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Title page

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Title: Are risk factors for drug use and offending similar during the teenage years?

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Are risk factors for drug use and offending similar during the teenage years?

Keywords: drug use; offending; teenage; adolescence; risk factors

Abstract:

Background: This paper explores whether at different stages of the developmental cycle of adolescence, drug use and offending are associated with a similar set of risk factors relating to: socio-structural position, informal social control, deviant peer group contexts, and deviant lifestyle behaviours.

Methods: Multivariate regression was used to analyse data from the Edinburgh Study of Youth Transitions and Crime (ESYTC) self-report questionnaire.

Results: Early in the teenage years drug use was associated with a similar set of factors to offending. These include weak bonds to parents and teachers, and deviant lifestyle behaviours. However, later in the teenage years there were differences, e.g. drug use was associated with higher socio-economic status and importance of school, and a number of factors which were associated with offending were not associated with drug use, e.g. parent-child conflict, gang membership and hanging around.

Conclusion: Results show that the factors included here are more appropriate to understanding offending than drug use. Different risk factors are associated with drug use and offending in the older, but not younger teens. It is argued that later in the teenage years drug use should be understood and addressed differently to offending. This is particularly important given the tendency for the 'drugs problem' to increasingly be dealt with as a 'crime problem' (Duke, 2006).

Background:

Introduction

Drug use and offending by young people are often assumed to be closely related. Given the tendency for the 'drugs problem' to increasingly be seen and dealt with as a 'crime problem' (Duke, 2006), analysing whether drug use should be understood and responded to in a similar way to offending is particularly important. However, much research on the topic focuses on the co-occurrence of these behaviours in criminal justice (e.g. Bennett & Holloway, 2004; DeLi, Oriu & MacKenzie, 2000) or drug treatment samples (e.g. Kinlock, Battjes & Gordon, 2004); or on interventions with drug using offenders (e.g Best *et al.*, 2010; McSweeney, Turnbull & Hough, 2008). Moreover, Bennett, Holloway and Farrington's (2008) meta-analysis suggested that the association between drug use and offending was stronger for adults than juveniles. As Stevens points out, it has often been assumed that 'the overlap that is perceived between known offenders and drug users persists for the much larger populations of unarrested offenders and anonymous drug users' (Stevens, 2007: 92).

Nationally representative cross-sectional self-report surveys have been used to estimate the prevalence of drug use and offending amongst young people (e.g. Pudney, 2003). Although there have been some geographically specific UK based longitudinal self-report studies (North West Longitudinal Study, Peterborough Adolescent and Young Adult Development Study, and the Edinburgh Study of Youth Transitions and Crime) the vast majority of studies which have looked at the relationship between drug use and offending over the teenage years are US based (e.g. National Youth Survey, Monitoring the Future) and these tend to focus on establishing the direction of causal effect, rather than offering substantive explanations for the relationship. In search of 'true causal relations' there is a tendency for research to view potential explanatory factors as 'confounding factors' to be controlled for (for example, see Macleod et al.'s 2004 systematic review).

It is proposed in this paper that the central focus should be on *understanding* both drug use and offending, which may help us to explain the relationship between the two. Consideration may then be given as to whether the behaviours should be responded to in a similar way. Studies do not tend to focus on age differentiation in associations between drug use and offending and various other factors during adolescence. This research fills a gap in exploring associations between drug use and

offending and risk factors relating to socio-demography, informal social control, deviant peer group contexts and deviant lifestyle behaviours, in order to explore whether drug use may be understood in a similar manner to offending at different stages of the developmental cycle of adolescence. Using data from the Edinburgh Study of Youth Transitions and Crime (ESYTC), this paper will show that in the early teenage years, drug use, like offending is associated with factors relating to weaker social bonds and engagement in deviant lifestyle behaviours; but associations between drug use and these factors change over the teenage years. Different risk factors are associated with drug use and offending at older, but not younger ages. It is argued that later in the teenage years drug use may be understood differently to offending, therefore the policy response should not be the same.

