes and Block, 1984) found no relationship between parents' occupational status and smoking by their children.

Research in Ireland also indicates that there is no consistent relationship between adolescent smoking and family socio-economic status (e.g., Grube, *et al.*, 1984). In contrast, however, a systematic relationship does exist between smoking and occupational status among Irish adults. The recent Joint National Media Research Survey (1984), for example, indicates a drop in smoking to 27 per cent among the higher occupational groupings while 40

per cent of the lower occupational groupings continue to smoke. Thus, socio-economic factors may be more important in the maintenance of smoking than in initiation to smoking.

Table 4.5: *Current Smoking by Father's Occupational Status*

Father's Occupational Status	*Smoking Category*		
	Non-smoker	*Occasional Smoker*	*Regular Smoker*
Professional and High Administrative	62.9 (242)	12.2 (47)	24.9 (96)
Managerial and Executive	66.1 (220)	13.5 (45)	20.4 (68)
Inspectional, Supervisory, and other non-manual (higher grade)	62.6 (284)	14.3 (65)	23.1 (105)
Inspectional, Supervisory, and other non-manual (lower grade)	67.1 (226)	13.1 (44)	19.9 (67)
Routine Grade, non-manual	66.8 (161)	11.6 (28)	21.6 (52)
Skilled Manual	65.9 (577)	11.8 (103)	22.4 (196)
Semi-skilled Manual	63.2 (254)	13.7 (55)	23.1 (93)
Routine Manual	63.9 (145)	10.1 (23)	26.0 (59)

Note: Main entries are row percentages. Numbers in parentheses are cell sizes.

Mother's Working Status

Table 4.6 presents a breakdown of smoking categories for pupils whose mothers worked in the home exclusively and those whose mothers were employed outside the home. No association emerged between smoking and this variable, $\chi^2(2) = 2.04, p > .05$. Thus, although there is a popular concern that working mothers may provide less supervision and guidance for their children and may be detrimental to family life, this factor appears to have very little influence on adolescent smoking behaviours.

Pocket Money

Table 4.7 presents a breakdown of smoking categories as a function of amount of weekly pocket money. A relatively strong relationship emerges between weekly pocket money and frequency of smoking, $\chi^2(8) = 238.87$,

$p < .001$. This finding replicates previous research in Ireland (e.g., Grube, *et al.*, 1984; O'Rourke, *et al.*, 1968b). However, it is unclear whether pocket money is directly related to smoking through availability, reflects age differences, or is due to some other mediating process.[11]

Table 4.6: *Current Smoking by Mother's Work Status*

Mother's Work	*Smoking Category*		
	Non-smoker	*Occasional Smoker*	*Regular Smoker*
In the home only	64.1 (1,487)	12.9 (300)	22.9 (532)
Employed	63.2 (712)	11.9 (134)	24.9 (281)

Note: Main entries are row percentages. Numbers in parentheses are cell sizes.

Table 4.7: *Current Smoking by Weekly Pocket Money*

Weekly Pocket Money	*Smoking Category*		
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*
Less than £1	83.5 (308)	9.8 (36)	6.8 (28)
£1 to £3	70.8 (863)	15.3 (186)	13.9 (70)
£3 to £5	56.0 (270)	14.2 (70)	29.8 (147)
£5 to £7	49.2 (176)	10.9 (39)	39.9 (143)
More than £7	55.2 (192)	8.6 (30)	36.2 (126)

Note: Main entries are row percentages. Numbers in parentheses are cell sizes.

Normative Beliefs, Expectancy-Value Beliefs and Attitudes

In this section the association between normative beliefs and smoking is discussed. In particular, beliefs about the smoking behaviour and disapproval of smoking by parents and peers, is examined. Differences in beliefs between

11. A log-linear analysis of smoking category by age and amount of pocket money showed significant effects of both age and pocket money, but no interaction between these two variables, indicating that the magnitude of the relationship between pocket money and smoking is not dependent on the age of the respondent.

smokers and non-smokers concerning positive and negative consequences of smoking are explored also, as are the evaluations attached to these consequences. Finally, the relationship between smoking status and attitudes is examined.

Perceived Parental and Peer Smoking

Table 4.8 shows a breakdown of current smoking for respondents who reported that neither of their parents smoked, only their father smoked, only their mother smoked, or both parents smoked. When both parents were seen to smoke, 63.6 per cent of respondents were non-smokers, while if neither parent smoked, 66.8 per cent were non-smokers. The corresponding percentages for regular smokers were 19.5 per cent if neither parent smoked and 24.0 per cent if both were smokers. Thus, there is a slight tendency for perceived parental smoking to be associated with more frequent smoking by the students in the sample. Overall, this relationship falls marginally short of statistical significance, $\chi^2(6) = 8.31$, $p > .05$. However, the issue of *statistical* significance is perhaps of less interest here than the *substantive* significance, i.e., the size of the relationship between parental and children's smoking is quite small in any event.[12]

Table 4.8: *Current Smoking by Perceived Parental Smoking*

Perceived Parental Smoking	*Smoking Category*		
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*
Neither parent smokes	66.8 (732)	13.7 (150)	19.5 (214)
Mother only smokes	67.6 (323)	12.3 (59)	20.1 (96)
Father only smokes	62.3 (330)	14.3 (76)	23.4 (124)
Both parents smoke	63.6 (424)	12.4 (83)	24.0 (160)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

12. Some contrasts in this table, when considered alone, do attain statistical significance. For example, a comparison of non-smoking *vs* smoking parents in relation to whether their children are non-smokers or regular smokers, yields a statistically significant association. However, the magnitude of the association is substantially insignificant.

Consistent with these results, the extant literature indicates that perceptions of parental smoking exert a relatively small influence on adolescent smoking. In the primary school study (Grube, McGree and Morgan, 1984) it was found that although perceived parental cigarette smoking did increase the probability of children's smoking, the strength of the association was small compared, for example, to perceived peer smoking. Similarly, O'Rourke, *et al.* (1983) found only a small association between smoking habits of parents and children in their Dublin sample.

In studies outside Ireland, the same pattern of a weak association is found. Thus, McAlister, Krosnick and Milburn (1984) conclude that parental smoking had minimal impact in their study of adolescent smoking in the United States, as do Brook, *et al.* (1984). D'Hondt and Vandewiele (1983) came to a similar conclusion for Senegal. Even in those studies that have found a significant relationship, the effect has tended to be small relative to other influences (Neurkirch and Cooreman, 1983; Pulkkinen, 1983).

Table 4.9 shows a breakdown into current smoking categories for respondents who reported that (i) none of their friends smoked; (ii) their best friend smoked, but not their other friends; (iii) their other friends smoked, but not their best friend; or (iv) all of their friends smoked. Consistent with expectations, there is a large significant association between perceptions of friends' smoking and the respondents' own smoking, $\chi^2(6) = 869.31$, $p < .001$. This association is especially apparent in the comparison between respondents whose friends are all smokers and those whose friends are all non-smokers. Only about one-third of the former are themselves non-smokers and nearly one-half are regular smokers. In contrast, over 90 per cent of the latter group are non-smokers and only 3 per cent are regular smokers.

Table 4.9: *Current Smoking by Perceived Peer Smoking*

Perceived Peer Smoking	*Smoking Category*		
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*
No friends smoke	92.2 (766)	4.8 (40)	3.0 (25)
Best friend only smokes	67.4 (130)	21.8 (42)	10.9 (21)
Other friends only smoke	77.6 (583)	10.9 (82)	11.5 (86)
All friends smokers	32.3 (334)	20.1 (208)	47.6 (493)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

The literature on initiation to smoking is entirely consistent in suggesting a major role for perceptions of peer group behaviour. As in the present study, Grube, McGree and Morgan (1984) found a strong association between perceived friends' smoking and own smoking among Irish primary school pupils. Similarly, O'Rourke, *et al.* (1983) found a strong association between respondents' smoking and friends' smoking in their study of Irish post-primary pupils.

Outside Ireland, a similar picture emerges. In a study of French adolescent smoking, Neurkirch and Cooreman (1983) found a strong association between adolescent smoking and perceived peer smoking, as did Sarvela and McClendon (1983) in the United States. Similarly, peer influence has been found to be particularly important in this regard in Senegal (D'Hondt and Vandewiele, 1983) and in Finland (Pulkkinen, 1983).

The respondents in the present study also were asked to estimate the percentage of all young people their own age who smoked at least one cigarette a day. A small but significant association is found between these estimates and smoking behaviour, $\chi^2(10) = 37.17, p < .001$. Those pupils who perceived that more young people smoked were more likely to be smokers themselves. The available literature also tends to suggest that smoking is associated with a general tendency to overestimate the degree of social support for smoking (Flay, *et al.*, 1983). However, it is worth noting that the students in the present study overestimated the number of young people who smoked on a regular basis regardless of their own smoking status. Thus, even a majority of the non-smokers in our sample reported that they believed over 40 per cent of young people their age smoked at least one cigarette a day. In actual fact, our prevalence data indicate that this figure is less than 30 per cent.

Perceived Parental and Peer Disapproval

Respondents were asked to indicate the extent to which their mother, father, best friend, and other friends would disapprove if they were to smoke cigarettes. The mean ranking of the students on these measures are shown in Table 4.11. For each of these items there was a significant difference among the smoking groups. As expected, those students who were smokers reported less disapproval of this behaviour than did non-smokers.

In general, previous research in Ireland is consistent with the data presented here. Grube, McGree and Morgan (1984), for example, with a question wording identical to that in the present study, found that perceived parental approval was moderately related to cigarette smoking among primary school children. Furthermore, a stronger relationship was evident for friends' approval than for parental approval.

Table 4.10: *Current Smoking by Perceived Smoking by Young People*

Percentage Perceived to Smoke	*Smoking Category*		
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*
< 10%	3.6	5.3	5.5
	(68)	(20)	(35)
10 – 20%	6.6	4.7	40.8
	(124)	(18)	(31)
20 – 30%	14.3	9.8	10.9
	(271)	(37)	(70)
30 – 40%	21.6	24.5	16.1
	(408)	(93)	(103)
40 – 50%	26.1	24.5	27.0
	(494)	(93)	(173)
> 50%	27.8	31.1	35.7
	(525)	(118)	(229)

Note: Main entries are row percentages. Numbers in parentheses are cell sizes.

Studies conducted overseas have reported similar findings. Thus, Pulkkinen (1983) found a slight but significant relationship between parental approval of smoking and children's smoking in Finland, and Neurkirch and Cooreman (1983) found a moderately strong relationship between smoking and parental evaluation of smoking in France. The latter study also found a strong association between peer approval and respondents' smoking. Finally, Krosnick and Judd (1982) found that both peer and parental approval were moderately important factors in predicting cigarette smoking among American adolescents.

Expectancy-Value Beliefs

Table 4.12 shows the mean rankings of the smoking groups on each of 12 personal consequences of smoking. As predicted, smokers indicated that they thought it was less likely that smoking would have negative personal consequences for them and more likely that it would have positive consequences. It also can be seen from this table that for eight of the perceived consequences, there was a consistent trend across categories of smokers, with higher levels of smoking related to the greater perceived probability of the occurrence of positive consequences and lower perceived probability of the occurrence of negative consequences. In general, it would seem that rather greater differences obtain for short-term consequences (e.g., feeling relaxed, wasting

Table 4.11: *Mean Ranking of Smokers and Non-Smokers on Perceived Parental and Peer Disapproval of Smoking*

Normative Influence	*Smoking Category*			*H*	η^2_H
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*		
Mother's disapproval	1,314.57	1,433.18	1,864.82	205.94***	.08
Father's disapproval	1,308.07	1,437.82	1,776.75	150.79***	.06
Best friend's disapproval	1,243.91	1,675.84	1,899.43	326.39***	.13
Other friends' disapproval	1,292.68	1,624.15	1,776.31	180.59***	.09

Note: A lower mean ranking indicates less perceived approval.
*$p < .05$
**$p < .01$
***$p < .001$

money, looking immature, and getting a bad name) than for long-term health consequences (e.g., harming health, shortening life, and getting cancer). Interestingly, for two of the items, "make me look grown up" and "make me more popular", occasional smokers expressed more favourable beliefs than either non-smokers or regular smokers. This pattern suggests that social image considerations may be more important at earlier stages of smoking than at later stages. These effects, however, are relatively small.

The mean rankings of the respondents on evaluation of the same consequences are presented in Table 4.13. Consistent with our hypotheses, the regular smokers tended to evaluate negative consequences significantly less negatively and positive consequences more positively than did non-smokers, with occasional smokers being intermediate. The only exception was the evaluation of "being more popular" which showed no significant difference among the groups. Overall, there did not seem to be any subset of items that differentiated between the groups any better than any other subset.

The available literature indicates that expectancy-value beliefs generally tend to be congruent with smoking behaviour, as found above. In the Dublin primary school study (Grube, McGree and Morgan, 1984) for example, it was found that non-smokers indicated that the negative consequences of smoking were more likely and the positive consequences were less likely than did regular smokers. McAlister, *et al.* (1984) also found a strong relationship between expectancy beliefs and smoking among American adolescents. Similarly, Urberg and Robbins (1981) found a relationship between beliefs about smoking and smoking behaviour when their American adolescent respondents were asked to evaluate the costs (e.g., cost too much money, bad breath, get hooked, get into trouble) and benefits (have a good time, relax,

feel grown up) of smoking. Consistent with the results reported here, the subjects who were current smokers tended to value the costs less highly and the benefits more highly than those who were not smokers.

Table 4.12: *Mean Ranking of Smokers and Non-Smokers on Perceived Likelihood of Consequences of Smoking*

Consequence	*Smoking Category*			*H*	η^2_H
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*		
Harm health	1,567.52	1,150.45	1,303.62	131.64***	.05
Look grown up	1,423.12	1,639.19	1,419.28	26.31***	<.01
Spend too much	1,567.39	1,240.67	1,227.08	174.95***	.06
Feel relaxed	1,171.48	1,665.74	2,141.56	710.16***	.24
Cause cancer	1,549.52	1,215.75	1,301.85	102.86***	.04
Be more popular	1,442.06	1,580.75	1,371.58	16.58***	<.01
Give bad breath	1,613.38	1,252.50	1,088.60	267.53***	.09
Waste money	1,677.56	1,193.87	944.37	611.88***	.21
Shorten life	1,572.23	1,254.62	1,209.33	124.82***	.04
Give bad name	1,638.94	1,348.84	957.47	338.48***	.12
Look immature	1,656.91	1,209.53	965.46	376.45***	.13
Give clothes a smell	1,593.78	1,288.46	1,159.68	170.28***	.06

Note: A higher mean ranking indicates greater perceived certainty. Test statistic is Kruskal-Wallis *H* corrected for ties and η^2_H is a measure of explained variance.
*$p < .05$
**$p < .01$
***$p < .001$

Attitude

The students were asked to indicate their overall attitudes towards smoking by indicating (i) how pleasant/unpleasant they considered cigarette smoking to be, (ii) how enjoyable/unenjoyable it would be, and (iii) how much they would like/dislike it. Table 4.14 gives the mean ranking for each smoking category for each of these three attitudinal items.

Consistent with our model, it can be seen that favourable attitudes are associated with smoking behaviour: for all three items the regular smokers rated smoking more favourably than did non-smokers and for all three items occasional smokers give intermediate ratings. Moreover, this relationship appears to be quite strong, with the attitude items accounting for about 30 per cent of the variance in smoking behaviour, on the average.

In general, the literature supports these findings on attitude-behaviour

Table 4.13: *Mean Ranking of Smokers and Non-Smokers on Evaluation of Consequences of Smoking*

Consequence	Smoking Category			H	η^2_H
	Non-Smoker	Occasional Smoker	Regular Smoker		
Harm health	1,324.96	1,548.30	1,777.01	247.32***	.09
Look grown up	1,397.36	1,538.99	1,524.21	18.73***	<.01
Costing too much	1,340.33	1,562.42	1,697.83	114.61***	.04
Feeling relaxed	1,295.12	1,500.69	1,854.28	236.60***	.08
Getting cancer	1,345.59	1,534.27	1,701.81	170.66***	.06
Being more popular	1,423.88	1,462.49	1,474.78	2.25	<.01
Having bad breath	1,335.98	1,614.30	1,675.91	127.05***	.05
Wasting money	1,316.54	1,583.59	1,751.12	180.52***	.06
Shortening life	1,341.25	1,539.86	1,700.45	173.24***	.06
Getting bad name	1,359.55	1,481.36	1,669.09	89.88***	.03
Looking immature	1,370.38	1,525.66	1,600.42	47.58***	.02
Clothes having a smell	1,338.01	1,580.70	1,691.95	119.73***	.04

Note: A lower mean ranking indicates more negative evaluation. Test statistic is Kruskal-Wallis H corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

consistency with regard to smoking, particularly if the relevant measures of attitude and behaviour are in correspondence with each other. Thus, Grube, *et al.* (1986) found a moderately strong relationship between attitudes to smoking and actual smoking among Dublin primary school children and among Irish college students. Similar results were obtained in the United States with a female college student sample (Fishbein, 1982) and with adolescents (Chassin, *et al.*, 1984b).

Social Bonding

Social bonding was measured by asking the respondents to indicate their commitment to, involvement in, and attachment to school, church, parents and peers. Table 4.15 shows the mean rankings for each of the social bonding items for each smoking category together with the Kruskal-Wallis H statistic and the associated η^2_H.

It emerges that self-rated school achievement, perceived importance of school achievement, frequency of prayer and perceived importance of religion were all related to smoking in the expected fashion. In general, young smokers reported less close bonding to school and religion than did

non-smokers. These findings are in line with our model and with social control theory (e.g., Hirschi, 1969) which suggests that problem behaviours are constrained to the extent that individuals are bonded to conventional institutions of society.

Table 4.14: *Mean Ranking of Smokers and Non-Smokers on Attitude to Smoking*

Attitude	*Smoking Category*			*H*	η^2_H
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*		
Pleasant-Unpleasant	1,134.38	1,853.45	2,159.89	877.93***	.30
Enjoyable-Unenjoyable	1,138.75	1,884.56	2,219.18	781.97***	.27
Like-Dislike	1,107.26	1,917.57	2,207.19	1,093.19***	.38

Note: A higher mean ranking indicates a more favourable attitude. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

With regard to relationships, an interesting pattern emerges. For both mother and father, less successful relationships were associated with smoking as was a lower level of perceived importance for these relationships. However, for relationships with friends, the association is insignificant for three of these items and is very small for the fourth item. In this latter case, there was a tendency for those respondents who were smokers to report better relationships with their good friends. Thus, it is apparent that bonding to parents inhibits adolescent smoking, while bonding to peers has little effect.

The literature strongly supports the pattern emerging above, particularly as regards school achievement and religiosity. Early recruitment to cigarette smoking has been found to be associated with declining academic aspirations, motivation and performance in several studies. Thus, O'Rourke, *et al.* (1983) report a clear association between cigarette smoking and lower self-reports of academic standing. In this study 20 per cent of non-smokers considered themselves to be among the top 5 in their class and only 3 per cent to be below average, while the percentage in these categories were 16 per cent and 19 per cent, respectively, for regular smokers. Bewley and Bland (1977) in a study in England, obtained teachers' assessments as well as self-assessment and again the association of poor school performance and smoking emerged. Similarly, studies in the United States (Johnston, *et al.*, 1984; 1985) have found strong negative relationships between various measures of commitment

to academic achievement and smoking. For example, self-reported grades and truancy during high school correlated highly with all forms of substance use, including smoking cigarettes. Similar findings are presented by Ensminger, *et al.* (1982) who note, however, that the relationship with commitment to school is stronger for other substances than for cigarette smoking.

A number of studies also have found evidence to support the contention that bonding to religion is associated with lower levels of smoking. For example, Bachman, *et al.* (1981) reported that self-rated importance of religion and frequency of attendance at services were amongst the strongest correlates of adolescent smoking in the United States. As in the present study, those involved with religion were less likely to smoke. Interestingly, when the links with specific and denominational preferences were explored, the relationships were not nearly as strong as for religious commitment.

Table 4.15: *Mean Ranking of Smokers and Non-Smokers on Social Bonding Items*

Social Bonding Factor	*Smoking Category*			*H*	η^2_H
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*		
Self-rated school achievement	1,538.19	1,279.60	1,196.71	102.44***	.03
Importance of school achievement	1,532.17	1,366.54	1,159.68	127.82***	.04
Relationship with mother	1,499.85	1,309.04	1,265.45	67.06***	.02
Importance of mother relationship	1,481.38	1,324.21	1,300.87	41.53***	.01
Relationship with father	1,479.01	1,292.10	1,194.85	84.23***	.03
Importance of father relationship	1,463.49	1,295.58	1,226.33	60.66***	.02
Relationship with best friend	1,419.01	1,418.54	1,463.01	2.09	<.01
Importance of relationship with best friend	1,436.46	1,417.08	1,402.22	1.01	<.01
Relationship with other friends	1,392.76	1,486.54	1,510.21	14.74***	<.01
Importance of relationship with other friends	1,429.01	1,458.23	1,407.29	.97	<.01
Frequency of prayer	1,548.40	1,318.40	1,122.00	137.56***	.04
Importance of religion	1,533.96	1,390.04	1,138.44	117.30***	.04

Note: A higher mean ranking indicates closer social bonding. Test statistic is Kruskal-Wallis *H* corrected for ties.

*$p < .05$
**$p < .01$
***$p < .001$

Finally, Kandel, Adler and Sudit (1981) examined the effects of religiosity on current uses of various substances in France and Israel and found an inhibitory effect on cigarette smoking in France but less so in Israel. The apparent contradiction may be easily understood when it is realised religiosity was measured by actual frequency of attendance at religious services in France and by type of school (religious or non-religious) in Israel. Overall, then, bonding to religion may be an important factor in the development and maintenance of adolescent smoking.

Personality and Values

Tolerance of Deviance

In the present study, tolerance of deviance was measured behaviourally. Specifically, the students were asked how frequently they (i) swore or cursed, (ii) lied to teachers, (iii) lied to parents, (iv) purposely damaged other people's property and (v) stole things. Table 4.16 shows the mean ranking for each of these behaviours for each smoking category. As expected, smoking behaviour was associated with a higher frequency of each of these problem behaviours. Furthermore, the trend across categories was highly consistent for each behaviour, with regular smokers being more likely than non-smokers to have engaged in these behaviours and with occasional smokers being intermediate.

It would seem that more attention has been given to the relationship between problem behaviour and drinking or drug use than cigarette smoking.

Table 4.16: *Mean Ranking of Smokers and Non-Smokers on Frequency of Deviant Behaviours*

Behaviour	*Smoking Category*			*H*	η^2_{H}
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*		
Sworn or cursed	1,223.52	1,570.18	1,744.30	247.18***	.08
Lied to teacher	1,229.25	1,503.48	1,775.02	240.58***	.08
Lied to parents	1,216.94	1,541.83	1,763.17	254.15***	.08
Damaged property	1,272.39	1,430.51	1,678.78	158.78***	.05
Stolen things	1,275.19	1,443.55	1,667.35	129.48***	.04

Note: A higher mean ranking indicates a greater frequency of problem behaviours. Test Statistic is Kruskal-Wallis *H* corrected for ties.

*$p < .05$

**$p < .01$

***$p < .001$

However, those studies that have investigated the relationship between problem behaviours and smoking have found evidence that is consistent with the present findings (Brook, *et al.*, 1983, 1984; Pulkkinen, 1983).

Value for Independence

The pupils also were asked to indicate the importance to them of forms of behaviour that indicate a value for independence ("getting to do things my own way", "saying what I think" and "getting a job done on my own"). Table 4.17 shows the mean ranking for each smoking category on these items. It had been expected that a higher value on independence would be associated with more frequent smoking. However, it can be seen that no consistent trend emerges for the three behaviours. One effect is not significant and the two significant effects are extremely small. Thus, the present data cannot be said to support our hypothesis.

Table 4.17: *Mean Ranking of Smokers and Non-Smokers on Independence Behaviours*

Behaviour	*Smoking Category*			H	η^2_H
	Non-Smoker	*Occasional Smoker*	*Regular Smoker*		
Doing things my own way	1,408.93	1,386.44	1,301.10	9.18*	<.01
Saying what I think	1,404.70	1,407.01	1,302.10	9.23**	<.01
Getting a job done my on my own	1,362.52	1,442.92	1,400.07	3.71	<.01

Note: A lower mean ranking indicates a greater value on independence. Test statistic is Kruskal-Wallis H corrected for ties.
$^*p < .05$
$^{**}p < .01$
$^{***}p < .001$

These results are in apparent contradiction to the recent review by Rokeach and Grube (1985) who conclude *independent* and *obedient* were the values that most consistently distinguished between young smokers and non-smokers. However, it may be that adolescent smokers exhibit higher levels of independence only in the context of rebelliousness, autonomy from parental authority or the performance of anti-social behaviours. The present items have had an 'achievement' orientation ("getting things done my own way") and may, therefore, have failed to show differences between smokers and non-smokers.

Summary

Just over two-thirds of the respondents had smoked at some time in their

lives, and almost one-quarter smoked every day. Comparisons with previous work in Ireland suggest that the number of students who smoke has remained relatively stable over the last five years. While comparisons with surveys outside Ireland are difficult to make, the available evidence suggests that the smoking rates reported here are generally higher than those encountered in other countries.

Of the background factors examined, the most interesting results emerge in relation to gender and age. Overall, boys smoke more frequently than girls, and older students more frequently than younger students. However, the difference between boys and girls is most pronounced during the early teenage years and tends to diminish with age. By age 17 years the smoking rates are very similar for both sexes. Pocket money was related to smoking also, with those having more spending money smoking more frequently. However, social background (measured by father's occupational status) and mother's employment did not relate to smoking behaviour.

The respondents' smoking did not relate strongly to perceived parental smoking, but related moderately to perceived parental disapproval. On the other hand, smoking was strongly related to perceived peer smoking and peer disapproval. Smokers also tended to believe that negative consequences of smoking were less likely to occur to them than did non-smokers. Conversely, they tended to believe that positive consequences of smoking were more likely to occur. Furthermore, in comparison to non-smokers, the smokers tended to evaluate the potential negative consequences less negatively and the positive consequences more positively.

Regular smoking was associated with lower commitment to school and lower self-rated school performance. Smokers also tended to judge that religion was less important in their lives and prayed less frequently. Furthermore, the perceived commitment of smokers to their families was less than that of non-smokers. However, no differences emerged in relation to bonding with friends. Finally, smokers tended to admit to having performed several categories of problem behaviour more frequently than did non-smokers. However, no major difference emerged in relation to the value placed on independence.

Chapter 5

DRINKING

In this chapter the main results relating to the prevalence of alcohol use are presented and the situation surrounding first experience with alcohol is described. In addition, the differences between drinkers and non-drinkers are examined in terms of background, belief, personality and social bonding.

