# Truancy, School Exclusion and Substance Misuse

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## KEY FINDINGS

Truants have a significantly higher incidence of illegal drug use, underage drinking and smoking than non-truanting pupils and rates of substance misuse increase over time.

Long-term truants exhibit a higher incidence of all forms of substance misuse in comparison with other categories of truant.

Illegal drug use and smoking significantly predict truancy after controlling for a range of other explanatory variables, including school experience, victimisation, parenting and a range of personality characteristics such as self esteem and impulsivity.

Pupils who have been excluded from school report a significantly higher incidence of illegal drug use, underage drinking and smoking than their non-excluded counterparts.

Substance misuse is less strongly associated with exclusion than it is for truancy. Illegal drug use is only weakly predictive of exclusion after controlling for other explanatory variables, including school experience and anti-social behaviour. Underage drinking and smoking are not significant predictors.

Early intervention targeting health risk behaviours may have some part to play in diminishing truancy rates. However substance misuse is only one part of a complex set of behaviours and adverse circumstances associated with both truancy and exclusion.

Policy needs to take greater cognizance of sex differences in truancy and exclusion. While early truanting is predominantly a male activity, by second year of secondary education girls form the majority of truants (including persistent truants). By contrast boys form the overwhelming majority of excluded pupils at all sweeps of the study.

# INTRODUCTION

The purpose of this paper is to explore the relationship between truancy, school exclusion and substance misuse. It draws on the findings of the Edinburgh Study of Youth Transitions and Crime (the Edinburgh Study), a longitudinal research programme exploring pathways into and out of offending for a cohort of around 4,300 young people who started secondary school in the City of Edinburgh in 1998. The key aims and methods of the study are summarised below[1].

*Aims of the programme*

- To investigate the factors leading to involvement in offending and desistance from it
- To examine the striking contrast between males and females in criminal offending
- To explore the above in three contexts:
  - Individual development
  - Interactions with formal agencies of control
  - The social and physical structures of neighbourhoods
- To develop new theories explaining offending behaviour and contribute to practical policies targeting young people

*Overview of methods*

- Self report questionnaires (annual sweeps)
- Semi-structured interviews (40 undertaken in sweep 2)
- School, social work, children's hearings records (annual sweeps)
- Teacher questionnaires (1999)
- Police juvenile liaison officer and Scottish criminal records (from 2002)
- Parent survey (2001)
- Geographic information system

*Participating schools*

- All 23 state secondary schools
- 8 out of 14 independent sector schools
- 9 out of 12 special schools

*Response Rates*

- Sweep 1 96.2% (n=4,300)
- Sweep 2 95.6% (n=4229)
- Sweep 3 95.2% (n=4296)
- Sweep 4 92.6% (n=4144)

*Research Team*

- David Smith, Lesley McAra
- Susan McVie, Lucy Holmes, Jackie Palmer

*Study Funding*

- Economic and Social Research Council (1998 - 2002)
- The Scottish Executive (2002- 2005)
- The Nuffield Foundation (2002 - 2005)

## Context

Previous research on truancy and school exclusion in Scotland has found that they are both strongly associated with low attainment. They are particularly prevalent amongst young people who come from deprived neighbourhoods and are linked to a range of other

[1] Grateful thanks are due to Susan McVie and Russell Ecob for comments made on an earlier draft of the paper. For further details on the Edinburgh Study, see Smith et al (2001) and Smith and McVie (2003).

indices of social deprivation such as free school meal entitlement (see MVA 1991, Scottish Executive 2003). Research has also found an association between early onset of disruptive behaviour in primary school and persistent truancy and temporary or permanent exclusion during secondary education. In addition both truancy and exclusion have been linked to poor relationships between teachers and parents as well as experience of bullying and negative attitudes towards school (see McIvor and Moodie 2002, Biggart 2000, MVA 1991).

While much research has been undertaken on the demographic profile and school experience of truants and excluded pupils, empirical evidence is rather more limited regarding the relationships between truancy, school exclusion and self-reported offending behaviour, including illegal drug use and status offences such as under-age drinking and smoking (see Rutter et al 1998). The research which does exist suggests that such relationships may be rather complex and indirect, with truancy (and by inference exclusion) creating a context which places young people at greater risk of offending and involvement in substance misuse (possibly by providing greater opportunities for misconduct) (see Rutter et al 1998, MVA 1991, Department of Education and Employment 2000).

Current procedures for dealing with truancy and school exclusion in Scotland involve guidance staff in individual schools, education welfare officers and, for more problematic cases, the children's hearings system. However unauthorised absence from school as well as school exclusion are increasingly being presented in government policy documents as elements of a larger set of problems presented by socially excluded youth. Consequently both are being tackled in a range of community level, multi-agency strategies aimed more broadly at the promotion of community safety, reducing the problems caused by youth crime, improving parenting skills, supporting families and addressing the problems posed by unemployment and social isolation. (see Hogg 1999).

***Key Argument***

As this paper aims to demonstrate, the findings of the Edinburgh Study are broadly supportive of both previous research in the field and attempts made by policy-makers to subsume truancy and school exclusion within a broader social inclusion agenda.

Truants and excluded pupils present with a high incidence of substance misuse (including illegal drug use, underage drinking and smoking). However the findings confirm that substance misuse is only one element of a much larger and complex set of problematic behaviours and adverse circumstances associated with unauthorised absence and exclusion from school. As such early intervention targeting health risk behaviours may only have a small part to play in diminishing truancy and exclusion rates.

***Structure of the Paper***

Part 1 of the paper explores the relationship between truancy and different forms of substance misuse. Part 2 examines patterns of school exclusion amongst the cohort and their relationship to illegal drug use, underage drinking and smoking. The paper concludes with a brief review of the policy implications of the findings.

# PART 1: TRUANCY

The following section of the paper draws on self-report questionnaire data from the first four sweeps of the study and school record information for sweeps two, three and four. It begins with an overview of truancy rates within the cohort and the demographic profile of truants as compared with their non-truanting counterparts. This is followed by a more detailed examination of patterns of drug use, alcohol consumption and smoking amongst truants and the extent to which these are directly related to unauthorised absence from school.