Theoretical context

There are a myriad of possible explanations for drug use and offending. The importance of the role of criminological theory in understanding young people's drug use has been highlighted in a review by Measham and Shiner (2009), published in this journal. This research explores associations between drug use and risk factors, related largely to Sampson and Laub's (1993) age graded theory of informal social control, which has its basis in Hirschi's (1969) social bond theory. He posited that weak social bonds free people to engage in delinquency and outlined four elements of the social bond: attachment, commitment, involvement and belief. Although support is lacking for 'involvement' much research has found the other elements of the social bond to be important (Lilly, Cullen & Ball, 2011). For example, Smith (2004) and Huizinga, Loeber and Thornberry (1994) found that parent-child conflict was associated with higher delinquency, though the latter found that parental conflict was not related to drug use. However, Huizinga, Loeber and Thornberry (1994) showed that poor family attachment was related to offending and drug use and Nagasawa, Quian and Wong (2000) found that commitment to school insulated youths from drug use;. Much research has found parental supervision to be important in predicting offending (e.g. Smith, 2004), drug use (e.g. Svensson, 2003), and both drug use and offending (e.g. Huizinga, Loeber & Thornberry, 1994).

As Sampson and Laub (1993) recognised, individuals, families and social control processes are embedded in social structural contexts. It is argued here that the socio-demographic factors (e.g. gender, socio-economic status, not living with two birth parents) should also be explored. Being male and from low socio-economic status background has been said to increase the likelihood of deeper

involvement in offending (Elliot, Huizinga & Menard, 1989). Daniel et al. (2009) concluded that cannabis use is connected to childhood disadvantage, and family structure (not living with two birth parents) has been found to be associated with substance use (Barrett & Turner, 2006). However, some research has suggested that gender (Silbereisen, Robbins & Rutter, 1995) and socio-economic status (Elliot, Huizinga & Menard, 1989) may be differently related to drug use. The Longitudinal Study of Young People in England showed that by the age of 16 young people from the top SEP (socio-economic position) quintile were more likely to report having tried cannabis than those in the bottom quintile (Chowdry, Crawford & Goodman, 2009); the North West Longitudinal Study (NWLS) which found that those with 'professional/managerial' parents often had the highest rates of drug trying (Aldridge, Measham & Williams, 2011); and National Longitudinal Survey of Adolescent Health data has shown that higher parental education and household income in adolescence was associated with higher rates of substance use in early adulthood (Humensky, 2010).

It is argued here that it is also important to look at informal social control beyond the family and school, i.e. in relation to attachments to delinquent peers (Sampson & Laub, 1993) or settings which may reinforce delinquency (Thornberry, 1987). This could involve factors relating to involvement in deviant peer group contexts (deviant friends, gang membership, hanging around) and engaging in deviant lifestyle behaviours (smoking cigarettes, drinking alcohol, drug use or offending). Association with drug using or delinquent peers is perhaps the most frequently cited risk factor for involvement in both offending and drug use (e.g. Fergusson, Swain-Campbell & Horwood, 2004; Garnier & Stein, 2002; Thornberry & Krohn, 1997; White, Pandina & La Grange, 1987). Gang membership has also been found to be related to rates of delinquency and substance use (Huizinga, Loeber & Thornberry, 1994; Smith & Bradshaw, 2005). It is suggested that involvement in one deviant behaviour (e.g. smoking, drinking alcohol, offending) may open up opportunities to engage in another deviant activity (e.g. drug use).

Research has shown that there may be some differences in terms of which risk factors are associated with early-onset and late-onset delinquency (e.g. Welte, Zhang, & Wieczorek, 2001). Thornberry (1987) argues that in middle adolescence the family declines in relative importance, while the adolescent's own world of school and peers takes on increasing significance. Therefore, the relationship between different risk factors and drug use and offending may change over the

developmental cycle of adolescence, so it is important to explore these associations at different points during the teenage years.

This paper explores cross-sectional associations (rather than causal relationships) between factors relating to socio-demography, informal social control, deviant peer group context and deviant lifestyles and drug use and offending amongst the Edinburgh Study of Youth Transitions and Crime (ESYTC) cohort, at different points during the teenage years. Based on the theoretical context and literature on explanations for drug use and offending presented above, two research questions were posed.

- Are drug use and offending both associated with a set of factors relating to: socio-demography, informal social control, deviant peer group contexts and deviant lifestyle behaviours?
- Are these associations the same earlier and later in the teenage years?

The next section outlines the methods used to do this.