Prevalence of Drinking

Lifetime Prevalence

The percentages of post-primary pupils who reported that they had *ever* had a whole drink of an alcoholic beverage (lifetime rates) are shown in Table 5.1 for each age group from 13 and younger to 17 and older. It can be seen in this table that almost two-thirds of the sample reported that they had drunk at least one whole drink at some time in their lives. It also can be seen that the number of drinkers increases considerably with age, $\chi^2(4) = 188.88$, $p < .001$. Thus, about 45 per cent of the 13 year olds and 79 per cent of the 17 year olds had tried alcoholic beverages. The year between 13 and 14 appears to be especially important in this regard, with the number reporting having tried alcoholic beverages increasing by nearly 13 per cent. However, the overall increase in the number of drinkers from year to year appears to be somewhat more gradual than that observed previously for smokers.

The students who reported that they had drunk alcoholic beverages also were asked at what age and with whom they had tried their first whole drink. Consistent with the pattern reported above, the median age at which these students first drank was 12.8 years old. About 17 per cent had their first drink before 10 years of age. As might be expected, the majority (57.2 per cent) reported that they first drank with friends. Only a small minority reported initially drinking alone (7.6 per cent), with brothers (12.6 per cent) or with sisters (12.2 per cent). However, in contrast with the first occasion on which cigarettes were smoked, a substantial number first drank with parents (29.3 per cent) or with other relatives (19.5 per cent). Moreover, nearly 47 per cent of those who drank reported that siblings, parents or other relatives were present on their first drinking occasion. Many of these

Table 5.1: *Lifetime Drinking Rates by Age*

Age Group	*Ever Drank*	
	Yes	*No*
13 years or younger	45.0 (235)	55.0 (287)
14 years	57.9 (363)	42.1 (264)
15 years	65.7 (328)	34.3 (171)
16 years	73.6 (459)	26.4 (165)
17 years or older	79.2 (513)	20.8 (135)
Total	65.0 (1,898)	35.0 (1,022)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

initial drinking experiences undoubtedly occurred during family occasions. Thus, unlike smoking, it appears that some socialisation to drinking takes place within the family context and with the knowledge of parents.

Table 5.2 shows the percentage of young people in each age group who reported ever having felt drunk. Two aspects of the overall figures are of particular note. First, a sizeable proportion of the total sample (38.7 per cent) had felt drunk at least once. Second, a small minority (14.7 per cent) reported having been drunk more than six times. Among only those students who reported that they had tried alcohol, the figures are substantially higher. Of these students, 59.5 per cent had felt drunk and 22.6 per cent had done so more than six times. Thus, it is apparent that many young people who drink do so to the point of intoxication on at least some occasions.

Consistent with the prevalence rates, the frequency of reporting having been drunk increases with age, $\chi^2(2) = 386.70$, $p < .001$. In particular, the numbers reporting having felt drunk more than six times increases greatly: only 2.2 per cent of the 13 year olds were in this category as opposed to 28.9 per cent of those 17 or older. Even so, a significant proportion of 13 year olds, over one-third of those who ever drank, reported having been drunk at least once. Overall, the median age for first having felt drunk was about 11.7 years. The fact that this is just over a year earlier than the average age of initial drinking experience indicates that heavy drinkers may begin drinking at a somewhat younger age than more moderate drinkers.

Table 5.2: *Frequency of Having Felt Drunk by Age Group*

Age Group	*Number of Times Drunk*				
	Never	*1-2 times*	*3-4 times*	*5-6 times*	*More than 6 times*
13 years or younger	82.5	10.9	2.5	1.9	2.2
	(430)	(57)	(13)	(10)	(11)
14 years	74.6	14.5	3.8	2.2	4.6
	(468)	(91)	(24)	(14)	(30)
15 years	61.7	12.8	7.8	4.6	13.0
	(308)	(64)	(39)	(23)	(65)
16 years	49.8	13.3	9.8	5.8	21.3
	(311)	(83)	(61)	(36)	(133)
17 years or older	42.0	13.5	8.7	6.8	28.9
	(271)	(87)	(56)	(44)	(189)
Total	61.3	13.1	6.6	4.4	14.7
	(1,788)	(382)	(193)	(127)	(427)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

The data also indicate that certain alcoholic beverages are more popular than others among these adolescent drinkers. Table 5.3 shows the lifetime prevalence rates for cider, beer, wine and spirits and the corresponding prevalence rates for the previous month. From this table, it can be seen that beer (lager, stout, ale) was by far the most popular: 46 per cent of the students had drunk beer at some time during their lives and 34 per cent had done so within the month prior to the survey. Wine and spirits were somewhat less popular than beer, and cider was considerably less popular. However, the fact that each of the four beverages had been consumed by substantial percentages of respondents indicates that many of those who drank had tried out several different kinds of drink. This is indeed borne out. Of those who had drunk at least once, 32.6 per cent had tried all four types of beverage, 26.2 per cent had tried three kinds and 21.9 per cent had tried two kinds. Only 19.3 per cent had drunk just one kind of alcoholic beverage.

The students also were asked how many drinks of each beverage they usually consumed on any one occasion. Substantial numbers of the older adolescents reported drinking quantities of alcohol that would suggest that they would indeed be intoxicated. Thus, 24.1 per cent of drinkers in the 17 or older age group indicated that they usually consumed 5 or more drinks when they used spirits. The corresponding figures for beer, cider and wine were 23.6 per cent, 7.6 per cent and 3.4 per cent, respectively. Thus, it would

appear that spirits and beer frequently are consumed in large amounts by the older students. While the amounts consumed among the younger age groups are considerably less, a significant minority at all ages tended to drink substantial amounts. Thus, for example, almost 10 per cent of the 14 year olds who drank reported usually having 5 or more drinks when they are in a drinking situation.

Table 5.3: *Prevalence Rates for Specific Alcoholic Beverages*

	Cider		*Beer*		*Wine*		*Spirits*	
Age Group	*Ever*	*Previous Month*	*Ever*	*Previous Month*	*Ever*	*Previous Month*	*Ever*	*Previous Month*
13 years or younger	16.7 (87)	8.0 (41)	26.2 (136)	14.0 (72)	26.2 (136)	14.2 (73)	15.8 (82)	8.6 (44)
14 years	23.5 (146)	11.7 (72)	39.2 (245)	24.2 (151)	38.4 (240)	21.3 (131)	25.9 (162)	15.0 (93)
15 years	36.8 (183)	16.7 (83)	51.5 (256)	31.8 (158)	42.5 (211)	18.1 (92)	40.8 (203)	24.8 (123)
16 years	44.4 (277)	19.3 (120)	59.5 (371)	43.2 (268)	53.5 (333)	27.2 (168)	49.9 (311)	29.8 (185)
17 years or older	48.7 (315)	19.8 (128)	67.4 (437)	50.9 (328)	59.7 (386)	29.5 (189)	57.2 (369)	37.7 (241)
Total	34.7 (1,008)	15.4 (444)	45.6 (1,445)	33.7 (977)	44.8 (1,306)	22.6 (651)	38.7 (1,127)	23.8 (686)

Note: Main table entries are percentages at each age level who had consumed the particular drink at any time and during the previous month.

Current Prevalence

In order to describe current drinking, the students were categorised according to their drinking behaviours during the month prior to the survey. *Non-drinkers* were defined as those who reported that they had not consumed any alcoholic beverages during the previous month and *occasional drinkers* as those who reported consuming only one type of beverage and on not more than two occasions. Finally, *regular drinkers* consisted of those who consumed more than one type of beverage or who had drunk on more than two occasions.

Overall, the current drinking rates are considerably below the lifetime rates and a majority of the sample (52 per cent) were non-drinkers by this criterion. About 12 per cent were occasional drinkers and 37 per cent were regular

drinkers. However, as can be seen in Table 5.4, current drinking status was significantly related to age with older students tending to drink more frequently than younger students, $\chi^2(8) = 294.06$, $p < .001$. Thus, about 18 per cent of 13 year olds were regular drinkers compared with 53 per cent of those students 17 years old or older. It appears that the largest increases in the number of regular drinkers occur between 13 and 16 years of age. Interestingly, the proportion of occasional drinkers is relatively constant throughout the age groups. One possible explanation for this pattern is that non-drinkers become occasional drinkers at about the same rate that occasional drinkers become regular drinkers. It also is possible that adolescent drinking does not show a gradual developmental transition from non-drinker to occasional drinker and, finally, to regular drinker. That is, some young people may become regular drinkers without first drinking occasionally.

Table 5.4: *Current Drinking by Age Group*

Age Group	*Drinking Category*		
	Non-Drinkers	*Occasional Drinkers*	*Regular Drinkers*
13 years or younger	72.5	9.9	17.6
	(469)	(64)	(114)
14 years	61.0	11.5	27.5
	(483)	(91)	(218)
15 years	54.2	12.2	33.7
	(330)	(74)	(205)
16 years	40.1	13.4	46.5
	(311)	(104)	(360)
17 years or older	36.1	10.7	53.3
	(287)	(85)	(424)
Total	51.9	11.6	36.5
	(1,880)	(418)	(1,321)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

Comparison with Earlier Irish Studies

Although recent data on the drinking habits of Dublin post-primary students are not available, a previous survey conducted in 1970 (O'Rourke, *et al.*, 1971) indicated that three-quarters of students at that time had taken an alcoholic drink at some time during their lives. This figure is considerably higher than the lifetime prevalence rate reported here. However, this difference

is probably due to the fact that the relevant question in the present study asked the students if they had ever had a *whole* drink of an alcoholic beverage, thus excluding from the drinker category those who had simply tasted or sipped a drink. The question on the previous survey did not make this distinction.

In terms of current drinking, about 12 per cent of the students in the 1970 survey identified themselves as regular drinkers and 41 per cent as occasional drinkers. Although the distribution of regular and occasional drinkers is somewhat at variance with our results, the total per cent of current drinkers (54 per cent) is similar to that found here (48 per cent).

Finally, the results of the 1970 survey also are inconsistent with those of the present study in terms of the relative importances of the various social influences for the initial drinking occasion. Specifically, 29 per cent reported that their first drink was provided by a friend and 51 per cent by a parent. This pattern is just the opposite of that found here. Again, however, it is unclear to what extent initial experience as addressed in the 1970 survey included sips or tastes as opposed to an entire drink.

In a more recent survey, O'Connor (1978) found a lifetime drinking rate of about 82 per cent among a sample of 18-21 year olds in Dublin. Not surprisingly, this rate is just slightly higher than the lifetime prevalence for our oldest age group. Interestingly, O'Connor's data also indicated that there were somewhat fewer current drinkers in the Dublin sample compared with matched samples of English and Anglo-Irish living in England. O'Connor also concluded that drinking was initiated at a much later age in the Dublin sample.

It also is worth noting a recent survey of 15 year olds in Northern Ireland (McGuffin, 1983). This survey suggested that about 56 per cent of the respondents were drinkers based on the question, "Do you ever have an occasion to use an alcoholic beverage such as beer, spirits, stout or wine or are you a lifetime abstainer?". This figure is somewhat higher than the current rate and somewhat lower than the lifetime rate reported for the same age group in our sample. However, there are difficulties with the wording of the question on the Northern Ireland survey that may limit the comparability of the studies. Most importantly, the question did not specify the quantity of alcohol that was to be considered significant and may have been confusing to the respondents. Thus, on the one hand, some student who merely had taken a sip or taste of a drink at sometime may have identified themselves as "having an occasion to drink". On the other hand, other students who had tried alcoholic beverages on an experimental basis, but were not current drinkers, may not have classified themselves as drinkers.

Comparison with Studies Outside Ireland

Research outside of Ireland has been somewhat more systematic and is more directly comparable to the present study. In Scotland, for example, Plant, Peck and Stuart (1982) report on the alcohol consumption of 15 to 16 year old adolescents in the Lothian region based on questions similar to those used here. Lifetime prevalence in this sample approached 100 per cent for both boys and girls, a much higher rate of drinking than for Dublin adolescents. Moreover, the Scottish adolescents began drinking at a somewhat younger age (about 10 years) than Dublin students. Another major difference is that just over two-thirds of the Scottish sample reported that they had been given their first drink by their parents.

In terms of current drinking, about 43 per cent of the Scottish girls and 54 per cent of the Scottish boys had drunk during the *week* before the questionnaire was administered. These figures approach the *monthly* prevalence rates for our Dublin sample. Finally, the amount consumed at any one time also is higher for the Scottish adolescents. About 45 per cent reported drinking 5-6 drinks or more on their last drinking occasion. These relatively high rates of drinking among Scottish adolescents have been corroborated in other surveys. For example, an earlier study in Glasgow (Davies and Stacey, 1972) found a lifetime prevalence there of 95 per cent, which is similar to that reported in Lothian. Thus, it is clear that both lifetime and current drinking are considerably more common among Scottish adolescents than in our Dublin sample.

Turning to other European countries, the World Health Organisation (WHO) collaborative study (Aaro, *et al.*, 1984) provides monthly and lifetime prevalence rates for 11.5, 13.5 and 15.5 year olds in England, Austria, Finland and Norway. In England and Austria the lifetime drinking rates tend to be somewhat higher, but current rates appear to be somewhat lower than those reported here. That is, although there are more lifetime abstainers in the Dublin sample, there also are more students who report drinking alcoholic beverages within the month prior to the survey. Thus, the lifetime prevalences in the English sample were 88, 89 and 92 per cent for the three age groups, respectively, and the corresponding current prevalences were 22, 23 and 36 per cent. In Austria the lifetime figures were 64, 83 and 93 per cent and the monthly figures were 10, 20 and 24 per cent. For Finland and Norway the lifetime prevalence rates are similar to those for the Dublin sample, but again the current prevalence rates are lower. Thus, the lifetime prevalence rates were 35, 54 and 74 per cent in the Finnish sample and the current rates were 6, 16 and 32 per cent. Similarly, in Norway,[13] 48 per cent of the 13.5

13. No figures are available for 11.5 year olds in the Norwegian sample.

year olds and 75 per cent of the 15.5 year olds had tried an alcoholic beverage at some time in their lives and 12 per cent and 37 per cent of these age groups, respectively, had drunk within the past month.

Lifetime and previous month's drinking prevalences also are available for young people in France and Israel (Kandel, *et al.*, 1981). In general, adolescent drinking seems to be more common in France than in our sample and less common in Israel. Considering France first, the lifetime drinking rates were 84 per cent for cider, 80 per cent for beer, 79 per cent for wine and 75 per cent for spirits. The previous month's drinking rates were 35 per cent, 54 per cent, 54 per cent and 48 per cent for the four beverages. Although questions concerning cider were not asked of the Israeli adolescents, they had lifetime rates of 70 per cent for beer, 63 per cent for wine and 52 per cent for spirits. The corresponding current drinking rates were 27 per cent, 27 per cent and 22 per cent.

The ongoing yearly surveys of substance use among high school seniors in the United States (e.g., Johnston, *et al.*, 1984, 1985) are very thorough in providing systematic estimates of adolescent drinking behaviours. The prevalence figures obtained in these studies have been remarkably stable over the past ten years and suggest that, on the average, about 92 per cent of high school seniors in that country have taken an alcoholic drink at some time in their lives. Although this lifetime drinking rate is considerably higher than for our oldest age group, the current drinking rate is only slightly higher: about 70 per cent of the high school seniors had drunk during the previous month as compared with about 64 per cent of the Dublin 17 year olds. Furthermore, as with the Dublin sample, it is apparent that many of the high school seniors drink to the point of intoxication when the opportunity arises. Just over 45 per cent of those who did drink claimed that they usually got *very high* or *moderately high* when drinking. Finally, the high school seniors appear to begin drinking at a slightly younger age than the Dublin students. About half of the high school drinkers had their first drink before 14 years of age compared with a median age for first drink of 14.8 among the oldest Dublin group. Other studies from the United States are consistent with this pattern of findings (Sarvela and McClendon, 1983; Ensminger, *et al.*, 1982).

Relatively comparable data on adolescent drinking are also available from Australia (Homel, *et al.*, 1984). In that country, lifetime prevalence rates of 70, 82, 87, 91 and 89 per cent have been reported for 13 to 17 year olds, respectively. These figures are substantially higher than those for the same age groups in our sample. Rates for the previous month were 39 per cent, 53 per cent, 63 per cent, 73 per cent and 74 per cent. Again, these average about 10-15 per cent higher than for the Dublin pupils. Interestingly, how-

ever, the percentage of young Australians who reported having been drunk is roughly similar to that in the present study.

As in the case of cigarette smoking, less detailed information is available from most other countries. However, Smart, *et al.* (1978) report an 86 per cent lifetime prevalence in a Canadian sample, which is somewhat higher than that reported here. Unfortunately, it is not clear how representative the selected schools are in the Canadian study. Interestingly, in some third world countries very low adolescent drinking rates have been reported. Thus, in Zimbabwe, Chambwe, Slade and Dewey (1983) report a very high rate of lifetime abstinence from alcohol (50 per cent) among adolescents and young people. However, these researchers do not indicate how the sample was selected nor do they provide relevant details on the socio-demographic characteristics of the sample. Similarly, Robles, Martinez and Moscosco (1980) report very low lifetime drinking rates of 45 per cent for a sample of high school students in Puerto Rico.

Background Characteristics

Gender

Table 5.5 shows the lifetime rates of drinking for boys and girls. As expected, there is a substantial difference between the sexes, with boys having tried drinking more often than girls, $\chi^2(1) = 198.07, p < .001$. Furthermore, as with smoking, this difference is greatest at the younger age groups and tends to diminish among older adolescents. That is, it appears that boys initially experiment with drinking at an earlier age, but by late adolescence nearly as many girls as boys have tried alcoholic beverages.

Consistent with the overall findings for lifetime drinking, it can be seen in Table 5.6 that considerably more boys (49.2 per cent) than girls (28.4 per cent) had felt drunk at some time, $\chi^2(2) = 132.05, p < .001$. However, in contrast to lifetime drinking rates, the difference in the percentage having been drunk is of about the same magnitude from age 13 years to age 17 years. That is, even though the number of girls who have tried drinking approaches that for boys among the older age groups, the number who have been intoxicated remains substantially lower. This difference between the sexes is most pronounced for the number who have felt drunk six times or more. Almost three times as many boys as girls felt drunk this often. Again, there are fairly consistent differences at each age level in the percentage who felt drunk this frequently.

The overall differences in lifetime drinking are replicated when the individual beverages are considered. It can be seen in Table 5.7 that considerably more boys than girls had tried out each kind of drink. The greatest difference in

Table 5.5: *Lifetime Drinking Rates by Age and Gender*

Age Group	*Boys*	*Girls*
13 years or younger	56.8	37.9
	(108)	(117)
14 years	68.3	49.7
	(181)	(177)
15 years	73.1	59.7
	(171)	(157)
16 years	78.1	66.8
	(292)	(167)
17 years or older	81.8	75.5
	(306)	(207)
Total	73.6	56.8
	(1,058)	(825)

Note: Main entries are percentages at each age group who have consumed an alcoholic drink at some time in their lives. Cell sizes are given in parentheses.

this regard relates to numbers who had drunk beer. About 64 per cent of the boys had tried beer as opposed to 36 per cent of the girls. Furthermore, although not shown here, the differences in consumption for all four beverages were quite consistent across the age groups. However, it also can be seen in Table 5.7 that boys and girls show somewhat different patterns of preference for the four types of alcoholic beverages. Among boys, beer is by far the most popular drink, followed by wine and spirits. Among girls, beer and wine were nearly equally preferred, and spirits were somewhat less popular. For both sexes, cider was the least preferred beverage.

Finally, the current drinking status of boys and girls in each age group is shown in Table 5.8. There are large differences in the number of regular drinkers among boys and girls, with boys drinking more frequently. Moreover, there is no sign of this difference diminishing among the older students. Conversely, the percentage of non-drinkers is far higher among girls for all age groups. Thus, there is no evidence of the age by gender interaction that was apparent for current cigarette smoking or lifetime drinking.

Overall, then, our findings show large gender differences for lifetime drinking rates that diminish with age and even larger differences in current drinking that diminish very little with age. Boys also report being drunk more often and trying more kinds of drinks. Consistent with these findings, O'Connor (1978) in her study of 18-21 year old Dubliners, reported that about 25 per cent of the females were lifetime abstainers compared to about

Table 5.6: *Number of Times Having Felt Drunk by Age and Gender*

Age Group	*Frequency of Feeling Drunk*				
	Never	*1-2 Times*	*3-4 Times*	*5-6 Times*	*More than 6 Times*
			Boys		
13 years or younger	71.6	15.3	4.7	4.2	4.2
	(136)	(29)	(9)	(8)	(8)
14 years	65.3	17.4	6.4	3.0	8.0
	(173)	(46)	(17)	(8)	(21)
15 years	53.4	13.7	8.1	5.1	19.7
	(125)	(32)	(19)	(12)	(46)
16 years	43.3	13.4	9.6	5.9	27.8
	(162)	(50)	(36)	(22)	(104)
17 years or older	35.7	11.8	8.8	8.0	35.7
	(133)	(44)	(33)	(30)	(133)
Total	50.8	14.0	7.9	5.6	21.7
	(729)	(201)	(114)	(80)	(312)
			Girls		
13 years or younger	89.6	8.1	1.0	0.6	0.6
	(277)	(25)	(3)	(2)	(2)
14 years	82.6	11.8	2.0	1.4	2.3
	(294)	(42)	(7)	(5)	(8)
15 years	68.8	12.2	7.6	4.2	7.2
	(181)	(32)	(20)	(11)	(19)
16 years	59.6	13.2	10.0	5.6	11.6
	(149)	(33)	(25)	(14)	(29)
17 years or older	50.5	15.8	8.4	5.1	20.2
	(138)	(43)	(23)	(14)	(55)
Total	71.6	12.1	5.4	3.2	7.7
	(1,039)	(175)	(78)	(46)	(113)

Note: Main table entries are row percentages and numbers in parentheses are cell sizes.

Table 5.7: *Lifetime Prevalence Rates for Specific Alcoholic Beverages by Gender*

Beverage	*Gender*		χ^2
	Boys	*Girls*	
Cider	43.2 (620)	26.6 (384)	86.69***
Beer	63.6 (914)	36.0 (522)	219.52***
Wine	52.8 (758)	37.4 (541)	68.66***
Spirits	47.0 (675)	30.8 (446)	78.75***

Note: Main table entries are percentages who have consumed each type of beverage. Cell sizes are in parentheses. Test statistic is χ^2, with Yates correction.
*$p < .05$
**$p < .01$
***$p < .001$

10 per cent of the males. Even larger differences between the sexes were obtained for current consumption of alcohol. In contrast, however, previous research on Irish post-primary students (O'Rourke, *et al.*, 1971) indicated only very small differences in either lifetime or current alcohol consumption for boys and girls. Thus, it is possible that gender differences in adolescent drinking behaviours have become more pronounced in recent years.

Research in other countries also has addressed gender differences. Thus, for example, the study of young people in France and Israel (Kandel, *et al.*, 1981) gives a breakdown of lifetime drinking rates for boys and girls. Interestingly, only rather small differences between boys and girls were found in relation to lifetime prevalence rates of drinking cider, beer, wine and spirits in France. However, in Israel, the lifetime rates are about 50 per cent higher for boys. The results of the yearly studies in the United States (Johnston, *et al.*, 1984, 1985) also have considered this issue and show a similar pattern to that reported here in that the greatest difference between boys and girls occurs in relation to heavy and current drinking. Thus, over the years, only mimimal gender differences have been found for lifetime rates, small differences for yearly rates, moderate differences for monthly rates and relatively large differences in daily use of alcohol. In fact, these studies indicate that daily drinking occurred over twice as often among boys as among girls. Other research from North America shows the same pattern (Sarvela and McClendon, 1983; Ensminger, *et al.*, 1982). Finally, in Australia (Homel, *et al.*, 1984) the

same pattern emerges with minor differences between boys and girls in lifetime rates, moderate differences in monthly rates of drinking but relatively large differences for daily drinking. In general, then, the gender differences in drinking reported here are similar to, but tend to be more exaggerated than, those reported for other European countries, the United States or Australia. In this respect, they are most like those reported for Israel.

Table 5.8: *Current Drinking by Age and Gender*

Age Group	*Drinking Category*		
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*
		Boys	
13 years or younger	64.8	10.7	24.6
	(158)	(26)	(60)
14 years	50.7	11.3	38.0
	(171)	(38)	(128)
15 years	47.5	12.3	40.2
	(143)	(37)	(121)
16 years	34.9	12.0	53.1
	(166)	(57)	(252)
17 years or older	32.3	8.3	59.4
	(152)	(39)	(279)
Total	43.2	10.8	46.0
	(790)	(197)	(840)
		Girls	
13 years or younger	78.2	9.8	12.0
	(187)	(36)	(44)
14 years	68.8	11.6	19.6
	(302)	(51)	(86)
15 years	61.1	12.2	26.7
	(185)	(37)	(81)
16 years	48.7	15.8	35.6
	(145)	(47)	(106)
17 years or older	41.7	14.2	44.1
	(135)	(46)	(143)
Total	60.9	12.5	26.6
	(1,054)	(217)	(460)

Note: Main table entries are row percentages. Cell sizes are in parentheses.

Father's Occupational Status

Table 5.9 shows a breakdown of drinking categories by father's occupational status. As with smoking, the association between father's occupational status and children's drinking was not significant, $\chi^2(14) = 15.98, p > .05$.

Table 5.9: *Current Drinking by Father's Occupational Status*

Father's Occupational Status	*Drinking Category*		
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*
Professional and High Administrative	48.8 (188)	10.6 (41)	40.5 (156)
Managerial and Executive	51.7 (172)	11.7 (39)	36.6 (122)
Inspectional, Supervisory, and other non-manual (higher grade)	51.5 (234)	11.2 (51)	37.2 (169)
Inspectional, Supervisory, and other non-manual (lower grade)	54.1 (183)	12.7 (43)	33.1 (112)
Routine Grade, non-manual	53.3 (128)	8.8 (21)	37.9 (91)
Skilled Manual	52.5 (458)	12.6 (110)	34.9 (305)
Semi-skilled Manual	54.2 (218)	13.2 (53)	32.6 (131)
Routine Manual	60.4 (137)	10.1 (23)	29.5 (67)

Note: Main table entries are row percentages and numbers in parentheses are cell sizes.

Mother's Working Status

The current drinking status of the students in relation to whether mother was in employment or worked in the home only are shown in Table 5.10. As for father's occupation, the association between mother's working status and drinking behaviour was not statistically significant, $\chi^2(2) = 3.25, p > .05$. This finding is consistent with the finding reported earlier for cigarette smoking and again suggests that the probability of adolescent substance use behaviour is only minimally influenced by a mother's employment outside the home.

Table 5.10: *Current Drinking by Mother's Work Status*

Mother's Work	*Drinking Category*		
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*
In employment	50.2 (566)	12.8 (144)	37.0 (417)
At home only	53.0 (1,227)	11.1 (257)	35.8 (829)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

Pocket Money

A relatively strong relationship emerges between weekly pocket money and current drinking, $\chi^2(8) = 336.23, p < .001$. It can be seen in Table 5.11 that, as expected, those students who reported having more money to spend also reported more frequent drinking. A number of explanations are possible for this relationship. For example, amount of pocket money may increase the perceived availability of alcohol, as discussed in Chapter 2. Another possibility is that regular drinking creates a need for relatively greater amounts of spending money.[14]

Table 5.11: *Current Drinking by Weekly Pocket Money*

Weekly Pocket Money	*Drinking Category*		
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*
Less than £1	75.6 (279)	8.7 (32)	15.7 (58)
£1 to £3	64.9 (791)	11.9 (149)	23.2 (282)
£3 to £5	41.3 (204)	13.4 (66)	45.3 (224)
£5 to £7	29.2 (105)	12.5 (45)	58.2 (209)
More than £7	35.6 (124)	10.9 (38)	53.4 (186)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

14. An analysis of the joint effects of occupational status and pocket money on drinking behaviour by means of a multi-way log-linear analysis, showed a significant effect of pocket money only and no effect of occupational status and no interaction of pocket money and occupational status.

