DRIFTING INTO SUBSTANCE MISUSE: YOUTH TRANSITIONS AND FAMILY DYNAMICS

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Introduction

Alcohol, tobacco and illicit drug use are firmly established as major problems in Scotland. According to Plant (1992) studies show that more than 90% of Scots drink alcohol at least occasionally and very few teenagers have not tried it. Alcohol misuse is far more extensive than illicit drug use, and it is associated with a range of public order, health and social problems in Scotland. Scotland also has one of the World's highest mortality rates from coronary heart disease – mainly due to our poor diet and smoking – and tobacco is responsible for more health damage than other psychoactive drugs combined.

Levels of opiate and other illicit drug use in Scotland like elsewhere in the UK were relatively low at the start of the 20th century. This changed dramatically with the emergence of the drug scene in the 1960s and illicit drug use has been evident across the UK ever since. Studies from the 1980's onwards indicate further dramatic increases in drug availability and changes in consumption patterns. Once the preserve of a few stigmatised sub-cultures, drugs are becoming more mainstream, a feature of everyday life for many, and the social problems associated with them are increasing (South, 2002).

In 1994, a Ministerial Drugs Task Force (Scottish Office, 1994) described drug misuse as "a serious and escalating problem in Scotland". It emphasised the risk to individuals in terms of prosecution, damage to their health, drift into destitution and even death. And recognised the risks to users' families in terms of anguish, social conflict, poverty and break-up. It identified a need for a multi-agency and multi-disciplinary approach using imaginative and co-ordinated action at local and national level, including new drugs prevention packages for the under 10s and the over 14s.

Nevertheless, the evidence suggests that there are more young people using drugs in Scotland than ever before. Scottish social statistics show a steady and substantial rise in the number of drug related offences throughout the 1990s (from 9,600 in 1990 to 31,900 in 1999), with the biggest offenders being aged between 16 and 24 (Scottish Executive, 2002). The harsh reality is that users are getting younger and the variety of drugs being experimented with greater. In the late 1970s, a survey of 15 and 16 year olds indicated that 10% had used drugs, rising to around 23% by the late 1980s (Plant, 1992). In 2000, a study of Scottish schoolchildren (Boreham and Shaw, 2001) found that 30% of 15 year olds had used drugs within the last year. Although cannabis and volatile substances have consistently been the most commonly used drugs, there is a definite increasing trend in the use of other much harder drugs such as ecstasy, crack cocaine and even opiates.

Survey evidence consistently shows that for the majority who try drugs this will be a short lived period of experimentation mainly involving cannabis and not especially

harmful. For a much smaller group, however, drug use is more prolonged and involves a wider range of drugs, and can lead to a variety of problems for them, their families and their communities. Yet, despite all this knowledge, there has been a surprising lack of longitudinal research looking more precisely at the pathways into and out of drug misuse. What is it about those who become entrenched in a lifestyle of chaotic substance misuse that separates them from those for whom drug misuse is just a fleeting period of adolescent experimentation?

That is not to say that there has not been much research to identify the reasons for the increase in substance misuse. One of the strongest associations identified is the relationship between substance misuse and criminal offending (Hough, 1996; MacGregor, 2000). But the evidence is ambiguous about whether substance misuse is a cause or an outcome of offending. Some studies suggest that alcohol and drug use result in increased criminality, especially violence, while others propose that substance misuse and crime are symptomatic of a chaotic delinquent lifestyle. Some theorise that the relationship is far more complex and that substance misuse is heterogeneous – only some types of criminals are likely to be alcoholic or drug addicted (McCord, 1995). Certainly, it is undisputed that for many people the two co-exist and early onset of both substance misuse and delinquency results in particularly severe problems.

Similar to studies of delinquency, the search for predictors of substance misuse has covered many areas including peer influence, lifestyle factors, personality characteristics, academic or school related factors and, of course, the impact of parental or family factors – whether biologically or socially determined. The strength of association between substance misuse and family factors is strong, however, research is inconclusive. Some studies suggest that parental influence is a result of simple imitation; some suggest that the children of parents with psychoactive drug problems have an innate physiological sensitivity to drug and alcohol which puts them at particular risk of drug and alcohol abuse (Hoffmann and Cerbone, 2002); while others suggest that child rearing socialisation practices are to blame (Wu and Kandel, 1995).

Several dimensions of parent-child interactions have been consistently identified as important correlates or predictors of substance misuse, including lack of parental affection, familial conflict, lack of supervision, explosive discipline and inconsistent parenting. A recent comparative study between the UK and France, for example, found that 15 and 16 year olds who were from broken families, had poor parental relationships and were subject to less close parental supervision were more likely to be heavy substance users (Ledoux et al, 2002).

However, there are also gender differences to consider. A study of parental influence on smoking and delinquency and found that both mothers and fathers had a stronger influence on their daughters behaviour than on their sons (Wu and Kandel, 1995). More recently, a Swedish study found that females who were exposed to poor parental supervision were more likely to become involved with delinquent peers and, in turn, were more likely to use drugs, but this pathway into drug use was not true for boys (Svensson, forthcoming).

Aims of the paper

The aims of this paper are, firstly, to examine changes in the prevalence of smoking, drinking and drug misuse among a contemporary cohort of young people from the age of 12 to 15 using data from the Edinburgh Study of Youth Transitions and Crime - a major longitudinal study of youth crime. I will then explore some of the most significant individual and family characteristics of those who drift into drug use. Finally, using logistic regression I will identify which of these characteristics are most predictive of drug use in these early teenage years.

The Edinburgh Study

The Edinburgh Study of Youth Transitions and Crime is a prospective, longitudinal study of criminal offending amongst a cohort of around 4,400 young people. The study began in August 1998, when the cohort were aged around 12. The entire population of young people enrolled in their first year of secondary education within the City of Edinburgh were invited to participate in the study.

