Reducing risky behaviour through the provision of information

Research report

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Executive Summary

There is a long history of school-based programmes and other interventions that have sought to reduce young people's participation in risky behaviour in response to Government and public concern over such behaviour and its associated harms. However, there is little consensus about which approaches are most effective, or which groups should be targeted.

The Department for Education commissioned this report from the Centre for Understanding Behavioural Change (CUBeC) to explore whether engagement in risky behaviour could be reduced by providing young people with information.

First, the report sets the context by summarising a selection of existing empirical research about patterns of risky behaviour amongst young people, supplemented with our own empirical analysis. We then review the current literature on the effectiveness of two specific approaches to supplying young people with information to reduce participation in risky behaviour: (i) providing information on the *consequences* of that behaviour; and (ii) providing information about the true prevalence of that behaviour amongst their peers ('*social norms'*).

The 'consequences' approach is based on the assumption that young people underestimate the potential costs of participation in risky behaviour: providing information on the consequences should therefore make such behaviour less attractive. The social norms approach notes that young people typically overestimate the prevalence of risky behaviour amongst their peers, and holds that young people's behaviour is influenced by perceptions of what their peers do. Tackling any misperceptions could therefore reduce participation in risky behaviour.

Key findings

Prevalence and trends

- Participation in risky behaviour starts at a young age, suggesting that programmes aiming prevent these forms of behaviour should focus on the start of the teenage years, if not before.
- Risky behaviour amongst young people is very persistent and participation in one type of risky behaviour is predictive of later participation in other forms of risky behaviour.

- Schools themselves are an important factor associated with risky behaviour, and school characteristics (e.g. truancy rates may provide a useful way to identify target populations).

Does providing information reduce risky behaviour?

- Both the consequences and social norms approaches are more successful at altering knowledge and perceptions than changing actual behaviour. These are necessary first steps to changing behaviour, but the evidence suggests that changing knowledge or beliefs alone is not sufficient.
- Previous programmes based on the consequences approach alone, appear be particularly ineffective at reducing risky behaviour.
- Where interventions have been successful at reducing risky behaviour, the impact is typically short-lived.
- Interactive programmes are more effective than those that involve only passive learning; the method of delivery is as important as the programme content.
- The current generation of prevention programmes typically use a range of approaches and techniques.
- However, this makes it difficult to provide a full assessment of which approaches work, or which approach works best. Programmes also often vary widely in the types of behaviour and age groups targeted, and in the methods of implementation and evaluation. Furthermore, there are numerous evidence gaps on the social norms approach, which limit the conclusions that can be drawn on its effectiveness.

Methodology

Our empirical analysis of risky behaviour prevalence and trends uses three data sources: the Longitudinal Study of Young People in England (LSYPE), the Offending, Crime and Justice Survey (OCJS), and the Hospital Episode Statistics (HES). The analysis of the LSYPE and OCJS combines a description of results from existing work with new analysis on the importance of school characteristics and how individual risky behaviour evolves over time. Evidence from HES is entirely new.

The specific forms of behaviour we examine are substance use (including smoking, alcohol consumption, and drug use), engagement in criminal activity

and, where possible, sexual risky behaviour. The population of interest is young people aged 13–19.

We recognise that for each of these activities, the degree to which they are considered risky may depend upon the young person's level or frequency of engagement. At one end of the scale any illicit drug use or criminal activity might be viewed as risky. By contrast, for activities such as drinking, and perhaps smoking, many people may draw a distinction between one-off experimentation and regular or excess indulgence. For example, a young person having a small alcoholic drink under parental supervision would, in the eyes of many, not constitute 'risky' behaviour in the same way that binge drinking or frequent consumption would. Where we can, we concentrate on those types of behaviour and levels of participation which we think society in general would deem genuinely risky. However, the data do not allow us in every case to distinguish between these different degrees and we sometimes report more general participation.

The literature review considers the experimental evidence for the effectiveness of programmes based on the consequences and social norms approaches. The objectives are to: (i) assess what conclusions can be drawn from the existing evidence; and (ii) to highlight areas where knowledge gaps remain.

Our review does not provide an exhaustive list of work on the consequences and social norms approaches. We have focussed instead on studies employing robust impact evaluation techniques, providing case studies to illustrate the main results, and augmenting our analysis with meta-analysis where appropriate.

Results

Prevalence and trends

Existing research shows that rates of participation in self-reported risky behaviour have generally been on a downward trend since the turn of the millennium for smoking, drinking and using drugs. There has also been a trend to delay the point at which young people first engage in sexual activity.

Drinking alcohol appears to be the most commonly reported risky behaviour, and reported participation in a given risky behaviour appears to increase with age. This is somewhat - but not entirely - consistent with the pattern in hospital admissions. The fertility rates of young females, which are only a

partial measure of risky behaviour, increase steadily between the ages of 13 and 19.

Further analysis of hospital admissions data reveals a strong link between drug- and alcohol-related admissions over time: those who have been admitted for one at age 14-16 are more likely to be re-admitted for either risky behaviour at age 17-19. Also, amongst women, early drug or alcohol admission substantially increases the probability of childbirth aged 17-19. Additionally, the evidence reveals that almost 40 per cent of girls who give birth aged 14-16 will give birth again aged 17-19. Taken together, these findings indicates that there are high risk groups which could be targeted when implementing an intervention, but also that reductions in admissions for drugs or alcohol among 14-16 year olds could have additional benefits in terms of reducing readmissions at age 17-19.

Existing research has also identified a number of factors that are associated with the likelihood of participating in risky behaviour. The main risk factors that emerge are:

- Gender;
- Ethnicity;
- Religious beliefs;
- Social interactions with friends;
- Attitudes to crime and education;
- Being a victim of bullying or crime;
- Truancy or exclusion from school.

Additional analysis conducted for this report demonstrates that individual schools themselves, or the neighbourhoods they reflect, can be a quantitatively important risk factor. Individual schools may therefore constitute useful target groups for a potential intervention. We find that schools with high truancy rates are more likely to have higher levels of risky behaviour (given the background characteristics of the pupils). Within such schools, pupils can then be targeted on the basis of the above individual-level risk factors that have emerged as important.

Does providing information reduce risky behaviour?

Overall, it is clear from the research that there is no single view as to the effectiveness of interventions that provide information about the

consequences of risky behaviour or about social norms. Whether these interventions work depends entirely on the context, the nature of the intervention and how it is delivered. The high-level findings that have emerged, where evidence has been available, are that:

- The consequences and social norms approaches are both more effective at changing perceptions than at changing behaviour.
- Programmes based on the consequences-based approach continue to operate, even though there is little rigorous evidence that they reduce risky behaviour.
- The social norms approach is typically combined with social marketing techniques. Although these programmes have a number of strong advocates, there are substantive gaps in the evidence base that make it hard to draw conclusions about their overall effectiveness.
- The (limited) evidence on the long-run impact of both these approaches generally shows that that they do not generate a sustained reduction in risky behaviour beyond the duration of the programme.

The limitations that have been highlighted do not mean that these approaches cannot be useful or successful, especially as part of a broader prevention programme. Further research is warranted to address a large number of answered questions that our review has uncovered. At a high level, the most important knowledge gaps are:

- Where consequence-based or social norms-based approaches have been found to be unsuccessful, is this due the approach itself, to the behaviour that it tries to deter, or to the method of delivery?
- Would the same programme have different effects if it were delivered in two different ways?
- What rate do programme effects deteriorate at, and are there any factors that might alleviate that deterioration?
- Do the same interventions have different effects on different age groups or cohorts? How much does programme success hinge on implementation at the correct time?
- Do interventions conducted in other countries (mainly the United States) translate directly into a UK context?
- What is the effectiveness of interventions in reducing the future consequences and harm associated with risky behaviour, rather than (or in addition to) the prevalence of it?

While these represent important knowledge gaps, many of these questions could be addressed by implementing suitable trials and evaluations within a UK environment, and then tracking the results over a longer time period.

Conclusions and policy implications

The report's main conclusions are as follows:

- The timing of an intervention is important. Ideally it needs to be early enough to be preventative, catching young people before they begin to engage in the risky behaviour. However, it also needs to be timed to be relevant – intervention too early can be wasted effort.
- Schools themselves are an important factor associated with risky behaviour, and may provide a useful way to identify target populations.
- Programmes designed to reduce risky behaviour should be interactive rather than passive and didactic.
- Providing information about the consequences of risky behaviour does not, in itself, lead to reductions in participation in risky behaviour.
- While there have been instances of effective social norms-based interventions, there is insufficient evidence to draw strong conclusions as to the effectiveness of the social norms approach.
- There are still unanswered questions around the effectiveness of the consequences-based and social norms-based approaches. Many of these could be addressed through the implementation of robust trials in a UK context, involving a suitable comparison group and a longer follow-up period.
- In reality, policy-makers are not faced with a choice between the two approaches examined in this report, nor are they faced with a choice between the provision of information and other types of intervention. It appears likely that an effective programme would combine a number of different approaches, including (but not limited to) the two types of approach that have been considered in this report.