**Patterns of Truancy in the Cohort**

Figure 1 shows the proportion of cohort members who reported truanting from school at each of 4 study sweeps. In sweep 1, the measure used was *ever* truanted, the reference period being the primary school years. For subsequent sweeps, the measure used was truanted in the *previous school year.*

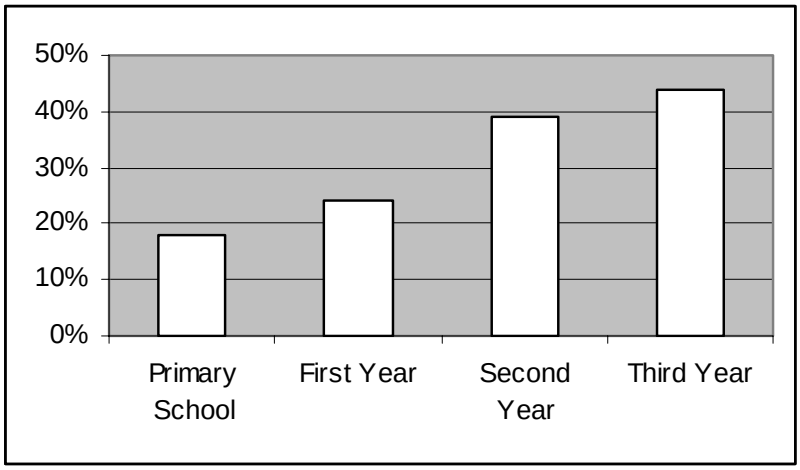


**Figure 1: Prevalence of Truancy**

As indicated in the figure, there was a major *increase* in prevalence of truancy over time. While only 18% of the cohort reported ever truanting during primary education, this rose to 44% by the third year of secondary education.

As might be expected, young people attending special schools (which cater inter alia for children with emotional or behavioural problems) exhibit the highest prevalence of truancy at each sweep (as set out in Table 1 below). With the exception of the primary years, pupils attending independent sector schools report significantly ($p<0.001$) lower rates of truancy than their counterparts in either mainstream state or special schools.

**Table 1: Prevalence of Truancy within each School Sector**

| | Primary School (Percent) | First Year (Percent) | Second Year (Percent) | Third Year (Percent) |
|---|---|---|---|---|
| Independent | 16 | 11 | 22 | 21 |
| Mainstream | 17 | 26 | 42 | 47 |
| Special | 39 | 35 | 48 | 52 |
| Sig. difference between independent and mainstream schools | NS | *** | *** | *** |
| Sig. difference between independent and special schools | *** | *** | *** | *** |

***Significance tests between groups using Pearson chi-square test: *** p<0.001; ns=not significant.

Although the figures on prevalence suggest that truancy is fairly common amongst pupils in the early to mid secondary years, the findings also indicate that it is (for the most part) fairly low level and intermittent in nature.

For example, in sweep 4 (reference period third year) respondents were asked what the longest single period of truanting was. As shown in Table 2 below, the highest proportion reported truanting for part of a day only, with just over a third "skiving" for one or 2 days. Only 13% claimed to have truanted for more than a week.

Furthermore, only a small proportion of truants could be described as long-term. Of the truants for whom information is available at each study sweep, only 11% (229) reported unauthorised absence from school at *every* sweep. Similarly only a small proportion of truants could be described as persistent in any one year. (Persistence is defined in this context as those reporting *more* than 10 episodes of skipping or skiving school). However the number of persistent truants does rise over time, from 9% of truants in the primary years to 24% of truants by third year of secondary school (as shown in Figure 2 below).

**Table 2: Length of Truancy in Third Year**

| | Self-reported truancy at third year of secondary education (n=1729) Percent |
|---|---|
| Part of a Day | 41 |
| Between 1 and 2 Days | 36 |
| Between 3 and 5 Days | 10 |
| More than a Week | 13 |

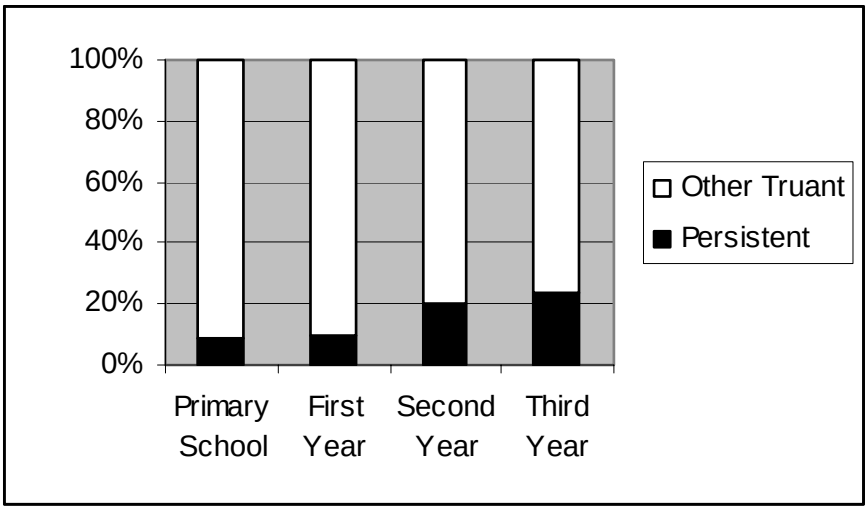


**Figure 2: Persistent Truants as a Proportion of all Truants**

***Being Caught***

The majority of self-reported truants claim never to have been caught or been in trouble for truanting. As indicated in Figure 3, only 30% of primary school truants reported being caught, rising to 38% of truants in both first and second year of secondary education[2] . However the more persistent a truant is, the more likely they are to be caught, with just under two thirds of persistent truants in first and second year reporting that they had been in trouble for truancy.

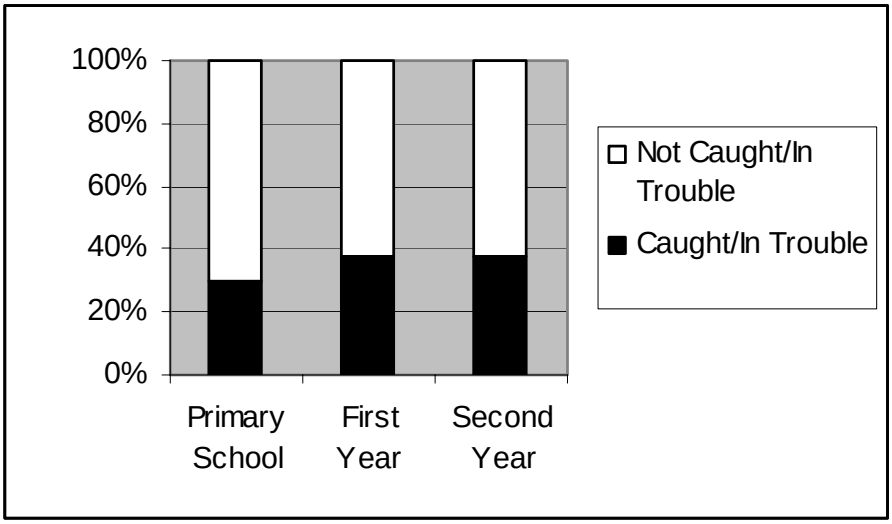


**Figure 3: Proportion of Truants Caught/In Trouble for Truanting**

These patterns are reflected, to some extent, in school records relating to truancy[3]. Table 3 shows the proportion of self-reported truants who had a school record for truanting during the first three years of secondary education. Whilst schools have successfully identified a high percentage (68%) of truants in first year, this dramatically declines in subse-

[2] Questions on being caught/in trouble for truancy were not included in the sweep 4 questionnaire (reference period third year).