Briefly, the study has four main objectives:[1]
(i) To investigate the factors and processes which lead some young people to become involved in serious and persistent criminal offending, while others never become involved or do so only during a transitional phase of their adolescence.
(ii) To attempt to explain the striking differences in the extent and pattern of offending between males and females.
(iii) To examine those factors and processes which impact on criminal offending and gender differences in offending within three main contexts: the individual's development through the life course, from early adolescence to adulthood; the impact of interactions with formal agencies of social control and law enforcement; and the effect of the physical and social structure of the neighbourhood on individual behaviour.
(iv) Finally, we aim to develop new theories which explain offending behaviour and contribute to the development of practical policies aimed at helping young people.

The study has just entered its fifth year of data collection, and four sweeps are available for analysis. Generally, data from the first sweep of fieldwork are used as baseline data, because the reference period used was 'ever' up to approximately age 12. At each subsequent sweep, data collection focuses on events that occurred during the previous 12 months only, using the school year as a reference period. Sweep two, therefore, covers age 12 to 13, and so on. Thus, we are able to build up a continuous picture of young people's offending and other problematic behaviour over time.

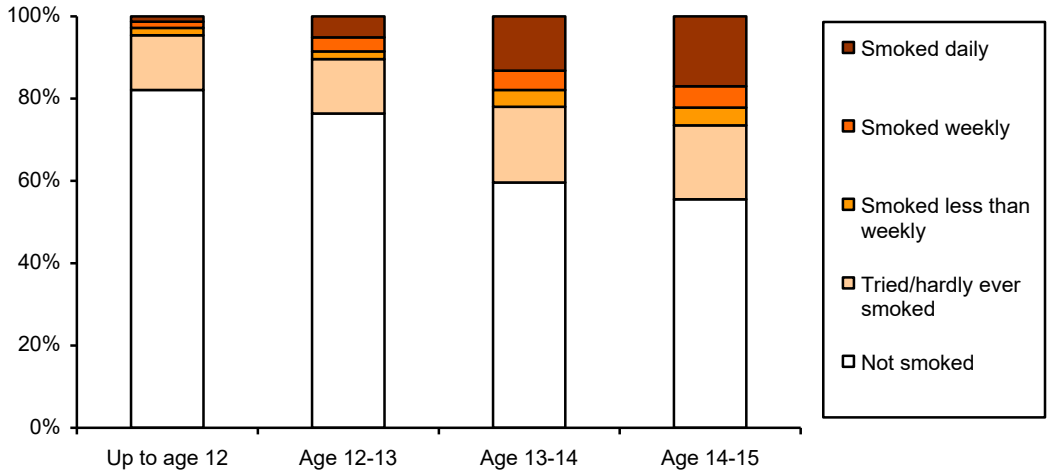
The cohort are asked a range of questions about their offending behaviour ranging in seriousness from behaving noisily or cheekily in public through to serious violence and property crimes. As the study is concerned with more than just offending behaviour, however, a variety of other questions are included relating to associated anti-social or problematic behaviours. These include questions on smoking, drinking and drug use.

[1] For a more detailed description of the study see Smith and McVie (forthcoming) or visit the study website at www.law.ed.ac.uk/cls/esytc.

Prevalence of smoking

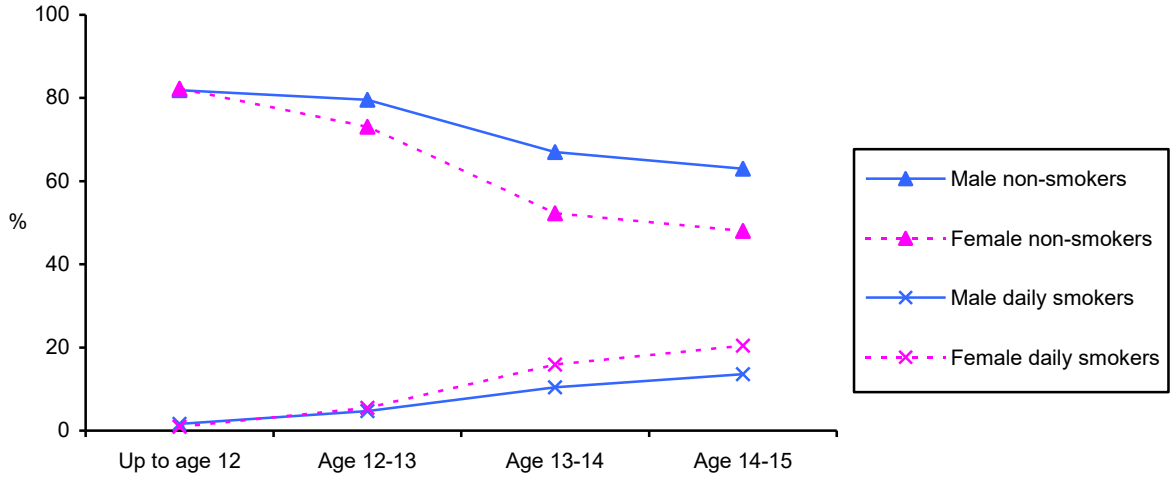
About 8 in ten 12 year olds said that they had never smoked a cigarette and, of the remainder, most had tried it but had not persisted further at this age (see Graph 1). Although by age 13 most respondents were still not smoking, those who were had started to smoke more frequently. The biggest jump in smoking prevalence occurred from age 13, with around 4 in 10 saying they had smoked in the last year. As you can see, there is very little shift in the proportion of occasional smokers in the latter two sweeps. However, from age 13 there is a significant rise in the proportion of young people smoking daily.

Graph 1 – Frequency of smoking by age



Gender differences in patterns of smoking have been one of the most notable findings of many recent studies, and ours is no different. At age 12, patterns of smoking amongst boys and girls were only just significantly different (p=0.048). However, from age 12 onwards, girls were significantly more likely to report both frequent and occasional smoking than the boys. Graph 2 shows the decline in the proportion of boys and girls who said they did not smoke and the increase in those who reported being daily smokers by age. As you can see, despite there being virtually no difference at age 12, the gender gap widens at each successive sweep and by age 15 the there is no sign of it closing.