Methods:

This paper presents analyses of self-report questionnaire data from the ESYTC (Smith & McVie, 2003). This prospective longitudinal study was carried out in the city of Edinburgh using a single age cohort who started secondary school in the city of Edinburgh in 1998, when they were twelve years old on average. Using a census approach, the study includes young people from a broad range of social backgrounds and neighbourhoods, rather than only focusing on areas of deprivation. All 23 state secondary schools, eight out of 14 independent sector and nine out of 12 special schools agreed to take part, which meant that 92% of children of the appropriate age range were included in the cohort.

Children and parents were given assurances of confidentiality and the purposes of the study were explained. An opt-out letter was sent to parents at the outset and at each occasion children could decline to participate. Questionnaires were completed in classrooms with researchers present and children were given assistance where necessary. An effort was made to include all those who were not present at school on the day of fieldwork by making arrangements to revisit the school at a later date or, if necessary, visiting the child at home or another suitable venue. Response rates for the cohort (based on eligible children in participating schools) were high, ranging from 96% at sweep

1 (n=4,300) to 81% at sweep 6 (n=3,531). Weighting was used to address the problem of non-response at sweeps 5 and 6 due to declining participation rates. Inverse probability weights were calculated using binary logistic regression modelling, with key characteristics (associated with offending and response propensity) as the independent variables, and responded (or did not respond) at sweep 4 as the dependent variable. Larger weights were then applied to individuals with key characteristics, who had the least probability of responding. For further information see McVie, Norris and Raab (2006) who recommended weighting in preference to imputation for use with ESYTC data.

A brief description of some of the variables included in the analyses below is provided here. For full details of the makeup of all of the variables please see the Appendix. The ordinal offending variable was derived from volume of offending, which involved a count of the number of occasions a cohort member said they had engaged in each delinquent act (shoplifting, being noisy or cheeky in public, joyriding, carrying a weapon, damage to property, housebreaking, robbery, fire-raising, assault, car-breaking, and hurting or injuring animals). The ordinal drug use variable was derived from volume of drug use, which totalled up the self-reported use of each drug (cannabis, glue or gas, ecstasy, cocaine, speed, heroin, LSD, magic mushrooms, downers, poppers or something else). Two broad socio-economic groupings were used to categorise the head of household as manual/unemployed or non-manual. Parental supervision score was based on whether parents knew where cohort members were going, with whom and when they would be home. Parent-child conflict score was based on how often cohort members argued with parents about various things. Relationships with teachers, the importance of school, beliefs about offending, and hanging around are scale variables derived from a series of questions which are outlined in the Appendix. Named best friend's offending and drug use are direct measures of the self-reported offending or drug use of a best friend in the ESYTC cohort who was named by cohort members. Gang membership was based on asking cohort members whether they would call the group of friends they usually hang around with a 'gang'.

In preparation for multivariate regression analyses, exploratory analyses were undertaken to see whether each of the variables were separately related to drug use and offending at different points over the teenage years. The relationships between volume of drug use and volume of offending and continuous variables (for example parent-child conflict score) were investigated by calculating correlation scores (Spearman's rho). For binary variables, the average volume of drug use

and average volume of offending for specific groups (for example male versus female) were compared.

Multiple regression enables the simultaneous analysis of relationships between a set of factors and a dependent variable. It allows for the examination of whether certain factors (e.g. familial relationships) are associated with drug use (or offending) in the context of other factors (e.g. peer behaviours). The dependent variables (volume of drug use and volume of offending) were highly positively skewed, with cases clustered at the low end of the distribution. As the skew could not be corrected for by transformation, these variables were converted from continuous to ordinal. Linear regression was not suitable due to the non-normal distribution of the data so ordinal regression was used. Parallelism was tested for and non-significant results were found for drug use and offending models at age 13, indicating that as desired the ordinal groups vary in parallel. However, tests are sensitive and at age 16 significant results were found for offending and drug use ($p=0.004$) models. When running regression models a backward procedure was employed, i.e. the first the model included the full list of variables, but every time it was re-run the least significant variable was removed until all the remaining variables were significant. In order to deal with missing cases the weight relating to the sweep of the dependent variable was used. The next section presents results of: bivariate analyses (section 1); regression models on associations with drug use and offending at age 13 (section 2); and age 16 (section 3).