[3] School record information is not available for independent sector schools nor for primary schools. The following paragraph therefore relates to patterns of truancy in mainstream state secondary schools and special schools only.

quent years, when only a small proportion of self-reported truants appear in school records (17% in second year and 25% in third year). However, persistent truants are significantly more likely ($p<0.001$) to have a school record for truancy than other truants during second and third year.

**Table 3: Proportion of Self-Reported Truants with a School Record for Truancy**

| | First Year with a record (Percent) | Second Year with a record (Percent) | Third Year with a record (Percent) |
|---|---|---|---|
| All truants | 68 | 17 | 25 |
| Low level (1-3 episodes) | 65 | 7 | 13 |
| Medium level (4 – 10 episodes) | 74 | 20 | 25 |
| Persistent (more than 10 episodes) | 75 | 49 | 51 |
| Sig. difference between low and medium level | * | *** | *** |
| Sig. difference between medium and persistent level | NS | *** | *** |

Significance tests between groups of truants using Pearson chi-square test: *** $p<0.001$; * $p<0.05$; ns=not significant.

## Profile of Truants

### *Sex Differences in Truancy*

Moving on to the profile of truants, the findings indicate major sex differences in patterns of truancy, with early truancy being predominantly a male activity and later truancy principally a female activity.

As shown in Figure 4, during the primary years just under two-thirds (62%) of those reporting truancy were boys. However, the number of girls reporting truancy increased over time and, by the second year of secondary education, the *majority* of those reporting at least one episode of truanting were girls. (Sex differences in prevalence of truanting are significant, $p<0.001$, at both sweeps 1 and 4). Similarly in the early years persistent truants tend to be boys (79% in primary school). However by second year girls have overtaken the boys – forming 58% of all persistent truants by third year (sweep 4 of the study), as summarised in Figure 5.

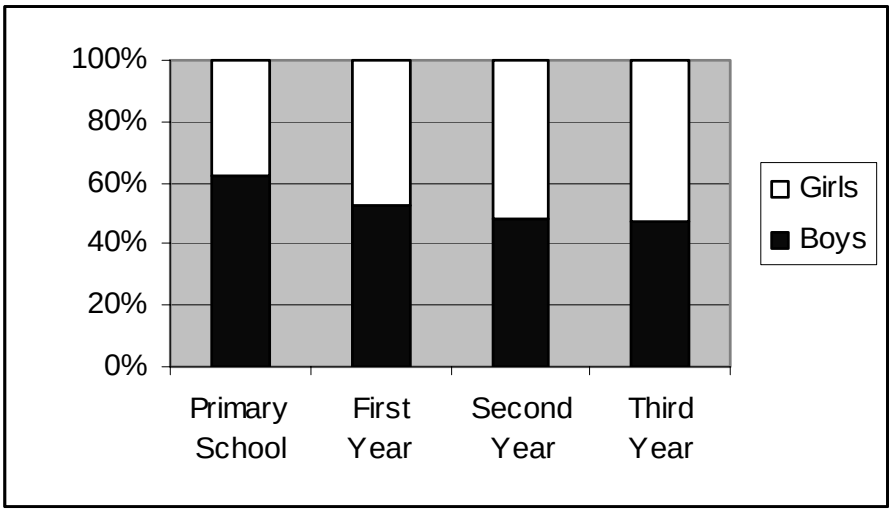


**Figure 4: Sex of Truants**

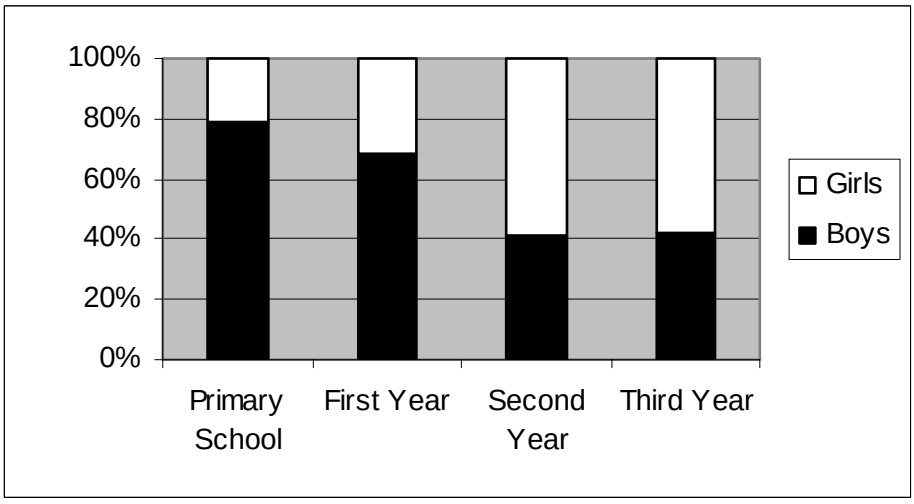


**Figure 5: Persistent Truants by Sex**

***Demographic Profile***

In keeping with the results of earlier research, truants in the Edinburgh Study cohort differ significantly from their non-truanting counterparts with regard to a range of key demographic variables (as summarised in tables 4 and 5). Truants are significantly more likely ($p<0.001$) to come from a lower class background (manual or both parents unemployed – see Appendix 1 for further details on the specification of variables) and *not* to be living with both parents. They are also significantly more likely ($p<0.001$) to come from a socially deprived background, as measured by both free school meal entitlement[4] (Table 4) or by mean volume of neighbourhood deprivation (Table 5).

[4] Information on free school meal entitlement was extracted from school records. As noted above these were not available for independent sector schools.

**Table 4: Comparing Truants and Non-Truants according to Social Class, Family Structure and Free School Meal Entitlement**

| | | Primary School (Percent) | First Year (Percent) | Second Year (Percent) | Third Year (Percent) |
|---|---|---|---|---|---|
| Manual/Unemployed | Truant | 54 | 56 | 54 | 51 |
| | Non-Truant | 46 | 40 | 37 | 37 |
| | Sig. Diff. | *** | *** | *** | *** |
| | | | | | |
| Not Living with Both Parents | Truant | 44 | 41 | 44 | 44 |
| | Non-Truant | 28 | 27 | 29 | 28 |
| | Sig. Diff. | *** | *** | *** | *** |
| | | | | | |
| Free School Meals | Truant | NR | 20 | 26 | 32 |
| | Non-Truant | NR | 13 | 15 | 12 |
| | Sig. Diff. | - | *** | *** | *** |

Significance tests between groups using Pearson chi-square test: *** $p<0.001$;
NR: not recorded (school record information available for secondary school years only)

**Table 5: Comparing Truants and Non-Truants according to Neighbourhood Deprivation**

| | | Primary School | First Year | Second Year | Third Year |
|---|---|---|---|---|---|
| Neighbourhood Deprivation (mean score) | Truant | 3.3 | 4.0 | 3.1 | 3.3 |
| | Non-Truant | 2.9 | 3.2 | 2.8 | 2.8 |
| | Sig. Diff. | *** | *** | *** | *** |

Significance tests between means using t-tests: *** $p<0.001$;

## Substance Misuse and Truanting

Having given an overview of rates of truancy and the profile of truants, the paper now turns to the relationships between different forms of substance misuse and truanting.