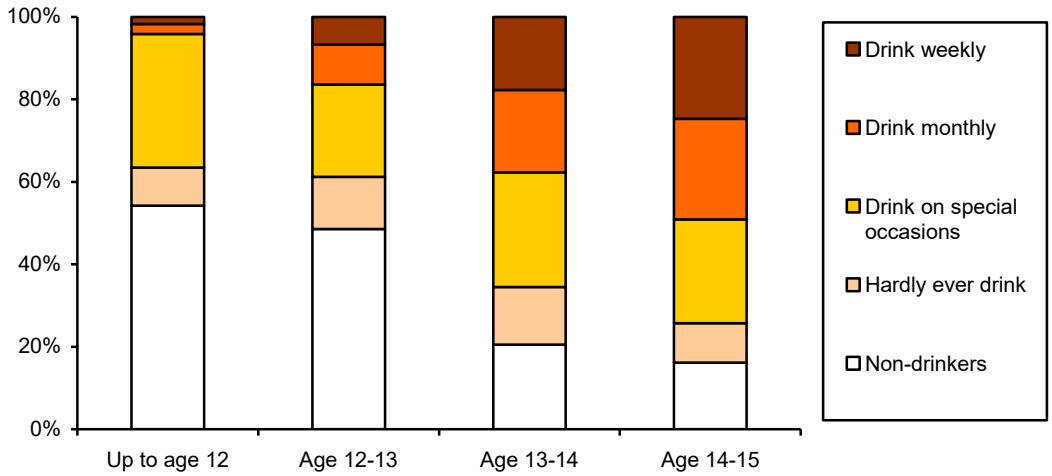
Graph 2 – Prevalence of non-smoking and daily smoking, by age and gender



Prevalence of drinking alcohol

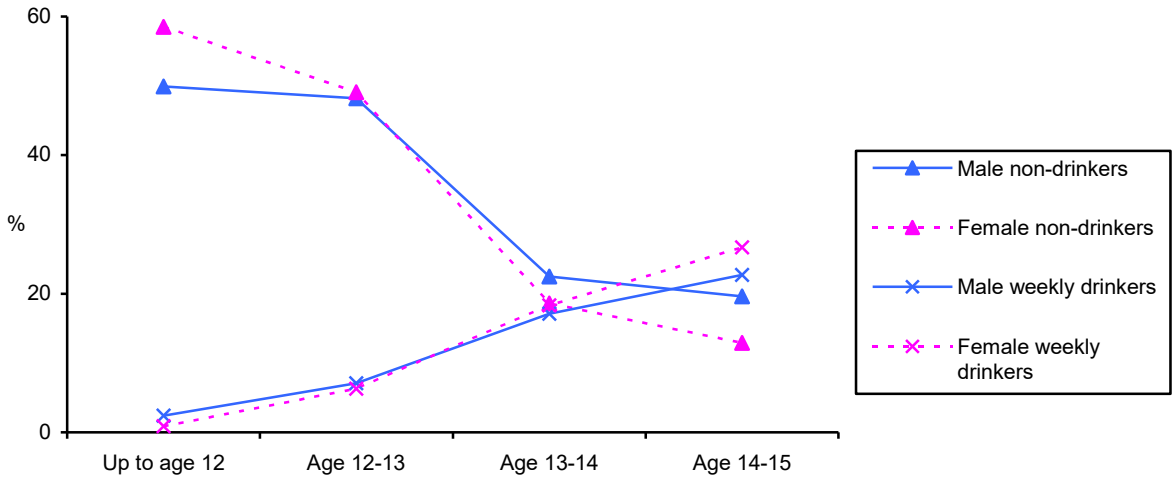
Prevalence of drinking alcohol amongst the respondents was far greater than that of smoking, with only around one in every two 12 year olds saying they had never tried it. As shown in Graph 3, for a fair proportion of 12 year olds drinking was associated with special occasions only, such as Hogmanay. However, a very small proportion at this age reported drinking on a fairly regular basis. By age 13, the proportion of non-drinkers had not changed markedly, but the frequency of drinking had increased amongst the drinkers. As with smoking, the most dramatic rise in prevalence occurred at age 14, where only one in five reported not having an alcoholic drink during the previous year, falling to one in six by age 15. The most marked increase was amongst those who reported drinking on a frequent basis. With still several years to go until they reach the legal drinking age, it is a worrying that a quarter of 14 to 15 year olds reported drinking at least once a week.

Graph 3 – Frequency of drinking alcohol by age



Differences between boys and girls were not quite so marked as for smoking, but they were statistically significant at every age band. Interestingly, boys start off being the more frequent drinkers up to age 13. However from age 13 to 15, it is the girls who were significantly less likely to report drinking at all and more likely to report drinking alcohol on a regular basis.

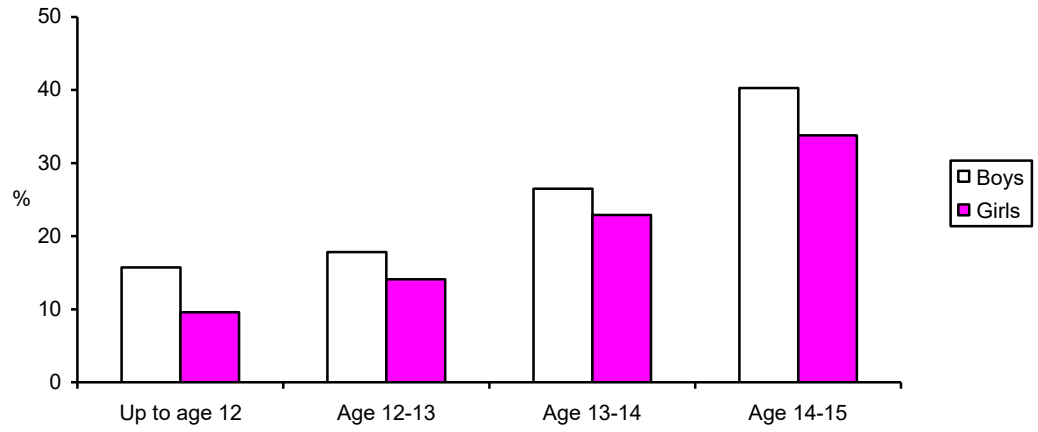
Graph 4 – Prevalence of non-drinking and weekly drinking, by age and gender



Prevalence of being offered drugs

The definition of 'illegal drug' used in the study was "any drug not given to you by a doctor or chemist", and we specified that this included volatile substances, such as glue or gas. At each sweep, respondents were asked whether they had been offered any kind of drug. Graph 5 shows that this rose quite considerably by age for both boys and girls, although boys were consistently more likely to report being offered drugs than girls.