Normative Beliefs, Expectancy-Value Beliefs and Attitudes

In this section the relationship between normative beliefs and drinking is examined. Perceptions of drinking of parents and peers are discussed as well as perceived parental and peer approval. Differences in beliefs between drinkers and non-drinkers concerning the perceived consequences of drinking are explored also. Finally, the relationship between drinking and drinking attitude is examined.

Perceived Parental and Peer Drinking

Table 5.12 shows the current drinking status of the students as a function of perceived parental drinking. Consistent with expectations, those students who reported that their parents drank were more likely to drink themselves, $\chi^2(6) = 30.82$, $p < .001$. This difference is most striking between the children who reported that both parents drank alcohol and those who reported that neither parent drank. Thus, 49.7 per cent of the former and 61.4 per cent of the latter were non-drinkers. The corresponding percentages of regular drinkers were 37.5 and 27.1 per cent, respectively. Interestingly, when the mother only was seen to drink, the figures are very similar to those when both parents were drinkers.

From the available evidence, it appears that although perceived parental example is associated with children's drinking in some studies, this relationship tends to be relatively small and does not appear in other studies. Thus, O'Connor (1978) found only a moderate relationship between perceived parental drinking (particularly father's drinking) and the drinking of Dublin, English and Anglo-Irish young adults. Similarly, Brook, *et al.* (1983, 1984a)

Table 5.12: *Current Drinking by Perceived Parental Drinking*

Perceived Parental Drinking	*Drinking Category*		
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*
Neither parent drinks	61.4 (263)	11.4 (49)	27.1 (116)
Mother only drinks	52.6 (90)	11.7 (20)	35.7 (61)
Father only drinks	59.5 (278)	12.8 (60)	27.6 (129)
Both parents drink	49.7 (794)	12.8 (204)	37.5 (600)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

found a very small relationship between the perceived drinking of parents and children in the United States. Cross-national studies, however, suggest that there may be some differences among countries. Adler and Kandel (1981), for example, compared the United States, France, and Israel, and found the greatest association between adolescent and perceived parental drinking in Israel – where, incidentally, consumption was lowest. On the other hand, Bank, *et al.* (1985) found a moderately strong relationship in France and Australia (both of which had high prevalence rates) but not in the United States and Norway.

Table 5.13 shows the association between perceived drinking by friends and the respondents' own drinking. As expected, a strong positive relationship emerges, $\chi^2(6) = 908.11, p < .001$. Thus, of those who reported that none of their friends were drinkers, 81.9 per cent are non-drinkers. Conversely, for those who reported that both their best friend and their other good friends are drinkers, 22.8 per cent are non-drinkers and 63.9 per cent are regular drinkers.[15] The available literature is consistent with these findings and clearly indicates that perceived peer drinking is one of the most powerful predictors of adolescent alcohol use in many different cultures (e.g., Bank, *et al.*, 1985; Adler and Kandel, 1981; O'Connor, 1978).

Table 5.13: *Current Drinking by Perceived Peer Drinking*

Perceived Peer Drinking	*Drinking Category*		
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*
No friends drink	81.9 (893)	10.5 (114)	7.6 (83)
Best friend only drinks	47.1 (49)	17.3 (18)	35.6 (37)
Other friends only drink	62.3 (248)	15.1 (60)	22.6 (90)
All friends drink	22.8 (254)	13.4 (149)	63.9 (713)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

15. A three-way log-linear analysis of drinking category by age and friends' drinking showed significant effects for both age and friends' drinking but no interaction between age and friends' drinking. In other words, the effect of having friends who drink seems uniform across age groups.

Perceived Parental and Peer Disapproval

The mean ranking of respondents on degree of perceived disapproval of drinking by parents and friends is shown in Table 5.14. A significant relationship with drinking status emerged for both influences. As would be expected, lower levels of perceived disapproval were associated with higher levels of drinking. It can be seen that a moderate relationship exists between perceived parental disapproval of respondents' drinking and reported drinking and a somewhat stronger association exists between friends' disapproval and drinking.

Table 5.14: *Mean Ranking of Drinkers and Non-Drinkers on Perceived Parental and Peer Disapproval of Drinking*

Normative Influence	*Drinking Category*			*H*	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Mother's disapproval	1,162.05	1,405.11	1,705.70	321.62***	.11
Father's disapproval	1,137.11	1,400.20	1,677.46	323.72***	.11
Best friend's disapproval	1,064.55	1,535.65	1,793.69	606.95***	.20
Other friends' disapproval	1,121.72	1,499.04	1,726.72	442.42***	.16

Note: A higher mean ranking means less perceived disapproval.
*$p < .05$
**$p < .01$
***$p < .001$

The finding that perceived peer disapproval is moderately related to drinking is entirely consistent with the available literature. However, while an association between level of parental approval and drinking has sometimes been found, in other studies no relationship emerges. For example, in one cross-national comparison (Bank, *et al.*, 1985), a strong association between perceived peer approval and reported drinking was found in Australia, Norway, France and the United States. However, perceived parental approval related to adolescent drinking in Australia and the United States, but not in France or Norway. Interestingly, in at least one study (Akers, *et al.*, 1979) a curvilinear relationship between parental attitude and adolescent drinking was found, with higher rates of drinking associated with both indifference and extreme disapproval.

Expectancy-Value Beliefs

Respondents were asked to indicate how likely they thought it was that a specific list of potential consequences would occur to them as a result of drinking alcohol. As can be seen from Table 5.15, there was a general tendency for regular drinkers, compared with non-drinkers, to estimate that negative consequences were less likely and positive consequences more likely. For example, regular drinkers judged that drinking was more likely to make them feel good and less likely to make them feel sick than did non-drinkers. Furthermore, occasional drinkers tended to give ratings that were intermediate. Interestingly, in the case of "make me look tough", there was a statistically significant, but very small, tendency for non-drinkers to judge this consequence to be more likely.

Table 5.15: *Mean Ranking of Drinkers and Non-Drinkers on Perceived Likelihood of Consequences of Drinking*

Consequence	*Drinking Category*			*H*	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Harm health	1,108.20	1,473.42	1,762.01	427.40***	.16
Make me feel good	1,692.63	1,247.06	913.63	589.85***	.22
Make me feel sick	1,054.74	1,516.39	1,821.88	571.48***	.21
Help forget troubles	1,473.52	1,343.25	1,226.74	60.08***	.02
Get me in trouble	1,191.39	1,485.42	1,617.41	180.79***	.08
Be exciting	1,504.26	1,282.64	1,192.83	98.98***	.04
Become an alcoholic	1,098.56	1,561.01	1,726.00	399.73***	.17
Look tough	1,320.87	1,414.50	1,437.94	16.07***	<.01

Note: A lower mean ranking indicates a higher perceived certainty. Test statistic is Kruskal-Wallis *H* corrected for ties and η^2_H is a measure of explained variance.

*$p < .05$
**$p < .01$
***$p < .001$

Respondents were also asked to indicate how good or bad it would be if each of a subset of five of the consequences actually occurred. As can be seen in Table 5.16, there was a general tendency for regular drinkers to evaluate negative consequences less negatively and positive consequences more positively. Thus, non-drinkers indicated that getting into trouble with the police would be worse than did regular drinkers. Conversely, regular drinkers thought that forgetting their troubles would make them feel relatively better than did non-drinkers. Occasional drinkers again tended to be intermediate on these measures.

Table 5.16: *Mean Ranking of Drinkers and Non-Drinkers on Evaluation of Drinking Consequences*

Attitude Item	*Drinking Category*			*H*	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Harming health	1,495.74	1,362.70	1,200.98	123.88***	.04
Doing what made me feel good	1,455.25	1,430.68	1,230.72	53.04***	.02
Forgetting my troubles	1,482.76	1,392.27	1,200.92	77.17***	.03
Getting into trouble with police	1,478.10	1,350.13	1,227.22	104.63***	.04
Doing something exciting	1,492.32	1,354.20	1,203.64	83.05***	.03

Note: A higher mean ranking indicates more negative evaluation. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

These findings are consistent with the available literature relating to drinking behaviours and beliefs about the consequences of drinking. Such beliefs have been found to predict adolescent drinking in a number of countries in both cross-sectional (e.g., Adler and Kandel, 1981; Finn and Brown, 1981; Akers, *et al.*, 1979) and longitudinal research (Bauman, *et al.*, 1985). As would be expected, more favourable beliefs about the consequences of drinking were related to more frequent drinking in all of these studies.

Attitude

Attitude towards drinking was measured by asking the respondents how pleasant or unpleasant they considered it to be and how much they thought they would like or dislike it. Consistent with the model presented in Chapter 2, regular drinkers expressed more favourable atittudes than did the non-drinkers, with the occasional drinkers being intermediate (Table 5.17). Moreover, the differences among the drinking groups are relatively large, accounting for about 30 per cent of the variance in each item. As might be expected, other studies that have examined this relationship also have found that favourable attitudes to alcohol tend to be associated with more frequent drinking behaviour (e.g., Adler and Kandel, 1981; Akers, *et al.*, 1979).

Table 5.17: *Mean Ranking of Drinkers and Non-Drinkers on Attitude to Drinking*

Attitude Item	*Drinking Category*			*H*	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Pleasant-Unpleasant	1,766.41	1,213.77	838.63	843.44***	.30
Like-Dislike	1,815.98	1,152.75	776.24	1,072.60***	.38

Note: A lower mean ranking indicates a more favourable attitude. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

Social Bonding

Table 5.18 shows the mean rankings of the students for each of the social bonding items. From this table it emerges that self-rated success in school and perceived importance of school achievement are negatively related to drinking behaviour as were frequency of prayer and perceived importance of religion. All of these findings confirm the hypothesis that problem behaviours, including drinking, are less likely for individuals who are bonded to conventional social institutions.[16] Also, in line with social bonding theory, more successful relationships with parents were associated with non-drinking, as was a higher level of perceived importance for these relationships. However, the association between drinking and relationships with friends was not significant.

The available literature strongly supports the finding that bonding to school, whether it is measured by academic aspiration, self-reported or actual grades or frequency of absences, is consistently and negatively related to drinking behaviour (cf. Kandel, 1980). Thus, Bachman, *et al.* (1981) report that one of the strongest correlates of adolescent drinking in the United States is self-reported truancy. Akers, *et al.* (1981) and Smart, *et al.* (1978) found that *actual* school grades related strongly and negatively to measures of alcohol consumption and Jessor and his colleagues (Jessor, Chase and Donovan, 1980 and Jessor, 1976) report similar findings for self-reported grades. Studies in France and Israel (Adler and Kandel, 1981) point to a similar conclusion.

16. While drinking *per se* is not illegal, underage drinking can be considered to be an instance of problem behaviour in the sense proposed by Jessor, *et al.* (1980).

Table 5.18: *Mean Ranking of Drinkers and Non-Drinkers on Social Bonding Items*

Social Bonding Factor	*Drinking Category*			*H*	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Self-rated school achievement	1,515.81	1,345.77	1,327.56	38.42***	.01
Importance of school achievement	1,575.70	1,371.73	1,222.77	146.50***	.05
Perceived relationship with mother	1,510.73	1,420.27	1,292.14	61.75***	.02
Importance of mother relationship	1,518.76	1,416.14	1,274.39	77.70***	.03
Relationship with father	1,510.85	1,336.84	1,223.36	96.64***	.03
Importance of father relationship	1,503.59	1,367.60	1,222.92	96.47***	.03
Relationship with best friend	1,405.34	1,461.81	1,456.37	4.42	<.01
Importance of relationship with best friend	1,433.39	1,482.39	1,391.68	3.24	<.01
Relationship with other friends	1,401.33	1,433.66	1,475.92	6.35	<.01
Importance of relationship with other friends	1,446.17	1,440.38	1,397.13	2.42	<.01
Frequency of prayer	1,631.85	1,336.03	1,134.71	231.85***	.08
Importance of religion	1,631.28	1,344.47	1,142.43	215.20***	.07

Note: A higher mean ranking indicates closer social bonding. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

The available literature also is consistent with the present research in suggesting that bonding to religion exerts an inhibitory influence on drinking behaviour. Thus, O'Connor (1978) showed that adherence to religious values tended to be associated with lower levels of drinking among Dublin 18-21 year olds. Similarly, Bachman, *et al.* (1981) found that two items (one relating to perceive importance of religion and another pertaining to frequency of attendance at religious services) each related negatively to frequency of drinking among adolescents in the United States. Finally, Jessór, *et al.* (1980) also reported a negative relationship between commitment to religion and frequency of drunkenness among adolescents.

There also is evidence that young drinkers are less closely bonded to parents than infrequent or non-drinkers. For example, negative relationships have been reported between adolescent drinking and attachment to parents (Ensminger, *et al.*, 1982) and parental warmth (Pandina and Schuela, 1983). Interestingly, a recent study (Norem-Hebeisen, *et al.*, 1984) indicates that frequent drinkers perceive their parents as less caring and affectionate and *more* controlling and restrictive than do occasional drinkers or non-drinkers.

Personality and Values

Tolerance of Deviance

The mean rankings of the respondents on the problem behaviours are shown in Table 5.19. Consistent with expectations, it can be seen from this table that regular drinkers, compared with non-drinkers reported a greater frequency of performing each of the behaviours. Furthermore, occasional drinkers' reported levels of problem behaviour were intermediate in frequency.

In general, the available literature is consistent with the findings reported here. For example, a recent study in the United States (Barnes, 1984) showed a systematic pattern of covariation between regular drinking, running away from home, stealing, beating up another person, arguing with parents and skipping school. Donovan and Jessor (1978) similarly concluded that problem drinking correlated with a complex network of anti-social behaviours. It is worth noting that this pattern would be expected on the basis of the social bonding theory. That is, increased social bonding to traditional institutions would be likely to inhibit several areas of problem behaviour, besides drinking.

Table 5.19: *Mean Ranking of Drinkers and Non-Drinkers on Frequency of Deviant Behaviours*

Behaviour	*Drinking Category*			H	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Sworn or cursed	1,154.97	1,480.65	1,692.60	303.68***	.11
Lied to parents	1,185.46	1,468.29	1,635.16	208.80***	.07
Lied to teachers	1,137.76	1,456.85	1,735.47	350.36***	.13
Damaged property	1,210.01	1,371.99	1,646.32	226.03***	.08
Stolen things	1,233.71	1,371.79	1,613.85	148.71***	.05

Note: A higher mean ranking indicates a greater frequency of problem behaviours. Test Statistic is Kruskal-Wallis H corrected for ties.

*$p < .05$
**$p < .01$
***$p < .001$

Value for Independence

Table 5.20 shows the mean rankings of the students for the importance of each of the independence behaviours. As in the case of cigarette smoking, the trend across the three items is not consistent. Two of the items ("doing things my own way", "saying what I think") show small but significant effects, while the remaining item ("getting a job done on my own") does not attain statistical significance.

While the available literature seems to suggest that a small relationship exists between value for independence and youthful drinking, it emerges that in most cases where such a relationship is found, the measure of independence is, in fact, a measure of rebelliousness. For example, Brook, *et al.* (1983) found that drinking was associated with a value on independence, but they measured independence in ways that involved anti-social behaviours. As will be seen in the next chapter, more attention has been given to the relationship between illicit drug use and value for independence.

Table 5.20: *Mean Ranking of Drinkers and Non-Drinkers on Independence Behaviours*

Behaviour	*Drinking Category*			*H*	η^2_H
	Non-Drinker	*Occasional Drinker*	*Regular Drinker*		
Doing things my own way	1,433.09	1,391.75	1,285.01	21.79***	.01
Saying what I think	1,408.29	1,407.18	1,319.65	8.81*	.01
Doing a job without help	1,366.34	1,372.46	1,394.54	.81	<.01

Note: A lower mean ranking indicates a greater value for independence. Test stastic is Kruskal-Wallis *H* corrected for ties.

*$p < .05$

**$p < .01$

***$p < .001$

Summary

Almost two-thirds of the respondents had consumed an alcoholic drink at some time in their lives, and of those who had tried a drink, the majority had been drunk at least once. In comparison with other countries, it seems that there is a relatively greater number of lifetime abstainers in this sample, while the number who drink regularly is somewhere between the rates reported for high consumption countries like France and Australia and the rates for low consumption countries like Israel.

The most consistent background differences were for age and gender. As expected, lifetime and current drinking rates increased substantially with age and older students reported having been drunk more frequently than younger students. In terms of gender, boys drank more frequently and in greater amounts than girls and also tended to report being drunk more often. Drinking behaviours also were more frequent among those students who had more pocket money. However, in contrast, neither father's occupational status nor mother's work was significantly related to drinking.

Drinking was moderately related to perceived parental drinking and disapproval. However, a stronger relationship existed between drinking and perceived peer behaviour and disapproval. In general, drinking was most frequent among those students who perceived greater social support for this behaviour. Drinkers also indicated that they believed the negative consequences of drinking were less likely, and the positive consequences were more likely. They also placed a higher value on the positive consequences and a lower value on the negative consequences. Similarly, they expressed more favourable attitudes towards drinking.

In terms of social bonding, regular drinking was associated with lower commitment to school and lower self-rated school performance. Regular drinkers also tended to indicate that religion was less important in their lives and that they prayed less frequently than did non-drinkers. Furthermore, the perceived commitment of drinkers to their families was lower than that of non-drinkers. No difference emerged, however, in relation to bonding to friends. Drinkers also were more accepting of deviance and admitted engaging in problem behaviours with greater frequency than non-drinkers. However, no major differences were found in relation to value placed on independence.

Chapter 6

DRUG USE

This chapter is concerned primarily with describing the reported use of drugs other than tobacco and alcohol. Both lifetime and current prevalence of drug use are discussed, as is the relative popularity of various psychoactive substances. In addition, the univariate relationships between drug use and selected background characteristics, beliefs, attitudes and personality characteristics, are considered. Social bonding, particularly involvement with and commitment to the family, school and religion, is also examined as a factor in adolescent drug use.

Prevalence of Drug Use

Lifetime Prevalence

Lifetime drug use was measured by asking the students if they had *ever* used each of 10 drugs in order to get "high". Table 6.1 shows the percentage of students in each age group who reported having used any of these drugs. It can be seen from this table that just over one-fifth of the sample admitted having used at least one drug at some time. Not surprisingly, the association between age and lifetime drug use is statistically significant, $\chi^2(4) = 118.23, p < .001$. As expected, the prevalence of drug use increases with age from about 8 per cent among those 13 or younger to about 30 per cent among those 16 years old. After age 16, the lifetime prevalence rate appears to level out, suggesting that much initial drug use takes place before this age. Consistent with this observation, the median age of first trying drugs is about 14 years. Thus, on the average, initial drug use seems to occur nearly three years later than first experimentation with smoking and just over one year later than first experimentation with drinking.

The percentages of students who reported ever having used each of the individual categories of drugs are shown in Table 6.2 along with the percentages having used them within the previous month. By far the most popular substances among these young people were glue or other inhalants and marijuana. About 13 per cent of the sample had tried each of these at some time in their lives. Use of the remaining substances was considerably less

Table 6.1: *Lifetime Drug Use Rates by Age Group*

Age Group	*Ever Used Drugs*	
	Yes	*No*
13 years or younger	8.4	96.1
	(43)	(471)
14 years	15.3	84.7
	(95)	(524)
15 years	23.8	76.2
	(117)	(375)
16 years	30.3	69.7
	(188)	(433)
17 years or older	29.4	70.6
	(190)	(457)
Total	21.9	78.1
	(633)	(2,260)

Note: Main table entries are row percentages. Cell sizes are in parentheses.

frequent. After glue and marijuana, the most popular drugs were psilocybin, or hallucinogenic mushrooms, and cough syrup mixtures. Use of these substances was reported by 4 to 5 per cent of the students. The least popular drugs were the opiates and cocaine which had been used by only about 1 per cent of the sample. Interestingly, nearly 3 per cent of the students indicated that they had ingested "other" substances in an attempt to get high.[17] The most frequently mentioned were mixtures of alcohol with tranquillisers or aspirin and other over-the-counter pain killers. However, the willingness of some students to experiment with exotic substances was made apparent by some of the responses to this item. For example, a number of respondents indicated that they had on occasion taken drugs without knowing what they were and one student reported having smoked scrapings from banana peels. Finally, as might be expected, a significant proportion of the students had used more than one type of drug. Of those who used drugs, about 46 per cent had tried 1 substance only, about 23 per cent had tried 2 substances, 17 per cent had tried 3 or 4 substances and 14 per cent had tried 5 or more.

Because of the relatively low lifetime prevalence rates, it was not possible to consider age-related trends for most of the individual drugs. However, it

17. A number of substances listed as "other" by some of the students were subsequently classified as one of the drugs already included in the list. Thus, several mentions of petrol, paint thinner, leather cleaner and other inhalants were coded as solvents. Similarly, some students mentioned brand names or street names for drugs that were, in fact, barbiturates or tranquillisers.

Table 6.2: *Prevalence Rates for Specific Drugs*

Substance	*Prevalence*	
	Ever	*Previous Month*
Glue/Solvents	12.9	5.0
Marijuana	13.2	5.9
Heroin/Opiates	1.2	0.7
Cocaine	1.5	0.7
LSD	2.7	1.2
Barbiturates/Tranquillisers	2.7	1.4
Speed	3.3	1.4
Psilocybin/Mushrooms	4.0	1.2
Cough syrup	4.8	1.8
Other substances	2.8	0.8

Note: Table entries are percentages of the sample who reported having used a particular substance.

was possible to do so for marijuana and solvents, and rather different patterns were revealed for these substances. On the one hand, lifetime use of marijuana directly increased with age. Thus, only 2.3 per cent of the students 13 and under had tried this drug while 24.6 per cent of those 17 and older had done so. The greatest increase in experimentation with marijuana appears to occur between 15 and 16 years of age. The percentage of students having used this drug doubles from 9.8 per cent among 15 year olds to 20.8 per cent among 16 year olds. On the other hand, use of solvents showed a much different relationship with age. Experimentation with these substances increased from 6.8 per cent among 13 year olds to nearly 18 per cent among 15 and 16 year olds, and then *decreased* to 11.0 per cent among the oldest age group. This decrease probably reflects a generational effect, because use of solvents appears to be a relatively recent phenomenon among young people in Ireland (cf. Shelley, *et al.*, 1982). Interestingly, these figures also reveal that glue and solvents are somewhat more popular than marijuana among the younger students while marijuana is more popular among those 16 years old and older.

Current Prevalence

As in the previous chapters on smoking and drinking, the students were categorised according to their current drug use. This categorisation was based on reported drug use behaviour during the previous month and was similar to that used for drinking. *Non-users* consisted of those students who reported that they had not used any of the drugs listed in the questionnaire

during the previous month. *Occasional users* were defined as those who had used only one of the drugs and that on no more than two occasions. Finally, *regular users* were those students who had used one drug on more than two occasions during the previous month *or* who had used more than one drug.

As can be seen from Table 6.3, there is a general trend for current drug use to increase with age, $\chi^2(8) = 39.28, p < .001$. On the average, the percentage of students who reported using drugs during the previous month rose by about 4 per cent each year up to age 16. However, there are slightly fewer current users (occasional and regular users combined) among the oldest age group than among the 16 year olds. It would seem, therefore, that current drug use may reach a peak at about age 16 and remain more or less stable for the remainder of post-primary years. However, with the present data, it is not possible to say whether this is a *developmental* phenomenon, i.e., drug use stabilises at age 16, or a generation effect, i.e., there have been substantial increases in numbers of young people using illegal drugs in recent years, and this manifests itself particularly among the younger age groups.

Table 6.3: *Current Drug Use by Age Group*

Age Group	*User Category*		
	Non-User	*Occasional User*	*Regular User*
13 years or younger	92.6	2.4	5.0
	(589)	(15)	(32)
14 years	88.4	4.3	7.3
	(693)	(34)	(57)
15 years	86.7	5.3	8.0
	(523)	(32)	(48)
16 years	82.0	7.0	11.1
	(636)	(54)	(86)
17 years or older	85.5	4.8	9.7
	(678)	(38)	(77)
Total	86.8	4.8	8.4
	(3,119)	(173)	(300)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

Comparison with Earlier Irish Studies

The most recent data concerning the prevalence of drug use in Dublin post-primary schools are based on a 1980 survey (Shelley, *et al.*, 1982). This particular study included three specific questions concerning exposure to drugs and drug use and replicated a 1970 survey (Nevin, *et al.*, 1971). The first item asked subjects if they ever had been offered what they thought was an addictive drug. The percentage of students who answered this question affirmatively was 18.5 per cent and 32.8 per cent for those under and over 16 years of age, respectively. It is significant that these figures are a great deal higher than the 1970 figures which were 5.4 per cent and 13.2 per cent. As regards the second item ("Have you ever been to a party where people took drugs?"), the 1980 survey indicated that 16.5 per cent of those under 16 had been at a party where drugs were taken, compared with 41.4 per cent of those over 16. Again, the corresponding figures for 1970 were much lower: 4.9 per cent and 15.3 per cent.

More directly relevant to the present study is the third item concerning the actual use of drugs. The students were asked whether they had "ever taken drugs other than prescribed by a doctor" and, if so, which drugs. Despite the methodological differences, it is still useful to compare the results of these earlier surveys with those obtained here. In 1980, 11.1 per cent of the respondents reported that they had used drugs. As regards the specific substances, marijuana was the most popular (9.4 per cent), while other substances, including glue, had prevalence rates of less than 1 per cent. Thus, the major difference in comparison to the present study is that considerably fewer students reported using drugs in general and particularly using glue or solvents. As might be expected, the percentage who had experimented with drugs was lower for students under 16 years old (9 per cent) than for those over 16 years old (20 per cent). The corresponding 1970 figures were 1.3 per cent and 4.9 per cent, respectively.

The only other available studies of drug use among Irish adolescents have focused on clinical or special populations. For example, Lockhart and Lennox (1983) examined the frequency of solvent abuse among adolescent juvenile delinquents versus a non-delinquent comparison group in Northern Ireland. Just over 65 per cent of the young offenders had sniffed glue compared to 33 per cent of the comparison group. The difference in relation to weekly use was evern greater; 42 per cent and 7 per cent, respectively. These figures are considerably higher than those reported here. Unfortunately, it is extremely difficult to judge whether these delinquents, or indeed the comparison group, are in any way representative of Northern Ireland adolescents.