Results:

Section 1: Bi-variate analyses

Results of bi-variate analyses presented in tables 1 and 2 below show that volume of offending (at age 13 and 16) was related to all of the factors included. Volume of drug use was related to virtually all the factors, but there were a couple of exceptions. As data presented in table 1 shows, significant differences in volume of drug use were not found between males and females at age 16, or between socio-economic status groupings at age 13 or 16, whereas significant differences in volume of offending were found between these groups. Differences in average volume of drug use and offending were generally speaking larger between deviant peer group context and deviant lifestyle groupings than they were for socio-demographic factors.

Table 1 here

As data presented in table 2 below demonstrates all of the continuous variables were associated with both volume of drug use and volume of offending at ages 13 and 16. However, correlation coefficients for all of these variables were higher for offending than they were for drug use.

Table 2 here

Section 2: Modelling drug use and offending at age 13

Multivariate analyses were necessary in order to establish whether each of these variables were associated with drug use and offending in the context of other factors. Separate regression analyses were used to see whether drug use and offending were associated with a similar set of factors measured at the same age. This was done earlier (age 13) and later (age 16, section 3) in the teenage years.

All of the factors which were associated with drug use at age 13 were also found to be associated with offending at age 13. This suggests that in the early teenage years drug use can be understood in a similar manner to offending, as being related to weaker social bonds to parents and teachers, and involvement in deviant lifestyle behaviours. However, some factors included in this model were associated with offending but not drug use, or were more strongly associated with offending than drug use, suggesting that at age 13 offending is more closely associated with the factors included here than drug use is.

Results (presented in table 3) show that drug use and offending at age 13 were associated with a number of common factors, including being male. In the context of other factors neither drug use nor offending were associated with socio-economic status background, low importance of school (commitment), or named best friend's drug use. Early in the teenage years both drug use and offending were related to factors representing weaker social bonds to parents and teachers, i.e. parent-child conflict and bad relationships with teachers, both measures of attachment. Gang membership and engagement in other deviant lifestyle behaviours, i.e. offending or drug use, weekly smoking, and weekly drinking, were associated with both drug use and offending at age 13. In the

model where drug use at age 13 was the dependent variable, volume of involvement in offending at age 13 was more strongly associated with drug use than regular involvement in other forms of substance use (weekly smoking and weekly drinking). This is interesting as it suggests that in particular involvement in offending is closely associated with early drug use.

Involvement in offending at age 13 was associated with being male and not living with two parents. Early offending was related to lower informal social control i.e. low parental supervision, parent-child conflict and bad relationships with teachers (attachment), and moral beliefs accepting of offending. Deviant peer group context (named best friend's volume of offending, gang membership and hanging around), and engagement in substance use (drug use, weekly drinking and weekly smoking) were also associated with early offending. It is worth noting that some of these factors (i.e. not living with two parents, low parental supervision, moral beliefs accepting of offending, named best friend's volume of offending and hanging around) were associated with offending at age 13, but not drug use.

Table 3 here

Section 3: Modelling drug use and offending at age 16

Findings suggest that at a later stage in the teenage years drug use should be understood in a different manner to offending. Results (presented in table 4) show that at age 16, volume of drug use and offending were both associated with some of the same factors: being male, low levels of parental supervision, bad relationships with teachers, and weekly drinking. However, there were many differences.

Manual or unemployed socio-economic status family background was negatively associated with drug use at age 16, yet socio-economic status was not associated with offending. So for this cohort drug use in the later teenage years was associated with higher socio-economic status. The possibility that this could be a reporting effect (i.e. it merely reflects the characteristics of those who are left at school) has been considered. However, this is unlikely as school leavers were also followed up and data have been weighted to take account of the kind of bias that can result from missing cases. Whilst not living with two parents was associated with drug use this was not the case for offending at age 16. Parent-child conflict was not associated with drug use at age 16, whereas it was

for offending. Drug use at age 16 was negatively associated with low importance of school (commitment) -so for this cohort drug use later in the teenage years was associated with higher importance of school. Relaxed moral beliefs which are tolerant of some forms of wrongdoing were associated with offending, but not drug use at age 16. It is particularly interesting that higher socio-economic status and higher commitment to school were associated with drug use at age 16 as this suggests that later in the teenage years drug use may be understood differently to offending.