1. Introduction

This report was commissioned by the Department for Education as a result of a number of intersecting policy concerns:

- A desire to reduce participation in risky behaviour and their associated harms among young people. This is being pursued through a number of avenues including, for example, the Government's Drug Strategy and the lead role being played by the Department in relation to substance misuse among young people.[1]
- A concern for early (i.e. timely) intervention to achieve maximum effect.
- A belief that behavioural insight has a key role to play in addressing such issues: i.e., that small changes in the way decisions are framed or information is provided can prompt significant changes in the way people behave.

This report contains the findings of research carried out by the Centre for Understanding Behaviour Change (CUBeC). The aim of the project is to explore whether young people's participation in certain types of risky behaviour can be reduced through the provision of information on the consequences of these forms of behaviour, and on their actual rates of prevalence among peers (social norms).

The specific types of behaviour that the project examines are substance use (including smoking, alcohol consumption, and drug use), engagement in criminal activity, and where possible, sexual risky behaviour. The population of interest is young people aged 13–19.

The project consists of two conceptual stages. The first stage is an empirical analysis to provide descriptive evidence on patterns and trends in risky behaviour among young people. Three data sources are used: the Longitudinal Study of Young People in England (LSYPE), the Offending, Crime and Justice Survey (OCJS), and the Hospital Episode Statistics (HES).

The second stage is a literature review examining previous interventions that have attempted to reduce participation in these forms of behaviour through information on the consequences of risky behaviour or on social norms. The review summarises the key findings from the literature while also identifying a

[1] http://www.education.gov.uk/childrenandyoungpeople/healthandwellbeing/substancemisuse/a0070053/drugs

set of unanswered questions that have not been addressed to date. Finally, this report brings together the insights from the first two stages to identify a set of recommendations that could inform the design of a potential future social norms intervention to reduce risky behaviour, if such an intervention were to be implemented.

This report is structured as follows: Section 2 provides descriptive evidence on participation rates in the types of risky behaviour considered, among young people in England. Section 3 provides evidence on the dynamics of participation in risky behaviour, in particular the age at which young people tend to start participating and the transitions that they make between different types of risky behaviour at different ages. Section 4 concludes the empirical analysis by providing evidence on the risk factors associated with participation on risky behaviour, in order to understand how a potential intervention might be targeted most effectively. Section 5 reviews the literature on interventions aiming to reduce risky behaviour through the provision of information on the consequences of such forms of behaviour or through the provision of information on true social norms. Finally, Section 6 concludes the report and sets out the recommendations for any future potential social norms intervention aiming to reduce risky behaviour.

2. The prevalence of risky behaviour

This section provides some basic evidence on the levels of participation in various forms of risky behaviour among young people, both by reviewing current evidence and by presenting new evidence based on the HES data. This descriptive evidence is useful for setting in context the rest of the analysis and findings.

Defining risky behaviour

The specific forms of behaviour we examine are substance use (including smoking, alcohol consumption, and illicit drug use), engagement in criminal activity, and where possible, sexual risky behaviour including underage sex (protected or otherwise) and teenage conceptions or pregnancies. The population of interest is young people aged 13–19.

We recognise that for each of these activities, the degree to which they are considered risky may depend upon the young person's level or frequency of engagement. At one end of the scale any illicit drug use or criminal activity as risky might be viewed as risky. By contrast, for activities such as drinking, and perhaps smoking, many people may draw a distinction between one-off experimentation and regular or excess indulgence. For example, a young person having a small alcoholic drink under parental supervision, would in the eyes of many, not constitute 'risky' behaviour in the same way that binge drinking or frequent consumption would. Where we can, we concentrate on those forms of behaviour and levels of participation which we think society in general would deem genuinely risky. However, the data do not allow us in every case to distinguish between these different degrees and we sometimes report more general participation.

2.1 Previous research

This section provides a brief summary of findings from two surveys: Smoking, Drinking and Drug Use Among Young People (SDD), and Health Behaviour in School-aged Children (HBSC). The former is a reference source for the Department of Health and Department for Education on statistics relating to young people's participation in alcohol and substance use, while the latter is commonly used as a reference source for statistics on young people's risky sexual behaviour.[2]

[2] It is worth noting that there also has also been some published researched on the prevalence of risky behaviour using the data sources that this report is based on. See, for example, Cebulla and Tomaszewski (2009) and Green and Ross (2010), which both analyse

Evidence from the SDD

At the time of writing this report, the latest available SDD survey is for 2012 (Gill et al, 2012). Just over 6,500 pupils aged 11–15 in schools in England were surveyed, and the following rates of prevalence were measured from their responses:

- A quarter of pupils had smoked a cigarette at least once, while 5% reported smoking regularly (defined as at least once a week). Girls were more likely than boys to report smoking regularly.
- 45 per cent of pupils reported drinking alcohol at least once in their life, while 12 per cent reported drinking it in the past week. The proportion who report drinking in the past week rises with age, but similar proportions of boys and girls report doing it.
- 17 per cent of pupils reported having ever used drugs, while 12 per cent reported having taken any drugs in the last year and 6 per cent reported having taken any drugs in the past month.
- The most common drug used was cannabis, which 7.6 per cent of pupils reported using in the last year.
- The proportion who report having ever taken drugs rises with age, while boys are more likely than girls to report having done it.
- The proportions of pupils who report participating in these activities has generally declined since the turn of the millennium.

Evidence from the HBSC

At the time of writing this report, the latest available HBSC report is based on the 2010 survey (Brooks et al, 2011). As part of a wider cross-national study, 4,400 young people aged 11, 13 and 15 were asked about physical and mental health; family, school and community life; and their peer relationships.

Focusing on sexual behaviour, the report found that:

- Among 15-year-olds, 27 per cent of boys (34 per cent of girls) reported having ever had sexual intercourse.
- Of these, 47 per cent of boys and girls reported that their first sexual intercourse had taken place at the age of 15. A further 9 per cent of

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the Longitudinal Study of Young People in England, and Hales et al (2009), which analyses the Offending, Crime and Justice Survey.

boys and 1 per cent of girls reported that their first sexual intercourse had taken place by age 11.

- Compared with 2002, the trend has been for 15-year-olds who have had sexual intercourse to now report a slightly higher age at which they first became sexually active; in other words, they have delayed their first intercourse. This is particularly true among girls.
- Among 15-year-olds who reported having had sexual intercourse, around 80 per cent of boys and 67 per cent of girls reported that a condom had been used during their last intercourse.
- Usage of the contraceptive pill during intercourse was less widespread: among 15-year-olds who reported having had sexual intercourse, approximately 36 per cent of girls and 23 per cent of boys said that the pill had been used during their last intercourse. By contrast, 15 per cent of boys and girls had reported that neither a condom nor the pill had been used during their last intercourse.

2.2 New evidence from Hospital Episode Statistics

This section provides some basic statistics on hospital admissions data, based on the HES inpatient data which is a new source of information on risky behaviour from a DfE perspective.[3] Note that these statistics are not intended to provide corroborating measures of underlying incidence of risky behaviour among young people. Rather, admission rates reflect the incidence of extreme health events that result from participation in risky behaviour. Indeed, only episodes that require an overnight stay are recorded in the HES inpatient data.

Figure 2.1 shows the admission rates for drugs and alcohol per thousand people amongst those born in 1987 or 1988, at each age between 12 and 19. Relative to the rates of use described in section 2.1, admission rates are very low.