Comparisons with Studies Outside Ireland

Research overseas has generally focused on more representative samples and has been more systematic in nature. In Great Britain, Plant and his colleagues (Plant, *et al.*, 1982, 1984) present lifetime rates for 15 to 16 year old Scottish adolescents based on a list of drugs similar to that used in the present study. Overall, the rate of self-reported use of drugs was substantially lower among this group than among our sample. Just over 12 per cent reported having tried drugs. Furthermore, there was a much different pattern of drug use among Scottish adolescents. On the one hand, the percentages who used marijuana and glue were much lower, 7.2 per cent and 4.6 per cent, respectively. On the other hand, the prevalence rates for Valium (4.2 per cent) and other tranquillisers (5.2 per cent) were slightly higher. One reason for the overall difference in drug use may be the fact that both rural and urban students were included in the Scottish sample and rural adolescents tend to have lower prevalence rates.

Data concerning self-reported marijuana use also have been obtained from a nationally representative sample of adolescents 16 and older in Great Britain in 1982 (Mott, 1985). The overall lifetime prevalence rates for marijuana was 7.5 per cent for those aged 16-19 years and the yearly prevalence rate for these adolescents was just over 6 per cent. While these rates are well below those of the comparable age groups in the present sample, it must be stressed that the data were obtained through face to face interviews rather than by anonymous questionnaires and that the sample was drawn from the general population as opposed to students. Finally, as with the previously described Scottish studies, the sample contained rural as well as urban respondents.

In France, as in the case of smoking and alcohol consumption, the rates of drug use were somewhat higher than in the present study (Adler, *et al.*, 1981). Thus, 23 per cent of French adolescents had tried marijuana, and 11 per cent had used it during the previous month. Furthermore, there was a direct relationship between age and likelihood of having used marijuana. The lifetime rates were 21 per cent, 31 per cent, and 33 per cent for 16, 17 and 18 year olds, respectively. Lifetime prevalence of barbiturates and tranquillisers were 6 per cent each, while for LSD and amphetamines the lifetime rates were each 4 per cent.

In contrast to France, reported rates of drug use are much lower in Israel, particularly for marijuana, with less than 5 per cent of the adolescents having tried this substance (Adler, *et al.*, 1981). The only drugs used by significant numbers were tranquillisers, where there were lifetime rates that varied between 4 and 7 per cent, depending on age. In fact, the number of young Israelis who reported using *any* illicit drug at *any* time in their lives was very

small. The overall lifetime prevalence was 5 per cent and 9 per cent for 14 and 15 year olds. For 16, 17 and 18 year olds, the corresponding figures were 6 per cent, 10 per cent, and 10 per cent, respectively. Furthermore, the current rates were so tiny that they were not reported.

The most striking feature of the ongoing annual studies of high school seniors in the United States (Johnston, *et al.*, 1984, 1985) is the consistency with which drug use is found to be higher than for all other countries for which data are available. Thus, in 1984, 61.6 per cent of all high school seniors reported illicit drug use at some time in their lives. By far the most popular drug was marijuana, with 54.9 per cent reporting that they had used this substance at least once. The percentage reporting using inhalants was 14.4 per cent (although the authors feel that this figure needs to be adjusted upwards for under-reporting of use of Amyl and Butyl Nitrates) and the percentage using hallucinogens was 8.0 per cent for LSD and 5.0 per cent for psilocybin. Finally, just over 16.1 per cent reported having used cocaine, while 13.3 per cent and 12.4 per cent reported use of sedatives and tranquillisers, respectively. These rates, of course, are substantially higher than those reported for the comparable age group in the present study, particularly in relation to marijuana, cocaine, sedatives, tranquillisers and hallucinogens.

As might be expected, current usage (previous month) among high school seniors in the United States is also considerably higher than for Dublin post-primary students. The most popular drugs were marijuana (25.2 per cent), cocaine (5.8 per cent), stimulants (8.3 per cent), sedatives (2.3 per cent), and tranquillisers (2.1 per cent). Finally, in 1984 marijuana was used on a near daily basis by 5.0 per cent of the high school seniors. However, less than 1 per cent of these respondents reported daily use of any other of the illicit drugs.

The changes in drug use among the high school seniors between 1975-1984 are especially interesting. It appears that the years 1978 and 1979 marked the crest of a long and dramatic rise in drug use among high school students in the United States. Since that time there has been a sharp drop for daily marijuana use, from 1 in 9 to the present figure of 1 in 18 students. Furthermore, every year since 1979 there has been a drop of 1 to 2 per cent annually in the number of high school seniors having any involvement with drugs during the previous year.

Several other studies from the United States are in close agreement with the results of the annual survey of high school seniors. While there is some variation due to regional differences, these studies consistently suggest relatively high levels of drug use, particularly for marijuana. Thus, Keyes and Block (1984) report levels of lifetime prevalence that are just slightly lower than those emerging in the annual studies. This difference seems due

to the different ages of the group concerned. The average age of the respondents in the Keyes and Block study was just over 14 years, as opposed to about 18 years for the high school seniors. Similarly, a study of 16 year olds in Chicago (Ensminger, *et al.*, 1982) also revealed prevalence rates close to those reported in the high school senior studies (e.g., about 60 per cent lifetime use for marijuana).

Finally, Homel, Flaherty, Treblico and Dunoon (1984) report lifetime and current rates of various drugs for 12 to 17 year old Australian adolescents. Just over half of this sample reported using solvents at some time in their lives and about 16 per cent had tried solvents in the month before the survey. Interestingly, the age for greatest use of solvents was 14 years. The level of lifetime prevalence of marijuana was 25 per cent in the Australian sample, with a strong tendency for older adolescents to have tried this substance (39 per cent for 17 year olds versus 5 per cent for 12 year olds). The overall prevalence of these and other substances are, therefore, substantially higher in this Australian sample than for the Dublin sample.

Background Characteristics

Gender

It can be seen in Table 6.4 that males substantially outnumber females in lifetime drug use at every age group. Overall, while 15.5 per cent of females had tried drugs at least once, the corresponding figure for males was 28.5 per cent, $\chi^2(1) = 71.16, p < .001$. Furthermore, there is little evidence of any systematic age-related changes in these gender differences. Rather, boys use drugs considerably more frequently than girls at all age levels.

Table 6.5 shows current use of drugs by age and gender. In general, the pattern is very similar to that for the lifetime prevalence rates. More boys than girls reported using drugs within the previous month, $\chi^2(2) = 43.55$, $p < .001$. Moreover, although not shown here, this difference holds for each of the individual drugs listed in the questionnaire. However, Table 6.5 also shows that *regular* drug use among girls approaches the level for boys among the older students. Thus, although nearly three times as many boys as girls were regular drug users among the youngest age groups, this difference narrows to about 11 per cent of boys versus 9 per cent of girls aged 16 or older.

There is general agreement in the extant literature that boys use drugs more frequently and more heavily than do girls. In the 1980 Dublin study (Shelley, *et al.*, 1982), 11.7 per cent of boys and 4.6 per cent of girls under 16 years had tried drugs, while the corresponding figures for over 16 years were 25.2 per cent and 15.1 per cent. Furthermore, there were similar gender differences in the 1970 Dublin study (Nevin, *et al.*, 1971).

Table 6.4: *Lifetime Drug Use Rates by Age and Gender*

Age Group	*Boys*	*Girls*
13 years or younger	13.2	5.2
	(25)	(16)
14 years	20.2	11.9
	(53)	(42)
15 years	34.1	14.9
	(78)	(39)
16 years	33.4	25.6
	(124)	(64)
17 years or older	34.0	23.0
	(127)	(63)
Total	28.5	15.5
	(407)	(224)

Note: Main table entries are percentages who have used any drug at each age group. Cell sizes are in parentheses.

Elsewhere in Europe, Kandel, Adler and Sudit (1981) reported that while 26 per cent of French males had used marijuana, only 18 per cent of females had tried this substance. There were substantial gender differences also for LSD, amphetamines, barbiturates, and heroin, but not for illicit use of tranquillisers. Similar gender differences were reported for Israel, even though the overall numbers using any of the illicit substances were rather small.

In the United States, Johnston, *et al.* (1985) report a somewhat higher proportion of males than females involved in the use of most drugs in the 1984 class of high school seniors. For example, lifetime rates of marijuana use were 57.9 per cent and 51.3 per cent for boys and girls, respectively. The difference was about the same for use during the previous month (28.2 per cent for boys and 21.1 per cent for girls) while daily marijuana use was more than twice as frequent among males (7.0 per cent versus 2.5 per cent).

The high school senior studies also reveal that males have considerably higher prevalence rates for most other illicit drugs. However, these gender differences in the United States are dependent upon the particular drug being considered. The annual prevalence for inhalants, LSD, heroin, cocaine, and barbiturates tends to be one and one-half to two times higher among males compared with females. Furthermore, males account for an even greater share of the daily use of these drugs. On the other hand, illicit use of tranquillisers was about the same for both genders and use of stimulants is somewhat higher for girls.

Table 6.5: *Current Drug Use by Gender and Age Group*

Age Group	*Drug Use Category*		
	Non-User	*Occasional User*	*Regular User*
		Boys	
13 years or younger	89.3	2.9	7.9
	(216)	(7)	(19)
14 years	84.1	4.7	11.2
	(285)	(16)	(38)
15 years	79.6	8.7	11.7
	(238)	(26)	(35)
16 years	81.3	7.1	11.6
	(387)	(34)	(55)
17 years or older	83.8	5.8	10.5
	(392)	(27)	(49)
Total	83.2	6.0	10.7
	(1,518)	(110)	(196)
		Girls	
13 years or younger	95.1	2.2	2.7
	(346)	(8)	(10)
14 years	91.6	4.2	4.2
	(395)	(18)	(18)
15 years	94.3	2.0	3.7
	(282)	(6)	(11)
16 years	83.2	6.7	10.1
	(248)	(20)	(30)
17 years or older	87.9	3.4	8.7
	(284)	(11)	(28)
Total	90.7	3.7	5.7
	(1,555)	(63)	(97)

Note: Main table entries are row percentages and numbers in parentheses are cell sizes.

Interestingly, most of the gender differences in illicit drug use reported for the high school seniors have remained relatively unchanged for the past seven years. In other words, any changes that have occurred in overall use have occurred about equally among males and females. Some exceptions can be noted for cocaine (which previously had extremely large gender

differences) and amphetamines, with females reporting relatively increasing use of these two drugs.

Other studies in the United States that have examined gender differences are in general agreement with the high school senior surveys. Ensminger and her colleagues (Ensminger, *et al.*, 1982) have examined gender differences in great detail and have found relatively small differences in relation to lifetime usage but rather large differences at the heaviest levels of usage, with males using drugs on a regular basis about twice as often as females. Similar findings are reported in other surveys (Abelson, *et al.*, 1977; Keyes and Block, 1984).

Finally, it is worth noting that gender differences in illicit drug use among American adolescents are balanced to some extent by the greater frequency of *prescribed* drug use by females (cf. Kandel, 1980). For example, Verbrugge (1982) found that women reported 50 per cent to 80 per cent more use of prescribed drugs that did men. She also found a greater tendency for women to use over-the-counter medications, such as aspirin.

Father's Occupational Status

As with tobacco and alcohol, no significant association emerged between drug use and father's occupational status, $\chi^2(14) = 14.62, p > .05$. Interestingly, the minor differences that can be seen in Table 6.6 suggest slightly greater use by pupils whose fathers are at the higher levels of occupational status.[18]

Given the popular beliefs concerning the relationship between social background and drug use, this outcome is extremely interesting. In general, however, it is consistent with the available literature. For example, in a previous study of Dublin adolescents, Shelley, *et al.* (1982) divided their respondents into five social class categories based on father's occupation. They found no systematic association between these categories and use of unprescribed drugs. Similarly, Adler and Kandel (1981) examined the impact of level of fathers' education on drug use in France and Israel and found no indication that this variable was a significant factor. In the United States, some studies (e.g., Johnston, *et al.*, 1984, 1985; Jessor, *et al.*, 1980) have reported significant associations between adolescent marijuana use and family socioeconomic indicators. However, these relationships have been very small and do not always hold for both boys and girls. Moreover, other studies (e.g., Keyes and Block, 1984) have failed to replicate these findings for either sex.

18. A multi-way log-linear analysis of drug use by father's occupational status and age, showed a significant effect of age and no significant effect for either occupational status or the interaction of age with occupational status.

Table 6.6: *Current Drug Use by Father's Occupational Status*

Father's Occupation	*Drug-Use Category*		
	Non-User	*Occasional User*	*Regular User*
Professional and High Administrative	86.6 (331)	3.7 (14)	9.7 (37)
Managerial and Executive	88.2 (291)	6.4 (21)	5.5 (18)
Inspectional, Supervisory, and other non-manual (higher grade)	86.8 (393)	5.7 (26)	7.5 (34)
Inspectional, Supervisory, and other non-manual (lower grade)	89.1 (301)	4.1 (14)	6.8 (23)
Routine Grade, non-manual	88.0 (212)	5.4 (13)	6.6 (16)
Skilled Manual	88.2 (769)	4.7 (41)	7.1 (62)
Semi-skilled Manual	89.7 (257)	2.5 (10)	7.8 (31)
Routine Manual	87.9 (197)	5.8 (13)	6.3 (14)

Note: Main table entries are row percentages and numbers in parentheses are cell sizes.

Mother's Working Status

Table 6.7 displays the percentage in each drug-use category for pupils whose mothers worked in the home exclusively and for those mothers who were employed outside the home. As for smoking and drinking, the association between drug use and mother's work was not statistically significant, $\chi^2(2) = .97, p > .05$. Again, these data provide little evidence that a mother's working outside the home adversely affects the substance use behaviours of her children.

Pocket Money

The percentage of students in each of the current drug-use categories as a function of weekly pocket money is shown in Table 6.8. A significant and moderately large association was obtained between this variable and drug use, $\chi^2(8) = 135.17, p < .001$. As expected, those having more pocket money used drugs more frequently.

Table 6.7: *Current Drug Use by Mother's Work Status*

Mother's Work	*Drug-Use Category*		
	Non-User	*Occasional User*	*Regular User*
In employment	86.7 (972)	5.2 (58)	8.1 (91)
At home only	87.9 (2,027)	4.6 (106)	7.5 (174)

Note. Main table entries are row percentages. Numbers in parentheses are cell sizes.

Table 6.8: *Current Drug Use by Weekly Pocket Money and Drug Use*

Weekly Pocket Money	*Drug-Use Category*		
	Non-User	*Occasional User*	*Regular User*
Less than £1	95.9 (353)	2.4 (9)	1.6 (6)
£1 to £3	94.5 (1,150)	3.0 (37)	2.5 (30)
£3 to £5	86.8 (427)	4.9 (24)	8.3 (41)
£5 to £7	81.3 (291)	6.7 (24)	12.0 (43)
More than £7	78.4 (273)	6.9 (24)	14.7 (51)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

Normative Beliefs, Expectancy-Value Beliefs and Attitudes

In this section the association between normative beliefs and drug use is discussed, with particular emphasis on perceived peer drug use as well as perceived disapproval of parents and peers. Differences in beliefs regarding the consequences of drug use are examined also. Finally, the relationship between attitudes to drugs and drug use is described.

Perceived Peer Drug Use

Table 6.9 displays a breakdown of current drug use status for those students who reported that (i) none of their friends used drugs, (ii) only their best friend used drugs, (iii) only their other good friends used drugs. As predicted, there is a statistically significant and substantial association between perceived drug use by peers and the students' own current drug use, $\chi^2 = 1{,}119.36, p > .001, \eta^2 = .39$. The nature of this association is best illustrated by a comparison of the students who reported that none of their friends used drugs with those who reported that all of their friends did so. Over 95 per cent of the students whose friends all were non-users indicated that they did not use drugs themselves as opposed to 31 per cent of those whose friends all were drug users. Conversely, 2 per cent of the former group were regular drug users compared with 57 per cent of the latter group. It is also apparent from Table 6.9 that the influence of best friend is somewhat greater than that of other friends. About 6 per cent of those who reported that only their other good friends used drugs were drug users themselves. In contrast, nearly 35 per cent of the students who reported that only their best friend used drugs did so.

Table 6.9: *Current Drug Use by Perceived Peer Drug Use*

Perceived Peer Drug Use	*Drug-Use Category*		
	Non-User	*Occasional User*	*Regular User*
No friends use drugs	95.2 (2,003)	2.5 (53)	2.3 (49)
Best friend only uses drugs	36.1 (22)	29.5 (18)	34.4 (21)
Other friends only use drugs	81.3 (256)	12.7 (40)	6.0 (19)
All friends use drugs	31.5 (78)	11.3 (28)	57.3 (142)

Note: Main table entries are row percentages. Numbers in parentheses are cell sizes.

The extant literature consistently indicates that perceived peer drug use is one of the most important correlates of adolescent drug use. Furthermore, it would seem that as in the present study, close friends' drug use is especially important. For example, Akers, *et al.* (1979) found that sheer number of potential models of drug use was far less important than the behaviour of

friends with whom subjects spent most time. Ellis and Stone (1979) also confirmed the importance of the peer group in marijuana use and showed that relative to that of parents, the example of the peer group was far more important. Finally, Brook, *et al.* (1983) found that perceived peer drug use was not only more strongly correlated with reported use than were other variables, but also that the peer behaviour remained significantly associated with drug use after other factors were controlled.

Perceived Parental and Peer Disapproval

The students also were asked to indicate the extent to which their mother, father, best friend and other friends would disapprove if they were to use drugs. The mean rankings of the students on these items are shown in Table 6.10. In each case there was a significant difference among the current drug use categories. These effects tended to be fairly small for mother's and father's disapproval, but are somewhat larger in the case of perceptions of best friend's and other friends' disapproval.

Table 6.10: *Mean Ranking of Drug Users and Non-Drug Users on Perceived Parental and Peer Disapproval of Drug Use*

Normative Influence	*Drug-Use Category*			*H*	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Mother's disapproval	1,343.65	1,490.69	1,580.73	133.19***	.04
Father's disapproval	1,317.50	1,497.12	1,562.17	150.64***	.06
Best friend's disapproval	1,256.08	1,927.49	2,176.24	416.91***	.15
Other friends' disapproval	1,268.58	1,907.73	2,055.07	300.71***	.11

Note: Higher mean ranking indicates a lower level of disapproval.
*$p < .05$
**$p < .01$
***$p < .001$

Consistent with these results, the available research indicates that there is a moderately strong relationship between perceived peer approval of drug use and adolescent drug use. Thus, reports of positive or negative reactions by friends to marijuana has been shown to correlate with the use of this drug by young people (e.g., Akers, *et al.*, 1979). Similarly, it has also been shown to be important in the use of other drugs as well (Brook, *et al.*, 1983). However, while parental disapproval relates to drug use, the relationship is usually less strong than for peer disapproval. Thus, parents who have relatively permissive attitudes about drug use are only somewhat more likely to have

children who are drug users (e.g., McDermott, 1984). Interestingly, in at least one study (Akers, *et al.*, 1979), a curvilinear relationship between adolescent marijuana use and level of parental approval was found with extremes of approval or disapproval being associated with this behaviour.

Expectancy-Value Beliefs

Table 6.11 shows the mean rankings of the students on the likelihood they attached to each of 7 personal consequences of drug use. It can be seen in this table, drug use behaviour was significantly related to the likelihood associated with each of the consequences. As expected, regular drug users, compared with non-users, judged that negative consequences were less likely to occur to them and that positive consequences were more likely to occur as a result of using drugs. For example, regular users considered it to be less likely that their health would be harmed or that they would become an addict. Conversely, they thought drug use was more likely to make them feel good or be exciting than did non-users. In general, occasional users were intermediate.

Table 6.11: *Mean Ranking of Drug Users and Non-Drug Users on Perceived Likelihood of Consequences of Drug Use*

Consequence	*Drug-Use Category*			H	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Harm health	1,307.50	1,678.11	1,863.27	294.32***	.10
Make me feel good	1,471.55	885.07	644.63	303.85***	.10
Be exciting	1,443.99	1,010.59	795.70	180.40***	.07
Get into trouble	1,333.52	1,566.79	1,615.20	42.77***	.02
Cause me to forget problems	1,434.56	1,070.06	895.47	126.77***	.05
Become an addict	1,296.62	1,754.50	1,891.45	177.66***	.06
Get a bad name	1,292.82	1,785.69	1,905.03	202.62***	.07

Note: Higher mean ranking indicates lower perceived likelihood. Test statistic is Kruskal-Wallis H corrected for ties.

*$p < .05$
**$p < .01$
***$p < .001$

Respondents were also asked to evaluate the importance of five of the consequences, and the mean rankings of the students on these evaluations are shown in Table 6.12. From this table it can be seen regular users valued the negative consequences significantly less and the positive consequences

significantly more than did non-users, with occasional users again being intermediate.

While the literature on beliefs about consequences of drugs is not very extensive, the available findings are similar to those emerging here. Thus, marijuana use among adolescents in the United States has been found to be associated with a denial of injurious effects (e.g., Akers, *et al.*, 1979). Similarly, solvent users in Belfast have been found to be more likely to deny that brain damage would occur as a result of this behaviour (Lockhart and Lennox, 1983).

Table 6.12: *Mean Ranking of Drug Users and Non-Drug Users on Evaluation of Consequences of Drug Use*

Consequence	*Drug-Use Category*			*H*	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Harm health	1,427.21	1,070.63	992.32	135.41***	.04
Feeling good	1,411.68	1,264.72	1,007.97	64.76***	.02
Doing something exciting	1,414.52	1,181.67	1,035.66	62.79***	.02
Getting into trouble	1,421.16	1,079.86	1,029.25	131.66***	.05
Causing me to forget problems	1,431.73	1,131.32	870.41	129.27***	.05

Note: A higher mean ranking indicates more negative evaluation. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

Attitude

Attitude towards drug use was ascertained by asking the students to indicate how pleasant they thought it would be and how much they would like it. From Table 6.13 it can be seen that more positive attitudes to drugs are relatively strongly associated with reported drug use. As expected, drug users were more favourable in their attitude than were non-users. This pattern is consistent both with previous findings (e.g., Akers, *et al.*, 1979; Lanza-Kaduce, *et al.*, 1984) and with expectations based on our model.

Table 6.13: *Mean Ranking of Drug Users and Non-Drug Users on Attitude to Drug Use*

Attitude Item	*Drug-Use Category*			*H*	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Pleasant/Unpleasant	1,487.41	808.57	573.20	430.12***	.14
Like/Dislike	1,499.31	770.48	486.54	642.50***	.23

Note: A lower mean ranking indicates a more favourable attitude. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

Social Bonding

Table 6.14 shows the mean rankings of the students in three current drug use groups on each of the social bonding items. It can be seen that statistically significant effects were obtained for each of the items concerning bonding to school, religion and parents. Specifically, closer bonding to these three institutions was related to less frequent drug use. In contrast, the association between bonding to peers and drug use behaviour was not statistically significant for any of the relevant items. The pattern of findings for school, religion and parents is congruent with social control theory, with our model of adolescent substance use and also with the previous results for smoking and drinking. These findings suggest that young people, to some extent, are inhibited from engaging in deviant behaviours such as drug use through commitment to, attachment to, and involvement with conventional social institutions. However, the relationships between these factors and adolescent drug use appear to be relatively small.

In general, previous research is consistent with the results presented here indicating that drug users (especially regular users) are less likely to be bonded to school. Thus, the high school senior studies (Bachman, *et al.*, 1981) examined the association between bonding to school and marijuana use and found very consistent negative relationships. Interestingly, truancy from school was one of the best predictors of regular marijuana use in these studies. Other research utilising different measures of bonding to school have come to similar conclusions (e.g., Ensminger, *et al.*, 1982; Brook, *et al.*, 1983). In a recent review (Kandel, 1980), it was concluded that whether school bonding is measured by self-rated achievement, actual achievement, or by commitment to school the relationship with illegal drug use is consistently negative.

Table 6.14: *Mean Ranking of Drug Users and Non-Drug Users on Social Bonding Items*

Social Bonding Factor	*Drug-Use Category*			*H*	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Self-rated school achievement	1,455.88	1,259.02	1,150.93	30.68***	.01
Importance of school achievement	1,470.32	1,103.26	1,035.66	86.29***	.03
Relationship with mother	1,457.36	1,062.83	1,166.38	65.58***	.02
Importance of mother relationship	1,450.26	1,208.17	1,130.78	49.28***	.02
Relationship with father	1,429.20	1,073.94	1,045.53	70.49***	.03
Importance of father relationship	1,419.36	1,187.56	1,100.26	45.27***	.02
Relationship with best friend	1,421.19	1,451.61	1,493.47	2.15	<.01
Importance of relationship with best friend	1,425.54	1,441.32	1,398.52	0.27	<.01
Relationship with other friends	1,419.50	1,514.25	1,499.09	3.77	<.01
Importance of relationship with other friends	1,426.10	1,549.03	1,341.03	5.04	<.01
Frequency of prayer	1,465.88	1,107.67	1,021.54	69.58***	.02
Importance of religion	1,472.45	1,090.97	992.84	83.33***	.03

Note: A higher mean ranking indicates closer social bonding. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

Evidence obtained in a number of cultural settings is also consistent with the findings reported here regarding the role of religious bonding in inhibiting drug use. Thus, adolescents in France who were more closely bonded to reigious institutions (defined as attending services more often than once a month) had only about one-quarter the overall lifetime rate of illicit drug use of those less closely bonded (Kandel, *et al.*, 1981). Furthermore, in the case of marijuana, they had only one-twelfth the use of the non-religious groups. Although not as dramatic, similar findings were reported for Israel in this same study.

The associations between religiosity, church attendance and marijuana use also have been studied among adolescents in the United States (Jessor, *et al.*, 1980). For both measures of bonding, the correlations with drug use were

positive and significant, with a slightly higher relationship with the religiosity measure. In the high school senior studies (Bachman, *et al.*, 1981) bonding to religion was measured by self-rated importance of religion and frequency of attendances at services. It was found that the mean of these items was among the strongest correlates of marijuana and other drug use. As might be expected, those most involved with religion were least likely to be drug users. Drug use patterns also were investigated in relation to specific religious or denominational preferences. Although some differences were found, the overall measure of religious bonding showed a consistently stronger relationship.

Finally, it would seem that the research that has examined this question also indicates that regular drug users are less closely bonded to parents than are non-users. A recent study (Stern, Northman and Slyck, 1984) examined the relationship between problem behaviours (including drug use) and parental factors. As expected, an association was found between these behaviours and poor relationships with parents, particularly with fathers. In particular, the adolescents who had problems were less likely to discuss them with their fathers and more likely to turn to the peer group for support. Other research (e.g., Norem-Hebeisen, *et al.*, 1984) suggests that the quality of an adolescent's relationship with his or her parents was critical in the continuance of drug use. Specifically, drug use was associated with high parental control, strong parental disapproval of misbehaviour, and little positive expression of affection. These recent results are consistent with earlier findings (Jessor and Jessor, 1977; Brook, Lukoff and Whiteman, 1980) showing that lack of maternal closeness and involvement in activities with their children and low parental educational aspirations for their children were all associated with more frequent drug use by adolescents.

Personality and Values

Tolerance of Deviance

As with smoking and drinking, more frequent current drug use was moderately associated with greater involvement in other deviant or problem behaviours (Table 6.15). Furthermore, the trend across the drug use categories is quite consistent with regular drug users being most likely to report each behaviour, non-users being least likely to do so, and occasional users being intermediate.