In the context of other factors, weekly smoking was associated with drug use at age 16, but not offending. Of the deviant peer group context variables (gang membership, hanging around, named best friend's offending and drug use) only named best friend's drug use was associated with drug use at age 16. In contrast, offending at age 16 was associated with gang membership, named best friend's volume of offending, and hanging around score, but not with named best friend's drug use. This demonstrates that a broad range of deviant peer group context factors were associated with later offending, but not drug use.

Table 4 here

Discussion:

This paper concludes with a discussion of the implications of these findings. Results of multivariate regression models showed that earlier on in the teenage years drug use was associated with a similar set of factors as offending, i.e. weaker social bonds to parents and teachers, and involvement in deviant contexts and activities. Moreover, earlier on in the teens involvement in offending was strongly associated with drug use, even when other factors had been taken into account. This suggests that those who are involved in using drugs at the age of 13 are not well bonded to conventional lifestyles and are also involved in offending and deviant behaviours. Results show that the factors explored here are relatively useful in terms of understanding drug use at this stage in the developmental cycle of adolescence. However, they also suggest that even early in the teenage years this set of factors is more closely associated with offending than drug use.

Findings suggest that there are more limitations to the set of factors explored here when considering behaviours in the later teenage years, since the results show that some of the factors

which were associated with drug use at age 16 (for example non-manual socio-economic family status and higher importance of school) were not associated with offending (or with drug use at age 13). The extent to which drug use and offending were associated with similar factors changed over the teens, with different risk factors associated with drug use in the older, but not younger teens. Interestingly results suggest that later in the teens young people in this cohort who were engaging in drug use were from higher socio-economic status backgrounds. This contradicts commonplace assumptions and a number of studies which, as Humensky (2010) points out, have shown that low SES is associated with substance use during adolescence. However, the finding is consistent with results from a number of recent studies (Chowdry, Crawford & Goodman, 2009; Aldridge, Measham & Williams, 2011; and Humensky, 2010). It is also worth noting that when other factors were taken into account socio-economic status was not associated with self-reported offending at either stage in the teenage years. This is an important point to emphasise, given the over-representation of lower socio-economic groups in the criminal justice system (Cavadino Dignan & Mair, 2013).

The fact that parent-child conflict was not associated with drug use at age 16 (yet it was for offending), echoes the findings of Huizinga, Loeber and Thornberry (1994). However, in addition the results presented here showed that parent-child conflict was associated with drug use at age 13, but not at age 16, thereby suggesting that the way drug use can be understood may change over adolescence. Findings also showed that drug use later in the teens was connected to being committed to conventional beliefs (i.e. higher importance of school), rather than having moral beliefs which were tolerant of some forms of wrongdoing (which was associated with offending but not drug use). This suggests that in being connected to a commitment to conventional values, drug use in later adolescence may have become more mainstream. This does not fit with Hirschi's social bond theory, which posits that a lack of commitment to conventional values frees people to engage in delinquency. It could be argued that these results are more in line with the normalisation thesis and findings from the NWLS, which suggest that drug-using adults in the cohort do not reject mainstream values (Aldridge, Measham and Williams, 2011: 227). In addition results suggest that later in the teenage years drug use is connected to different peer networks than offending. At age 16 offending is associated with offending based peer group contexts (gang membership, named best friend's volume of offending and hanging around), whereas drug use is only associated with close friend's drug use.

It is interesting to note that at age 16 there were many differences in the factors which were associated with drug use and offending, whereas at age 13 all of the variables which were associated with drug use were also associated with offending. Results suggest that drug use and offending should not simply be understood as 'problem behaviours' (Jessor & Jessor, 1977) with common causes. The possibility of specific as well as common factors should be taken into account when conducting research into the relationship between the two, i.e. independent cause (e) as well as common cause (d) models. Broadly speaking results fit with White, Pandina and LaGrange's (1987) research, which suggests that there is a degree of etiological independence between substance use and delinquency. However, their results were different in that they found that a number of variables drawn from control theory and differential association theory were related to both substance use and delinquency, and it was personality characteristics (not included in the models presented in this paper) which were related to substance use but not delinquency.