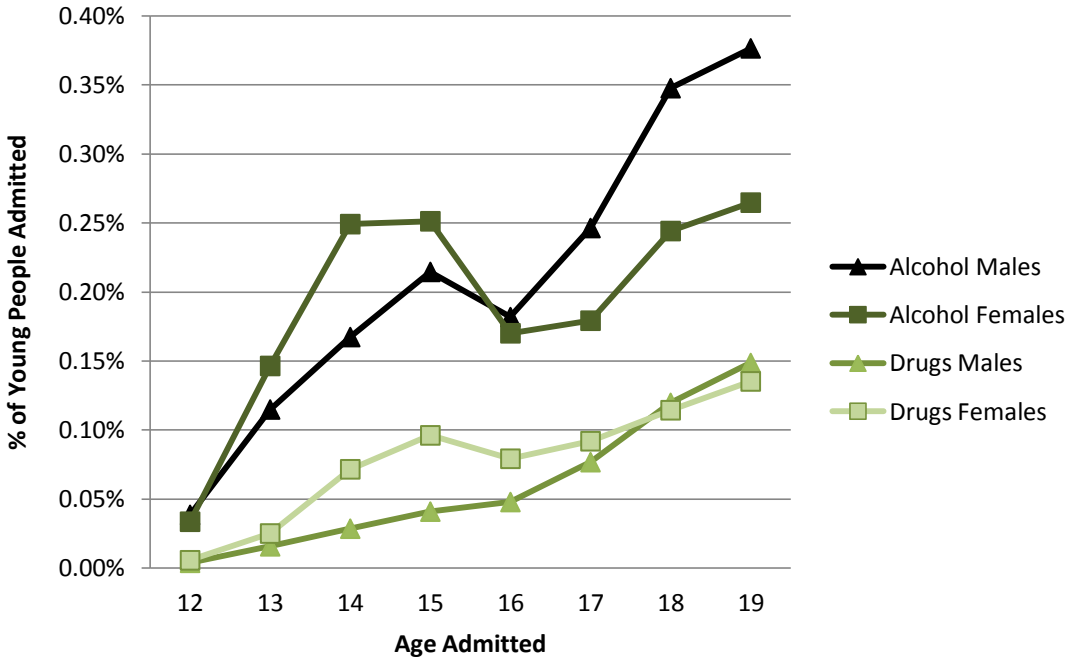
Rates of admission for alcohol are much higher than for drugs, at each age shown and for both young men and young women. Amongst young men, alcohol admission rates rise steeply with age between 12 and 15. There is then a temporary dip when the cohort reaches age 16, before the upward trend continues. Male drug admission rates generally rise with age.

[3] More information on the HES data can be found in Appendix A.

The admission patterns amongst young women reveal some interesting differences. Alcohol related admission rates rise more sharply from age 12, such that the admission rate for girls is almost 50 per cent higher than for boys at age 14. Admissions stay high at age 15, before falling rapidly at ages 16 or 17. It is only at age 19 that the alcohol-related admission rate exceeds that seen at the earlier peak at age 15. By this point, the admission rate for young men exceeds the rate for young women by 42 per cent. There is a similar, but less pronounced picture for drugs: admissions rise up until age 15 before falling aged 16 and 17, and rising thereafter. At age 19, a similar proportion of males and females are admitted for drug-related diagnoses.[4]

The peaks in admissions for young women aged 14-15 are not repeated in the survey information on usage. However, the HES data itself does not allow us to assess whether the observed patterns reflect underlying differences in usage by age, or a higher probability of an adverse reaction requiring medical intervention for young teenagers, particularly amongst girls.

Figure 2.1 Percentage of young people admitted to hospital for drugs and alcohol at ages 12-19 (cohort born in 1987 and 1988)

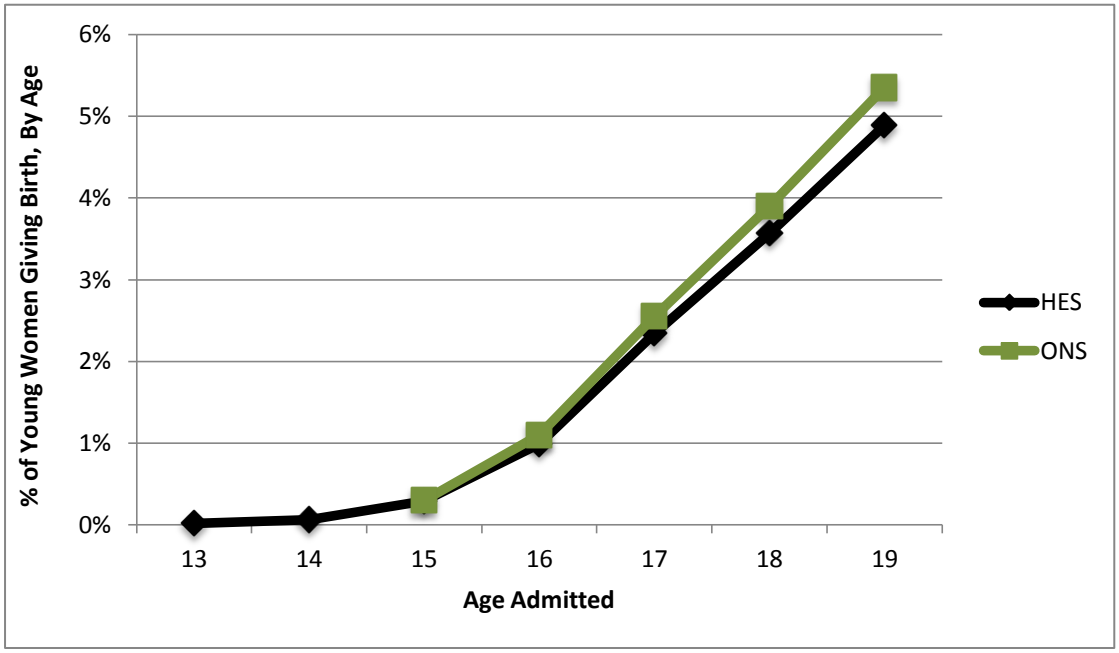


[4] All patterns are repeated for the cohort born in 1987 or 1988.

Notes: Hospital Episode Statistics 1999-2008, admissions of those born in 1987 or 1988. Graph shows admissions given as a percentage of ONS estimates of age specific cohort size.

Figure 2.2 gives our HES estimates for age specific fertility (birth rates) amongst young women, alongside the official Office for National Statistics estimates.[5] The black line shows the estimated percentage of young women admitted to hospital for childbirth at each age between 13 and 19. The green line shows the corresponding estimates from the ONS for young women aged 15-19. The two series are very close to one another; both indicate sharp rises in fertility after the age of 15.[6] The rise in fertility after age 16 is close to linear.

Figure 2.2 Age-specific fertility rates: HES and ONS estimates



Notes: Black line gives the number of females admitted to hospital for childbirth as a percentage of Office for National Statistics (ONS) estimates of age specific cohort size. Calculated using Hospital Episode Statistics 1999-2009: admissions of those born in 1987 or 1988. Women and girls who give birth more than once at a particular age are only counted once. Green line gives ONS estimates of age-specific fertility per 100 females.[7]

[5] These figures only include conceptions that result in a birth. Given that only half of teenage conceptions result in a birth, this is only a partial measure of risky sexual behaviour.

[6] The minor differences in the HES and ONS estimates may be due to: slight variation in the total population base; missing births in the HES records, due to home births or missing birth records; the HES estimates not accounting for multiple births at the same age.

[7] ONS data is available at http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-231281.

2.3 Summary

This section has reviewed existing research from the SDD and HBSC on the prevalence of risky behaviour among young people, and provided some new descriptive evidence based on the HES inpatient data.

The SDD data reveal that among young people in school, a quarter had smoked a cigarette at least once, while 5 per cent reported smoking regularly (defined as at least once a week). 45 per cent of pupils reported drinking alcohol at least once in their life, while 12 per cent reported drinking it in the past week. 17 per cent of pupils reported having ever used drugs, while 12 per cent reported having taken any drugs in the last year and 6 per cent reported having taken any drugs in the past month. While the proportion reporting these activities rises with age, prevalence has generally been on a downward trend since the turn of the millennium.

The HBSC data reveal that among 15-year-olds, 27 per cent of boys and 34 per cent of girls reported having ever had sexual intercourse. Compared with 2002, the trend has been for 15-year-olds who have had sexual intercourse to now report a slightly higher age at which they first became sexually active; in other words, they have delayed their first intercourse. This is particularly true among girls. Among 15-year-olds who reported having had sexual intercourse, around 80 per cent of boys and 67 per cent of girls reported that a condom had been used during their last intercourse.

Drinking alcohol appears to be the most commonly reported risky behaviour, and reported participation in a given risky behaviour appears to increase with age. This is somewhat but not entirely consistent with the pattern in hospital admissions: they become more common at higher ages, while alcohol-related admissions are more common than other types at each age (between 12 and 19). However, there is brief decline in alcohol-related admissions between age 15 and 16, followed by an increase beyond that. The fertility rates of young females increase steadily between the ages of 13 and 19[8].

[8] Fertility rates are only a partial measure of teenage sexual activity that results in conceptions, as they do not include the other half of conceptions that result in abortions.

3. The dynamics of participation in risky behaviour

This section provides longitudinal evidence on the dynamic aspects of participation in risky behaviour. This is considered in two ways: the point at which participation in risky behaviour starts, and the transitions that young people make between different types of risky behaviour as they become older. This may have important implications for the age at which interventions should be targeted and the activities at which they should be targeted.