### *Prevalence of Substance Misuse*

Taken together the findings indicate that substance misuse is significantly higher amongst truants than their non-truanting counterparts and it is particularly high amongst long-term truants as compared with other categories of truant.

Table 6 describes the proportion of truants and non-truants at each study sweep, reporting illegal drug use, drug dealing, smoking on a daily basis and drinking alcohol on a weekly basis.

**Table 6: Prevalence of Substance Misuse and Drug Dealing amongst Truants and Non-Truants**

| | | Primary Years (Percent) | First Year (Percent) | Second Year (Percent) | Third Year (Percent) |
|---|---|---|---|---|---|
| Drug Use | Truant | 19 | 23 | 39 | 52 |
| | Non-Truant | 3 | 3 | 10 | 16 |
| | Sig. Diff. | *** | *** | *** | *** |
| | | | | | |
| Sold drugs | Truant | 2.1 | NR | 10 | 14 |
| | Non-Truant | 0.4 | NR | 0.9 | 2 |
| | Sig. Diff. | *** | - | *** | *** |
| | | | | | |
| Alcohol Use (weekly) | Truant | 6 | 17 | 32 | 38 |
| | Non-Truant | 0.8 | 4 | 9 | 14 |
| | Sig. Diff. | *** | *** | *** | *** |
| | | | | | |
| Smoking (daily) | Truant | 5 | 16 | 27 | 31 |
| | Non-Truant | 0.4 | 2 | 4 | 6 |
| | Sig. Diff. | *** | *** | *** | *** |

Significance tests between groups using Pearson chi-square test: *** $p<0.001$; NR = Not recorded.

As indicated in the table, prevalence of drug use amongst both truants and non-truants increases over time. However it is *significantly* higher ($p<0.001$) for truants at each sweep, with a majority (52%) of truants reporting illegal drug use by third year as compared with only 16% of non-truants. Although the numbers are extremely small, truants are also significantly more likely ($p<0.001$) to have sold drugs than non-truants.

As with drug use, alcohol consumption increases over time for both truants and non-truants, but prevalence amongst truants is again significantly higher ($p<0.001$) at each sweep. Patterns of smoking also differ. Although prevalence of smoking increases over time for both groups, truants are significantly more likely ($p<0.001$) to smoke on a daily basis at each sweep.

Turning to long-term truants, Table 7 describes the prevalence of different forms of substance misuse and drug dealing at sweep 4 (reference period third year of secondary education) amongst different categories of truant: (i) long-term truants (those who reported truanting at *every* sweep of the study); (ii) intermittent truants (those who reported truanting during at least one, but not all of the study sweeps); and (iii) never truanted (those reporting that they had *not* truanted at *every* sweep of the study).

**Table 7: Prevalence of Substance Misuse and Drug-dealing Amongst Different Categories of Truant**

| | Never truanted (n=1619) Percent | Sig. diff. between groups | Intermittent truant (n=1816) Percent | Sig. diff. between groups | Long term truant (n=229) Percent |
|---|---|---|---|---|---|
| Drug Use | 12 | *** | 43 | *** | 66 |
| Sold Drugs | 1 | *** | 9 | *** | 24 |
| Alcohol Use (Weekly) | 11 | *** | 33 | *** | 50 |
| Smoking (Daily) | 2 | *** | 24 | *** | 46 |

Significance tests between groups using Pearson chi-square test: *** p<0.001;
(Table includes only cohort members who completed a questionnaire at each study sweep)

Table 7 shows that long-term truants are significantly more likely ($p<0.001$) to use drugs than intermittent truants (two-thirds of long-term truants as contrasted with 43% of intermittent truants and 12% of those reporting they never truanted). Their prevalence of drug dealing is also considerably higher, with a quarter of long-term truants selling drugs during third year as compared with 9% of intermittent truants and 1% of those who never truanted. Prevalence of weekly alcohol use and daily smoking are also significantly higher ($p<0.001$) amongst long-term truants than other categories. Half of long-term truants report drinking alcohol regularly as compared with a third of intermittent truants and 11% of those who report never truanting. Moreover, just under half of long-term truants smoke on a daily basis as compared with only a quarter of intermittent truants and 2% of those who never truant.

***Relationship between Substance Misuse and Volume of Truancy***

While the above analysis highlights variations in prevalence of substance misuse amongst different groups, it does not show the strength of the relationship between substance misuse and volume of truancy. For this, correlation analysis is required. Table 8 shows correlations between volume of truancy and volume of drug use, underage drinking and smoking at each sweep of the study. The closer the coefficient is to 1 the stronger the relationship.

**Table 8: Correlations between Substance Misuse and Volume of Truancy**

| | Primary School | First Year | Second Year | Third Year |
|---|---|---|---|---|
| Volume of Drug Use | .230*** | .335*** | .380*** | .436*** |
| Scale of Alcohol Use | .266*** | .331*** | .404*** | .363*** |
| Scale of Smoking | .315*** | .405*** | .486*** | .470*** |

Correlations are non-parametric, Spearman's rho: *** significant at the 99.9% level of confidence

As indicated in the table, there is an extremely strong relationship between volume of truancy and all forms of substance misuse at each sweep, with all coefficients significant at the 99.9% level of confidence. Of particular note is the increased strength of the relationship between drug use and truancy over time (with the coefficient rising from .230 at primary school to .436 by third year). However smoking remains the highest correlate at each sweep.

***Explaining Truancy: The Role of Substance Misuse***

Given the strong relationship that has been found between truancy and substance misuse, what role does the latter play in building an explanation for truancy when other factors such as social deprivation or school experience are taken into account?

In order to explore this, volume of truancy at sweep 4 (reference period: third year) was first correlated with a series of potential explanatory variables relating to school experience, other forms of anti-social behaviour, victimisation, personality characteristics and parenting (described in more detail at Appendix 1). This was followed by ordinal regression analysis, which enabled the predictive strength of these individual variables (together with variables relating to substance misuse, gender and the demographic profile of truants) to be assessed when controlling for each of the others[5].

***(i) Correlation Analysis: Results***

Table 9 sets out the results of the correlation analysis. All of the variables, with the exception of alienation, are significant at the 99.9% level of confidence. The shaded areas in the table indicate the strongest correlates of truancy.

**Table 9: Correlations between Volume of Truancy and a Range of Explanatory Variables**

| Domain | Variable | Correlation Coefficient |
|---|---|---|
| School | Bad Behaviour | .476*** |
| | Punishments | .498*** |
| | Relationships with Teachers | -.080*** |
| | Attachment to School | -.272*** |
| | Parents Involvement with School | -.279*** |
| Anti-social behaviour | Self-reported Offending | .496*** |
| | Bullying Others | .220*** |
| Victimisation | Volume of Victimisation | .256*** |
| | Being Bullied | .056*** |
| | Volume of Adult Harassment | .252*** |
| Parenting | Parental Supervision | -.270*** |
| | Conflict with Parents | .219*** |
| Personality | Impulsivity | .274*** |
| | Alienation | .040* |
| | Risk-taking | .297*** |
| | Self-esteem | -.129*** |

Correlations are non-parametric, Spearman's rho: ***significant at the 99.9* level of confidence; *significant at the 95% level of confidence.