Graph 5 – Prevalence of being offered drugs, by age and gender

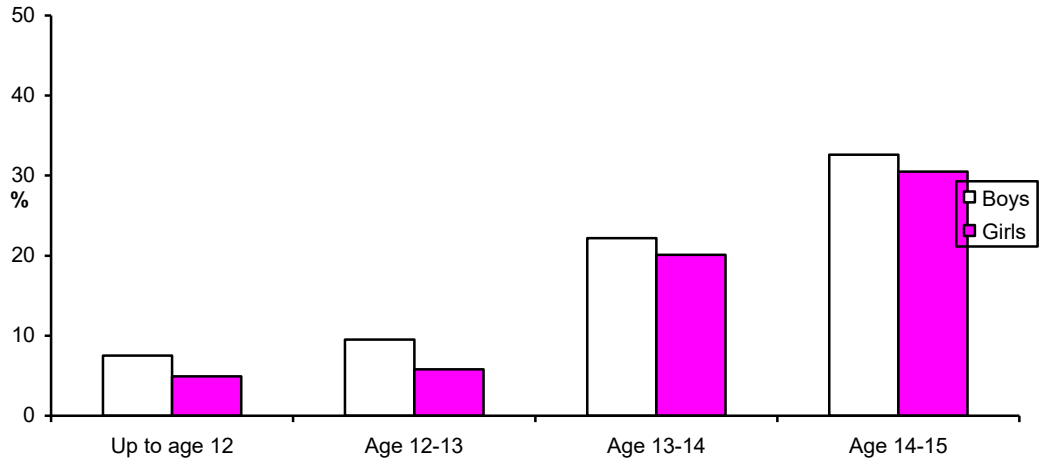


Prevalence of drug taking

In terms of taking drugs, our results are very similar to those of a recent survey of Scottish school children (Boreham and Shaw, 2001). At age 12, 6.2% of the cohort said that they had tried something. By age 13, prevalence of drug use had risen slightly, but significantly, to 7.7%. However, as with smoking and drinking, the most dramatic rise in the prevalence of drug use occurred between ages 13 and 14 to 21.2% prevalence, with another significant rise in the subsequent year to 31.6% overall.

Looking at prevalence of drug use by gender, you can see that the pattern is very similar for boys and girls. Although slight, the differences between the boys and girls at sweeps one and two are statistically significant. However, from age 13 to 15, there is no significant difference in the proportion of boys and girls who reported taking drugs.

Graph 6 – Prevalence of drug use, by age and gender

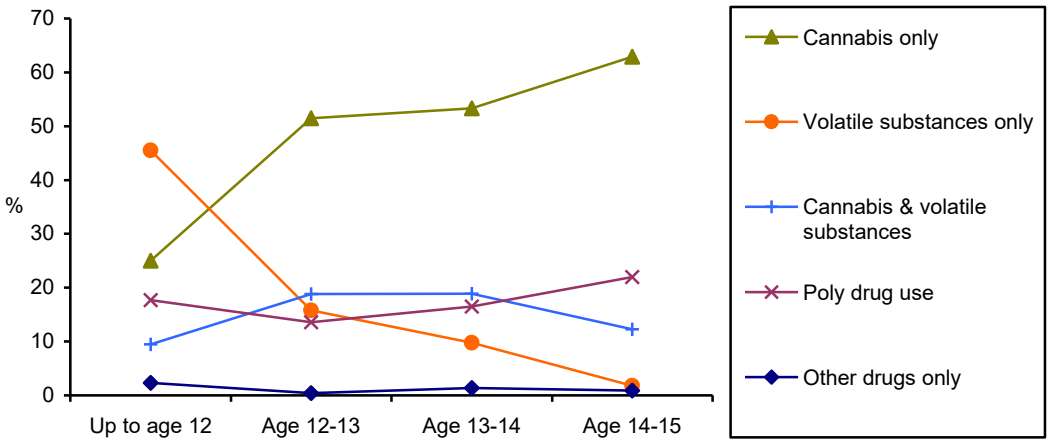


At sweeps one and two, the proportion of those who had tried drugs was around half of those who were offered drugs. By sweeps three and four, the proportion of young people taking drugs was only slightly lower than the proportion who had actually been offered them, which suggests that from age 13 they are far more susceptible to pressure. We are confident that this trend does not reflect a tendency to over-report drug use as a bogus drug was included to try to counteract this. Only a very small number of participants reported taking the bogus drug (n=15 at sweep three and n=25 at sweep four) which suggests that there is very little inaccurate or deliberately falsified reporting of drug use.

Looking at the nature of drugs taken, the two most commonly reported substances overall were cannabis and volatile substances (glue, gas and other solvents). Graph 7 presents a summary of the pattern of drug use. Use of volatile substances showed the most dramatic change in prevalence terms over time. Age 12 was the only point at which volatile substances were more frequently reported than cannabis, and from that point on they declined in prevalence at every sweep (even taking into account those who used cannabis and volatile substances). Cannabis was by far the most frequently

reported substance overall, both on its own and in conjunction with other substances. The dramatic rise in reported drug use from age 13 is largely explained by increases in the use of cannabis. Very few respondents reported using other types of drug, but most of those who did also reported using cannabis. The most common types of other drug reported were poppers, magic mushrooms and ecstasy, although prevalence of these drugs did not surpass 5% at any sweep. Nevertheless, the rise in poly-drug use (i.e. reported use of cannabis and other types of drug) from age 13 suggests a wide degree of experimentation at that stage.