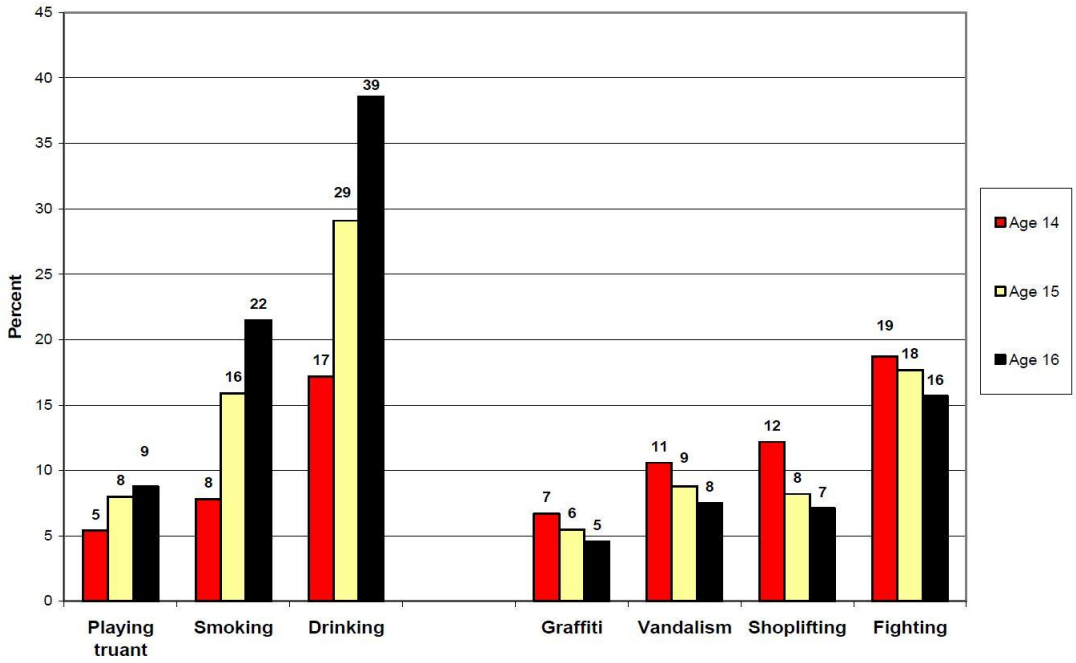
3.1 Age of onset

The age of onset of risky behaviour is not recorded in the LSYPE, but is recorded in the OCJS. Onset cannot be observed in the LSYPE because it does not record information on the age at which young people *first* participate in risky behaviour.

Figure 3.1, taken from Cebulla and Tomaszewski (2009), shows how rates of reported participation in certain forms of risky behaviour varies between the ages of 14 and 16 (based on the LSYPE). Here, smoking is defined as smoking cigarettes “sometimes” or more frequently; drinking is defined as consuming an alcoholic drink more frequently than once a month. There is very rapid growth in the prevalence of smoking and drinking between 14 and 16, which suggests that it may important to target interventions which are aimed at reducing these forms of behaviour at young people who are below the age of 14.[9]

[9] For other risky behaviours shown in the graph, such as graffiti, vandalism, shoplifting and fighting, the fact that the prevalence falls with age could reflect selective attrition from the survey. It may be that young people who are more likely to carry out such activities are also more likely to drop out of the study.

Figure 3.1 Estimated prevalence of selected risky behaviours, LSYPE



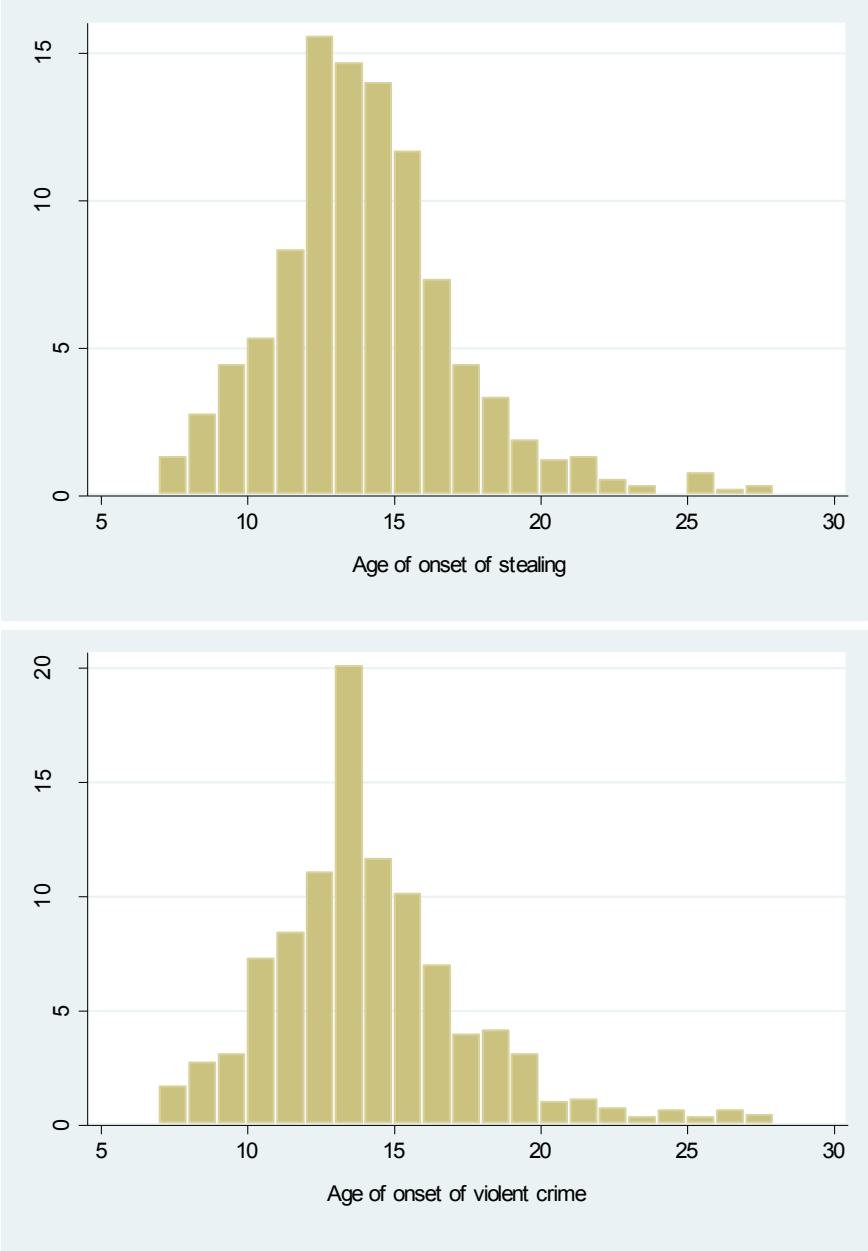
Source: Taken from Cebulla and Tomaszewski (2009).

Additional work based on the OCJS

Figure 3.2, below, shows additional analysis conducted specifically for this research project. It shows the distribution of age of onset for two types of offending – stealing and violent crime[10] – as a proportion of those who have ever committed it. The most common age at which young people first engage in them is 13–14. The likelihood of onset then declines sharply with age, meaning that if someone has never stolen something or committed a violent crime by the start of adulthood, they are unlikely to commence these activities in future.

[10] Violent crime is defined as a violent offence (mainly assault), but does not include minor offences such as school fights.

Figure 3.2 Age of onset of stealing and violent crime, OCJS



Source: Authors' calculations using OCJS 2003-2006.

To provide some context, 2010/11, there were roughly 123,000 young people aged 10–17 who had committed an offence resulting in a reprimand, warning, caution or conviction in England and Wales (Youth Justice Board and Ministry of Justice, 2012). This represents approximately 2.3 per cent of the population, according to population estimates from the Office for National Statistics. Furthermore, around 21 per cent of the offences committed by young people in 2010/11 were for violence against the person.

Results from on the HES

In the HES it is possible to track an individual's hospital admissions over time, and to therefore identify when they first admitted for any given diagnosis. In this section, we decompose the prevalence of admissions for risky behaviour presented in Figure 2.1 into first and repeat admissions. We use a slightly older cohort, born in 1984 or 1985, so that it is possible to track individuals until slightly older ages.