[5] Because the measure of truancy used as the response variable is irretrievably skewed, the assumptions underlying multiple regression are seriously violated. The option of simplifying the outcome variable to a binary opposition between truants and non-truants was rejected, on the ground that this would mean throwing away much of the available information. Rather than multiple regression or binary logistic regression, it was decided to use ordinal regression for the analysis.

As might be expected, two of the strongest correlates of truancy are linked to negative school experience, namely high volume of bad behaviour at school (.476) and high level of punishments meted out by school (.498). Weakened attachment to school and low levels of parental involvement in school (both indicated by negative values in the table) also have a relatively strong association with volume of truancy (although the coefficients are more modest at -.272 and -.279 respectively). Much the weakest correlate in respect of the school domain, is poor relationships with teachers (although it is still significant at the 99.9% level of confidence).

The table also shows that truancy is linked to a range of other anti-social behaviours. It has particularly strong associations with self reported offending (.496) and a more moderate association with bullying others (.220). At the same time, however, truancy is significantly correlated with experience of different forms of victimisation, including adult harassment (.252) and (far more weakly) being bullied (0.56).

Parenting also appears key to understanding truancy, with high volume of truancy being linked to low levels of parental supervision (-.270) and high levels of conflict between the child and his or her parents (.219). Finally truancy has relatively strong links to a range of personality measures: it correlates with high levels of both impulsivity (.274) and risk-taking behaviour (.297) as well as low levels of self-esteem (-.129). Much the weakest link is that between alienation and truancy (.040) which is only significant at the 95% level of confidence.

***(ii) Regression Analysis***

As noted above, regression analysis was undertaken to test the relative predictive power of substance misuse when controlling for all of the other variables which appear to have strong associations with truancy.

Ordinal regression models were fitted after converting the truancy measure into a variable with four ordered categories (from high to zero). All continuous variables were standardised before fitting the models, so that the estimates were directly comparable. (The estimate represents the amount of shift in the thresholds between the response categories that is associated with one standard deviation of the explanatory variable. An estimate of 1 indicates that one standard deviation of the explanatory variable would shift a case by one whole category of the ordinal response variable. The higher the estimate, therefore, the bigger the effect in the model.)

The regression analysis was undertaken in two stages. The first model included all of the variables set out in left-hand column in Table 10 below. Non-significant variables were then removed in a backwards stepwise procedure until the final model was produced. The figures relating to the estimate, standard error and significance in the final model are also presented in Table 10.

**Table 10: Regression Analysis: Summary of Models**

| Variables in first model | Variables in final model | Estimate | Std. Error | Sig. |
|---|---|---|---|---|
| Gender | Gender *(1=male) | -.374 | .090 | .000 |
| Social Class | - | | | |
| Family Structure | Family Structure* (0=not living with both parents) | .191 | .086 | .025 |
| Deprivation (scale) | Neighbourhood Deprivation | .208 | .041 | .000 |
| Smoking (scale) | Smoking | .433 | .049 | .000 |
| Drug Use (scale) | Drug Use | .316 | .051 | .000 |
| Alcohol Use (scale) | Alcohol Use | .145 | .050 | .004 |
| School Punishments (scale) | School Punishments | .570 | .054 | .000 |
| Parental Involvement in School (scale) | Parental Involvement in School | -.251 | 0.44 | .000 |
| Bad Behaviour at School (scale) | Bad Behaviour at School | .232 | .061 | .000 |
| Attachment to School (scale) | Attachment to School | -.202 | .045 | .000 |
| Relationships with Teachers (scale) | Relationships with Teachers | -.095 | .042 | .023 |
| Self-reported Offending (scale) | - | | | |
| Bullying Others (scale) | Bullying Others | -.173 | .048 | .000 |
| Victimisation (scale) | Victimisation | .168 | .043 | .000 |
| Adult Harassment (scale) | Adult Harassment | .116 | .043 | .008 |
| Being Bullied (scale) | - | | | |
| Risk Taking (scale) | Risk Taking | .113 | .046 | .015 |
| Impulsivity (scale) | - | | | |
| Self-esteem (scale) | - | | | |
| Alienation (scale) | - | | | |
| Conflict with parents (scale) | - | | | |
| Parental supervision (scale) | - | | | |

*Categorical variables: estimate applies to named category.

The model shows that substance misuse (in particular smoking and drug use) continues to be strongly to moderately predictive of truancy, even when controlling for all of the other variables. However the model confirms that negative school experience is also key to building explanations of truancy. Lack of attachment or commitment to school (feeling that school is a waste of time), coming from a family where the child perceives the parent to be lacking in involvement with school, bad behaviour at school and a concomitant high volume of punishments, all contribute to truancy risk.

While truants are generally badly behaved at school, the model also indicates that they are extremely vulnerable. High levels of victimisation and adult harassment as well as living in a deprived area and risk-taking are also significant within the final model (although their effect is comparatively weak). Not living with both parents is also weakly predictive.

Importantly being female has a moderate effect size within the model. This indicates that there is something about being female or a risk factor to which girls are more prone, which is linked to truancy and which is not currently being measured by any of the variables used in the study. This would repay further investigation.

A final point to note is that despite the strong correlation between self-reported offending and truancy, offending does not play a role within the final model. Moreover bullying others is reversed in the final model, indicating that high levels of truancy are associated with *low* levels of bullying others. Rather than being a direct cause of truancy, it may be that anti-social behaviour (and in particular offending) arises as a consequence of the opportunities afforded by truanting, as well as the context in which truancy takes place (although further research would be needed to confirm this).

## PART 2: EXCLUSION FROM SCHOOL

This section of the paper draws on findings from school records and self-report questionnaire data from sweeps two, three and four of the study (covering the secondary school years[6]). It begins with an overview of the prevalence of school exclusion within the cohort and the demographic profile of excluded pupils as compared with non-excluded pupils. Patterns of substance misuse amongst excluded pupils are then examined and an assessment made of the role played by substance misuse in explaining the types of behaviour that lead to temporary or permanent exclusion.

### Patterns of Exclusion

In contrast to truancy, the prevalence of exclusion amongst the cohort is relatively low although it gradually rises over time. As shown in Figure 6, during first year of secondary education only 155 pupils (4% of those for whom record information is available) were excluded for at least one session (morning or afternoon), rising to 229 (6%) during second year and 247 (7%) during third year[7].