Several studies provide support for the hypothesis that drug use and involvement in other deviant behaviours are related. Thus, in a Northern Ireland study (Lockhart and Lennox, 1983), glue-sniffing was found to be part of a delinquent syndrome and not a discrete activity. Similarly, other research (Brook, *et al.*, 1983) suggests that self-reported deviance is higher among

marijuana users than among non-users and, furthermore, still higher among users of other illicit drugs. Interestingly, there is some evidence that other delinquent behaviours may commonly precede drug use by adolescents rather than emerging contemporaneously (O'Donnell, 1976).

Table 6.15: *Mean Ranking of Drug Users and Non-Drug Users on Frequency of Deviant Behaviours*

Behaviour	*Drug-Use Category*			*H*	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Sworn or cursed	1,315.74	1,615.96	1,804.46	108.03***	.04
Lied to teacher	1,300.05	1,766.32	1,897.00	168.84***	.06
Lied to parents	1,294.89	1,787.67	1,864.76	166.45***	.06
Damaged property	1,303.06	1,733.16	1,860.01	178.06***	.07
Stolen things	1,317.34	1,662.00	1,772.82	102.73***	.04

Note: A higher mean ranking indicates a greater frequency of problem behaviours. Test Statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

Value for Independence

The mean ranking of each drug use group on the importance of the three independence behaviours is displayed in Table 6.16. From this table it can be seen that the relationship is statistically significant, but extremely small for one behaviour, and fails to reach significance for the other two behaviours. Thus, the present work does not provide strong support for the posited association between value for independence and drug use.

In contrast to the present findings, the available literature indicates that drug use is associated with a value for independence, but possibly only when independence is measured in a way that involves rebelliousness or rejection of social conventions. Thus, attitudes reflecting lower conformity (cf. Kandel, 1980) and lack of interest in the goals of conventional institutions (Jessor, *et al.*, 1980) have been associated with adolescent drug use. As previously suggested, the present measures of independence may not relate to substance use because they are relatively pro-social and do not involve rejection of conventional norms.

Table 6.16: *Mean Ranking of Drug Users and Non-Drug Users on Independence Behaviours*

Behaviour	*Drug-Use Category*			*H*	η^2_H
	Non-User	*Occasional User*	*Regular User*		
Doing things my own way	1,397.78	1,310.56	1,135.87	26.31***	.01
Saying what I think	1,376.30	1,362.61	1,327.73	.93	<.01
Doing a job without help	1,364.64	1,453.21	1,379.27	1.88	<.01

Note: Lower mean ranking indicates greater perceived value. Test statistic is Kruskal-Wallis *H* corrected for ties.
*$p < .05$
**$p < .01$
***$p < .001$

Summary

Just over one-fifth of the students reported having tried drugs at some point in their lives and about 13 per cent reported having done so within the previous month. The most popular substances were glue or other solvents and cannabis or marijuana. Although cross-national comparisons are difficult, the overall rate of drug use appears to be considerably lower in the Dublin sample than in samples drawn from the United States or France and somewhat higher than in samples from Scotland, England or Israel. In terms of specific substances, the use of solvents appears to be relatively more frequent among Dublin adolescents than among adolescents from other countries and the use of other drugs is less frequent. However, variations in sampling, methodology and question wording limit the extent to which the available statistics are strictly comparable. These comparisons, therefore, should be treated with some caution rather than taken as firm indicators of cross-national differences in drug use prevalence.

Of the various background characteristics that were examined, the greatest differences in drug use emerged in relation to age and gender. Both lifetime and current drug use increased up to about 16 years of age and then remained relatively stable thereafter. In terms of gender differences, boys used drugs more frequently than girls did at every age. However, there was a tendency for the percentage of boys and girls who used drugs regularly to converge among the older adolescents. Neither father's occupation nor mother's employment status were related to adolescent drug use. However, there was a greater likelihood for students who received more weekly pocket money

to be current drug users. Drug use was negatively associated with level of perceived parental disapproval of this behaviour. However, this relationship was only a moderate one. The association between the students' own drug use and perceived disapproval by peers was somewhat stronger and that between own drug use and perceived peer drug use was stronger yet. In both cases, those students who used drugs perceived more peer support for this behaviour. Drug users, compared with those who did not, also believed that the negative personal consequences were less likely. Furthermore, they valued the positive consequences more highly and the negative consequences less highly. Drug users also expressed more favourable attitudes towards this behaviour.

Current drug use was associated with lower levels of bonding to school, religion, and parents. However, drug users did not differ significantly from non-users in perceived closeness or importance of the peer group. Finally, drug users also admitted having been involved in other problem behaviours to a greater extent than did non-users. However, no systematic difference emerged in relation to the value placed on independence.

Chapter 7

PREDICTING SUBSTANCE USE BEHAVIOURS, INTENTIONS AND ATTITUDES

In the previous chapters we have presented data concerning the prevalence of smoking, drinking and other drug use among Dublin post-primary students and also some univariate analyses of the variables we expected to relate to these behaviours. In this chapter we will present the primary analyses of this report. Initially, we will address the convergent and discriminant validity of our measures and will determine the extent to which they conform to the latent or hypothetical constructs described in Chapter 2. Then, we will investigate the degree to which adolescent substance use behaviours, intentions and attitudes can be predicted from these variables and will consider which of them are most important in this regard.

Measures of Beliefs, Attitudes and Values

The analyses thus far have considered only the individual questions from the survey in comparing those young people who reported that they smoked, drank or used other drugs with those who did not. However, these individual measures were intended to reflect more general underlying latent or hypothetical constructs considered to be important in adolescent substance use. To what extent did the measures conform to our expectations concerning belief systems? To answer this question and to reduce our variables to a manageable number, a series of Principal Components factor analyses using Harris-Kaiser ortho-oblique rotations (power = 0) were conducted (Harris and Kaiser, 1964). Separate analyses were carried out for the items relating to each type of substance use: smoking, drinking and drug use. Furthermore, within each substance use type, these analyses were conducted on subsets of items according to their theoretical immediacy in our model and their hypothesised causal relationships. Thus, the measures of normative beliefs and attitudes were considered separately from the measures of expectancy-value beliefs. Similarly, separate factor analyses were conducted for the social bonding measures and the measures of tolerance of deviance and value for independence.

Although we relied upon exploratory factor analyses, we did have specific hypotheses about the structure of the latent constructs underlying our measures based on previous research and on the model presented in Chapter 2. The decision as to the number of factors to extract in a given analysis was guided largely by these theoretical considerations. However, different solutions were tried in each case. Although the primary criterion for selecting a solution as optimal was consistency and interpretability of the results, we did examine the scree plots and other indicators of fit such as the reproduced correlation matrices. In general, these procedures confirmed our subjective judgements, although in some cases more factors were retained than would have been indicated by the eigenvalues alone.

It was expected that the normative belief and attitude measures would reflect five conceptually distinct dimensions for each substance use behaviour: (i) perceived parental disapproval of the behaviour, (ii) perceived peer disapproval, (iii) perceived parental substance use, (iv) perceived peer substance use, and (v) overall evaluation of, or attitude towards, the behaviour. In the cases of the expectancy-value measures, we expected four belief dimensions: (i) perceived likelihood of positive consequences of the behaviour, (ii) perceived likelihood of negative consequences, (iii) evaluation of the positive consequences, and (iv) evaluation of the negative consequences. We also hypothesised that four dimensions would underlie the social bonding measures: (i) bonding to parents, (ii) bonding to peers, (iii) bonding to religion, and (iv) bonding to school. Finally, two factors were expected among the personality and value measures: (i) tolerance of deviance, and (ii) value for independence.

The outcome of these factor analyses together with a discussion of their interpretation is found in Appendix B. Furthermore, the factor pattern matrices and other relevant details are shown in the tables in this Appendix.

The results from the factor analyses indicate that the measures showed good convergent and discriminant validity. In all cases the anticipated number of factors were obtained corresponding to the relevant dimensions of belief and personality described in Chapter 2. Moreover, for the most part, each of the items loaded significantly on a single factor, as expected. Loadings on other, inappropriate, factors tended to be negligible.

Predicting Adolescent Smoking Behaviour and Beliefs

In the following sections of this chapter we are concerned with predicting adolescent substance use behaviours, intentions and attitudes using the theoretical model described in Chapter 2. To this end, we conducted a series of hierarchical regression analyses in which the predictor variables were

entered in blocks according to their theoretical immediacy. That is, the theoretically most immediate determinants of a given dependent variable were entered first, followed by the next most immediate, and finally the most distal. For each step the increase in explained variance (ΔR^2) was examined for statistical and substantive significance. A "final" model was selected on the basis of parsimony; that is, when the addition of more distal variables did not improve the prediction. To ascertain the relative contributions of the variables, the regression coefficients from the final model were examined.

For the purpose of these analyses, regression factor scores were calculated for each of the belief and personality dimensions identified previously. For the other variables in the models, single items or summated scales were used. In addition, separate analyses were conducted for boys and girls because of the possibility that different processes may underlie substance use behaviours and beliefs for the two sexes (cf. Grube, *et al.*, 1984; Ensminger, *et al.*, 1982).

Smoking Behaviour

The number of cigarettes the students reported smoking the previous month at phase II was predicted from the relevant phase I variables. In all, four prediction models were considered. In the first model, the theoretically most immediate determinant of this behaviour, smoking intention, was entered. In the second model, the next most immediate determinants of smoking, overall attitude towards the behaviour and normative beliefs, were added to the equation. Amount of pocket money was considered to be a surrogate measure of availability and was entered at this step also. For the third model, the social bonding measures were added to the equation and, finally, on the last step the background variables, age and father's occupation, were entered.

The number of cigarettes smoked at phase II was predicted very well from intentions measured one month previously at phase I ($R^2 = .69$ for both sexes). The addition of attitude towards smoking, normative beliefs and availability (pocket money) led to a statistically significant ($p < .01$), but substantively small increase in the prediction of smoking behaviour for boys ($\Delta R^2 = .01$) and a somewhat larger increase for girls ($\Delta R^2 = .03$). The addition of more distal variables led to no further improvements. The increase in variance explained was less than 1 per cent in all cases.

Although the improvement brought about by the addition of attitude, normative belief and availability was relatively small, it was considered large enough to justify including these variables in the final model for girls. To allow for comparisons between the sexes, the same model was retained for

the boys as well. Table 7.1 shows the standardised and unstandardised regression coefficients from this model and the associated significance tests. It can be seen that for both boys and girls the major predictor of phase II smoking was behavioural intention measured one month before. As expected, the number of cigarettes smoked increased as intention to smoke increased. Interestingly, however, attitude and perceived peer smoking each had significant effects for both sexes that were not mediated through intention: a more favourable attitude or normative belief was associated with more frequent smoking. These latter effects, however, were quite small, the largest being only about one-sixth as great as that for intention.

Table 7.1: *Regression Coefficients for Prediction of Phase II Smoking Behaviour*

Predictor	b	SE b	β	t
			Boys (*N* = 826)	
Intention phase I	.76	.029	.72	26.07***
Pocket money	.01	.007	.04	1.81
Attitude	.18	.041	.11	4.41***
Peer smoking	.09	.039	.06	2.33*
Parental smoking	.02	.032	.01	.71
Peer disapproval	-.01	.042	-.00	-.19
Parental disapproval	-.20	.033	-.01	-.60
Intercept	.45	.070	—	6.37***
R^2 = .70***				
			Girls (*N* = 895)	
Intention phase I	.72	.028	.68	26.04***
Pocket money	.00	.006	.00	.02
Attitude	.16	.033	.12	4.92***
Peer smoking	.18	.037	.12	4.76***
Parental smoking	.00	.024	.00	.17
Peer disapproval	.05	.027	.04	1.89
Parental disapproval	.02	.030	.01	.58
Intercept	.60	.062	—	9.73***
R^2 = .72***				

Note: The t values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

The fact that attitude and normative beliefs had a small influence on smoking behaviour that was independent of intentions is of considerable interest because the model presented in Chapter 2, and many other contemporary social psychological theories (cf. Ajzen and Fishbein, 1980), assume that the effects of these variables are entirely mediated. Similar direct effects have been described for attitudes and it has been suggested that they may result from the operation of cognitive scripts or related psychological processes (Bagozzi, 1981, 1982). The possibility of direct effects of normative beliefs, however, has not been considered previously. This effect may represent the immediate influence of peers on behaviour. That is, some adolescent smoking may result from situationally specific peer pressures rather than long-term intentions (cf. Friedman, Lichtenstein and Biglan, 1985). It is important to recall, however, that these effects are quite small. From a substantive point of view, the important factor in smoking for both boys and girls appears to be intentions.

Smoking Intentions

It is apparent that to predict smoking among these young people with a relatively high degree of accuracy, all that is necessary is to measure behavioural intentions. However, to understand *why* they smoke or do not smoke, one must consider the beliefs that underlie these intentions. This issue will be addressed next.

Smoking intentions at phase I were predicted using a hierarchical regression approach similar to that used in predicting smoking behaviour. In the first model, the theoretically most immediate variables were entered: attitude towards smoking, normative beliefs and availability (pocket money). In the second model, the multiplicative interactions between attitude and the normative beliefs were added to the prediction equation.[19] Expectancy-value beliefs, social bonding and background characteristics were entered in the next three models, respectively.

The initial model predicted smoking intentions reasonably well ($R^2 = .52$ for boys and .55 for girls). However, the addition of the attitude by normative belief interactions (model 2) led to a significant improvement in the prediction for both boys ($\Delta R^2 = .06$) and girls ($\Delta R^2 = .08$). The further addition of expectancy-value beliefs (model 3) and social bonding variables (model 4) led to statistically significant, but substantively trivial, increases in the pre-

19. Significant mutliplicative interactions sometimes can be obtained erroneously when one or both of the independent variables involved in the interaction have a curvilinear relationship with the dependent variable (Busemeyer and Jones, 1983). Such curvilinear effects were tested for in any analysis which considered interactions. In no case were they found to be substantively significant nor did their inclusion in the models eliminate the interactions.

diction of smoking intentions ($\Delta R^2 < .02$ in all cases). Finally, the effects of background variables did not approach statistical significance.

On the basis of the previous analyses, model 2 was selected as most parsimonious. Table 7.2 shows the standardised and unstandardised regression coefficients from this model. Considering the non-interactive effects first, it can be seen in this table that the two primary predictors of smoking intentions for both sexes were overall attitude towards smoking and perceived peer smoking. Smoking intentions increased as attitude became more favourable and as peers were perceived to smoke more. Of the two, attitude towards smoking appears to be somewhat more important as a predictor of these intentions. To a lesser extent, perceived disapproval on the part of parents also contributed to the prediction. As expected, the less disapproving parents were seen to be towards the student's smoking, the more favourable was the student's intention to smoke. Finally, perceived parental smoking and pocket money were related to intentions among the girls, but not the boys. Smoking intentions tended to be most favourable among those girls who said that their parents smoked more and among those who had more money to spend. Although significant, these latter effects were considerably smaller than those for attitude and perceived peer smoking.

The main effects, however, must be qualified given the significant interactions between attitude and some of the normative beliefs. For both sexes, the largest of these interactions is for attitude and perceived peer smoking. In addition, parental approval was involved in such interactions for both sexes as was perceived parental smoking for girls. An examination of the equations in Table 7.2 indicates that these interactions represent simple contingent consistency effects. That is, smoking intentions were most favourable when there was both a supportive attitude *and* supportive normative beliefs, but were relatively unfavourable otherwise. These findings thus replicate previous research findings with younger students in Ireland (Grube, Morgan and McGree, 1986). At the same time, however, they are somewhat at odds with previous research on smoking among Irish college students in which reactance effects were found (Grube, *et al.*, 1986). In this latter case smoking was most likely in the presence of a supportive attitude and perceived *disapproval* on the part of parents. Taken as a whole, these studies suggest that contingent consistency between own attitude and perceived parental attitude may be necessary for initiation to smoking, but not for the maintenance of smoking (cf. Andrews and Kandel, 1979). Alternatively, the differences among these studies may reflect developmental processes. Specifically, a favourable attitude and parental approval may be necessary for smoking among younger adolescents, but not older ones who are attempting to establish independence from parental authority.

Table 7.2: *Regression Coefficients Predicting Phase I Smoking Intentions*

Predictor	b	SE b	β	*t*
			Boys (*N* = 1,125)	
Pocket money	.01	.007	.04	1.80
Attitude	.59	.040	.38	14.92***
Peer smoking	.41	.036	.27	11.32***
Parental smoking	.03	.032	.02	1.03
Peer disapproval	.01	.048	.00	.14
Parental disapproval	.11	.033	.08	3.38***
Peer smoking x attitude	.33	.034	.23	9.75***
Parental smoking x attitude	.03	.030	.02	.87
Peer disapproval x attitude	.01	.050	.00	.13
Parental disapproval x attitude	.11	.031	.08	3.65***
Intercept	1.52	.053	—	28.80***
R^2 = .58***				
			Girls (*N* = 1,145)	
Pocket money	.02	.006	.07	3.55***
Attitude	.55	.030	.40	18.32***
Peer smoking	.50	.034	.34	14.64***
Parental smoking	.10	.025	.08	4.17***
Peer disapproval	-.03	.031	-.02	-.90
Parental disapproval	.09	.032	.06	2.70***
Peer smoking x attitude	.37	.030	.26	12.16***
Parental smoking x attitude	.06	.026	.04	2.39*
Peer disapproval x attitude	.05	.033	.03	1.36
Parental disapproval x attitude	.07	.029	.05	2.29*
Intercept	1.48	.045	—	32.86**
R^2 = .63**				

Note: The *t* values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

Smoking Attitude

Although it is apparent that attitude is an important predictor of smoking intentions, the precise beliefs that lead to a more or less positive evaluation of this behaviour have not yet been considered. Thus, we attempted to predict attitude towards smoking using three models based on the theoretical framework presented in Chapter 2. In the first model only the expectancy-value beliefs were entered, in the second model the social bonding variables were added to the equation and in the third model age and father's occupation were added.[20] The expectancy-value beliefs were important predictors of attitudes towards smoking (R^2 = .27 for boys and .34 for girls). However, the addition of the social bonding variables led to a significant increase in prediction for both boys (ΔR^2 = .05) and girls (ΔR^2 = .03). The addition of the background variables did not improve the prediction significantly.

Table 7.3 displays the results of the regression equation from model 2. In general, the results are very similar for both sexes. Perceptions of the likelihood that smoking would have positive consequences is the only factor in the equation not showing a significant relationship with attitude. The most important predictors for both sexes appear to be expectations that smoking would have negative personal consequences and evaluation of these negative consequences. Thus, those students who believed that smoking was less likely to harm their health, increase their chances of getting cancer or give their clothes a bad smell, expressed more positive attitudes towards this behaviour. Similarly, those who evaluated these consequences less negatively also had more favourable attitudes. Interestingly, although the students who were more or less positive in attitude did not differ in the extent to which they thought smoking would have positive consequences such as making them more popular or appear more grown up, they did evaluate these consequences differently, although this latter effect was relatively small. Those with a more favourable attitude valued these outcomes more highly than did those with a less favourable attitude. Finally, students who were more favourable towards smoking were more closely bonded to peers and less closely bonded to parents, religion and school. However, with the exception of peer bonding, these effects also were relatively small.

20. It had been hypothesised that expectancy and evaluative beliefs would interact multiplicatively in determining attitude. That is, it was expected that favourable attitude would result when both a high likelihood and a more positive evaluation were associated with the positive consequences of smoking and when a low likelihood and less negative evaluation were associated with the negative consequences. Such interactions are postulated by most theories that include expectancy-value formulations. A set of models was considered in which the interactions between the appropriate expectancy and evaluative beliefs were entered immediately after model 1 for smoking, drinking and other drug use attitudes. However, with one exception, these interactions did not approach significance. Similar findings have been reported previously (Feather, 1982).

Table 7.3: *Regression Coefficients for Prediction of Phase I Smoking Attitude*

Predictor	b	SE b	β	*t*
			Boys (*N* = 1,161)	
Negative consequences (expectancy)	-.28	.026	-.28	-10.56***
Positive consequences (expectancy)	-.02	.026	-.02	-.87
Negative consequences (evaluation)	.26	.029	.25	9.23***
Positive consequences (evaluation)	.08	.027	.08	3.12**
Peer bonding	.08	.025	.09	3.26**
Parental bonding	-.09	.028	-.09	-3.16**
Religious bonding	-.14	.026	-.14	-5.09***
School bonding	-.08	.024	-.09	-3.41***
Intercept	-.04	.026	—	-1.70
R^2 = .32***				
			Girls (*N* = 1,176)	
Negative consequences (expectancy)	-.32	.028	-.32	-11.55***
Positive consequences (expectancy)	-.04	.025	-.04	-1.52
Negative consequences (evaluation)	.26	.031	.23	8.49***
Positive consequences (evaluation)	.15	.025	.15	5.99***
Peer bonding	.12	.027	.11	4.51***
Parental bonding	-.09	.028	-.08	-3.05**
Religious bonding	-.09	.028	-.08	-3.28**
School bonding	-.11	.027	-.10	-4.25***
Intercept	.03	.024	—	1.29
R^2 = .33***				

Note: The *t* values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

Predicting Adolescent Drinking Behaviour and Beliefs

Drinking Behaviour

Summary measures of drinking behaviour were calculated by taking the mean number of times each student reported having drunk beer, wine, cider and spirits during the previous month. Similarly, an index of intention was calculated by taking the mean number of times each student thought he or she would drink each of these beverages during the next month. The internal reliability coefficients for these scales are reported in Chapter 3 and generally appear to be very good.

The first model we considered predicted drinking behaviour at phase II from the measures of drinking intentions. In the remaining models the following variables were added to the equation: pocket money (model 2), social bonding (model 3) and background characteristics (model 4). Because measures of other beliefs related to drinking were not obtained at phase I, they were not included in these analyses and will be considered later. The main purpose of these initial analyses was to determine how well drinking intentions predicted later drinking behaviour and the extent to which more distal variables may have direct effects on this behaviour.

The results indicated that intentions at phase I were moderately related to drinking one month later. The R^2 values were .31 and .40 for boys (N = 898) and girls (N = 979), respectively. These values are considerably smaller than those obtained when predicting smoking. One possible reason for this difference is that intentions may predict established behaviours better than novel or unstable ones (cf. Ajzen and Fishbein, 1980). That is, to the extent that intentions are attributions based on past behaviour, then they may develop only gradually as a result of experience. The prevalence data presented in the previous chapters suggest that drinking is more novel for these young people than is smoking. Moreover, the test-retest reliabilities indicate that it is somewhat less stable. It also is likely that the availability of alcohol is less certain for many adolescents than is the availability of cigarettes. As a result, even though a particular student might plan on drinking a given number of times, this intention may not be fulfilled because alcohol is unobtainable on one or more occasions.

The addition of pocket money and the social bonding and background variables to the models led to some improvements in prediction, but in general these were substantively meaningless, accounting for an increase in explained variance of less than 2 per cent in all cases. Thus, it appears that intentions are a primary determinant of adolescent drinking behaviour and that these more distal variables are largely mediated through them. The extent to which other variables, such as attitude or normative beliefs may have direct influences on drinking behaviours, of course, cannot be determined from the available data because measures of them were not obtained at phase I.

Drinking Intentions

In order to better understand the beliefs that underlie adolescent drinking, drinking intentions at phase II were predicted from the theoretically relevant variables also measured at that phase. As in the previous analyses, a hierarchical regression approach was used in which the theoretically more immediate variables were entered first and then the more distal variables.

Model 1 consisted of the measures of attitude and normative beliefs. In model 2, the interactions between attitude and the normative beliefs were added to the equation. In the third model the expectancy-value beliefs were entered and in the fourth model tolerance of deviance and value for independence were added to the equation. In the final model the background variables were added.[21] Model 1 predicted drinking intentions moderately well, accounting for about 40 per cent of the variance for both boys and girls. Adding the interaction terms further increased the prediction by about 4 per cent for boys and 7 per cent for girls. However, the addition of other more distal variables to the equations did not lead to substantive improvements in the predictions for either sex ($\Delta R^2 < .02$ in all cases).

The regression equations from model 2 are shown in Table 7.4. In terms of main effects, the major predictors of drinking intentions for both sexes were attitude and perceived peer drinking. These two variables contributed nearly equally to the prediction of these intentions. As expected, a more favourable attitude was associated with more favourable drinking intentions. Also, as expected, the more peers were perceived to drink, the more favourable the drinking intentions. Other normative beliefs did not have statistically significant main effects. Thus, perceived disapproval of others and perceived parental drinking, when considered alone, were unrelated to drinking intentions in these analyses.

The main effects, however, are again qualified by the significant interaction terms. Specifically, for both boys and girls there was a reasonably large contingent consistency interaction between attitude and perceived peer drinking. That is, drinking intentions were most favourable when attitude was relatively favourable and peers were seen to drink relatively frequently. These intentions were relatively unfavourable otherwise. Similar, but smaller, contingent consistency interactions can be seen among the girls for attitude by perceived parental disapproval and attitude by peer disapproval of drinking.

Drinking Attitude

Drinking attitude at phase II was predicted from a series of models using the relevant phase II variables. Model 1 consisted only of the expectancy-value belief measures. In model 2 tolerance of deviance and value for independence were added to the equation and in model 3 the background characteristics were added. Expectancy-value beliefs predicted drinking attitudes reasonably well, accounting for about 44 per cent of the variance among both boys and girls. The addition of tolerance of deviance and value

21. The inclusion of potentially relevant phase I variables (pocket money, social bonding) did not improve the prediction of either drinking or drug use intentions. Thus, only the analyses for the phase II data are presented in this report.

Table 7.4: *Regression Coefficients Predicting Phase II Drinking Intentions*

Predictor	b	SE b	β	*t*
			Boys (*N* = 1,139)	
Attitude	.29	.029	.29	9.78***
Peer drinking	.24	.028	.28	8.74***
Parental drinking	.02	.021	.02	.71
Peer disapproval	-.01	.036	-.01	-.23
Parental disapproval	.04	.026	.05	1.49
Peer drinking x attitude	.22	.027	.24	7.99***
Parental drinking x attitude	.00	.022	.00	.15
Peer disapproval x attitude	.03	.033	.02	.78
Parental disapproval x attitude	.00	.026	.00	.11
Intercept	.35	.027	—	12.92***
R^2 = .45***				
			Girls (*N* = 1,180)	
Attitude	.26	.015	.49	16.61***
Peer drinking	.19	.016	.31	12.10***
Parental drinking	.02	.012	.04	1.77
Peer disapproval	.03	.017	.06	1.79
Parental disapproval	.02	.015	.03	1.26
Peer drinking x attitude	.15	.017	.24	9.25***
Parental drinking x attitude	.02	.012	.03	1.42
Peer disapproval x attitude	.03	.015	.07	2.14*
Parental disapproval x attitude	.03	.016	.05	2.01*
Intercept	.32	.015	—	21.93***
R^2 = .47***				

Note: The *t* values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

for independence led to a statistically significant improvement in the prediction of drinking attitude for girls (ΔR^2 = .03) and a somewhat smaller increase for boys (ΔR^2 = .02). The addition of the background variables did not lead to substantively meaningful increases in prediction for either sex ($\Delta R^2 < .02$).