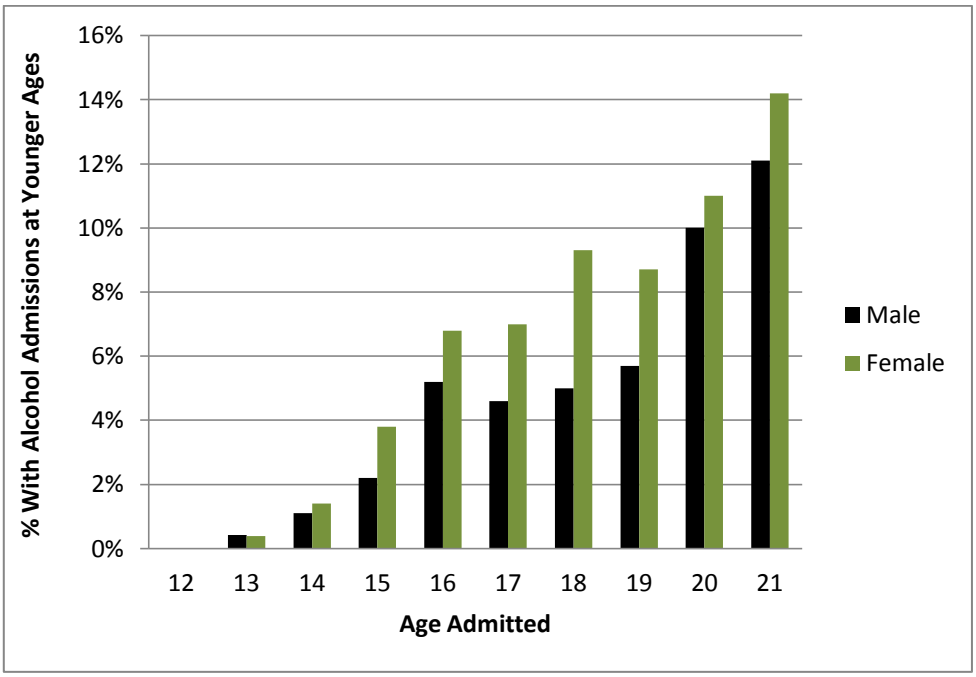
Figure 3.3 gives the percentage of admissions for alcohol where the patient has a record for previous admissions for the same diagnosis, for each age between 12 and 23. An individual is recorded as having a previous admission if they have been admitted for alcohol at least once at an earlier age.[11] The figure indicates a steady rise in previous admissions as the cohort ages, and therefore a fall in the proportion admitted for the first time. By age 16, 5 per cent of men and 7 per cent of women have previous admissions, rising to 11 and 12 per cent at age 20, and 20 and 21 per cent at age 23. Hence, although rates of readmission rise quite rapidly, the majority of admissions for alcohol are amongst those without a history of alcohol admission. Women admitted for alcohol-related diagnoses are more likely to have previous admissions, particularly between age 16 and 19 when the overall prevalence for women dips (see Figure 2.1).

Figure 3.4 gives the corresponding results for drug admissions. The proportion with previous admissions rises monotonically with age, for both men and women. From age 16, a higher percentage of females admitted for drugs have been admitted before. At age 19, 13 per cent of women and 10 per cent of males had previous drug admissions, rising to 21 per cent and 26 per cent at age 23. In comparison to the results for alcohol, in Figure 3.4, readmission rates for drugs are lower until age 16 and higher thereafter. Differences for women are larger than for men.

Figure 3.5 shows the percentage of women who give birth in a NHS hospital who have a record of previous childbirth. Data for older ages is included only to provide context for the numbers at earlier ages. At age 16, just over 5 per cent of those giving birth have given birth at least once before, doubling to 10 per cent at age 17, and again to 20 per cent at age 19. Among those giving birth aged 22 or 23, over 40 per cent have given birth before.

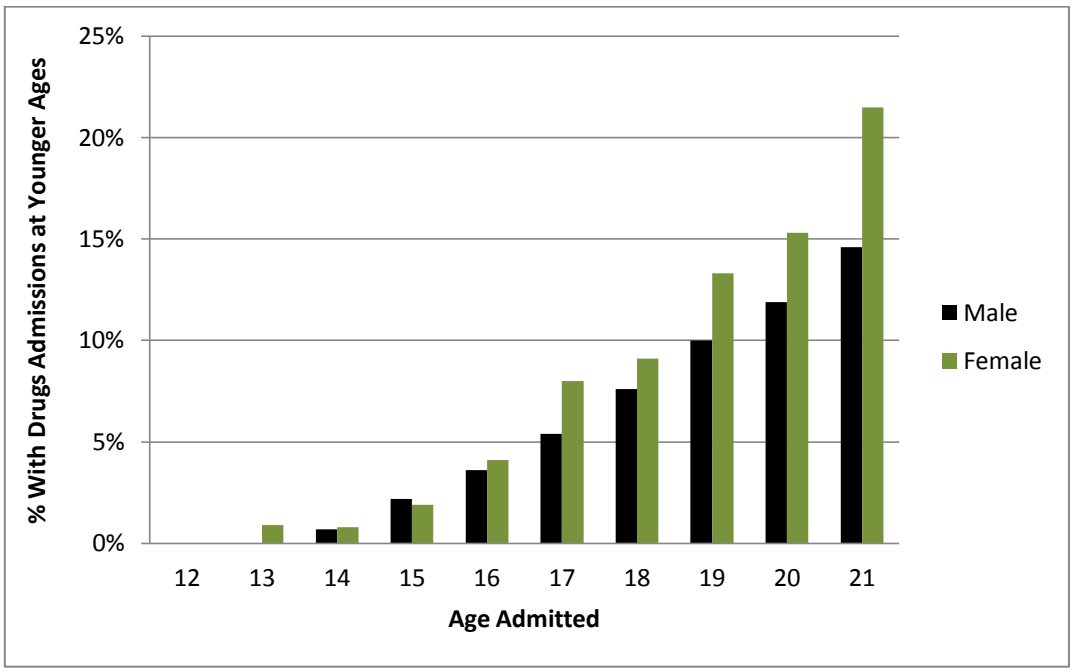
[11] Hence a patient who was first admitted at 16 years and 2 months and then again at 16 years and 4 months would not be classed as having a previous admission at age 16. If they were admitted again at age 17 (or any subsequent age), they would be recorded at age 17 as having a previous admission.

Figure 3.3 Percentage of those admitted for alcohol who were previously admitted for alcohol at a younger age, by age and sex



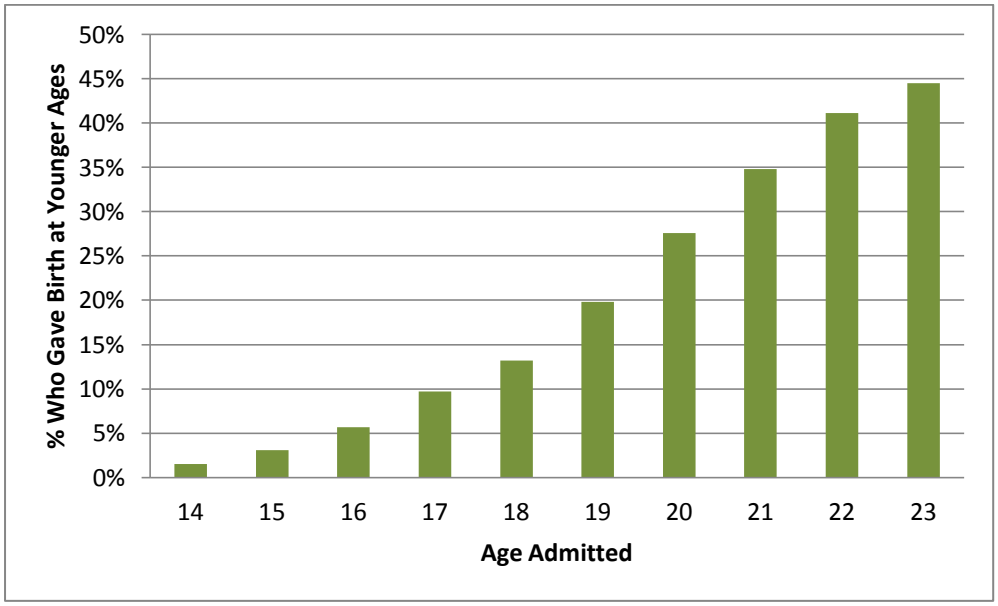
Notes: Hospital Episode Statistics 1997-2009, admissions of those born in 1984 or 1985. Numbers with previous admissions for alcohol are divided by the total number admitted at each age. An individual has an earlier admission if they were admitted for alcohol at least once at an earlier age. Earlier admissions at the same age are excluded.

Figure 3.4 Percentage of those admitted for drugs who were previously admitted for drugs at a younger age, by age and sex



Notes: Hospital Episode Statistics 1997-2009, admissions of those born in 1984 or 1985. Numbers with previous admissions for drugs are divided by the total number admitted for drugs at each age. An individual has an earlier admission if they were admitted for drugs at least once at an earlier age. Earlier admissions at the same age are excluded.