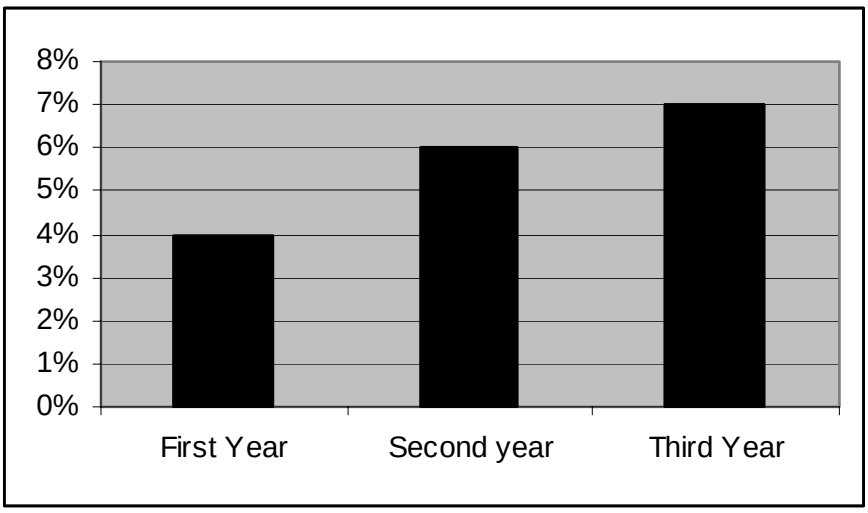


**Figure 6: Proportion of Cohort Excluded**

The majority of those excluded were removed from school for 5 half days or more, with well over a third in each year being excluded for 10 sessions or more (as summarised in Table 11). The longest total period of exclusion for an individual pupil in first year was 223 sessions (equivalent to just under 25 school weeks), in second year it totalled 172 sessions (around 19 weeks), rising in third year to 275 sessions (30.5 weeks).

[6] No school record information was made available for any of the independent sector schools, thus the following findings relate to state secondary schools only.

[7] National statistics indicate that exclusions peak during third year and it is expected that the Edinburgh Study cohort will follow suit (see Scottish Executive 2003).

**Table 11: Number of Sessions Excluded**

| Number of Sessions Excluded | First Year (n=155) Per-cent | Second Year (n=229) Per-cent | Third Year (n=247) Per-cent |
|---|---|---|---|
| 1 – 4 | 28 | 17 | 27 |
| 5 – 9 | 35 | 37 | 40 |
| 10 or more | 37 | 46 | 33 |

## Profile of Excluded Pupils

### *Sex Differences in Exclusion*

In contrast to truancy, exclusion is much more common amongst boys than girls. As shown in Figure 7, 72% of excluded pupils in first year were boys, dropping slightly to 64% in second year and rising once more to 74% by third year (significant difference in prevalence of exclusions amongst boys and girls at the 99.9% level of confidence).

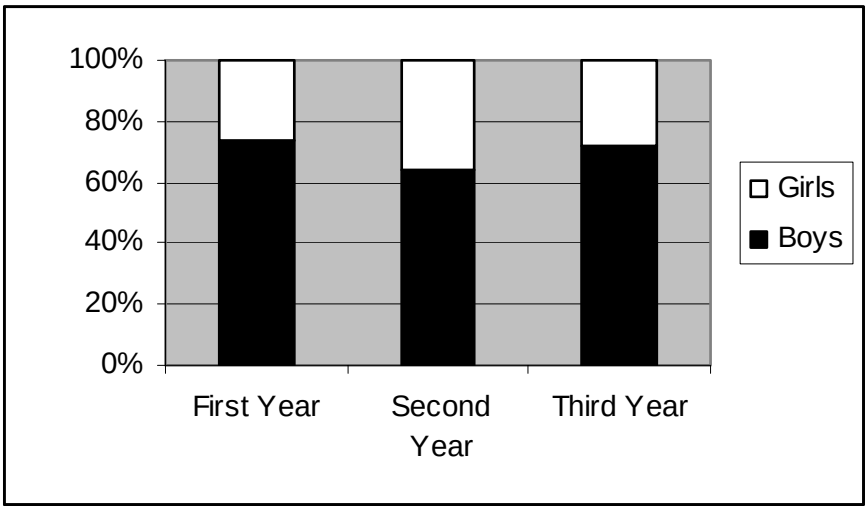


**Figure 7: Excluded Pupils by Sex**

### *Demographic Profile*

Although there are major sex differences in patterns of exclusion as compared with truancy, the demographic profile of excluded pupils is fairly similar to that of truants (as summarised in tables 12 and 13).

Excluded pupils are significantly more likely ($p<0.001$) to come from a lower class background and not to be living with both parents than non-excluded pupils. Moreover a much higher proportion of excluded pupils have a free school meals entitlement than non excluded pupils. They also are significantly more likely ($p<0.001$) to live in a neighbourhood of high deprivation.

**Table 12: Comparing Excluded and Non-Excluded Pupils according to Social Class, Family Structure and Free School Meal Entitlement**

| | | First Year (Percent) | Second Year (Percent) | Third Year (Percent) |
|---|---|---|---|---|
| Manual/Unemployed | Excluded | 75 | 78 | 72 |
| | Not Excluded | 48 | 45 | 48 |
| | Sig. Diff. | *** | *** | *** |
| | | | | |
| Not Living with Both Parents | Excluded | 50 | 50 | 57 |
| | Not Excluded | 32 | 34 | 35 |
| | Sig. Diff. | *** | *** | *** |
| | | | | |
| Free School Meals Entitlement | Excluded | 37 | 49 | 35 |
| | Not Excluded | 15 | 14 | 14 |
| | Sig. Diff. | *** | *** | *** |

Significance tests between groups using Pearson chi-square test: *** $p<0.001$.

**Table 13: Comparing Excluded and Non-Excluded Pupils according to Neighbourhood Deprivation**

| | | First Year | Second Year | Third Year |
|---|---|---|---|---|
| Neighbourhood Deprivation (mean score) | Excluded | 5.4 | 5.4 | 5.6 |
| | Not Excluded | 3.5 | 3.3 | 3.6 |
| | Sig. Diff. | *** | *** | *** |

Significance tests between means using t-tests: *** $p<0.001$;

## Exclusion and Substance Misuse

Turning to substance misuse, the study has again found that patterns of substance misuse differ amongst those who have been excluded from school as compared with non-excluded pupils. However the relationship between substance misuse and exclusion appears to be far weaker than it is for truancy.

### *Prevalence of Substance Misuse*

Table 14 describes the proportion of excluded and non-excluded pupils at each study sweep, reporting illegal drug use, drug dealing, smoking on a daily basis and drinking alcohol on a weekly basis.

**Table 14: Prevalence of Substance Misuse and Drug Dealing amongst Excluded and Non-Excluded Pupils**

| | | First Year (Percent) | Second Year (Percent) | Third Year (Percent) |
|---|---|---|---|---|
| Drug Use | Excluded | 23 | 44 | 57 |
| | Not Excluded | 7 | 20 | 31 |
| | Sig. Diff. | *** | *** | *** |
| | | | | |
| Sold drugs | Excluded | NR | 17 | 21 |
| | Not Excluded | NR | 4 | 7 |
| | Sig. Diff. | - | *** | *** |
| | | | | |
| Alcohol Use (weekly) | Excluded | 18 | 35 | 44 |
| | Not Excluded | 6 | 17 | 23 |
| | Sig. Diff. | *** | *** | *** |
| | | | | |
| Smoking (daily) | Excluded | 29 | 42 | 43 |
| | Not Excluded | 5 | 12 | 17 |
| | Sig. Diff | *** | *** | *** |

Significance tests between groups using Pearson chi-square test: *** p<0.001; nr=not recorded.