The regression coefficients from model 2 are shown in Table 7.5. Overall, the major predictors of drinking attitude were the perceived likelihood of negative and positive personal consequences of drinking. Those students who expected that drinking would have effects such as harming their health, getting them into trouble with the police, or making them alcoholic were less

favourable in their attitudes. Conversely, students who indicated that they believed it likely that drinking would help them forget their troubles or be exciting expressed more favourable attitudes. Interestingly, negative expectancies were considerably more important as predictors of drinking attitude than were positive expectancies. Evaluation of the positive and negative consequences of drinking also significantly predicted attitude, although the effects of these evaluative beliefs were considerably smaller than for the expectancy beliefs. As expected, those students with less favourable attitudes evaluated the negative consequences of drinking more negatively and the positive consequences less positively. Finally, tolerance of deviance also had a relatively substantial effect on attitude towards drinking. As expected, those students who indicated that they engaged in other deviant behaviours (i.e., stealing, lying, swearing), expressed more positive attitudes towards drinking.

Table 7.5: *Regression Coefficients for Prediction of Phase II Drinking Attitude*

Predictor	b	SE b	β	t
			Boys	
			(N = 1,148)	
Negative consequences (expectancy)	-.54	.022	-.57	-25.06***
Positive consequences (expectancy)	.19	.020	.21	9.25***
Negative consequences (evaluation)	.06	.021	.06	2.69**
Positive consequences (evaluation)	.05	.022	.05	2.36*
Value for independence	-.02	.020	-.02	-.78
Tolerance of deviance	.13	.021	.15	6.30***
Intercept	.11	.021	—	5.44***
R^2 = .47***				
			Girls	
			(N = 1,185)	
Negative consequences (expectancy)	-.55	.023	-.53	-23.57***
Positive consequences (expectancy)	.14	.023	.14	6.06***
Negative consequences (evaluation)	.07	.029	.05	2.34*
Positive consequences (evaluation)	.08	.022	.08	3.80***
Value for independence	-.02	.021	-.02	-.80
Tolerance of deviance	.21	.028	.18	7.59***
Intercept	-.08	.023	—	-3.50***
R^2 = .47***				

Note: The t values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

Predicting Adolescent Drug Use Behaviour and Beliefs

Drug Use Behaviours

Summary measures of drug use and intention were obtained by calculating the number of the listed drugs which each student indicated he or she had used or planned to use. The internal reliabilities for these scales are very good (Chapter 3).

Initial regression analyses were undertaken to establish the relationship between drug use intentions at phase I and drug use behaviours at phase II, one month later, and to investigate the possibility that other more distal variables may have direct effects on drug use behaviours. The variables were entered in the same order as for predicting drinking behaviours. The results of these analyses indicate that behavioural intentions predicted drug use only moderately well. The R^2 values were .29 for boys (N = 897) and .39 for girls (N = 985). These values are comparable to those obtained for drinking, but again are considerably lower than those for smoking. As previously suggested, possible reasons for this are that the relationship between behavioural intentions and behaviour may be attenuated by the novelty of or instability of the behaviour in question or by fluctuations in availability. In the present case, it is likely that all of these conditions hold to a greater extent for drug use behaviours than for smoking. The addition of other phase I variables to the equation did not lead to substantively significant increases in prediction ($\Delta R^2 < .02$ in all cases).

Drug Use Intentions

Drug use intentions at phase II were predicted using a series of models consisting of the theoretically relevant phase II variables. In the first model, normative beliefs and attitude were entered into the equation. In the second model, the interactions between attitude and the normative beliefs were added and, in the third model, the expectancy-value beliefs were entered. Value for independence and tolerance of deviance, and the background variables were entered in the fourth and fifth models, respectively.

Normative beliefs and attitude predicted drug use intentions moderately well (R^2 = .32 for boys and .45 for girls). However, the addition of the interaction terms led to a small improvement in prediction for boys (ΔR^2 = .02) and a considerably larger improvement for girls (ΔR^2 = .15). The addition of further variables to the equation did not lead to substantive improvements in the prediction for either sex.

Table 7.6 shows the regression coefficients obtained from model 2. Considering the main effects first, it is apparent that the most important predictors of substance use intentions for both boys and girls were attitudes and perceived

peer drug use. As predicted by the theoretical model, those young people with more favourable drug use intentions also expressed more favourable attitudes and believed that their friends used drugs more frequently. These two variables contributed nearly equally to the prediction. There also was a tendency for boys with more favourable intentions to report that they believed their parents were less disapproving of drug use. Similarly, perceived peer disapproval was related to drug use intentions for girls. These latter effects, however, were quite small.

In addition to the significant main effects, certain interactions were obtained also. In all cases these interactions represented simple contingent consistency effects. The largest of these was for attitude and perceptions of peer drug use. Thus, drug use intentions were most favourable among those who expressed both a favourable attitude and who believed that their friends used drugs relatively often. Less favourable intentions resulted when either attitude or normative beliefs were unsupportive of drug use. Similar interactions with attitude were found for perceived peer disapproval for both sexes. In addition, for girls, a relatively sizeable contingent consistency effect was found between attitude and parental disapproval.

Drug Use Attitude

Drug use attitudes at phase II were predicted from expectancy-value beliefs (model 1), tolerance of deviance and value for independence (model 2) and age and father's occupation (model 3). Expectancy-values predicted this attitude moderately well for both boys (R^2 = .40) and girls (R^2 = .32). None of the other blocks of variables led to substantively meaningful increases in the prediction ($\Delta R^2 < .02$ in all cases).

The results from the final regression equation (model 1) are presented in Table 7.7. This table shows that the main predictors of drug use attitude for both boys and girls were expectancy beliefs about the negative and positive personal consequences of the behaviour. Thus, students who reported that they thought it likely that drug use would harm their health, get them into trouble with the police, lead to them becoming an addict, or give them a bad name, also expressed less favourable attitudes. Conversely, those who thought that drug use would be exciting, would help them forget their troubles or would make them feel good, reported more favourable attitudes. Evaluation of these consequences of drug use also had small effects on attitude. As expected, those students who evaluated the positive consequences less positively and negative consequences more negatively expressed less favourable attitudes.

Table 7.6: *Regression Coefficients Predicting Phase II Drug Use Intentions*

Predictor	b	SE b	β	*t*
			Boys (*N* = 1,174)	
Attitude	.18	.034	.17	5.27***
Peer drug use	.24	.045	.23	5.37***
Peer disapproval	.02	.032	.02	.52
Parental disapproval	.08	.033	.07	2.32*
Peer drug use x attitude	.11	.025	.19	4.23***
Peer disapproval x attitude	.08	.029	.09	2.92**
Parental disapproval x attitude	-.03	.019	-.04	-1.32
Intercept	.20	.030	—	6.54***
R^2 = .34***				
			Girls (*N* = 1,219)	
Attitude	.18	.016	.23	11.32***
Peer drug use	.18	.027	.17	6.67***
Peer disapproval	.04	.017	.05	2.12*
Parental disapproval	.04	.021	.04	1.73
Peer drug use x attitude	.23	.016	.39	14.67***
Peer disapproval x attitude	.07	.017	.09	4.16***
Parental disapproval x attitude	.11	.014	.18	7.84***
Intercept	.13	.015	—	8.47***
R^2 = .60***				

Note: The *t* values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

Summary

Substance Use Behaviours

The framework for understanding adolescent substance use presented in Chapter 2 proposes that the most immediate determinants of adolescent smoking, drinking and drug use are behavioural intentions. That is, it is assumed that most adolescent substance use behaviours result from conscious decisions and that the effects of more distal variables are largely mediated through these decisions. The data presented in this chapter support this

Table 7.7: *Regression Coefficients for Prediction of Phase II Drug Use Attitude*

Predictor	b	SE b	β	*t*
			Boys (*N* = 1,177)	
Negative consequences (expectancy)	-.35	.024	-.35	-14.55***
Positive consequences (expectancy)	.41	.025	.39	15.97***
Negative consequences (evaluation)	.13	.025	.12	5.09***
Positive consequences (evaluation)	.06	.027	.05	2.03*
Intercept	.06	.024	—	2.63**
R^2 = .40***				
			Girls (*N* = 1,221)	
Negative consequences (expectancy)	-.31	.025	-.30	-12.12***
Positive consequences (expectancy)	.29	.022	.32	12.91***
Negative consequences (evaluation)	.10	.029	.09	3.54***
Positive consequences (evaluation)	.12	.021	.15	6.05***
Intercept	-.08	.021	—	-3.69***
R^2 = .47***				

Note: The *t* values may not equal precisely b/SE because of rounding.
*$p < .05$
**$p < .01$
***$p < .001$

expectation. The primary predictor of cigarette smoking, drinking and drug use were the students' reports of the extent to which they intended to engage in these behaviours. For boys, the correlations between intentions, measured at phase I, and behaviour, measured one month later at phase II, were .83 for smoking, .57 for drinking and .53 for drug use. For girls, these correlations were .83, .63 and .62, respectively. Other more distal variables in the model generally did not add substantively to the prediction of behaviour, although small direct effects were noted in the case of smoking for attitude and perceived peer smoking.

Interestingly, the correlations between behavioural intentions and behaviour tend to decrease from smoking to drinking and drug use. Several alternative explanations may account for this pattern. First, it has been suggested (Ajzen and Fishbein, 1980) that behavioural intentions best predict behaviour when both they and the behaviour in question are well established and stable. In the present case, it seems likely that adolescent drinking and drug use are more novel and less stable than smoking. Some evidence for this conjecture is provided by the prevalence and test-retest reliability data. Specifically, the

prevalence data show that current drinking and drug use are less frequent than smoking and probably would not represent well established behavioural patterns for many of the students who are involved with these substances. The test-retest reliabilities also suggest that this is the case in that there appears to be more variability over time in drinking and drug use as compared with smoking. Second, however, it also must be kept in mind that the drinking and drug use questions are more sensitive than those relating to smoking because these behaviours generally are more socially disapproved for this age group. Although the survey procedures were designed to minimise the extent to which the students would misrepresent these behaviours, the possibility that some response set bias influenced the results cannot be dismissed entirely.

Substance Use Intentions

In order to understand the processes which underlie substance use behaviours, it is necessary to consider the variables that are related to intentions. Our framework proposes that there are three primary determinants of behavioural intentions: (i) overall evaluation of or attitude towards the behaviour, (ii) normative beliefs, and (iii) availability. In addition, the model proposes that there is an interaction between attitude and normative beliefs in determining intention.

The analyses were very consistent in terms of which of these variables were important predictors of substance use intentions. The major predictors of smoking, drinking and drug use intentions were overall attitudes towards the behaviour and perceived behaviour on the part of peers. Those students who expressed more favourable intentions regarding smoking, drinking or drug use also had more favourable attitudes towards that behaviour and reported that their friends used that substance more frequently. Perceived parental behaviour, parental disapproval and peer disapproval also predicted substance use intentions in some cases, but these effects tended to be less consistent and considerably smaller than those obtained for attitude and peer behaviour. These results thus replicate previous findings and indicate that attitude and peer influences are more directly important in adolescent substance use than are parental influences.

Unexpectedly, no consistent differences emerged in the variables that predicted substance use intentions among boys as opposed to girls. Previous research had suggested that there may be certain differences in this regard (Grube, *et al.*, 1984; Ensminger, *et al.*, 1982). In particular, it has been proposed that girls, compared with boys, may be more influenced by parental factors. In the present study, no such differences were found. Perceived parental disapproval showed small effects in predicting smoking and drug use intentions, but not drinking intentions for both sexes. In addition, perceived

parental smoking was significant in predicting smoking intentions among girls. For these substance use behaviours, those who expressed more favourable intentions indicated that they believed their parents were relatively less disapproving of the behaviour and engaged in it more frequently themselves.

Availability, as measured by amount of weekly pocket money, was considered only in the context of smoking intentions and did not add substantially to the prediction. In part, this lack of significance may be due to the relatively weak nature of the measure rather than a general unimportance of availability as a variable in substance use.

Perhaps the most interesting effects on smoking, drinking and drug use intentions were the interactions between normative beliefs and attitudes. For all three behavioural intentions a relatively large contingent consistency effect was found for attitudes and perceptions of peer behaviour. In each case, intentions were greatest when a student reported both a favourable attitude and that peers smoked, drank or used drugs relatively frequently. In the absence of either a supportive attitude or normative beliefs, intentions were relatively low. Similar contingent consistency effects were found for attitude and the other normative beliefs, although these effects generally tended to be smaller.

Substance Use Attitude

Our model specifies that the most important determinants of attitude towards a behaviour are expectancy-value beliefs. The regression analyses provided reasonably strong support for this aspect of the model. The most consistent predictor of attitude was the likelihood attached to the negative consequences of the target behaviour. For all three substance use domains, the greater the expectation that the behaviour would have negative personal consequences, the more unfavourable the attitude. In the cases of drinking and drug use, substantial effects were also found for expectancies concerning the positive consequences of the behaviours and for smoking such effects were found for evaluation of negative consequences.

In addition to expectancy-value beliefs, certain more distal variables were found to predict attitude also. In the case of smoking, social bonding was found to be related to attitude in a predictable fashion. Specifically, attitude was relatively favourable when bonding to peers was close. Conversely, this attitude was relatively unfavourable when bonding to parents, church or school was relatively close. Although the role of social bonding in drinking and drug use attitudes was not investigated, tolerance of deviance and value for independence were (see footnote 21). A single significant effect was found for tolerance of deviance in predicting drinking attitude. Specifically, those students with more positive attitudes towards drinking also reported that

they more frequently engaged in other deviant behaviours such as stealing or vandalising property. This effect, however, was considerably smaller than those for expectancy-value beliefs.

In general, the data reported here provide good support for the relationships specified in our model of adolescent substance use. These data also suggest that certain types of beliefs, and not others, should be targeted in interventions designed to prevent or delay the onset of smoking, drinking and other drug use among young people. The implications that our findings have for such interventions will be discussed in more detail in the next chapter of this report.

Chapter 8

RECOMMENDATIONS FOR PREVENTION

The present chapter initially discusses the need for school intervention programmes to combat adolescent smoking, drinking and drug use. A second section is concerned with principles on which successful educational intervention programmes may be based and sets these recommendations in the context of recent developments in the Irish educational scene.

The Case for Prevention Programmes

The rates of substance use among young respondents in the present sample point to the necessity to design effective intervention programmes to deter the onset of such behaviours. In the case of cigarettes, over two-thirds of the respondents had smoked at some time in their lives and almost one-quarter were regular smokers. Among Irish adults it has been estimated that in 1980 39 per cent were regular smokers and that 80 per cent of the population has smoked at some stage (O'Connor and Daly, 1985).[22] Taken together, these findings suggest that smoking will continue as a major national health hazard because of the large number of young people who are continuing to take up the habit. They also imply that efforts to deter young people from beginning to smoke have not enjoyed great success.

It is particularly disturbing that the numbers of young people trying out cigarettes seem to have remained stable over the last five years. Furthermore, the comparisons with other countries suggest that the rates among Dublin adolescents are extremely high. For example, in the same year as the present study and with the same set of questions and the same criteria, a US national survey indicated that 18.7 per cent of the 17 year olds were regular smokers, while the corresponding figure for the present study is almost 30.0 per cent.

Another interesting point concerns the disappearance over the years of the gender difference in smoking. Among Irish adults, the males tend to be more likely to smoke and the gender differences are relatively greater among older people (O'Connor and Daly, 1985). Our data show that while boys start

22. There are indications that the rate of regular smoking among adults may have fallen to about 32 per cent in recent years (Joint National Media Survey, 1984).

smoking earlier and while girls' smoking lags behind that of boys for several years, the difference in smoking rates between boys and girls has disappeared by age 17. On this basis, the gender differences among adults in smoking behaviour will be expected to decline over the years.

In the present study the median age of first smoking was 11 years and just over two-thirds of the smokers had their first cigarette between age 10 to 13 years. Furthermore, the year between age 13 and 14 years is particularly important as regards becoming a regular smoker. In other words, a great many young smokers will have tried out smoking during the later years in primary school and become regular smokers during first and second year in post-primary schools.

Almost two-thirds of the students had consumed an alcoholic drink at some time in their lives and nearly half had done so within the previous month. Almost one-third of the sample were regular drinkers. Of those who ever drank, almost 60 per cent had felt drunk at least once and nearly 15 per cent had done so more than six times. In comparison to other countries, it would seem that there is a higher percentage of lifetime abstainers in the present sample – a finding which is consistent with previous findings in Ireland (O'Connor, 1978). However, the level of current regular drinking is between the rates for high-consumption countries like France and those for low-consumption countries like Israel.

As regards age of first drinking, the year between 13 and 14 years turned out to be particularly important. Furthermore, a significant number of the 13 year olds (over one-third of those who drank) reported being drunk at least once. The gender differences across all ages are quite stable, with many more boys being regular drinkers and also being drunk more frequently as well as trying out more kinds of alcoholic beverages.

Just over one-fifth had tried out illicit drugs at some time. The most popular of these drugs were glue or other solvents, and marijuana. About 13 per cent of the students had tried out each of these substances. The other illicit drugs had much lower lifetime prevalence rates. In terms of current usage, 8.4 per cent of the sample were regular drug users. Comparisons with other countries suggest that although the rate of inhalant use (glue) is relatively high, the use of other drugs is low by international standards.

The pattern of usage in relation to age is rather different for solvents and marijuana. While only a small number of 13 year olds have used marijuana, almost one-quarter of the 17 year olds have used this substance. In the case of solvents, however, many more youngsters had experimented, but a fall-off occurred after age 16. Boys outnumbered girls in every aspect of drug usage and there was no evidence of any age-related changes in these gender differences.

An interesting outcome of the present study is that neither father's occupational status nor mother's employment outside the home related to adolescent cigarette smoking, drinking or other drug use. Since this outcome is contrary to popular belief, it is worth noting that the previous literature, both in Ireland and abroad, suggests that socio-economic factors generally are not associated with adolescent substance use in a systematic way. On the other hand, such socio-economic factors may be associated with use of such substance in adulthood. In particular, there seems to be an association of socio-economic factors and the tendency to quit cigarette smoking.

In summary, the case designing for effective intervention programmes rests on the evidence concerning the large numbers of school-going adolescents who have experimented with, and are regular users of cigarettes, alcohol and other drugs. Furthermore, the fact that use of such substances is not associated with socio-economic factors suggests the necessity for such programmes in all schools regardless of the social background of pupils. A further implication is that while experimentation with alcohol and illegal drugs tends to occur during the secondary school years, in the case of cigarette smoking experimentation takes place during the primary school period. Thus, there is a need for programmes in both primary and secondary schools, with those for younger pupils largely focusing on tobacco and alcohol and those for older students focusing on drugs as well.

Effective Intervention Programmes

Preventive interventions may take several forms and may attempt to induce change at any of a number of levels ranging from the individual to the cultural. The present research primarily was concerned with the individual and especially with the personal beliefs and attitudes that are supportive of smoking, drinking or drug use. Thus, the discussion that follows necessarily will focus on educational programmes designed to bring about individual change. However, it is recognised that other types of intervention are possible that might effectively reduce the incidence of adolescent substance use. For example, research from abroad indicates that increasing the price of tobacco and alcohol, increasing the legal age for purchase and possession of these substances, formulating stricter school policies, and enacting stricter enforcement policies may all reduce adolescent smoking, drinking and drug use (e.g., Moskowitz and Jones, 1986; Coate and Grossman, 1985; Grossman, *et al.*, 1984). However, a detailed consideration of such policy changes is inappropriate here and would require further data obtained in the Irish context.

A major objective of this research was to gain a better understanding of the social-psychological processes underlying smoking, drinking and other

drug use among Dublin post-primary school children in order to provide a basis for designing effective educational interventions to reduce, prevent or delay these behaviours. The findings presented in this report are most pertinent to the question of what variables should be included in such programmes. In particular, our data indicate that certain factors are more immediately important than others in adolescent substance use. It seems reasonable to assume that the most effective programmes will be those that target these variables. Our data, however, cannot address the issue of *how* to strengthen those factors that are desirable or bring about change in those that are undesirable. To answer this question we will consider the strategies used previously in successful preventive programmes. In the sections that follow, we will first discuss the general implications of our data for deciding what variables should be targeted in what ways. Then we will consider the specific procedures that might be used to accomplish this.

Target Variables

It is clear from our data that the factor most directly implicated in adolescent substance use is behavioural intention. An obvious starting point, then, is to suggest that efficient preventive interventions will target substance use intentions. We propose that intentions may be influenced in one of two ways. First, an attempt should be made to strengthen the pre-existing resolve on the part of many students not to smoke, drink, or use other drugs. That is, a basic focus of prevention should be on reinforcing the socially desirable intentions already exhibited by a majority of students. Secondly, an attempt should be made to change the intentions of those students who are favourably predisposed towards smoking, drinking and other drug use.

Although it appears that behavioural intentions may be one key to substance use prevention, it is also necessary to consider the beliefs which underlie and support these intentions. The framework presented in Chapter 2 and the analyses in Chapter 7 indicate that the most important factors in this regard are normative beliefs and attitude towards the behaviour. In the case of normative beliefs, it is clear that a major concern in prevention should be perceptions of peer behaviour. Beliefs about how often best friend and other friends smoked, drank and used other drugs were consistently among the strongest predictors of substance use intentions. Clearly, these beliefs should be targeted in preventive efforts. Specifically, an attempt should be made to undermine these beliefs among those who perceive social support for these behaviours and to provide additional social support against smoking, drinking and other drug use. To a lesser extent, parental behaviour and peer and parental disapproval were related to intentions and also would be appropriate foci for preventive programmes. Although attitude was also an important

predictor of intentions, attitude itself is a result of other underlying beliefs. In particular, the analyses suggest that the most important beliefs in this regard are those concerning the likelihood that substance use behaviours will have negative or positive personal consequences. Evaluations of these consequences also were implicated, although not so consistently. Thus, another target of preventive intervention should be expectancy beliefs.

Intervention Strategies

Interest in primary prevention of substance use grew out of the realisation that modifying these behaviours, once they were firmly established among adults, is very difficult (cf. Leventhal and Cleary, 1980; Pechacek, 1979). Unfortunately, initial attempts at prevention of adolescent smoking, drinking and other drug use were relatively unsuccessful, leading to some scepticism about the value of such programmes. More recently, however, a number of interventions have been developed which appear to be reasonably effective in preventing or delaying these behaviours, particularly smoking. Using strategies based on contemporary social-psychological theory, these programmes have shown substantial reductions in substance use by adolescents (see Reid, 1986; Flay, 1985; Schaps, Di Bartolo, Moskowitz, Palley and Churgin, 1981; and DHHS, 1982, pp. 287-302, for recent reviews). Importantly, such reductions have been found to persist for several years beyond the termination of the intervention (e.g., Reid, 1986; Flay, *et al.*, 1985; Luepker, *et al.*, 1983; Telch, *et al.*, 1982; Goodstadt, Sheppard and Chan, 1982; Perry, *et al.*, 1980).

Preventive efforts can be classified according to the strategy they take in attempting to influence young people. In all, at least six such strategies can be identified. (i) knowledge, (ii) persuasion, (iii) inoculation/social skills, (iv) commitment, (v) alternatives and (vi) normative mobilisation. In actual fact, these strategies overlap somewhat and most successful interventions have been multi-component in nature. Moreover, because process evaluation has not been carried out systematically within the context of prevention, it is impossible, with a few exceptions, to determine precisely which of these strategies are more or less effective or why (cf. McCaul and Glasgow, 1985).

Knowledge strategies attempt to prevent adolescent substance use by presenting young people with non-evaluative facts about tobacco, alcohol and other drugs. In general, programmes using this approach have focused on teaching about the physiological, affective and behavioural effects of these substances. The underlying assumption is that accurate knowledge will lead to unfavourable attitudes towards substance use and thus to avoidance of smoking, drinking and other drug use. Unfortunately, the available evidence indicates that knowledge approaches are generally ineffective when used

alone and may, in some cases, actually lead to more favourable attitudes and to increases in substance use (cf. Pickens, 1985; Hansen, 1980; Stuart, 1974).

Persuasion approaches differ from knowledge approaches in that they actively attempt to modify expectancy-value and normative beliefs regarding substance use using established principles of cognitive change. Gaining the attention of young people, increasing comprehension of the persuasive messages, and increasing motivation to accept those messages are central to this approach. Most successful preventive interventions have included a persuasion component. On the assumption that young people are more concerned about the immediate personal effects of substance use than by the long-term health effects, many programmes using this approach have focused on these effects. However, the extent to which it actually is necessary to focus on short-term, as opposed to long-term, personal consequences, is an open question (cf. Johnson, 1982).

One effective persuasive strategy has been to provide students with direct evidence of the physiological consequences of substance use (e.g., Evans, *et al.*, 1978, 1981; Perry, *et al.*, 1980). Thus, for example, a young person attached to a heart monitor might be used to show that smoking a cigarette increases heart rate and blood pressure. Differences in lung capacity between smokers and non-smokers also could be demonstrated. Film or videotape would provide an efficient and economical means of presenting this information. Similar demonstrations might focus on motor or cognitive impairment as a result of alcohol or drug use. It also is possible to provide social feedback concerning the undesirable effects of substance use for family and other interpersonal relationships (e.g., Ellickson, 1984; Goodstadt, *et al.*, 1982). Because popularity with peers is particularly salient among adolescents, social consequences such as having bad breath or bad smells on clothes might be emphasised.

Persuasive interventions based on principles of cognitive consistency also have been implemented (e.g., Rokeach and Grube, 1985). These interventions present students with information revealing inconsistencies among their beliefs or between beliefs and behaviours. Such cognitive consistency approaches, however, have been used only rarely and with limited success.

Inoculation and social-skills strategies are closely related to persuasion approaches. Inoculation approaches begin with the assumption that most adolescents have unfavourable attitudes towards substance use that they have acquired from parents, teachers and other adults. However, because these attitudes may have been accepted unquestioningly, they may not be supported by a structure of well reasoned underlying beliefs. Thus, when assailed by peers or others, the attitude is easily changed.

Inoculation approaches involve having young people elaborate and clarify

for themselves the reasons why they should not smoke, drink or use other drugs. In addition, they are taught to produce specific counter arguments that can be used when confronted with arguments favouring these behaviours. One strategy that has been used in this regard is to ask students to list all of the reasons they can think of as to why people do and do not smoke, drink and use drugs. These lists can then provide the basis for group discussions that help clarify the important reasons for not engaging in these behaviours. In addition, they can help identify areas of misconception. For example, many students may indicate that people smoke because it is relaxing. In fact, smoking has the opposite effect, constricting blood vessels and raising heart rate. Smoking feels relaxing to a confirmed smoker because it eliminates the symptoms of nicotine withdrawal. As previously noted, the use of direct feedback about the physiological effects of smoking can reinforce this fact. Students also will frequently mention peer pressure or being popular as reasons for smoking, drinking and drug use. Those beliefs can be addressed through social-skills strategies.