In addition to different factors being associated with drug use and offending in the older (rather than younger) teens, it is also important to note that findings show that there was a change over adolescence in the factors which were associated with drug use. Although it should be recognised that some of the same factors (i.e. being male, bad relationships with teachers, offending, weekly smoking and weekly drinking) were associated with drug use both earlier and later in the teenage years, some interesting differences have been noted which suggest that the way in which drug use can be understood changes across adolescence. Earlier in the teenage years all of the factors which were associated with drug use were also associated with offending, and offending was very strongly related to early drug use. However, results show that later in the teenage years drug use was associated with higher socio-economic status and higher importance of school. This suggests that those who are using drugs later in the teens are committed to conventional beliefs, and drug use may have become more mainstream. This fits with NWLS findings, but is contradictory to Nagasawa, Quian and Wong's (2000) finding that commitment to school insulated youths from drug use.

There were also changes over adolescence in relation to which peer group factors were associated with drug use. Early in the teenage years gang membership was associated with drug use, whereas later on it was named best friend's drug use. This suggests that later on in the teens drugs may be used along with close friends, but perhaps in contexts which are not necessarily connected to offending. Qualitative data collected as part of this study (XXXX 2008) found that later onset drug

users used drugs in legitimate leisure contexts (separate to offending), and portrayed their drug use as a legitimate lifestyle choice, contesting its depiction as deviant. Findings presented in this paper suggest that later on in the teenage years drug use became more mainstream and should be understood in a different manner to earlier drug use, which was more deviant. This fits well with the idea of a process of normalisation, i.e. '*movement* in perceptions of some kinds of drug taking: from the margins towards the mainstream' (Aldridge, Measham & Williams, 2011: 219).

The strengths and limitations of this study should be acknowledged. Findings presented relate to associations between variables, whereas longitudinal research is required to infer causal relationships. Although some of the variables do combine measures from parents or teachers in addition to cohort members, the data presented here are almost entirely reliant on self-report measures. Although it is acknowledged that there are limitations to self-report data, for the purposes of the research being conducted here these measures were highly preferable to official criminal justice data. There are also likely to be limitations to some of the variables, e.g. gang membership, as since the ESYTC was designed the self-definitional approach to measuring gang membership has been questioned (Medina et al., 2013). The ability to look at associations between self-reported offending and drug use and the behaviour of a matched named best friend was a distinct advantage. This direct measure is superior to measures of peer delinquency or drug use commonly used in self-report studies. It is important to recognise that these results relate to the ESYTC cohort as a whole and findings will vary for subgroups within the cohort. Furthermore, the limitations of the risk factor approach, outlined by Corr (2014), adopted in this paper are also acknowledged. Nevertheless, this research allowed for the analysis of associations between drug use and offending and a variety of other factors earlier and later in the teenage years for an entire cohort of young people (males and females), from a variety of social backgrounds. In addition this research finds temporal differences in the applicability of common and independent explanations of drug use and offending over the teenage years, which does not appear to have been emphasised in the literature thus far.

It is argued that the set of factors explored here are better placed to understand offending, rather than drug use. This suggests that when it comes to understanding drug use there is a need to move beyond a criminological risk factor approach. As Measham and Shiner (2009) have pointed out, as far back as the 1960s and 70s 'new' deviance theories (Becker, 1963; Young, 1971) made an important contribution by incorporating pleasure into the sociology of drug use. Despite this, much

research (the NWLS being a notable exception) on young people's drug use and offending has continued to focus on 'individual pathology and social dysfunction' (Measham & Shiner, 2009: 503). Pleasure and preference is something which has largely been absent from mainstream conventional criminological theories. This has also been an omission when it comes to the presentation of results from well respected longitudinal studies on offending and drug use. Furthermore, control theories like Hirschi's (1969) social bond theory assume that motivation exists universally. Qualitative research undertaken as part of this project (XXXX 2008) has acknowledged the role of 'human agency' (Laub & Sampson, 2003), although it was recognised that choice is not something equally shared by all those in society (Measham, 2004). For an exploration of the impact of formal and informal regulatory orders on autonomy and choice for the ESYTC cohort see McAra and McVie (2012).