As indicated in table 14, drug use amongst both excluded and non-excluded pupils rises over time but excluded pupils report a significantly higher prevalence ($p<0.001$) at each study sweep. By third year over half of excluded pupils reported use of illegal drugs as compared with just under a third of non-excluded pupils. Excluded pupils are also significantly more likely to have sold drugs during second and third year (although the numbers of drug dealers are very small).

The findings relating to alcohol use and smoking are similar. Prevalence for each rises over time amongst both categories of pupil. However excluded pupils report a significantly higher incidence ($p<0.001$) at each study sweep. For example, during third year, 44% of excluded pupils reported that they drank on at least a weekly basis as compared with only 23% of non-excluded pupils. Similarly, 43% of those excluded during third year, smoked on a daily basis as compared with just 17% of the pupils who had not been excluded during that year.

***Strength of Relationship between Substance Misuse and Volume of Exclusion***

Table 15 shows correlations between volume of exclusion and volume of drug use, underage drinking and smoking at each sweep of the study. As noted above, the closer the coefficient is to 1 the stronger the relationship.

**Table 15: Correlation between Volume of Substance misuse and Exclusion**

| | First Year | Second Year | Third Year |
|---|---|---|---|
| Volume of Drug Use | .110*** | .140*** | .151*** |
| Scale of Alcohol Use | .067*** | .063*** | .080*** |
| Scale of Smoking | .129*** | .169*** | .136*** |

Correlations are non-parametric, Spearman's rho: ***significant at the 99.9% level of confidence.

Although the correlation coefficients are much weaker than those for truancy (see above), they are, nonetheless, significant (at the 99.9% confidence level) for all forms of substance misuse and at every sweep. As indicated in the table, by third year, drug use is the strongest correlate of truancy (.151). Alcohol use by contrast is much the weakest correlate at every sweep.

**Explaining School Exclusion: the Role of Substance Misuse**

Given the association that has been found between school exclusion and substance misuse, what role does it play in building an explanation for exclusion when controlling for other potential explanatory variables?

In order to explore this, volume of exclusions at sweep 4 (reference period: third year) was first correlated with the variables relating to school experience, other forms of anti-social behaviour (including volume of truanting), victimisation, personality characteristics and parenting. This was followed by binary logistic regression analysis, in which differences in patterns of truancy were considered whilst simultaneously taking each of the possible explanatory variables (including different forms of substance misuse and demographic factors) into account.

***(i) Correlation Analysis: Results***

Table 16 sets out the results of the correlation analysis.

**Table 16: Correlations between Volume of Exclusion and a Range of Variables**

| Domain | Variable | Correlation Coefficient |
|---|---|---|
| School | Bad Behaviour | .189*** |
| | Punishments | .227*** |
| | Relationships with Teachers | NS |
| | Attachment to School | -.078*** |
| | Parents Involvement with School | -.086*** |
| Anti-social behaviour | Self-reported Offending | .149*** |
| | Bullying Others | .044* |
| | Truanting | .154*** |
| Victimisation | Volume of Victimisation | .064*** |
| | Being Bullied | -.054** |
| | Adult Harassment | NS |
| Parenting | Parental Supervision | -.086*** |
| | Conflict with Parents | .038* |
| Personality | Impulsivity | .107*** |
| | Alienation | -.057** |
| | Risk-taking | .087*** |
| | Self-esteem | NS |

Correlations are non-parametric, Spearman's rho: ***significant at the 99.9% level of confidence; **significant at the 99% level of confidence; *significant at the 95% level of confidence; NS: not significant.

As indicated by the shaded areas, the strongest correlates of exclusion in this table are the same as those for truancy, however all of the coefficients are *much* weaker. In common

with truancy, it is the behavioural rather than affective dimensions of school experience which are more strongly correlated with exclusion, with poor attachment to school only weakly associated with volume of exclusion (-.078) and relationships with teachers not significant at all. Exclusion is also linked to other forms of anti-social behaviour including truancy (.154) and bullying others (0.44), but again these relationships are extremely weak.

As with truancy, exclusion is associated with poor parental supervision (-.086) and high levels of conflict with parents (.038), although these coefficients are extremely low. It is also linked to a range of personality variables (impulsivity, risk-taking and alienation) but again their strength is much diminished.
Finally, the relationship between victimisation and exclusion is far more equivocal than it is for truancy. While volume of victimisation is very weakly associated with exclusion (.064), adult harassment is non-significant. Moreover the negative value relating to being bullied (-.054), indicates that high levels of exclusion are associated with low victimisation from bullying.

***(ii) Regression Analysis: Results***

Turning to the regression analysis, the method chosen for predicting school exclusion was binary logistic regression. This method is used when the dependent variable is a simple binary variable, in this case "excluded during third year" with a response set of 1 for 'yes' and 0 for 'no'.

The appropriate independent variables were entered into the model using a forward stepwise procedure, thereby allowing the statistical package to exclude those variables which did not meet the significance criteria. A maximum likelihood paradigm with a p-value for entry into the model of 0.05 (i.e. there is less than 5 in 100 chance that the variables entered might not be predictive of the dependent variable) and for exclusion from the model of 0.1 was used.

The results of the analysis are summarised in Table 17 below. The left-hand column sets out the variables excluded during analysis, as not meeting the significance criteria. The other columns show the final model, including the odds ratio (Exp β), standard error and significance for each of the factors and covariates. The odds ratio is a value which measures the strength of effect of each independent variable in the model on the dependent variable. For the purposes of this paper any independent categorical variable with an odds ratio of more than 2 is considered a strong predictor; those between 1.5 and 2 are described as moderate predictors and those less than 1.5 are termed weak predictors. The odds ratios for continuous variables have to be interpreted in relation to the scale of measurement specific to each of these variables.

**Table 17: Regression Analysis Summary**

| Excluded variables | Final model | Exp (β) | Std. Error | Sig. |
|---|---|---|---|---|
| Social Class | Male | 2.661 | .227 | .000 |
| Bad Behaviour at school | Free School Meal Entitlement | 1.971 | .238 | .004 |
| Alienation | Not Living with both Parents | 1.615 | .214 | .025 |
| Impulsivity | High Volume of School Punishments | 1.189 | .023 | .000 |
| Risk-taking | Neighbourhood Deprivation | 1.142 | .030 | .000 |
| Parents Involvement in School | Poor Parental Supervision | 1.135 | .056 | .024 |
| Attachment to School | Volume of Drug Use | 1.092 | .030 | .003 |
| Alcohol Use | | | | |
| Smoking | | | | |
| Self-reported Offending | | | | |
| Truancy | | | | |
| Victimisation | | | | |
| Being Bullied | | | | |

As shown in the table, by far the strongest categorical predictor of school exclusion is being male. Social deprivation also features as a moderate to weak predictor, as measured by free school meal entitlement and neighbourhood deprivation. Not living with both parents also moderately predicts exclusion when controlling for other factors. Unlike the final model for truancy, only one of the substance misuse variables – volume of drug use - is retained in the final model.