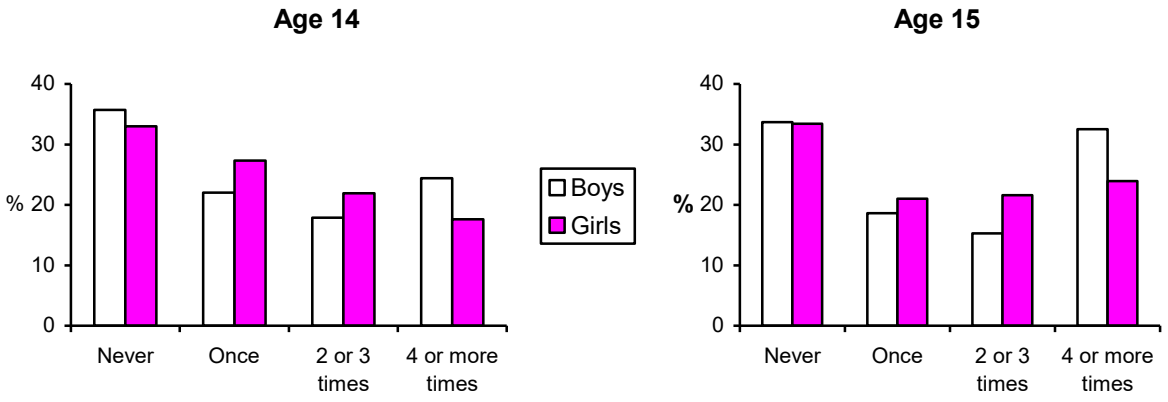
Graph 7 – Summary of drugs taken amongst drug users, by age



Patterns of substance use for boys and girls differed significantly at sweep one. Girls were significantly more likely than boys to report using volatile substances only, while boys were more likely than girls to have taken cannabis only. Between the age of 12 and 14, patterns of substance misuse were not significantly different for boys and girls, however, at age 14 a gender difference emerged again. This time girls were significantly more likely to report taking both cannabis and volatile substances than boys, while boys were more likely to have taken cannabis only or been involved in poly-drug use. Nevertheless, the average number of times they had taken drugs was the same for boys and girls at every sweep.

Those who had taken drugs within the last year at sweeps three and four were asked how often they had done so within the last month. Only around a third at each sweep said they had not taken any in the last month. The proportion who had taken drugs on four or more occasions in the last month rose from about 2 in 10 to about 3 in 10, however. Boys were equally as likely as girls to have taken drugs in the last month, however, this time the boys reported significantly more frequent use.

Graph 8 – Drug use in the last month at age 14 and 15, by gender



Characteristics of drug users and predictors of drug use

The main aim of our study is to identify risk and protective factors as they relate to criminal offending. However, substance misuse and offending have been shown to have a strong association and there is much evidence to suggest that they are associated with similar risk and protective factors. Therefore, the Edinburgh Study data allows us to look in some considerable detail at substance misuse.

The analysis in this paper focuses on what predicts drug use as an outcome and I am using two specific sets of variables to study this: individual characteristics that might pre-dispose someone to drug misuse and parental factors which might act as either protective or risk factors. All of these factors have been identified by others as potential predictors.

The individual characteristics included in the analysis are: gender; variety of self-reported offending (i.e. the repertoire of different types of delinquent activity that young person reported being involved in); individual impulsivity (i.e. the tendency to take risks and seek attention); and frequency of smoking and drinking (to see whether involvement in other problematic health behaviours predicts drug misuse).

The parental variables analysed are: social class (a simple binary variable denoting head of the household as in non-manual employment or manual/no employment); family structure (i.e. living with two birth parents, a step family, a single parent or some other family situation); parental supervision (i.e. the extent to which parents keep tabs on where their children are, who they are with and what time they will be home); verbal conflict between parent and child (i.e. frequency of arguments); parental control (i.e. the extent to which the child feels constrained by parental choices over aspects of their life); parental discipline (i.e. extent and frequency of punishment); parental communication (i.e. the frequency with which children discussed various issues with their parents); and parental support (i.e. the extent to which children felt their parents would support them in various situations).

The first step was to establish whether a relationship existed between drug misuse and each of these variables. This had to be done in different ways, however, as some variables were categorical (e.g. gender and social class) while others were continuous (e.g. variety of offending and impulsivity). For each of the categorical variables,

pearson's chi-squared significance test was carried out, producing a probability value to determine whether or not the proportion of people in one category who had used drugs was significantly different to the proportion in other categories. For the continuous variables, Spearman's Rho correlation scores were calculated using 'number of times taken drugs' as the continuous indicator. The closer the correlation score is to 1 or -1, the stronger the relationship with drug use (either positively or negatively), whereas the closer the score is to 0 the weaker the relationship.

The key points from Table 1, which presents the pearson's chi-squared test results for the categorical variables, are:

- Boys are more likely to be involved in drug use up to age 13, but thereafter there is no significant gender difference .
- There is little or no social class difference between drug users and non drug users.
- Those living with two birth parents are less likely to have taken drugs than those living in any other type of household from age 12 onwards. Up to age 12, those living within a step family are more likely to have taken drugs than everyone else. Those living with a single parent were slightly less likely than those from other types of broken family to have used drugs from age 13 to 15.
- The more frequently young people reported indulging in other problematic health behaviours, the more likely they were to have taken drugs. This tendency increased with age.

Table 1 - Chi-squared values showing significant differences in prevalence of substance misuse within variable sub-groups, by age.

Variable	Up to age 12		Age 12-13		Age 13-14		Age 14-15	
Gender								
- male	**7.5**		**9.5**		**22.2**		**32.6**	
- female	**4.9**	***	**5.8**	***	**20.1**	**ns**	**30.5**	**ns**
Social class								
- non-manual	**6.7**		**8.6**		**21.9**		**31.7**	
- manual/unemployed	**5.4**	**ns**	**6.7**	*	**19.0**	*	**30.3**	**ns**
Family structure								
- 2 birth parents	**5.4**		**6.2**	***	**17.3**	***	**27.1**	***
- step parents	**10.5**	***	**11.2**		**32.4**		**42.3**	
- single parent	**6.3**		**10.3**		**26.3**	*	**37.3**	*
- other	**8.2**		**16.1**		**31.8**		**46.8**	
Smoking frequency								
- daily	**53.7**		**47.7**		**70.8**		**78.4**	
- weekly	**37.5**	**ns**	**35.2**	*	**51.3**	***	**62.9**	***
- occasional	**19.6**	**	**16.3**	***	**29.0**	***	**42.6**	***
- ex-smokers	**n/a**		**5.9**	***	**14.2**	***	**23.7**	***
- non-smokers	**2.3**	***	**1.8**	***	**4.3**	***	**7.1**	***
Drinking frequency								
- weekly	**38.6**		**38.1**		**54.6**		**62.8**	
- monthly	**22.5**	*	**21.5**	***	**32.0**	***	**38.9**	***
- occasional	**9.7**	***	**7.3**	***	**10.7**	***	**17.4**	***
- ex-drinkers	**n/a**		**2.3**	***	**4.6**	**	**7.9**	***
- non-smokers	**1.5**	***	**0.6**	**	**2.4**	**ns**	**3.3**	*

Pearson's chi-squared test results shown as follows *** $p<0.001$, ** $p<0.01$, * $p<0.05$, ns=not significant.