In conclusion, different risk factors were associated with drug use and offending in the older (but not younger) teens. Results suggest that the factors associated with offending remain stable over the developmental cycle of adolescence. In contrast the factors associated with drug use change over this period. Findings would suggest that in the early teenage years drug use could be responded to in a similar manner to offending, for example by attempting to improve relationships with parents and teachers. However, as previously noted causal relationships cannot be inferred here and results of longitudinal analyses undertaken as part of this study will be presented elsewhere. Generally speaking results would be supportive of an approach which addresses the broader needs of those who are offending and using drugs early on in the teenage years. However, research cautions against intervening too much at a young age, and as McAra and McVie (2010) have argued desistance from offending is facilitated by diversionary strategies. Broadly speaking findings suggest that whilst policies to deal with earlier drug use could be similar to those used to address offending, later in the teenage years drug use should be understood differently (as more mainstream rather than deviant or pathological), and dealt with separately to offending. However, further research on the impact of drug use and offending on young people's lives would be required in order to provide more detailed policy implications.

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APPENDIX: DESCRIPTION OF VARIABLES

Variable	Description
Deviant lifestyle behaviours:	
Offending (ordinal)	Ordinal offending variable derived from volume of offending (a count measure -not exact as answers were grouped so tends to be an under-estimate because the top category of 10+ was interpreted as 11 which was derived by totalling up the number of occasions a cohort member said they had engaged in each delinquent act). Items included shoplifting, being noisy or cheeky in public, joyriding, carrying a weapon, damage to property, housebreaking, robbery (theft with force or threats), fire-raising, assault, car-breaking, and hurting or injuring animals (not included at sweep 1).
Drug use (ordinal)	Ordinal drug use variable derived from volume of drug use (a count measure derived by totalling up the self-reported use of each drug) i.e. cannabis, glue or gas, ecstasy, cocaine, speed, heroin, LSD, magic mushrooms, downers, poppers or something else. From sweep 3 onwards semeron (bogus drug) was included in the list.
Weekly smoking (binary)	Smoke cigarettes at least once a week = 1, smoke less often/not at all = 0
Weekly drinking (binary)	Drink alcohol at least once a week = 1, drink less often /not at all = 0
Socio-demographic:	
Gender (binary)	Male = 1, female = 0
Socio-economic status (binary)	Socio-economic status of head of household. Parental occupation was used to create two broad socio-economic groupings (SEG): manual/unemployed (SEG IIIb, IV, V and unemployed) or non-manual (SEG I, II and IIIa). Refers to the SEG of the parent in the highest occupational grouping. Sweep 4 data from the parents' survey was used but where missing cohort members' reports at sweep 1 were substituted.

	Manual/unemployed = 1, non-manual = 0
Family structure (binary)	Not living with 2 birth parents most of the time= 1, living with 2 birth parents = 0
Informal social control:	
Parental supervision	Low parental supervision score based on indicators of lack of parental supervision (<i>knowing where going, with who, when be home and at sweep 4 5 what doing</i>). High score indicates very little parental supervision.
Parent-child conflict (scale)	Parent-child conflict score based on how often cohort members argue with parents about various things (<i>tidiness of room, what do when go out, what time come home, who hang about with, clothes, appearance, other things</i>)
Relationships with teachers (scale)	Bad relationships with teachers score (<i>teachers get on well with, treat you like a trouble maker, at sweep 2: could ask for help if you had a problem with school work or with a personal problem, helped you to learn, treated you fairly, and at sweeps 5 felt you could trust, did not listen to or respect you, praised you if you had done well</i>). The higher the score the worse the relationship with teachers.
Importance of school (scale)	Low importance of school score (<i>school is a waste of time, teaches me things that will help me in later life, working hard at school is important, will help me get a good job</i>). Higher score indicates does not see school as being important.
Moral beliefs re offending (scale)	Moral beliefs accepting of offending score (<i>when do you think it is ok to 1) tell a lie, 2) steal something from somebody, 3) hurt or fight with somebody</i>). Not measured at every sweep so this relates to age 12 or age 15 instead of age 13 or age 16.
Deviant peer group context:	
Named best friend's volume of offending (scale)	Named best friend's volume of offending score. At sweeps 3 and 5 cohort members were asked to name their three best friends in their school year. In most cases it was possible to identify named friends as cohort members and look at their volume of offending. The first named best friend's self-reported offending was used here.
Named best friend's drug use (binary)	Named best friend used drugs = 1, named best friend did not use drugs = 0
Gang membership (binary)	Gang member = 1, not gang member = 0 (<i>would you call the group of friends you usually hang around with a 'gang'</i>)
Hanging around (scale)	Hanging around score (<i>how often hang around where live/ other areas in the evenings /at weekends</i>)