Figure 3.5 Percentage of those admitted to hospital to give birth who previously gave birth at a younger age, by age



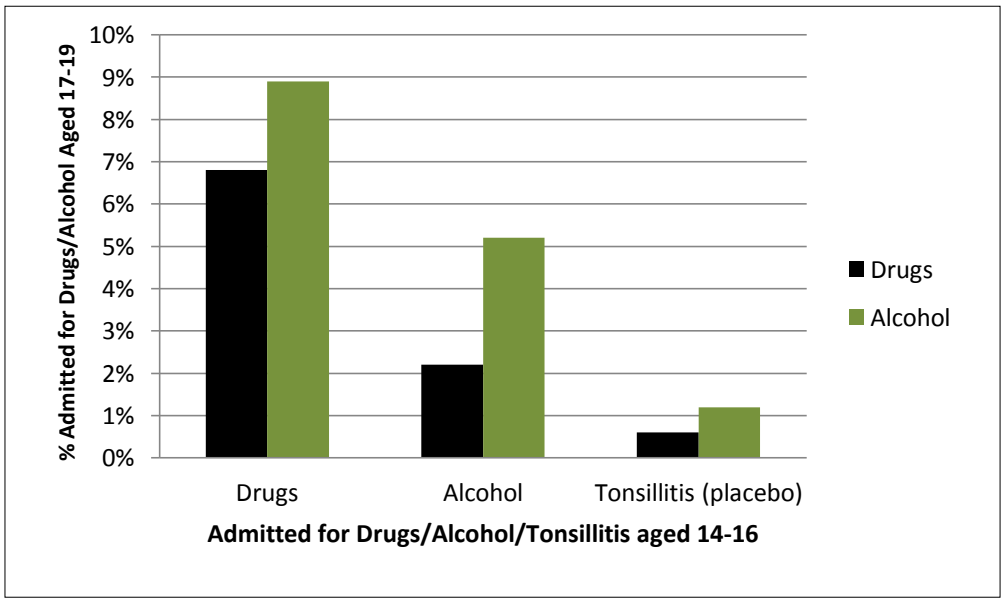
Notes: Hospital Episode Statistics 1997-2009, admissions of those born in 1984 or 1985. Numbers with at least previous childbirth admission are divided by the total number admitted to give birth at each age. Earlier admissions at the same age are excluded.

3.2 The dynamics of repeat hospital admissions

In this section, we examine the subsequent hospital admissions of those admitted to hospital aged 14-16. The objectives are: (i) to understand the degree to which admissions related to risky behaviour persist; and (ii), to assess whether early risky behaviour helps to predict admission for other types of risky behaviour or adverse health events.

Figure 3.6 shows the percentages of those admitted for drugs or alcohol aged 14-16 who are subsequently admitted again for drugs and alcohol aged 17-19. To place some context on the magnitude of these effects, we also show the same percentages for those admitted for tonsillitis aged 14-16. We assume that none of these initial admittances for tonsillitis were related to risky behaviour.

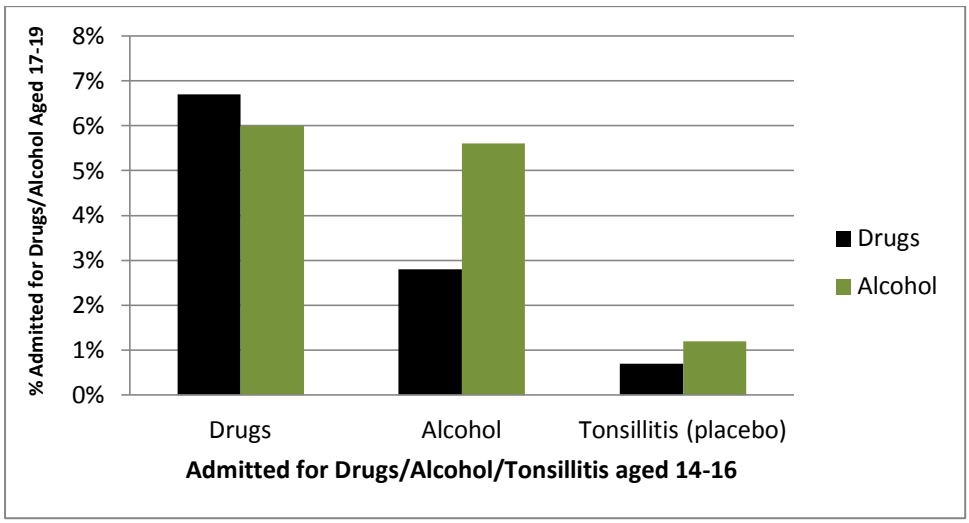
Figure 3.6 Percentage of males admitted to hospital for drugs, alcohol, and tonsillitis aged 14-16 who are readmitted for drugs or alcohol aged 17-19



Notes: Data extracted from the Inpatient Hospital Episode Statistics between 2000 and 2009 inclusive, covering all episodes where the patient is male and is born in 1987 or 1988. There were 777 individuals admitted for drugs aged 14-16, 3708 for alcohol, and 2518 for tonsillitis.

The figure provides two principal points of note. First re-admission rates for both drugs and alcohol are highest amongst the group with prior drug admissions, 6.8 per cent of whom are readmitted for a drug-related diagnosis and 8.9 per cent of whom are readmitted for an alcohol-related diagnosis. This compares to 2.2 per cent and 5.2 per cent for those who were previously admitted with an alcohol related diagnosis. Amongst those with previous admissions for our selected non-risky diagnosis, tonsillitis, readmission rates were just 0.6 per cent for drugs and 1.2 per cent for alcohol. Second, the figure confirms the relationship between drug and alcohol misuse. Individuals with prior drug admissions are much more likely to have later admissions for alcohol (8.9 per cent), than those previous admittances for tonsillitis group (1.2 per cent). Equally, those with prior alcohol use are much more likely to be admitted for drugs (2.2 per cent relative to 0.6 per cent).[12]

Figure 3.7 Percentage of females admitted to hospital for drugs, alcohol, and tonsillitis aged 14-16 who are readmitted for drugs or alcohol aged 17-19

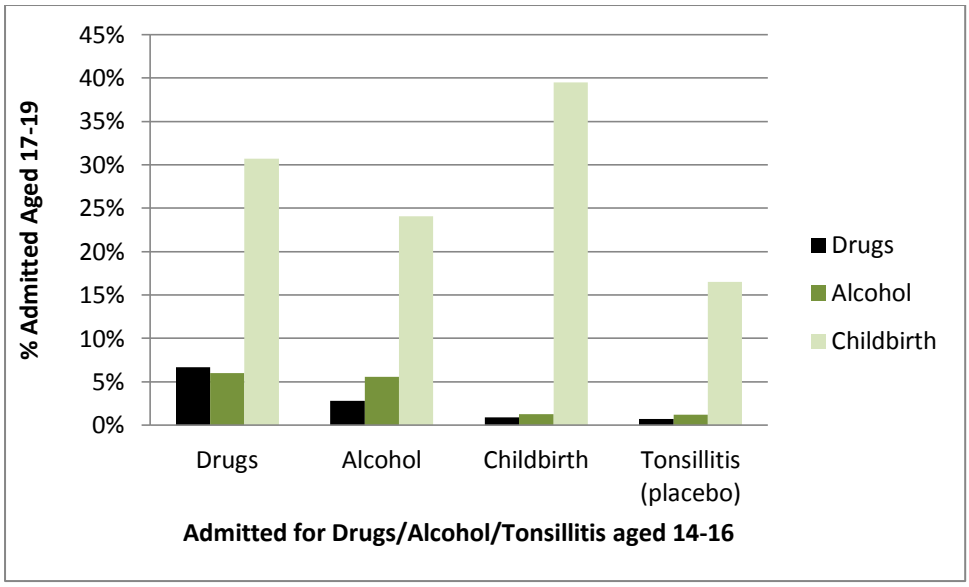


Notes: Data extracted from the Inpatient Hospital Episode Statistics between 2000 and 2009 inclusive, covering all episodes where the patient is female and is born in 1987 or 1988. There were 1610 individuals admitted for drugs aged 14-16, 4334 for alcohol, and 7120 for tonsillitis.

[12] An alternative possible comparison is to the persistence of admissions for fractures: of those admitted for fractures aged 14-16, 2.5% are readmitted for fractures aged 17-19. Hence, those admitted for drugs or alcohol aged 14-16 are more than twice as likely to be readmitted for the same diagnosis aged 17-19, compared to those who were admitted with a fracture.

Figure 3.7 presents the same results for female. Again, individuals admitted for drugs and alcohol diagnoses aged 14-16 are more likely to be admitted for either risky behaviour aged 17-19 than those previously admitted for tonsillitis. Amongst the group with previous drug admissions, 6.7 per cent were later admitted for drugs and 2.8 per cent for alcohol. For those previously admitted for alcohol related diagnosis, 6 per cent are later admitted for drugs, and 5.6 per cent for alcohol. This compares to just 0.6 per cent and 1.2 per cent for those with previous admissions for tonsillitis, figures identical to those for women.