Table 2 presents the correlation scores for the continuous variables. The key findings from this table are:

- The strongest correlation score was between frequency of drug use and variety of self-reported delinquency – and this appears to get stronger as the young people get older.
- Impulsivity shows a weaker but still significant relationship with drug use, with frequency of drug use increasing with level of reported impulsive behaviour.
- There are significant relationships between frequency of drug misuse and every one of the parental variables studied. Increasing frequency of drug use is associated with lower levels of parental supervision, increased verbal conflict between parent and child, increased exertion of control by parents, increased parental discipline, poorer communication between parent and child and lower perceived levels of parental support.
- The strongest relationships are between drug use and parental supervision and verbal conflict. Although significant, the weakest relationships with drug use are between parental control and parental discipline.

Table 2 - Correlation scores showing strength of association between frequency of substance misuse and various continuous variables, by age.

Variable	Up to age 12	Age 12-13	Age 13-14	Age 14-15
Variety of self reported delinquency (0-15)[2]	**.270 ****	**.331 ****	**.448 ****	**.471 ****
Impulsivity scale (0-18)	**.147 ****	**.122 ****	**.209 ****	**.185 ****
Parental supervision scale (0-9)	**- .176 ****	**- .195 ****	**- .262 ****	**- .232 ****
Parental verbal conflict scale (0-6)	**.118 ****	**.178 ****	**-**	**.189 ****
Parental control scale (0-15)	**.040 ****	**.086 ****	**-**	**-**
Parental discipline scale (0-15)	**-**	**.093 ****	**-**	**.093 ****
Parental communication scale (0-10)	**-**	**-**	**- .161 ****	**-**
Parental support scale (0-24)	**-**	**-**	**- .146 ****	**-**

Spearman's Rho Correlation Scores are shown as follows ** $p<0.01$, * $p<0.05$.

Chi-squared testing and correlation analysis are useful in determining the strength or otherwise of relationships between two variables. However, they cannot show the relative strength of each of the independent variable in tables 1 and 2 in predicting likelihood of taking drugs. In order to determine which of these variables were the most predictive of drug use, regression analysis was necessary. This is a statistical technique which reveals associations between a dependent variable (in this case drug use) and a number of independent variables in terms of their odds ratios i.e. the odds of having used drugs in the presence of an independent variable divided by the odds of having used drugs in the absence of the same variable.[3] A binary logistic regression model was created for each sweep of the study to assess the extent to which drug misuse was predicted by each of the variables used at that sweep.

[2] Correlation scores for volume of delinquency were virtually identical.

[3] Variables were retained in the model only if they met the $p<0.05$ significance criteria (i.e. there was less than 5 in 100 chance that the variables included in the final model might not be a predictor of the dependent variable).

Table 3 shows the odds that drug use would be predicted by each of the independent individual and parental variables presented in tables 1 and 2. Generally speaking, any odds ratio greater than two is considered to be a strong predictor, while any that is less than 1 is predictive in a negative direction.

Table 3 - Odds ratios predicting drug use by age

Variable		Up to age 12 Exp (B) (n=3241)	Age 12-13 Exp (B) (n=3482)	Age 13-14 Exp (B) (n=3542)	Age 14-15 Exp (B) (n=3414)
Gender (1=male)		NS	1.64	1.58	1.91
Social class (1=manual/unemployed)		NS	NS	NS	.710
Family structure	- step parents	NS	NS	NS	NS
	- single parent	NS	NS	NS	NS
	- other	NS	NS	NS	NS
Parental supervision scale (0-9)		NS	NS	NS	.93
Parental conflict scale (0-6)		NS	NS	-	NS
Parental control scale (0-15)		NS	NS	-	-
Parental discipline scale (0-15)		-	NS	-	NS
Parental communication scale (0-10)		-	-	NS	-
Parental support scale (0-24)		-	-	NS	-
Variety of delinquency (0-15)		1.34	1.37	1.29	1.20
Impulsivity scale (0-18)		NS	NS	NS	.97
Smoking frequency	- daily	9.38	11.01	16.21	21.25
	- weekly	6.28	5.85	7.21	10.88
	- occasional	3.49	3.04	4.65	4.91
	- ex-smokers	-	NS	2.08	2.20
Drinking frequency	- weekly	2.61	13.08	6.54	10.80
	- monthly	2.61	8.30	4.60	7.90
	- occasional	2.72	4.74	2.22	4.03
	- ex-drinkers	-	NS	NS	NS

NS=not significant; - indicates not included at that sweep of the study; odds ratios rounded to 2dp.
Regression reference categories: gender=female; social class=non-manual; family structure=2 birth parents; smoking frequency=non-smokers; drinking frequency=non-drinkers.

The key points from table 3 are:

- Within the context of these models, gender is predictive of drug use, with males being more likely than females to take drugs from age 12. Although we found no significant gender difference in prevalence of drug use at sweeps three and four, clearly when you control for other factors, gender is an important predictor.
- Despite there being significantly strong correlations between all of the parental variables and frequency of drug use, when these variables are included in a regression model which controls for various other individual factors, the parental variables do not predict drug use. The exception to this is parental supervision which is inversely predictive of drug use at age 14-15 only.
- Smoking behaviour is by far the most predictive factor in the model, and this increases with age. Daily smokers at age 15 were 21 times more likely than non-smokers to use drugs. Even those aged 13-15 who had smoked in the past and now considered themselves non-smokers were twice as likely as those who had never smoked to use drugs.