Social-skills strategies differ from inoculation strategies only in that they focus on social pressures and how to resist them. Adolescents are taught to recognise peer and other social pressures regarding smoking, drinking and drug use and how to resist them. For example, they might be given specific responses to use when they are confronted with such pressures such as offering alternative activities, stating their reasons for refusing ("I'd rather be independent") or giving humorous responses. Role playing and rehearsal are often used with both the inoculation and social skills approaches in order to give young people direct experience at developing counter arguments and at countering social pressures. That is, students might be asked to act out different situations in which they are offered a cigarette, drink or drug and thus be given the opportunity to practise their responses to these situations. This approach to prevention appears promising and the most successful programmes to date have incorporated some aspects of both the inoculation and social-skills strategy (e.g., Flay, *et al.*, 1985; Luepker, *et al.*, 1983; Telch, *et al.*, 1982; McAlister, *et al.*, 1980; Evans, *et al.*, 1978).

Finally, social-skills approaches also can address media pressures to smoke and drink (e.g., Ellickson, 1984; Evans, *et al.*, 1981). The media often present favourable images of smoking and drinking through both advertisements and entertainment. These behaviours are subtly associated with desirable qualities such as being independent, tough or sophisticated and with valued activities such as sports. One strategy that has been used is to teach children to recognise the messages contained in actual advertisements or media portrayals and then have them produce counter-messages (posters or skits) that "tell the truth". Thus, an advertisement linking an alcoholic beverage with marine

leisure activities may be re-written to emphasise the relationship between drinking and water fatalities. Similarly, a movie scene linking a tough, independent character with smoking may be parodied with a counter-message about cancer (e.g., "It's *really* tough to have lung cancer") or about smoking as a form of dependence. Experience suggests that school children enjoy such activities and can be quite creative in developing counter-messages.

The use of commitment is another method for reinforcing or stabilising intentions not to smoke, drink or use other drugs. The assumption of this approach is that individuals are more likely to act upon and less likely to change their behavioural intentions if they have made a public commitment to them. Thus, young people are asked to make a public statement (e.g., in front of peers) that they do not intend to smoke, drink or use other drugs or that they intend to quit if they already do so. They are also encouraged to state the main reasons for these intentions. Commitment procedures have been included in some successful preventive programmes in combination with other strategies. The extent to which commitment contributes to the success of these interventions, however, is unknown.

The alternatives approach attempts to involve students in activities that increase personal growth and self-esteem and develop interests and skills that are incompatible with smoking, drinking and drug use. Such alternative activities might include meditation, sports and interpersonal or service activities such as clubs or community projects. Unfortunately, there has been very little systematic evaluation of this approach. However, in one study it was found that involving students in tutoring or running a small business had no apparent effects on substance use attitudes or behaviours (Malvin, *et al.*, 1985). The value of the alternatives approach has yet to be demonstrated but may be useful in combination with other strategies.

Finally, the fact that a majority of young people do not currently smoke, drink or use drugs suggests that there may be considerable potential normative pressure against these behaviours already existing among adolescents themselves. It may be possible to mobilise such existing normative influences in substance use interventions. In this regard, several programmes have incorporated peer-led discussion groups in conjunction with persuasion or inoculation/social-skills approaches. In at least one case (Luepker, *et al.*, 1983) students in both a peer-led intervention and an adult-led intervention showed initial decreases in smoking. However, these decreases were maintained three years later only among those in the peer-led programme. This finding may be a result of the fact that this strategy, either intentionally or unintentionally, undermines misconceptions about the extent of peer support for substance use behaviours and mobilises naturally occurring normative pressures against these behaviours. Most adolescents, including those in the present study,

greatly overestimate the extent to which their peers smoke, drink or use other drugs. As a result of peer discussions, those who smoke, drink or use drugs may come to realise how little social support there really is for these behaviours. Conversely, those who do not engage in these behaviours may discover greater social support than they had perceived previously. In the course of such group discussions, adolescents may also learn from peers about the negative interpersonal consequences of smoking, drinking and drug use. However, there is the risk with such discussion groups that the wrong message will be delivered.

Other means of mobilising social influences against substance use are possible also. Thus, in one smoking prevention study (Rokeach and Grube, 1985), it was found that a value change treatment was most effective when humorous and non-humorous no-smoking signs, posters, lapel pins, etc., were distributed to and used by the students. These materials were intended to increase the visibility of social controls against smoking and social support for not smoking, thereby reinforcing the primary treatment. This strategy appeared to work, although weakly. More powerful methods of mobilising normative influences should be possible and could be developed in future preventive interventions. For example, objective informative feedback could be provided about the actual and perceived levels of smoking, drinking and drug use by peers (Arkin, *et al.*, 1981). Thus, students might be asked in a short anonymous survey to estimate how many young people in their class at school smoke, drink and use drugs. Actual current prevalence rates could be ascertained from the same survey. Invariably the students will overestimate the prevalence of these behaviours. A comparison of the actual and estimated rates could be made that emphasises this discrepancy and which notes the relative lack of social support for these behaviours. Similar comparisons might be made concerning actual and perceived approval of smoking, drinking and drug use.

In conclusion, the research presented in this report indicates that certain beliefs, specifically behavioural intentions, attitudes, normative beliefs and expectancy-values, should be targeted in interventions designed to reduce, prevent or delay adolescent substance use behaviours. A consideration of the available literature on such interventions indicates that some strategies may be more effective in this regard than others. We suggest that the following components be given serious consideration in such interventions:

1. Persuasive messages focused on the immediate and personalised consequences of smoking, drinking and drug use. Bio-feedback and social feedback may be especially useful.
2. Inoculation procedures that provide students with the opportunity

to articulate their reasons for not smoking, drinking or using drugs.

3. Social-skills training that teaches students to recognise and respond constructively to social pressures to smoke, drink or use other drugs.
4. Public commitment to reinforce or stabilise intentions unfavourable to substance use.
5. Peer leaders, group discussions or other procedures for mobilising existing normative pressures against smoking, drinking and drug use.

We also suggest that preventive programmes probably will be more effective if they are integrated into a school curriculum or into the ongoing activities of youth organisations, rather than given as a one-time intervention. Evidence suggests that the most successful programmes may be those which continue over several years (cf. Connell and Turner, 1985; Schaps, *et al.*, 1981). The available data also indicate that such interventions should be begun, at least for smoking, during the primary school years before substance use behaviours have become established.

Intervention Programmes in the Irish Educational Context

Curricular Innovations

The Government Programme for Action in Education, 1984-1987, stresses the importance of Health Education for the general development of young people at both primary and post-primary levels. It suggests that the Curriculum and Examinations Board in conjunction with the Health Education Bureau would encourage the development of health education as a central feature of the curriculum.

These suggestions are to be welcomed since the available evidence indicates that drug education receives little attention in most schools. A recent survey of primary schools in the Dublin area revealed that 26.1 per cent had formal programmes related to smoking, while the corresponding figures for alcohol and illicit drugs was 28.2 per cent and 15.2 per cent (Broderick, 1985). While many more schools claimed to teach such topics "informally", it was interesting that most of the respondents (principal teachers) felt the need for in-service education to promote health education within their schools, and also that the curriculum on Health Education was unsatisfactory.

We were unable to find any systematic study of Health Education in post-primary schools. It would seem that there is great variation between schools in the extent to which such programmes are provided. Some post-primary schools have programmes related to "life-skills" or "social-skills", which treat a variety of issues including drug education and sex education. There is a need to expand such curricula and increase the number of schools offering them.

There have been some efforts in recent years to provide in-service teacher training in health education and drug education, specifically. For example, the teacher education programme in health education run by the Health Education Bureau features a component of drug education. Furthermore, since 1984, the Health Education Bureau, in conjunction with the Department of Education, have organised a week-long summer course for post-primary teachers.

We recommend a major programme of in-service education to provide specialised teachers in this area. It must be emphasised that the available evidence strongly suggests that the appropriate intervention strategies discussed above are fairly complex and would require training programmes for the teachers in question. Besides having at least one specialist for each school, it is highly desirable that the teachers in general be made more aware of the appropriateness of various programmes. The principals of schools have a critical role to play in this regard since drug education programmes are unlikely to have much success without their goodwill and understanding.

In designing programmes for schools, it would seem that a number of features are of paramount importance. It is vital that "miseducation" be avoided, i.e., that information be truthful and scientifically based rather than dangers be exaggerated excessively. A second important feature is that "mere information" seems of itself not to be effective in deterring young people from drug usage. In fact, as discussed above, mere information about drugs can be counter-productive. A third consideration is that it would be appropriate to match the programme with the age/cognitive and personality development of the pupils. Thus, the kind of programme that might be appropriate for Leaving Certificate students will be different from what might be most effective for first year pupils. Fourth, it is clear from the previous section that the most effective intervention strategies are based on pupil involvement and participation. Thus, it is unlikely that such programmes can be implemented in traditional teacher-centred classes. Finally, it is vital that whatever programmes are implemented be empirically evaluated. These evaluations should include not only outcome measures, but also process measures and, if possible, should address the separate components of the intervention. In this way the evaluation could serve to identify which aspects of a given programme were most effective and thus guide the development of future programmes.

Community Involvement

A relatively recent development in Ireland has been the effort to promote parental awareness of drug problems. In particular, a number of informal community organisations have arisen among parents and neighbourhoods on

a local basis to combat illegal drug use through recognition of signs of use among young people, preventing supply of drugs and intimidating drug dealers. Although some of the activities of these groups cannot be condoned, they may be effective in some regards. In particular, such community groups may have widespread effects because they serve to change or mobilise normative pressures or directly influence policy makers. In the United States, for example, groups such as MADD (Mothers Against Drunk Driving) and SADD (Students Against Driving Drunk) have been credited with changing public perceptions of and attitudes towards drunk drivers. The lobbying efforts of these groups also are partially responsible for the recent enactment of stricter drinking and driving policies in several jurisdictions.

While such developments are praiseworthy, community groups might be more effective if they co-ordinated and carried out their activities in conjunction with school programmes. In other words, it would seem better that parental and teacher efforts should be in harmony rather than being separate prevention attempts by each group. A further point is that a focus exclusively on illicit drugs may be inappropriate in the context of the findings presented above. It is clear that alcohol and tobacco are the substances most frequently used by young people and should be of major concern to parents and educators. Finally, the factors within a family that would promote resistance to the use of drugs probably are those that are consistent with effective parenting in general rather than with drug-prevention in particular. Bonding or closeness to parents may be important in this regard. In other words, it is worth recognising that parental influences are much broader than the specific exhortations or examples that they give in relation to drug use.

Summary

In this chapter the case was made for intervention programmes to prevent drug use among school children. Based on the levels of usage of cigarettes, alcohol and other drugs, it was argued that there was a particular need for school programmes to combat such use. On the basis of the present findings and previous research with educational intervention programmes, it was argued that effective programmes can be designed on the basis of certain principles. In particular, persuasive messages focusing on immediate consequences of drug use, inoculation procedures, social-skills training, public commitment, and use of peer leaders are especially likely to be important components of effective programmes. Finally, these recommendations were discussed in the context of recent developments in primary and post-primary curricula.

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APPENDIX A

A SURVEY OF POST-PRIMARY PUPILS

PLEASE DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE

In this survey we are asking you about cigarettes, alcohol, and other drugs. For our study to be scientifically valid it is very important that you answer all of the questions truthfully. YOUR ANSWERS WILL BE KEPT COMPLETELY CONFIDENTIAL. PLEASE DO NOT PUT YOUR NAME ON THIS SURVEY. We are interested only in group averages and not in any individual's response. Your answers will never be shown to your parents, school authorities, or any other persons.

Phase I - 1 -

Please do not write in this column

CARD 1 COLS.

Q-1. Have you ever smoked a cigarette? (Please circle one number and follow the appropriate instruction). _____ 7

1 YES ——→ PLEASE GO TO QUESTION Q-2

2 NO ——→ IF YOU HAVE NEVER SMOKED A CIGARETTE, PLEASE GO TO QUESTION Q-5

Q-2. How old were you the first time you smoked a cigarette? _____ years old. _____ 8-9

Q-3. Were you alone or with others the first time you smoked a cigarette? (Circle as many as apply)

1	ALONE	_____ 10
2	WITH FRIENDS	_____ 11
3	WITH BROTHERS	_____ 12
4	WITH SISTERS	_____ 13
5	WITH PARENTS	_____ 14
6	WITH OTHER RELATIVES	_____ 15

Q-4. Overall, about how many cigarettes did you smoke each day during the past month? (Please circle one number) _____ 16

1 NONE
2 ONLY SMOKED A FEW, NOT EVERY DAY
3 ABOUT 1-2 A DAY
4 ABOUT 3-5 A DAY
5 ABOUT 6-10 A DAY
6 ABOUT 11-15 A DAY
7 ABOUT 16-20 A DAY
8 MORE THAN 20 A DAY

Q-5. About how many cigarettes do you think you will smoke each day next month? (Please circle one number) _____ 17

1 NONE
2 ONLY A FEW, NOT EVERY DAY
3 ABOUT 1-2 A DAY
4 ABOUT 3-5 A DAY
5 ABOUT 6-10 A DAY
6 ABOUT 11-15 A DAY
7 ABOUT 16-20 A DAY
8 MORE THAN 20 A DAY

Please do not write in this column

CARD 1 COLS.

Q-6. Do you think smoking cigarettes next month would be a pleasant thing for you to do, or an unpleasant thing for you to do? (Please circle one number)

1 VERY PLEASANT
2 PLEASANT
3 I DON'T KNOW
4 UNPLEASANT
5 VERY UNPLEASANT

_____ 18

Q-7. Do you think smoking cigarettes next month would be unenjoyable for you or enjoyable for you? (Please circle one number)

_____ 19

1 VERY UNENJOYABLE
2 UNENJOYABLE
3 I DON'T KNOW
4 ENJOYABLE
5 VERY ENJOYABLE

Q-8. Do you think you would like smoking cigarettes or dislike smoking cigarettes next month? (Please circle one number)

_____ 20

1 LIKE VERY MUCH
2 LIKE A LITTLE
3 I DON'T KNOW
4 DISLIKE A LITTLE
5 DISLIKE VERY MUCH

Q-9. On the average, about how many cigarettes do you think the following people smoke? (Circle one number for each)

	Does not Smoke	Smokes Occasionally, Not Daily	Fewer Than 5 A Day	5-10 A Day	11-20 A Day	21-30 A Day	More than 30 A Day	
a. My Mother (or stepmother)	1	2	3	4	5	6	7	_____ 21
b. My Father (or stepfather)	1	2	3	4	5	6	7	_____ 22
c. My best friend	1	2	3	4	5	6	7	_____ 23
d. Most of my other good friends	1	2	3	4	5	6	7	_____ 24
e. Most young people my age	1	2	3	4	5	6	7	_____ 25

Please do not write in this column

CARD 1 COLS.

Q-10. Of all young people your age in this country, about what percentage do you think smoke at least one cigarette each day?

1 LESS THAN 10 PER CENT
2 BETWEEN 10 AND 20 PER CENT
3 BETWEEN 20 AND 30 PER CENT
4 BETWEEN 30 AND 40 PER CENT
5 BETWEEN 40 AND 50 PER CENT
6 MORE THAN 50 PER CENT

_____ 26

Q-11. To what extent would your parents and friends disapprove <u>if you were to smoke cigarettes</u>? (Circle one number for each)

	Disapprove Extremely	Disapprove Very Much	Disapprove	Disapprove Slightly	Would Not Disapprove	
a. My Mother (or stepmother)	1	2	3	4	5	_____ 27
b. My Father (or stepfather)	1	2	3	4	5	_____ 28
c. My best friend	1	2	3	4	5	_____ 29
d. Most of my other good friends	1	2	3	4	5	_____ 30

Q-12. As regards cigarette smoking only, how important is it to you to have the approval of your parents and friends? (Circle one number for each)

	Not at all Important	Slightly Important	Important	Very Important	Extremely Important	
a. My Mother (or stepmother)	1	2	3	4	5	_____ 31
b. My Father (or stepfather)	1	2	3	4	5	_____ 32
c. My best friend	1	2	3	4	5	_____ 33
d. Most of my other good friends	1	2	3	4	5	_____ 34

Please do not write in this column

CARD 1 COLS.

Q-13. Listed below are some things that might happen if you were to smoke cigarettes next month. Please indicate whether or not you think each actually would happen to you if you smoked cigarettes.

If I smoked cigarettes next month, it would ...

	I Am Certain It Would	I Think It Would	Unsure	I Think It Would Not	I Am Certain It Would Not		
a. harm my health	1	2	3	4	5	_____	35
b. help me look more grown up	1	2	3	4	5	_____	36
c. cost me too much money	1	2	3	4	5	_____	37
d. help me feel more relaxed	1	2	3	4	5	_____	38
e. increase my chances of getting lung cancer	1	2	3	4	5	_____	39
f. make me more popular among my friends ...	1	2	3	4	5	_____	40
g. give me bad breath	1	2	3	4	5	_____	41
h. be a waste of my money	1	2	3	4	5	_____	42
i. shorten my life	1	2	3	4	5	_____	43
j. give me a bad name	1	2	3	4	5	_____	44
k. be immature	1	2	3	4	5	_____	45
l. give my clothes a bad smell	1	2	3	4	5	_____	46

- 5 -

Please do not write in this column

CARD 1 CÔLS.

Q-14. Now, suppose each of these things actually did happen to you. How good or bad would each make you feel?

	Very Good	Good	Unsure	Bad	Very Bad		
a. my health was harmed	1	2	3	4	5	____	47
b. I looked more grown up	1	2	3	4	5	____	48
c. something cost me too much money	1	2	3	4	5	____	49
d. I felt more relaxed	1	2	3	4	5	____	50
e. I increased my chances of lung cancer.....	1	2	3	4	5	____	51
f. I was more popular among my friends	1	2	3	4	5	____	52
g. I had bad breath	1	2	3	4	5	____	53
h. I wasted my money	1	2	3	4	5	____	54
i. I shortened my life	1	2	3	4	5	____	55
j. I had a bad name	1	2	3	4	5	____	56
k. I did something that was immature	1	2	3	4	5	____	57
l. My clothes had a bad smell	1	2	3	4	5	____	58

- 6 -

Please do not write in this column

CARD 1 COLS.

Now, we would like to ask you some questions about alcohol. Please answer them truthfully. Remember, your answers are strictly confidential.

Q-15. Have you ever had a whole drink (more than just a sip or taste) of any alcoholic beverage?

1 YES → PLEASE GO TO QUESTION Q-16 _____ 59

2 NO → IF YOU HAVE NEVER HAD A WHOLE DRINK OF AN ALCOHOLIC BEVERAGE, PLEASE GO TO QUESTION Q-23

Q-16. How old were you the first time you ever had a whole drink (more than just a sip or taste) of an alcoholic beverage? _____ 60-61

_____ years old

Q-17. Were you alone or with others the first time you had a whole drink of an alcoholic beverage? (Circle as many as apply)

1 ALONE _____ 62
2 WITH FRIENDS _____ 63
3 WITH BROTHERS _____ 64
4 WITH SISTERS _____ 65
5 WITH PARENTS _____ 66
6 WITH OTHER RELATIVES _____ 67

Q-18. How often have you ever had enough of any alcoholic beverage to feel drunk ? _____ 68

1 NEVER
2 1-2 TIMES
3 3-4 TIMES
4 5-6 TIMES
5 7-8 TIMES
6 9-10 TIMES
7 MORE THAN 10 TIMES

Q-19. How old were you the first time you ever felt drunk from an alcoholic beverage? _____ 69-70

_____ years old

Please do not write in this column

CARD 1 / COLS.

Q-20. Have you ever had a whole drink of the following alcoholic beverages?

	YES	NO		
a. CIDER	1	2	_____	71
b. BEER (lager, ale, stout)	1	2	_____	72
c. WINE	1	2	_____	73
d. SPIRITS (vodka, whiskey, etc.)	1	2	_____	74

Q-21. On how many occasions during the past month did you drink a whole drink of each of the following alcoholic beverages?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. CIDER	1	2	3	4	5	6	7	_____	75
b. BEER (lager, ale, stout)	1	2	3	4	5	6	7	_____	76
c. WINE	1	2	3	4	5	6	7	_____	77
d. SPIRITS (vodka, whiskey, etc.)	1	2	3	4	5	6	7	_____	78
								BLANK	79
								'1'	80

CARD 2 COLS.

DUP 1-6

Q-22. About how many whole drinks or glasses of each of the following do you usually have on any one occasion?

	None	Less than 1 Drink	About 1 Drink	About 2 Drinks	3-4 Drinks	5-6 Drinks	More than 6 Drinks		
a. CIDER	1	2	3	4	5	6	7	_____	7
b. BEER (lager, ale, stout)	1	2	3	4	5	6	7	_____	8
c. WINE	1	2	3	4	5	6	7	_____	9
d. SPIRITS (vodka, whiskey, etc.)	1	2	3	4	5	6	7	_____	10

Please do not write in this column

CARD 2 COLS.

Q-23. On how many occasions do you think you will have at least one whole drink (more than just a sip or taste) of each of the following alcoholic beverages during the next month?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. CIDER	1	2	3	4	5	6	7	____	11
b. BEER (lager, ale, stout)	1	2	3	4	5	6	7	____	12
c. WINE	1	2	3	4	5	6	7	____	13
d. SPIRITS (vodka, whiskey, etc.)	1	2	3	4	5	6	7	____	14

Next are some questions about drugs. Again, please answer all of the questions truthfully. Your answers will never be shown to your parents, school authorities, or any other person.

Q-24. Have you ever used any of the following to get "high" or to try to get "high"?

	YES	NO		
a. GLUE OR SOLVENTS (Tipp-ex, petrol, lighter fluid, etc.)	1	2	____	15
b. MARIJUANA (pot, hash, grass)	1	2	____	16
c. HEROIN (smack)	1	2	____	17
d. COCAINE	1	2	____	18
e. LSD (acid)	1	2	____	19
f. BARBITURATES (downers)	1	2	____	20
g. SPEED (uppers)	1	2	____	21
h. PSILOCYBIN (magic mushrooms)	1	2	____	22
i. COUGH SYRUP (Benylin, etc.)	1	2	____	23
j. OTHER (Please specify: _____)	1	2	____	24

IF YOU HAVE NEVER USED ANY OF THE DRUGS LISTED ABOVE TO GET "HIGH", PLEASE GO TO QUESTION Q-27

Q-25. How old were you the first time you ever used one of the drugs listed above to get "high"?

_____ years old ____ 25-26

Please do not write in this column

CARD 2 COLS.

Q-26. On how many occasions during the past month did you use each of the following to get "high" or to try to get "high"?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. GLUE OR SOLVENTS (Tipp-ex, petrol, lighter fluid, etc.)	1	2	3	4	5	6	7	_____	27
b. MARIJUANA (pot, hash, grass)	1	2	3	4	5	6	7	_____	28
c. HEROIN (smack)	1	2	3	4	5	6	7	_____	29
d. COCAINE	1	2	3	4	5	6	7	_____	30
e. LSD (acid)	1	2	3	4	5	6	7	_____	31
f. BARBITURATES (downers)	1	2	3	4	5	6	7	_____	32
g. SPEED (uppers)	1	2	3	4	5	6	7	_____	33
h. PSILOCYBIN (magic mushrooms) ...	1	2	3	4	5	6	7	_____	34
i. COUGH SYRUP (Benylin, etc.)	1	2	3	4	5	6	7	_____	35
j. OTHER (please specify: _____)	1	2	3	4	5	6	7	_____	36

Q-27. On how many occasions during the next month do you think you will use each of the following to get "high"?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. GLUE OR SOLVENTS (Tipp-ex, petrol, lighter fluid, etc.)	1	2	3	4	5	6	7	_____	37
b. MARIJUANA (pot, hash, grass)	1	2	3	4	5	6	7	_____	38
c. HEROIN (smack)	1	2	3	4	5	6	7	_____	39
d. COCAINE	1	2	3	4	5	6	7	_____	40
e. LSD (acid)	1	2	3	4	5	6	7	_____	41
f. BARBITURATES (downers)	1	2	3	4	5	6	7	_____	42
g. SPEED (uppers)	1	2	3	4	5	6	7	_____	43
h. PSILOCYBIN (magic mushrooms)	1	2	3	4	5	6	7	_____	44
i. COUGH SYRUP (Benylin, etc.)	1	2	3	4	5	6	7	_____	45
j. OTHER (please specify: _____)	1	2	3	4	5	6	7	_____	46

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Please do not write in this column

CARD 2 COLS.

Finally, we would like to ask you a few questions about yourself for statistical purposes.

Q-28. What is your sex? _____ 47

1 MALE

2 FEMALE

Q-29. What is your birthday?

MONTH _____ _____ 48-49

DATE _____ _____ 50-51

YEAR _____ _____ 52-53

Q-30. How many older brothers do you have? _____ _____ 54

Q-31. How many older sisters do you have? _____ _____ 55

Q-32. What is your father's job? (If he is presently out of work, what does he usually do when he has a job?) _____ 56

_____

_____

What exactly does he do at work? _____

_____

Q-33. Does your mother have a job other than keeping house for your family?

1 YES → Q-33a. What exactly does she do at work? _____ 57

_____

2 NO _____ _____ 58

_____

Q-34. About how much pocket money do you have to spend each week? _____ _____ 59-60

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Please do not write in this column

CARD 2 COLS.

Q-35. In general, how well do you do at school in comparison with other students in your class? _____ 61

1 AMONG THE BEST
2 WELL ABOVE AVERAGE
3 A LITTLE ABOVE AVERAGE
4 ABOUT AVERAGE
5 A LITTLE BELOW AVERAGE
6 WELL BELOW AVERAGE

Q-36. How important or unimportant is it to you to do well in school? _____ 62

1 VERY IMPORTANT
2 IMPORTANT
3 UNSURE
4 UNIMPORTANT
5 VERY UNIMPORTANT

Q-37. How do you usually get along with your parents and friends?

	Very Well	Well	Unsure	Badly	Very Badly	
a. My Mother	1	2	3	4	5	_____ 63
b. My Father	1	2	3	4	5	_____ 64
c. My best friend	1	2	3	4	5	_____ 65
d. Most of my other good friends	1	2	3	4	5	_____ 66

Q-38. How important is it to you to get along with your parents and friends?

	Extremely Important	Very Important	Important	Slightly Important	Not at all Important	
a. My Mother	1	2	3	4	5	_____ 67
b. My Father	1	2	3	4	5	_____ 68
c. My best friend	1	2	3	4	5	_____ 69
d. Most of my other good friends	1	2	3	4	5	_____ 70

Please do not write in this column

CARD 2 COLS.