Interestingly the variables which one might have expected to have been strongly predictive of exclusion (namely bad behaviour at school and other forms of anti-social behaviour) are not significant, although high volume of school punishments is retained in the final model. This might indicate one of two things – (i) that the range of variables in the Edinburgh Study is not currently measuring the types of behaviour which are linked to exclusion or, more controversially, (ii) that certain categories of disruptive pupil are more at risk from exclusion by virtue of their gender and social background, rather than the nature and seriousness of their behaviour (further research would be required to confirm this).

## CONCLUSIONS

Taken together the findings indicate that substance misuse, in particular smoking and drug use, has a relatively strong association with patterns of truancy. As a consequence, early intervention to tackle health risk behaviours may have some role to play in diminishing truancy rates. However the link found between negative school experience and truancy also suggests that policies are likely to be effective when aimed at the promotion of discipline in school, and fostering pro-school attitudes amongst young people *as well as* their parents (with the aim of increasing parental involvement in school). Moreover the findings indicate that to be effective, policy requires greater awareness of sex differences in patterns of truancy, and should focus in particular on the needs and problems presented by teenage girls.

In contrast to truancy, substance misuse is far more weakly associated with school exclusion. Of the three forms of substance misuse covered, only drug use features in the final regression model as a significant, but weak predictor. The findings suggest that policies for tackling school exclusion require to focus on the reasons why young males, those from deprived backgrounds and those not living with both parents are consistently singled out for exclusion. However, the links found between social deprivation and school exclusion provide further support for efforts being made by central government to tackle school exclusion through a broader social inclusion agenda.

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# APPENDIX 1: VARIABLES USED IN ANALYSIS

## Anti-Social Behaviour

Volume of offending: number of times in past year: travelling without paying correct fare; shop-lifting; noisy/cheeky in public; joy-riding; carrying a weapon; graffiti; vandalism; house-breaking; robbery; steal from school; steal from home; theft from a motor vehicle; fire raising; assault.

Volume of bullying others: number of times in past year you bullied somebody by: hitting, punching, spitting or throwing stones at them; saying nasty things, slagging them or calling them names; threatening to hurt them; ignoring them on purpose or leaving them out of things.

## Substance Misuse

***(i) Continuous Variables***
Volume of taking drugs: number of times in past year tried: cannabis; glue or gas ecstasy; cocaine; speed; heroin; LSD; magic mushrooms; downers; poppers; other drugs.

Volume of smoking: scale (0-5) never smoked – every day.

Volume of drinking alcohol: scale (0-5) never drank – at least once a week.

***(ii) Categorical Variables***
Taken any illegal drugs in past year (yes/no)
Smoke daily (yes/no)
Drink weekly (yes/no)

## School

Relationships with teachers: scale (0–10) (where 10 indicates a good relationship). Derived from: how many teachers in the past year: did you get on well with; helped you to learn; treated you fairly; you could ask for help if you had a problem with school work; you could ask for help about a personal problem; treated you like a troublemaker.

Attachment to school: scale (0-16) (where 16 indicates strong attachment). Derived from: how much agree/disagree with the following statements: school is a waste of time; school teaches me things will help me in later life; working hard at school is important; school will help me get a good job.

Bad behaviour: scale (0–24) (where 24 indicates a high volume of bad behaviour). Derived from how often in the past year did you: arrive late for classes; fight in or outside the class; refuse to do homework or class-work; were cheeky to a teacher; used bad or offensive language; wandered around school during class time; threatened a teacher; hit or kicked a teacher.

Punishments: scale (0-18) (where 18 indicates a high volume of punishments). Derived from: during the last year how often: did your parents have to sign a punishment exercise; the school got in touch with your parents by letter or telephone because of something you did wrong; you were given detention; sent to the head of department or head teacher; put on a conduct/behaviour sheet; given extra homework to do.

Parents involvement in school: scale (0-15) (where 15 indicates a high level of involvement). Derived from how often your parents do the following: check you have done your homework; go to parents' evenings; help you if you have problem at school; reply to school letters when asked; ask you about things that happen at school.

**Parenting**

Parental supervision: scale (0-9) (where 9 indicates a high level of supervision). Derived from: when you went out during the past year how often did your parents know where you were going; who you were going with; what time you would be home; how often did you come home more than an hour late against your parents wishes; stay out overnight without your parents knowing where you were; run away from home for more than one night.

Conflict with parents: scale (0-18) (where 18 indicates as high level of conflict). Derived from six items on how often disagree or argue with parents about: homework; my friends; how tidy my room is; what time I get in; what I do when I go out; money.

**Victimisation**

Volume of victimisation: number of times in past year someone: threatened to hurt you; actually hurt you by hitting, kicking or punching you; actually hurt you with a weapon; stole something of yours; used threat or force to steal or try to steal something from you.

Adult harassment: number of times in past year an adult stared at you so that you felt uncomfortable or uneasy; followed you on foot; followed you by car; tried to get you to go somewhere with them; indecently exposed themselves to you.

Volume of being bullied: number of times in past year bullied by somebody: hitting, punching, spitting or throwing stones at you; saying nasty things, slagging you or calling you names; threatening to hurt you; ignoring you on purpose or leaving you out of things.

**Personality**

Impulsivity: scale (0-24) (where 24 indicates a high level of impulsivity). Modified version of Eysenck Impulsivity Scale (Eysenck & Eysenck, 1984). The original scale was abbreviated to six items, and the response format was changed to a five-point verbal scale.

Self esteem: scale (0-24) (where 24 indicates a high level of self-esteem). Modified version of Rosenberg Self-Esteem Scale (Rosenberg 1965). The original scale was abbreviated to six items, and the response format was changed to a five-point verbal scale.

Alienation: scale (0-24) (where 24 indicates a high level of alienation). Derived from the Multidimensional Personality Questionnaire (Tellegen 1982) subscale that taps negative emotionality as it influences offending. The original scale was abbreviated to six items, and the response format was changed to a five-point verbal scale.

Risk taking: scale (0-24) (where 24 indicates a high level of risk-taking). Derived from how much agree/disagree with the following: I like to test myself every now and then by doing something a bit risky; sometimes I will take a risk just for the fun of it; I sometimes find it exciting to do things that might get me into trouble; excitement and adventure are more important to me than feeling safe.

**Other Variables**

Social class: binary measure classifying parental occupation into non-manual or manual/unemployed.

Family structure: binary measure indicating whether respondent resides with both birth parents or not.

Neighbourhood deprivation: index created using six measures of deprivation from the census according to home postcode.

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