- Those who reported drinking alcohol on a regular basis were also far more likely to use drugs than non-drinkers, although the pattern in the model is somewhat chaotic. Unlike ex-smokers, however, ex-drinkers were not significantly more likely to take drugs than non-drinkers at any age.
- Despite the very strong correlation between drug use and offending, variety of self reported offending is only a weak predictor of drug use, in the presence of these other factors. And it's predictive value decreased with age.
- Like parental supervision, social class and impulsivity are predictive only at sweep four. Drug use appears to be associated with higher socio-economic status, but, contra to expectations, lower levels of impulsivity.

Of course, we have already seen that there are considerable gender differences in terms of smoking, drinking and drug use, so, are there gender differences in predictors of drug use? To see whether this overall model concealed differences in predictors between girls and boys, the same process of regression was run again, this time separately for boys and girls. Table 4 presents the same regression models, but this time for boys only.

Table 4 - Odds ratios predicting drug use by age for boys only

Variable		Up to age 12 Exp (B) (n=1616)	Age 12-13 Exp (B) (n=1738)	Age 13-14 Exp (B) (n=1756)	Age 14-15 Exp (B) (n=1671)
Social class (1=manual/unemployed)		NS	NS	NS	.73
Family structure	- step parents	NS	NS	NS	NS
	- single parent	NS	NS	NS	NS
	- other	NS	NS	NS	NS
Parental supervision scale (0-9)		NS	NS	NS	.93
Parental conflict scale (0-6)		NS	NS	-	NS
Parental control scale (0-15)		NS	NS	-	-
Parental discipline scale (0-15)		-	NS	-	NS
Parental communication scale (0-10)		-	-	NS	-
Parental support scale (0-24)		-	-	NS	-
Variety of delinquency (0-15)		1.30	1.38	1.31	1.22
Impulsivity scale (0-18)		NS	NS	NS	.97
Smoking frequency	- daily	14.70	11.59	22.22	21.25
	- weekly	5.97	6.17	8.00	13.39
	- occasional	5.23	3.62	4.40	4.67
	- ex-smokers	-	NS	2.15	2.65
Drinking frequency	- weekly	3.70	21.44	5.92	5.75
	- monthly	3.63	12.19	4.73	5.43
	- occasional	3.69	6.57	2.58	3.15
	- ex-drinkers	-	NS	NS	NS

NS=not significant; - indicates not included at that sweep of the study; odds ratios rounded to 2dp.
Regression reference categories: social class=non-manual; family structure=2 birth parents; smoking frequency=non-smokers; drinking frequency=non-drinkers.

The key points from table 4 are:

- The models for the boys very much follow the same patterns as in table 3, with parental variables being fairly unremarkable in terms of predicting drug use.
- Smoking behaviour is highly predictive of drug use and the predictive value of frequent smoking generally increases with age. Boys who smoked daily at age

14-15 were 21 times more likely than non-smokers to have taken drugs. Even boys from the age of 13 who had smoked in the past were twice as likely to take drugs as non-smokers.

- Boys who drank alcohol on a regular basis were also far more likely to use drugs than non-drinkers, although this appears to peak at age 12-13. Unlike ex-smokers, male ex-drinkers were not more likely to take drugs than non-drinkers.
- Smoking is a stronger predictor of drug use than drinking with the exception of sweep 2, at which drinking is uncharacteristically much stronger.
- As with the overall model, variety of self-reported offending is only weakly predictive of drug use amongst boys within the context of this model; and parental supervision, social class and impulsivity are only predictive at age 14-15.

The models were run again, this time including only girls. Table 5 shows that the predictors that emerge are fairly similar for both boys and girls, although the patterns and the odds ratios are somewhat different.

Table 5 - Odds ratios predicting drug use by age for girls only

Variable		Up to age 12 Exp (B) (n=1625)	Age 12-13 Exp (B) (n=1744)	Age 13-14 Exp (B) (n=1786)	Age 14-15 Exp (B) (n=1743)
Social class (1=manual/unemployed)		**NS**	**NS**	**NS**	**.68**
Family structure	**- step parents**	**NS**	**NS**	**NS**	**NS**
	- single parent	**.26**	**NS**	**NS**	**NS**
	- other	**NS**	**NS**	**NS**	**NS**
Parental supervision scale (0-9)		**.82**	**NS**	**NS**	**NS**
Parental conflict scale (0-6)		**NS**	**NS**	**-**	**NS**
Parental control scale (0-15)		**NS**	**NS**	**-**	**-**
Parental discipline scale (0-15)		**-**	**NS**	**-**	**NS**
Parental communication scale (0-10)		**-**	**-**	**NS**	**-**
Parental support scale (0-24)		**-**	**-**	**.96**	**-**
Variety of delinquency (0-15)		**1.50**	**1.36**	**1.25**	**1.16**
Impulsivity scale (0-18)		**NS**	**NS**	**NS**	**NS**
Smoking frequency	**- daily**	**NS**	**9.78**	**12.91**	**18.87**
	- weekly	**6.50**	**5.09**	**6.22**	**8.57**
	- occasional	**NS**	**2.26**	**4.63**	**4.87**
	- ex-smokers	**-**	**NS**	**NS**	**NS**
Drinking frequency	**- weekly**	**NS**	**8.75**	**7.69**	**NS**
	- monthly	**NS**	**5.49**	**4.78**	**NS**
	- occasional	**NS**	**3.56**	**NS**	**NS**
	- ex-drinkers	**-**	**NS**	**NS**	**NS**

NS=not significant; - indicates not included at that sweep of the study; odds ratios rounded to 2dp.
Regression reference categories: social class=non-manual; family structure=2 birth parents; smoking frequency=non-smokers; drinking frequency=non-drinkers.

The key points from table 5 are:

- Parental variables are still largely unpredictive of drug use, although the pattern is slightly different to the boys. Up to age 12, lack of parental supervision and living in a single parent household predict drug use, but not thereafter.