Figure 3.8 Percentage of females admitted to hospital for drugs, alcohol, childbirth and tonsillitis aged 14-16 who are readmitted for drugs, alcohol, or childbirth aged 17-19



Notes: Data extracted from the Inpatient Hospital Episode Statistics between 2000 and 2009 inclusive, covering all episodes where the patient is female and is born in 1987 or 1988. There were 1610 individuals admitted for drugs aged 14-16, 4334 for alcohol, 7120 for tonsillitis, and 8,857 for childbirth.

Finally, Figure 3.8 considers the relationship between risky behaviour and teenage childbirth.[13] There are two important features to note. First, persistence in child-birth is far higher than the persistence in any other diagnosis considered, risky or otherwise: among those who gave birth aged 14-16, 39.5 per cent give birth again before their 20th birthday.[14] By contrast,

[13] Again, this is only a partial measure of risky sexual behavior, as it does not include those girls who conceive but choose to abort. Furthermore, it includes conceptions after age 18, which may not be classified as a risky sexual behaviour.

[14] The figure of 40 per cent appears very high. However, it is important to note that we are looking at a relatively small and select group of young women. When we consider all those who give birth aged 17, 18, or 19, only 5 per cent have a record of pregnancy aged 14-16. Furthermore, this transition rate is similar to the recurrence of pregnancy at slightly older

readmission rates for the same diagnoses are 6.7 per cent for drugs and 5.6 per cent for alcohol[15]. Second, those that are admitted to hospital for any risky behaviour as young teenagers have a much higher probability of giving birth aged 17-19 than those admitted for tonsillitis, our non-risky example group. Amongst those admitted for tonsillitis aged 14-16, 17 per cent give birth between ages 17 and 19. For those previously admitted for drugs, the rate of readmissions for childbirth approximately doubles to 31 per cent; amongst those admitted for alcohol aged 14-16, a quarter gave birth before age 20.[16] However, there is no evidence that early pregnancy is correlated with subsequent admissions for alcohol, drugs or violence: there is almost no difference in subsequent admission rates for these types of behaviour between those who give birth aged 14-16 and those admitted for tonsillitis aged 14-16.

Our analysis is consistent with existing work which identifies area level correlations between rates of teenage pregnancy and rate of hospital admissions for alcohol at the same point in time (Bellis et al, 2009; Cook et al, 2010). However, our analysis goes further by demonstrating that: (i) these correlations exist over time for the same individual, such that women with alcohol or drug admissions have higher subsequent birth rates; and (ii) early alcohol- or drug-related admissions increase the chance of subsequent pregnancy, but not vice-versa.

3.3 Summary

This section has provided longitudinal evidence on how participation in risky behaviour evolves for the same individuals. The evidence in Figure 2.1 shows that participation in smoking and drinking increases rapidly between age 14 and age 16, which suggests that it may be important to target interventions

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ages, which we can examine at using the 1984/1985 cohort. Amongst this cohort, 48 per cent of young women pregnant between 17 and 19 were pregnant again between 20 and 22. The main difference at these slightly older ages is in the proportion with a prior pregnancy: for those pregnant between 20 and 22, 31 per cent were also pregnant between 17 and 19, whilst 6 per cent had a recorded birth between 14 and 16.

[15] This is in part because almost all subsequent births will result in a hospital admission, whereas individuals can use or abuse alcohol or drugs without being readmitted for acute care.

[16] Again, it is important to take these high readmission rates in context. A relatively high proportion of those with prior admissions for risky behaviour will give birth before age 20. However, the vast majority of young mothers do not have a record of such admissions.

before the age of 14. The evidence presented from the OCJS supports this: theft and violent crime appear to be most likely to start in the early teenage years, between the ages of 13 and 15. Looking at the HES, the proportion of young people who have a previous admission for alcohol, drugs or childbirth steadily rises throughout the teenage years as well.

The main finding from the HES evidence is the strong link between drug- and alcohol-related admissions: those who have been admitted for one at age 14-16 are more likely to be readmitted for either risky behaviour at age 17-19 than if they had initially been admitted for a non-risky diagnosis (such as tonsillitis). Amongst women, early drug or alcohol admission substantially increases the probability of childbirth aged 17-19. This confirms earlier analysis at an area level, although we find that the strong link is only in one direction: from early admission for drugs or alcohol to later admission for childbirth. Additionally, the evidence reveals that almost 40 per cent of girls who give birth aged 14-16 will give birth again aged 17-19. Taken together, these findings indicates that there are high risk groups which could be targeted when implementing an intervention, but also that reductions in admissions for drugs or alcohol among 14-16 year olds could have additional benefits in terms of reducing readmissions at age 17-19.

4. Characteristics of young people who engage in risky behaviour

The previous sections of this report addressed participation in risky behaviour in and of itself, focussing on the rates of prevalence or the dynamics of risky behaviour between different ages. This section reviews previous evidence, and provides additional evidence, on the factors commonly associated with participation in risky behaviour. Such evidence is useful for policymakers because it can be used to identify priority groups of young people where interventions to prevent risky behaviour may be most effective.

This section only deals with evidence based on the LSYPE and OCJS datasets; the HES data does not contain information on characteristics that could be used to understand the factors associated with risky behaviour.

4.1 Risk factors

Previous evidence based on the LSYPE

Some previous published research has considered these issues in the context of the LSYPE. Green and Ross (2010) document the risk factors associated with the likelihood of having ever tried alcohol and find that:

- Being female is associated with a slightly higher risk of having tried alcohol, while membership of a minority ethnic group is associated with a lower risk;
- Young people for whom religion is important are less likely to have tried alcohol, as are those who have disability;
- Young people who report having been bullied are more likely to have tried alcohol before.

Other research published by DfE has also considered these issues. Barnes et al (2011) show the risk factors associated with belonging to a 'substance misuse'[17] group and a 'risky behaviour'[18] group respectively. Both groups constitute around 8 per cent of young people. The researchers find that

[17] The main identifier of being in this group is substance abuse itself, although low attainment and emotional health concerns are also relevant factors.

[18] The main identifier of being in this group is reported criminal activity. Young people in this group also have a 50-50 risk of substance use as well as risks of low attainment and mental health concerns.

participation in substance misuse is more likely to occur among young people who:

- Are female;
- Live in a rural area;
- Have experiences of being bullied;
- Play truant or have been suspended;
- Have friends who intend to leave school;
- Frequently go out with their friends;
- Have had sexual contact before the age of 16.

Meanwhile, participation in the more general risky behaviour group is more likely to be associated with young people who:

- Are male;
- Are Black Caribbean;
- Play truant or have been suspended;
- Have friends who intend to leave school;
- Frequently go out with their friends;
- Have had sexual contact before the age of 16.
- Believe they are treated unfairly by their teachers.

By contrast, participation in the risky behaviour group is less likely to be associated with young people who place importance upon religion, who have positive attitudes towards school or who feel their teachers exert greater discipline.

Additional evidence based on the LSYPE

Here we present additional analysis of the risk factors associated with participation in risky behaviour (as defined for the purposes of this report).[19] From our additional analysis, the following conclusions can be drawn:

- There are often statistically significant differences by gender in the likelihood risky behaviour by gender. For example, males are 5 percentage points *less* likely than females to report having smoked a

[19] These associations are estimated in statistical models (regressions) that control for gender, region, ethnicity, mother's education, income and school-level factors. The full tables showing the estimates from these models can be found in Tables B.1 to B.4 in Appendix B.

cigarette, and 5.5 percentage points *more* likely to have been in trouble with the police.

- For most outcomes, young people from non-White British ethnic groups are less likely to have reported engaging in that behaviour than White British young people, and these differences are statistically significant. The main exceptions are for cannabis usage and reported contact from the police, where young people of Black Caribbean ethnicity are equally likely to report these types of behaviour.

A key message that emerges from this additional LSYPE analysis is that schools – or the neighbourhoods they reflect – seem to be a particularly important risk factor, and interventions might be better targeted if they were aimed at specific schools.

Table B.5 in Appendix B demonstrates this by comparing the size of the estimated effect of school-level factors[20] with the size of the estimated effects of other socio-economic characteristics (mother's education and household income). Young people whose mothers are in the highest education category (NVQ Level 4 or 5) are 3 percentage points less likely to have smoked cigarettes, 2 percentage points less likely to have smoked cannabis and 3 percentage points less likely to have been in trouble with the police, compared with young people whose mother has no formal qualifications. The differences by income are slightly larger: young people in the top (richest) quintile of household income are 5 percentage points less likely to have smoked cigarettes and 6 percentage points less likely to have been in trouble with the police, compared with young people in the bottom (poorest) income quintile.