Q-39. How important is your religion to you in your everyday life? _____ 71

1 VERY IMPORTANT
2 IMPORTANT
3 UNSURE
4 UNIMPORTANT
5 VERY UNIMPORTANT

Q-40. About how often do you pray on your own? _____ 72

1 NOT AT ALL
2 LESS THAN ONCE A WEEK
3 ONCE A WEEK
4 SEVERAL TIMES A WEEK
5 ONCE A DAY
6 MORE THAN ONCE A DAY

Q-41. Have you ever been a Pioneer or taken any other pledge not to drink alcohol? _____ 73

1 YES
2 NO

Q-41. What is the first letter of your mother's Christian (first) name? _____ 74-75

1	A	10	J	19	S
2	B	11	K	20	T
3	C	12	L	21	U
4	D	13	M	22	V
5	E	14	N	23	W
6	F	15	O	24	X
7	G	16	P	25	Y
8	H	17	Q	26	Z
9	I	18	R		

Blank 76-79

'2' 80

THANK YOU VERY MUCH FOR YOUR HELP

Phase II - 1 -

Please do not write in this column

CARD 1 COLS.

Q-1. Overall, about how many cigarettes did you smoke each day during the PAST MONTH? (Please circle one number)

1 NONE
2 ONLY SMOKED A FEW, NOT EVERY DAY
3 ABOUT 1-2 A DAY
4 ABOUT 3-5 A DAY
5 ABOUT 6-10 A DAY
6 ABOUT 11-15 A DAY
7 ABOUT 16-20 A DAY
8 MORE THAN 20 A DAY

_____ 7

Q-2. How likely do you think it is that you will be smoking cigarettes A YEAR FROM NOW? (Please circle one number)

1 VERY LIKELY
2 LIKELY
3 UNSURE
4 UNLIKELY
5 VERY UNLIKELY

_____ 8

Q-3. About how many cigarettes do you think you will be smoking each day A YEAR FROM NOW? (Please circle one number)

1 NONE
2 ONLY A FEW, NOT EVERY DAY
3 ABOUT 1-2 A DAY
4 ABOUT 3-5 A DAY
5 ABOUT 6-10 A DAY
6 ABOUT 11-15 A DAY
7 ABOUT 16-20 A DAY
8 MORE THAN 20 A DAY

_____ 9

Q-4. On how many different occasions during the PAST MONTH did you drink a whole drink (more than a sip or taste) of each of the following alcoholic beverages? (Please circle one number for each beverage).

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times	
a. CIDER	1	2	3	4	5	6	7	_____ 10
b. BEER (lager, ale, stout)	1	2	3	4	5	6	7	_____ 11
c. WINE	1	2	3	4	5	6	7	_____ 12
d. SPIRITS (vodka, whiskey, etc.)	1	2	3	4	5	6	7	_____ 13

Please do not write in this column

CARD 1 COLS.

Q-5. On how many occasions do you think you will have at least one whole drink (more than just a sip or taste) of each of the following alcoholic beverages during the NEXT MONTH? (Please circle one number for each beverage).

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. CIDER	1	2	3	4	5	6	7	____	14
b. BEER (lager, ale, stout)	1	2	3	4	5	6	7	____	15
c. WINE	1	2	3	4	5	6	7	____	16
d. SPIRITS (vodka, whiskey, etc.)	1	2	3	4	5	6	7	____	17

Q-6. How likely do you think it is that you will be drinking each of the following alcoholic beverages A YEAR FROM NOW? (Circle one number for each beverage).

	Very Likely	Likely	Unsure	Unlikely	Very Unlikely		
a. CIDER	1	2	3	4	5	____	18
b. BEER (lager, ale, stout)	1	2	3	4	5	____	19
c. WINE	1	2	3	4	5	____	20
d. SPIRITS (vodka, whiskey, etc.)	1	2	3	4	5	____	21

Q-7. Overall, about how often do you think each of the following people have a whole drink of an alcoholic beverage EACH WEEK? (Please circle one number for each person).

	None (Does Not Drink Alcohol)	Less Than Once a Week	About Once A Week	A Few Times A Week	Every Day		
a. My Mother (or Stepmother)	1	2	3	4	5	____	22
b. My Father (or Stepfather)	1	2	3	4	5	____	23
c. My best friend	1	2	3	4	5	____	24
d. Most of my other good friends	1	2	3	4	5	____	25
e. Most young people my age	1	2	3	4	5	____	26

201

Please do not write in this column

CARD 1 COLS.

Q-8. How much would your parents and friends disapprove <u>if you were to drink alcoholic beverages</u>? (Circle <u>one</u> number for each person).

	Disapprove Extremely	Disapprove Very Much	Disapprove	Disapprove Slightly	Would Not Disapprove		
a. My Mother (or stepmother)	1	2	3	4	5	____	27
b. My Father (or stepfather)	1	2	3	4	5	____	28
c. My best friend	1	2	3	4	5	____	29
d. Most of my other good friends	1	2	3	4	5	____	30

Q-9. Listed below are some things that might happen to you <u>if</u> you drink alcoholic beverages. For each one please indicate whether or not you think it would happen to you if you were to drink alcoholic beverages.

Drinking alcohol would ...

	Yes, I Am Certain It Would	Yes, I Think It Would	Unsure	No, I Think It Would Not	No, I Am Certain It Would Not		
a. harm my health	1	2	3	4	5	____	31
b. make me feel good	1	2	3	4	5	____	32
c. make me feel sick	1	2	3	4	5	____	33
d. help me forget my troubles or problems	1	2	3	4	5	____	34
e. get me into trouble with the police	1	2	3	4	5	____	35
f. be exciting and adventurous	1	2	3	4	5	____	36
g. lead me to become an alcoholic	1	2	3	4	5	____	37
h. make me look tough	1	2	3	4	5	____	38

Please do not write in this column

CARD 1 COLS.

Q-10. Do you think drinking alcoholic beverages would be a pleasant or unpleasant thing for you do do? (Please circle one number).

1 VERY PLEASANT
2 PLEASANT
3 I DON'T KNOW ____ 39
4 UNPLEASANT
5 VERY UNPLEASANT

Q-11. Do you think you would like drinking alcoholic beverages or dislike drinking alcoholic beverages? (Please circle one number).

1 LIKE VERY MUCH
2 LIKE A LITTLE
3 I DON'T KNOW ____ 40
4 DISLIKE A LITTLE
5 DISLIKE VERY MUCH

Q-12. Now, we would like to ask you some questions about drug use.
On how many occasions during the PAST MONTH did you use each of the following "drugs" to get "high" or to try to get "high"?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. GLUE OR SOLVENTS...	1	2	3	4	5	6	7	____	41
b. MARIJUANA (pot, hash, grass)	1	2	3	4	5	6	7	____	42
c. HEROIN (smack)	1	2	3	4	5	6	7	____	43
d. COCAINE	1	2	3	4	5	6	7	____	44
e. LSD (acid)	1	2	3	4	5	6	7	____	45
f. BARBITURATES (downers)	1	2	3	4	5	6	7	____	46
g. SPEED (uppers)	1	2	3	4	5	6	7	____	47
h. PSILOCYBIN (magic mushrooms) ...	1	2	3	4	5	6	7	____	48
i. COUGH SYRUP	1	2	3	4	5	6	7	____	49
j. OTHER (Please specify: _____ _____)...	1	2	3	4	5	6	7	____	50

Please do not write in this column

CARD 1 COLS.

Q-13. On how many occasions during the NEXT MONTH do you think you will use each of the following "drugs" to get "high"?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. GLUE OR SOLVENTS...	1	2	3	4	5	6	7	____	51
b. MARIJUANA (pot, hash, grass)	1	2	3	4	5	6	7	____	52
c. HEROIN (smack)	1	2	3	4	5	6	7	____	53
d. COCAINE	1	2	3	4	5	6	7	____	54
e. LSD (acid)	1	2	3	4	5	6	7	____	55
f. BARBITURATES (downers)	1	2	3	4	5	6	7	____	56
g. SPEED (uppers)	1	2	3	4	5	6	7	____	57
h. PSILOCYBIN (magic mushrooms) ..	1	2	3	4	5	6	7	____	58
i. COUGH SYRUP	1	2	3	4	5	6	7	____	59
j. OTHER (Specify: _____ _____)..	1	2	3	4	5	6	7	____	60

Q-14. How likely do you think it is that you will be using each of the following "drugs" to get "high" A YEAR FROM NOW?

	Very Likely	Likely	Unsure	Unlikely	Very Unlikely		
a. GLUE OR SOLVENTS ...	1	2	3	4	5	____	61
b. MARIJUANA (pot, hash, grass).....	1	2	3	4	5	____	62
c. HEROIN (smack)	1	2	3	4	5	____	63
d. COCAINE	1	2	3	4	5	____	64
e. LSD (acid)	1	2	3	4	5	____	65
f. BARBITURATES (downers)	1	2	3	4	5	____	66
g. SPEED (uppers)	1	2	3	4	5	____	67
h. PSILOCYBIN (magic mushrooms) ...	1	2	3	4	5	____	68
i. COUGH SYRUP.....	1	2	3	4	5	____	69
j. Other (Specify: _____ _____) ...	1	2	3	4	5	____	70

Please do not write in this column

CARD 1 COLS.

Q-15. Overall, about how often do you think each of the following people use drugs to get "high" each month?

	None	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	More than 10 Times		
a. My best friend	1	2	3	4	5	6	7	____	71
b. Most of my other good friends	1	2	3	4	5	6	7	____	72
c. Most young people my age	1	2	3	4	5	6	7	____	73

Q-16. How much would your parents and friends disapprove <u>if you were to use "drugs" to get "high"</u>? (Circle <u>one</u> number for each)

	Disapprove Extremely	Disapprove Very Much	Disapprove	Disapprove Slightly	Would Not Disapprove		
a. My Mother (or stepmother)	1	2	3	4	5	____	74
b. My Father (or stepfather)	1	2	3	4	5	____	75
c. My best friend	1	2	3	4	5	____	76
d. Most of my other good friends	1	2	3	4	5	____	77

Q-17. Do you think using drugs to get "high" would be a pleasant thing for you to do, or an unpleasant thing for you to do?

1 VERY PLEASANT
2 PLEASANT
3 I DON'T KNOW ____ 78
4 UNPLEASANT
5 VERY UNPLEASANT

Q-18. Do you think you would like using drugs to get "high" or dislike using drugs to get "high"?

1 LIKE VERY MUCH
2 LIKE A LITTLE
3 I DON'T KNOW ____ 79
4 DISLIKE A LITTLE
5 DISLIKE VERY MUCH

'3' 80

Please do not write in this column

CARD 2 COLS.

Dup. 1-6

Q-19. Listed below are some things that might happen to you if you use drugs to get "high". For each one please indicate whether or not you think it would happen if you were to use drugs to get "high".

If I were to use drugs to get "high", it would ...

	Yes, I Am Certain It Would	Yes, I Think It Would	Unsure	No, I Think It Would Not	No, I Am Certain It Would Not		
a. harm my health	1	2	3	4	5	____	7
b. make me feel good	1	2	3	4	5	____	8
c. be exciting and adventurous	1	2	3	4	5	____	9
d. get me into trouble with the police	1	2	3	4	5	____	10
e. help me forget my troubles or problems	1	2	3	4	5	____	11
f. lead me to become an addict	1	2	3	4	5	____	12
g. give me a bad name	1	2	3	4	5	____	13

Q-20. Next is a list of things that some young people might do very often and other young people not at all. For each one please indicate whether you have done it never, only once or twice, a few times, fairly often, or very often.

How often have you ...

	Never	Only Once or Twice	A Few Times	Fairly Often	Very Often		
a. sworn or cursed	1	2	3	4	5	____	14
b. lied to a teacher	1	2	3	4	5	____	15
c. lied to your parents	1	2	3	4	5	____	16
d. purposely damaged other people's property	1	2	3	4	5	____	17
e. taken things that do not belong to you	1	2	3	4	5	____	18

Please do not write in this column

CARD 2 COLS.

Q-21. Next are some things that some young people might think are very important and other young people might think are not important at all. How important is each of the following to you?

	Very Important	Important	Slightly Important	Not at all Important		
a. Getting to do things my own way	1	2	3	4	____	19
b. Saying what I think even if other people do not agree with me	1	2	3	4	____	20
c. Getting a job done on my own without help from others	1	2	3	4	____	21

Q-22. Now, suppose you did something that caused each of the things listed below to happen to you. Decide whether you think each would be a good thing or a bad thing. Circle the one number for each that best indicates how good or bad you think it would be.

	Very Good	Good	Unsure	Bad	Very Bad		
a. I did something that harmed my health	1	2	3	4	5	____	22
b. I did something that made me feel good	1	2	3	4	5	____	23
c. I did something that helped me forget my troubles or problems	1	2	3	4	5	____	24
d. I did something that got me into trouble with the police	1	2	3	4	5	____	25
e. I did something that was adventurous or exciting	1	2	3	4	5	____	26

- 9 -

Please do not write in this column

CARD 2 COLS.

Finally, we would like to ask you a few questions about yourself for statistical purposes.

Q-23. What is your sex?

1 MALE

2 FEMALE

____ 27

Q-24. What is your birthday?

MONTH _____ ____ 28-29

DATE _____ ____ 30-31

YEAR _____ ____ 32-33

Q-25. How many older brothers do you have? _____ ____ 34

Q-26. How many older sisters do you have? _____ ____ 35

Q-27. What is your father's job? (If he is deceased or now out of work, what did he do when he had a job?)

_____

_____ ____ 36

What exactly does he do at work? _____

_____

If he is a farmer, about how many acres of land does he have? _____

Q-28. Does your mother have a job other than keeping house for your family?

____ 37

1 YES → Q-28a. What exactly does she do at work? _____

2 NO _____ ____ 38

_____

Q-29. What is the first letter of your mother's Christian (first) name?

1	A	8	H	15	O	22	V
2	B	9	I	16	P	23	W
3	C	10	J	17	Q	24	X
4	D	11	K	18	R	25	Y
5	E	12	L	19	S	26	Z
6	F	13	M	20	T		
7	G	14	N	21	U		

____ 39

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THANK YOU VERY MUCH FOR YOUR HELP

APPENDIX B

FACTOR ANALYSIS OF BELIEFS, ATTITUDES AND VALUES

Smoking Beliefs

Table B.1 displays the factor pattern matrix for the measures of normative beliefs and attitude towards smoking. The entries in this table, or factor loadings, can be interpreted as standardised regression coefficients predicting the observed variables *from* the underlying factors or latent variables. It can be seen in Table B.1 that our hypotheses concerning the structure of normative beliefs and attitude were substantially confirmed. Each of the survey

Table B.1: *Oblique Rotated Factor Pattern for Smoking Attitude and Normative Belief Measures*

Measure	*Factor*				
	I	*II*	*III*	*IV*	*V*
Mother's smoking	*.80*	-.05	-.04	-.01	.08
Father's smoking	*.80*	.05	.05	.08	-.08
Pleasant-unpleasant	-.01	*.89*	-.01	.04	.01
Enjoyable-unenjoyable	.01	*.92*	-.05	-.04	-.02
Like-dislike	.00	*.85*	.06	.00	.02
Best friend's disapproval	.00	.00	*.91*	.00	-.05
Other friends' disapproval	.00	.00	*.84*	.00	.06
Mother's disapproval	.00	.00	.00	*.91*	.03
Father's disapproval	.00	-.01	-.01	*.94*	-.03
Best friend's smoking	.00	.00	.06	.01	*.88*
Other friends' smoking	.00	.00	-.05	-.01	*.95*
Cumulative variance	.36	.49	.60	.70	.78

n = 2,652

items loaded significantly (> .40) on the expected factor and no item loaded on more than one factor.

The first factor shown in Table B.1 relates to the students' beliefs about how many cigarettes their mothers and fathers smoked each day and thus corresponds to perceived smoking by parents. The three items loading on the second factor were those measuring overall evaluation of smoking (e.g., *pleasant-unpleasant*) and the two items loading on the third factor both related to perceptions of the extent to which a student's best friend and other good friends would disapprove if the student were to smoke cigarettes. These factors clearly represent attitude towards smoking and perceived peer disapproval for smoking, respectively. The fourth and fifth factors consisted of the items measuring perceptions of parental disapproval and perceptions of peer smoking, respectively.

The factor pattern matrix for the smoking expectancy-value measures is shown in Table B.2.[23] In this table, the first factor is comprised of the items relating to perceptions of how likely it is that smoking would have certain positive personal consequences such as making one appear grown up or increasing popularity. This factor thus represents positive expectancy beliefs about smoking. Similarly, the fourth factor represents negative expectancy beliefs such as the likelihood that smoking harms health or causes bad breath. The items loading significantly (> .40) on the second factor all relate to evaluation (*very good-very bad*) of the positive personal consequences and those loading on the third factor all relate to evaluation of the negative consequences of smoking. These two factors thus appear to represent evaluative beliefs about the positive and negative consequences of smoking, respectively. Thus, the results from this analysis substantially confirm our expectations concerning the structure of these expectancy-value beliefs and replicate previous research findings (e.g., Grube, *et al.*, 1984; McAlister, *et al.*, 1984).

Drinking Beliefs

The factor loadings for the measures of drinking attitude and normative belief are presented in Table B.3. The same factor pattern was expected to underlie these measures as those for smoking. As can be seen in the table, this hypothesis was confirmed. The first and third factors correspond to the perceptions of the extent to which peers and parents would disapprove if the student were to drink alcoholic beverages. The items loading on the second

23. Three pairs of expectancy-value items were eliminated from this analysis because one or both of them loaded on more than one factor, or else did not load significantly on any factors. These pairs of items were "help me feel relaxed", "give me a bad name", and "make me look immature". Interestingly, the perceived likelihood of getting a bad name loaded on both the positive and negative expectancy factors indicating some ambivalence on the part of the students regarding this consequence of smoking.

Table B.2: *Oblique Rotated Factor Pattern for Smoking Expectancy-Value Belief Measures*

Measure	Factor			
	I	*II*	*III*	*IV*
Look grown up (likelihood)	*.70*	.16	.04	-.06
Be more popular (likelihood)	*.70*	.02	.03	-.07
Look grown up (evaluation)	.09	.81	.00	.00
Be more popular (evaluation)	.02	*.83*	-.02	.04
Harm health (evaluation)	.08	-.10	*.64*	-.06
Cost too much (evaluation)	-.01	.09	*.55*	-.05
Lung cancer (evaluation)	.20	-.18	*.65*	-.03
Bad breath (evaluation)	.02	.03	*.78*	.10
Waste money (evaluation)	-.08	.07	*.73*	.03
Shorten life (evaluation)	.05	-.15	*.70*	-.01
Bad smell on clothes (evaluation)	-.04	.12	*.71*	.10
Harm health (likelihood)	-.26	.07	.14	*.75*
Cost too much (likelihood)	.20	.01	-.09	*.46*
Lung cancer (likelihood)	-.22	.16	.09	*.79*
Bad breath (likelihood)	.24	-.11	-.09	*.60*
Waste money (likelihood)	.27	-.10	-.19	*.51*
Shorten life (likelihood)	.01	-.04	.02	*.74*
Bad smell on clothes (likelihood)	.22	-.18	-.17	*.43*
Cumulative variance	.25	.36	.45	.51

n = 2,798

and fifth factors concerned the perceptions of the frequency of drinking by parents and peers, respectively. The fourth factor consists of two items relating to overall evaluation of their attitude towards drinking.

It was anticipated that the drinking expectancy-value belief and attitude items also would show a structure similar to that obtained for smoking beliefs. Namely, two factors corresponding to beliefs about the likelihood of positive and negative personal consequences of drinking and two factors relating to evaluation of these consequences were hypothesised. As can be seen in Table B.4, this expectation was confirmed.[24] The four factors are, in order, (i) evaluation of negative personal consequences of drinking, (ii) perceived likelihood of negative personal consequences of drinking, (iii) perceived likelihood of positive personal consequences of drinking, and (iv) evaluation of positive personal consequences of drinking.

24. One pair of items ("feel good") was deleted from this analysis because the expectancy belief loaded on more than one factor.

Table B.3: *Oblique Rotated Factor Pattern for Drinking Attitude and Normative Belief Measures*

Measure	Factor				
	I	*II*	*III*	*IV*	*V*
Best friend's disapproval	*.91*	-.01	.01	-.06	.01
Other friends' disapproval	*.99*	.01	.00	.04	-.01
Mother's drinking	-.05	*.86*	.02	-.05	-.01
Father's drinking	.05	*.88*	-.02	.05	.01
Mother's disapproval	.00	.00	*.96*	.00	.00
Father's disapproval	.00	.00	*.96*	.00	.00
Pleasant-unpleasant	.04	.00	-.01	*.97*	.01
Like-dislike	-.06	-.01	.01	*.89*	-.01
Best friend's drinking	-.07	-.01	.00	-.07	*.92*
Other friends' drinking	.07	.01	.00	.07	*.92*
Cumulative variance	.44	.59	.70	.79	.86

n = 2,591

Table B.4: *Oblique Rotated Factor Pattern for Drinking Expectancy-Value Belief Measures*

Measure	Factor			
	I	*II*	*III*	*IV*
Harmed health (evaluation)	*.84*	-.01	-.01	-.03
Trouble with police (evaluation)	*.84*	.02	.00	.03
Harmed health (likelihood)	-.11	*.72*	-.07	-.03
Feel sick (likelihood)	-.09	*.74*	-.05	.02
Trouble with police (likelihood)	.08	*.79*	.10	.02
Become an alcoholic (likelihood)	.08	*.84*	-.03	.01
Forget troubles (likelihood)	-.01	-.06	*.75*	.04
Be exciting (likelihood)	.00	-.09	*.81*	.02
Look tough (likelihood)	.00	.23	*.66*	-.09
Forget troubles (evaluation)	.04	.01	.05	*.85*
Be exciting (evaluation)	-.04	.00	-.04	*.88*
Cumulative variance	.25	.43	.55	.64

n = 2,694

Drug Use Beliefs

The factor pattern matrices for the measures of attitude and normative beliefs relating to drug use are displayed in Table B.5. The results from this analysis are very similar to those obtained for smoking and drinking. Once again, the attitude and normative belief items showed good convergent and discriminant validity and the hypothesised factors were found. However, in this case only three normative belief dimensions obtained because the students were not asked to report on the drug use behaviours of their parents. The factors thus correspond to attitude towards drug use, perceptions of peer disapproval of drug use, perceptions of peer drug use and perceptions of parental disapproval of drug use.

The factor structure for the drug use expectancy-value measures (Table B.6) also was very similar to that found for smoking and drinking and confirmed our expectations. Beliefs about the likelihood of positive and negative consequences of drug use formed separate dimensions as did the evaluations of these consequences.

Social Bonding

The social bonding items were intended to measure attachment to, importance of, or involvement with, four major social institutions or groups: parents, peers, religion and school. It was expected that four dimensions would underlie these items corresponding to each of these institutions or groups. The results of the relevant factor analysis are shown in Table B.7. As can be seen

Table B.5: *Oblique Rotated Factor Pattern for Drug Use Attitude and Normative Belief Measures*

Measure	*Factor*			
	I	*II*	*III*	*IV*
Pleasant-unpleasant	*.96*	.06	.00	.04
Like-dislike	*.82*	-.08	.00	-.06
Best friend's drug use	-.06	*.92*	.04	-.07
Other friends' drug use	.07	*.94*	-.04	.06
Best friend's disapproval	-.01	.01	*.95*	.01
Other friends' disapproval	.01	-.01	*.96*	-.01
Mother's disapproval	-.06	.01	.02	*.91*
Father's disapproval	.05	-.01	-.02	*.99*
Cumulative variance	.45	.64	.76	.87

n = 2,658

Table B.6: *Oblique Rotated Factor Pattern for Drug Use Expectancy-Value Belief Measures*

Measure	Factor			
	I	*II*	*III*	*IV*
Harmed health (likelihood)	*.58*	-.19	-.04	-.01
Trouble with police (likelihood)	*.75*	.11	.08	.03
Become an addict (likelihood)	*.81*	.03	-.02	.00
Get a bad name (likelihood)	*.78*	-.03	-.02	-.02
Harmed health (evaluation)	.01	*.83*	.02	-.03
Trouble with police (evaluation)	.01	*.84*	-.03	.02
Feel good (likelihood)	-.15	-.04	*.83*	.02
Forget troubles (Likelihood)	.13	.03	*.86*	-.02
Be exciting (likelihood)	.01	-.01	*.88*	-.01
Feel good (evaluation)	-.03	-.05	-.07	*.87*
Forget troubles (evaluation)	.02	.07	.07	*.78*
Be exciting (evaluation)	.02	-.02	.01	*.84*
Cumulative variance	.27	.42	.57	.66

n = 2,712

Table B.7: *Oblique Rotated Factor Pattern for Social Bonding Measures*

Measure	Factor			
	I	*II*	*III*	*IV*
Importance of religion	*.88*	.00	.04	-.03
Frequency of prayer	*.90*	.01	-.06	.03
Get along with best friend	-.12	*.69*	-.06	.23
Get along with other friends	-.04	*.74*	-.17	.18
Importance of relationship with best friend	.06	*.79*	.14	-.15
Importance of relationship with other friends	.07	*.81*	.07	-.15
Get along with mother	.01	-.07	*.70*	.13
Get along with father	-.08	-.07	*.75*	.12
Importance of relationship with mother	.05	.08	*.83*	-.11
Importance of relationship with father	-.04	.04	*.89*	-.08
Achievement in school	-.02	-.01	-.07	*.87*
Importance of achievement in school	.16	-.03	.25	*.52*
Cumulative variance	.30	.46	.56	.65

n = 2,725

in this table, our expectations were again confirmed. The two items loading significantly on the first factor relate to the importance of religion and frequency of praying, a measure of involvement with the religious institution. This factor thus appears to reflect religious bonding. The second factor consists of two items relating to commitment to peers ("How important is it to you to get along with your best friend/other friends?") and two items relating to attachment to peers ("How do you usually get along with your best friend/other friends?") and thus represents peer bonding. The third factor consisted of the same four items regarding mother and father and thus reflects parental bonding. Finally, the fourth was comprised of one item relating to involvement or achievement in school ("In general, how well do you do at school in comparison with other students in your class?") and a second item relating to the importance of doing well in school. This factor thus represents bonding to school as a social institution.

Tolerance of Deviance and Value for Independence

The measures of tolerance of deviance consisted of self-reports of the frequency with which the students engaged in a range of behaviours including lying to parents and teachers, stealing, vandalising property and swearing or cursing. These measures were similar to those used previously in research on substance use and deviance (Jessor and Jessor, 1977). The measures of value for independence consisted of three items also derived from this previous research. The students were asked to provide ratings of how important it was to them (i) to say what they thought, even if others disagreed; (ii) to do

Table B.8: *Oblique Rotated Factor Pattern for Tolerance of Deviance and Value for Independence Measures*

Item	*Factor*	
	I	*II*
Sworn or cursed	*.66*	-.05
Lied to teacher	*.81*	-.01
Lied to parents	*.82*	-.01
Vandalised property	*.78*	.03
Stolen	*.78*	.03
Do things my own way	-.13	*.68*
Say what I think	.00	*.75*
Get a job done on my own	.13	*.69*
Cumulative variance	.38	.56

n = 2,729

things their own way; and (iii) to get a job done on their own without help from others. Although the concepts may be related, we expected that the factor analysis of these measures would result in a two-dimension solution, with tolerance of deviance on one factor and value for independence on the other. As can be seen in Table B.8, this expectation was confirmed. The five items from the deviance scale loaded significantly on the first factor and those from the independence value scale loaded on the second factor.

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