- Unlike the boys, lack of parental support is predictive for girls but, unfortunately, this question was only included at sweep three.
- Like the boys, the strongest predictor of drug use amongst girls is smoking, particularly from age 12. The odds ratios are not quite so high as for the boys, but the picture is clear: girls who smoke on a regular basis are more likely to take drugs than non-smokers, although this is not true of ex-smokers.
- Drinking alcohol proves to be far less predictive of drug use for girls than for boys, and it is only predictive between the ages of 12 and 14. Before and after these ages, regular drinkers are no more likely to take drugs than non-drinkers.
- As with the boys, variety of offending is only weakly predictive, and the predictive nature of offending reduces considerably as the girls mature.

Conclusion

Research has consistently shown that, for most young people, drug use is a short lived activity associated with other forms of adolescent experimentation. Our research is at an early stage in terms of following the outcomes for these young people, and it is impossible as yet to construct models which will predict long-term, problematic drug use. However, prevalence data from the Edinburgh Study shows that smoking and, especially, drinking are common features of adolescent life, and we must not lose sight of the fact that these two behaviours cause more widespread social problems than drug use (Plant, 1992). In addition, these two problematic health behaviours are very strongly predictive of experimentation with illegal drugs. This concept is not new (see Bailey, 1992; Parker, 1996; Best et al, 2000) but it is perhaps a much neglected area of current drug education policy as, clearly, it is misguided to focus on drug use without looking at other forms of substance use and try to understand the complex linkages between them.

Simple analysis of our data shows that good parental support and supervision, and effective rather than harsh methods of control and punishment are all important in protecting children from drug use. However, when you control for other factors - most importantly young people's participation in other problematic health behaviours - the impact of good parenting during these transitional years appears to be limited. Perhaps, the focus should not be on the individual or familial level but on a wider cultural level to understand the social contexts within which adolescent smoking, drinking and drug use occur. Collinson (1996) for example states that drug use and 'normal' crime serve as important cultural and emotive resources for masculine identity on the street. And a recent ethnographic study in a small Scottish town also found that smoking represented a form of social bonding based on a system of reciprocal exchanges, while alcohol and illicit drug use also provided a motive for social interaction (Pavis and Cunningham, 1999). These findings suggest that health-damaging behaviours are not only a result of individual choice but are integral to street culture resulting from complex social and economic conditions.

Perhaps above all, we must not neglect the fact that prevalence and trends in smoking, drinking and drug use show very different patterns for boys and girls, which suggests that their pathways into and out of substance misuse are likely to be different. This has significant implications not only for research but for health education and prevention policies.

REFERENCES

Scottish Executive (2002) *2001 Scottish Social Statistics: Crime and Justice,* published on Scottish Executive website, www.scotland.gov.uk/stats/sss/docs/sss07-03.asp

Bailey, S.L. (1992) 'Adolescents multi-substance use patterns: the role of heavy alcohol and cigarette use*'* in *American Journal of public Health*, Vol. 82, No. 9, pp1220-4.

Best, D et al (2000) 'Drinking and smoking as concurrent predictors of illicit drug use and positive drug attitudes in adolescents' in *Drug and Alcohol Dependence*, Vol 60, No. 3, pp319-321

Boreham, R. and Shaw, A. (2001) *Smoking, Drinking and Drug Use among Young People in Scotland 2000,* The Stationery Office, Edinburgh.

Collinson, M. (1996) 'In Search of the Highlife: Drugs, Crime, Masculinities and Consumption' in *The British Journal of Criminology*, Vol. 36, pp428-441.

Hoffman, J.P. and Cerbonne, F.G. (2002) 'Parental Substance use Disorder and the Risk of Adolescent Drug Abuse: An Event History Analysis' in *Drug and Alcohol Dependence*, Vol. 66, Issue 3, pp255-264.

Hough, M. (1996) *Drugs Misuse and the Criminal Justice System: A Review of the Literature,* London: Drugs Prevention Initiative.

Ledoux, S., Miller, P., Choquet, M. and Plant, M. (2002) 'Family Structure, Parent-Child Relationships and Alcohol and Other Drug Use Among Teenagers in France and the UK' in *Alcohol and Alcoholism*, Vol. 37, Issue 1, pp52-60

MacGregor, S. (2000) 'The Drugs-Crime nexus' in *Drugs: Education, prevention and Policy,* Vol. 7, Issue 4, pp311-316

McCord, J. (1995) 'Relationship between Alcohol and Crime Over the Life Course' in Kaplan, H.B. (ed) *Drugs, Crime, and other Deviant Adaptations: Longitudinal Studies.* Plenum Press, New York and London.

Parker, H (1996) 'Young Adult Offenders, Alcohol and Criminological Cul-de-sacs' in *British Journal of Criminology*, Vol. 36, pp282-298

Pavis, S. and Cunningham, S. (1999) 'Male Youth Street Culture: Understanding the Context of health-Related Behaviours' in *Health Education Research: Theory and Practice*, Vol.1 14, no. 5, pp583-596

Plant, M. (1992) 'Alcohol, tobacco and illicit drug use in Scotland' in Plant, M., Ritson, B. and Robertson, R. (eds) *Alcohol and Drugs: the Scottish Experience* Edinburgh University Press, Edinburgh.

South, N. (2002) 'Cultures of Consumption and Social Exclusion' in *Criminal Justice Matters*, No. 47, Spring issue, pp28-29.

Smith, D.J. and McVie, S. (forthcoming) 'Theory and Method in the Edinburgh Study of Youth Transitions and Crime' to be published in January 2003 issue of *The British Journal of Criminology*.

Svensson, (forthcoming) 'Gender Differences in Adolescent Drug Use: The Impact of Parental Monitoring and Peer Deviance' to be published in *Youth and Society*.

The Scottish Office (1994) *Drugs in Scotland: Meeting the Challenge. Report of the Ministerial Drugs Task Force.* The Scottish Office Home and Health Department, Edinburgh.

Wu, P. and Kandel, D. (1995) 'Parental Roles in Smoking and Delinquency' in Kaplan, H.B. (ed) *Drugs, Crime, and other Deviant Adaptations: Longitudinal Studies.* Plenum Press, New York and London.