In either case, these sets of differences are far smaller than the differences between different types of school. The bottom row of the table shows the difference in the prevalence of each risky behaviour between schools in the 25th percentile of the distribution of school-level factors, and schools in the 75th percentile. This difference is considerably larger than the maximum difference between income or mother's education categories. On average, young people whose school is in the 75th percentile of the school fixed effect distribution for smoking are 13 percentage points more likely to have smoked a cigarette, 15 percentage points more likely to have used cannabis, and 12

[20] Rather than including specific school-level factors, our analysis allows for a 'school fixed effect', which captures all school-level influences common to the pupils in that school. In this context, the school fixed effect can be thought of as the underlying propensity to participate in risky behaviour across the whole school.

percentage points more likely to have been in trouble with the police, compared with young people whose school is in the 25th percentile. This confirms the importance of school-specific circumstances as a key way of identifying potential target groups for any interventions. As mentioned above, this finding emerges even after controlling for individual pupil characteristics such as gender, ethnicity and socio-economic background.

The final stage of this LSYPE analysis attempts to 'unpack' the school fixed effects which have been demonstrated to be very important risk factors. Table B.6 in Appendix B examines what the relationship is between a school's fixed effect and various observable measures of school-level characteristics. Positive numbers indicate characteristics associated with a larger school fixed effect (and therefore a higher underlying propensity to engage in risky behaviour). All of the estimated relationships are very small, and few of them are statistically significant. One school characteristic that does seem to be important is the proportion of half-days missed due to unauthorised absence, which is statistically significantly linked to the school fixed effects for smoking and getting in trouble with the police. In other words, schools with higher rates of truancy also have a higher prevalence of these forms of risky behaviour. The proportion of pupils eligible for Free School Meals is also statistically significantly related to the school fixed effect for the smoking outcome.

Previous evidence based on the OCJS

Previous research (Hales et al, 2009) has examined the risk factors associated with risky behaviour in the OCJS dataset. Figure 4.1, below, summarises this, listing the risk factors associated with 'high-harm' risky behaviour.[21] Individuals who have been a victim of crime, have a favourable attitude towards crime, or an unfavourable attitude towards the police, are more likely to belong in this category of risky behaviour. Disadvantageous family factors are associated with this risky behaviour, as is being male or drinking at least once a month. Certain types of behaviour at school, such as playing truant or being excluded, are also a risk factor.

[21] These risk factors were identified on the basis of latent class analysis. The 'high-harm' definition of risky behaviour denotes membership of any of the following latent classes: 'anti-social disrupters', 'drug offenders' and 'prolific offenders'. See Hales et al (2009) for more details.

Figure 4.1 Risk factors associated with participation in 'high-harm' risky behaviour

Lifestyle and behaviour	
	Victim of personal crime
	Drunk once a month or more
	Likely to agree criminal acts are OK
Area/local factors	
	Not trusting police in area
Family factors	
	Not brought up by both natural parents
	Get on badly with at least one parent
	Friends or siblings being in trouble with the police
School factors	
	Truanting
	Ever excluded from school
Demographic characteristics	
	Male

Source: Taken from Hales et al (2009).

4.2 Summary

This section has shown that existing research (based on the LSYPE and OCJS data) has identified a number of factors that are associated with the likelihood of participating in risky behaviour. The main factors that emerge are:

- Gender;
- Ethnicity;
- Religious beliefs;
- Social interactions with friends;
- Attitudes to crime and education;
- Being a victim of bullying or crime;
- Truancy or exclusion from school.

The additional LSYPE analysis conducted in this section also demonstrates that individual schools themselves, or the neighbourhoods they reflect, can be a quantitatively important risk factor. The differences between schools in the likelihood of participating in risky behaviour can be significantly greater than the differences between different socio-economic backgrounds.

In terms of targeting interventions effectively, it may be that many of these risk factors – such as attitudes, religious beliefs, social interactions, experiences of bullying or sexual activity – are difficult to observe except at a very local level. Characteristics that can easily be observed, such as gender and ethnicity, are sometimes – but not always – clear risk factors that can be used to identify target groups.

However, individual schools may constitute useful target groups in light of the evidence presented here. Of course, it may be challenging to identify schools where participation in risky behaviour is higher, but we find that schools with high truancy rates are more likely to have higher levels of risky behaviour (given the background characteristics of the pupils). Since truancy rates can be observed within information systems, this may be present a useful way for identifying potential target schools. Within such schools, pupils can then be targeted on the basis of the above individual-level risk factors that have emerged as important. For example, pupils who are male or who have played truant might be considered a priority group for intervention.

5. Previous literature on the provision of information and its effectiveness at reducing risky behaviour

In this section, we examine the existing evidence on the effectiveness of providing young people with information about the consequences of risky behaviour or with information about true social norms regarding risky behaviour. The objectives are to highlight where the literature has reached a conclusion (or an impasse) about what type of interventions can prove to be effective, and to suggest where there are current knowledge shortcomings.

The motivations behind the two approaches are best viewed within a very basic cost-benefit framework for individual behaviour, which holds that people will participate in a particular activity if the expected benefits exceed the expected costs. The 'consequences' and 'social norm' approaches attempt to reduce risky behaviour simply by providing young people with information: for this to reduce participation in risky behaviour, it must either reduce the expected benefits or increase the expected costs. The success of a programme will therefore depend crucially on what information is conveyed, in particular whether the information is new and addresses knowledge shortcomings, and on the extent to which young people use that new information when making decisions.

Our analysis is subject to two caveats, one methodological and one contextual. First, the chapter contains as many case studies and examples as possible, augmented with meta-analyses were necessary. However, we do not claim to have produced an exhaustive list of studies, and have instead emphasised those studies employing rigorous impact evaluation techniques (such as pilot interventions using a suitable comparison group). We do not include an analysis of the approaches in a community setting, as there is insufficient evidence.

Second, we assume that the consequences and social norms approaches form just one part of an overall strategy of reducing risky behaviour. The question of interest here is not whether such approaches are the sole or best method to use to young people's participation in risky behaviour, but instead whether these approaches can make a useful contribution to a broader strategy. Many current prevention programmes adopt a multi-disciplinary and multi-faceted approach whereby these approaches are combined with other interventions (see Swann et al (2003), on methods used to reduce teenage pregnancy in the UK).

The chapter is organised as follows. Section 5.1 examines the effectiveness of the consequences approach. Section 5.2 discusses the evidence on the social norms approach. In Sections 5.3 and 5.4, we consider two cross-cutting issues that are crucial to the effectiveness of a programme, irrespective of the approach: method of delivery and the timing of interventions. Finally, Section 5.5 considers any relevant lessons that can be learned from interventions that have used similar approaches to affect other types of behaviour.

5.1 Information provision and risky behaviour

The provision of information to students about risky behaviour and its consequences was amongst the earliest prevention strategies. The 'consequences' approach is based on the theory that young people participate in risky behaviour because they underestimate the potential costs of their actions. If this is true, providing information should reduce participation by increasing the expected cost of the activity relative to the benefit.

There is a large literature that considers the effectiveness of particular programmes based on the consequences approach. The content of the programmes, evaluation methodology and results vary across studies, but meta-analyses point towards two conclusions. First, the programmes can succeed in improving young people's knowledge about the consequences of risky behaviour. Second, although young people have more knowledge, there is little evidence of any positive impacts on their behaviour (Flay & Collins, 2005; Bruvold, 1993; Rundall & Bruvald, 1988). In fact, in some cases, that knowledge increased young people's curiosity and their ability to acquire drugs (Flay & Collins, 2005).

Subsequent programmes attempted to improve the effectiveness of information provision by supplementing it with interactive components. For example, the 'Baby Think it Over' provides an infant simulator for young people to care for, in order to illustrate the difficulties associated with looking after a baby. Evaluations indicate that the programme is popular with teachers and parents, who believe that it improves communication on parenting issues and is effective in changing the attitudes of young people. However, these beliefs are not backed by empirical evidence, which shows that the programme has no significant effect on attitudes towards sex and pregnancy, or measures of sexual behaviour (Tingle, 2002; Somers & Fahlman, 2001).

'Scared Straight' (SS) is another programme, or set of programmes, which provides information by actively engaging with young people. Originally developed in the 1970s, these interventions teach students about the reality of

prison life. Under the original programme, students were taken to prisons and participated in confrontational rap sessions conducted by prisoners serving life sentences.[22] However, meta-analyses suggest that the programme is counterproductive, with higher rates of criminal activity amongst the programme groups relative to comparison groups (Petrosina et al, 2003; Lisey, 1992; Petrosina et. al, 2000). The reasons for the failure of the programme have never fully been investigated. Finckenauer (1982) offers two explanations: first that SS might romanticise the "lifers", offering a community to an alienated group of young people; and, second, that intimidation or scare tactics might be seen as a challenge, with young people reacting by attempting to prove to themselves and their peers that they are not scared.

The Scared Straight Programme also provides a good example of what Petrosina et al (2000) describe as the "panacea phenomenon", which operates through the following four-stage process. First, a new programme emerges that offers a (relatively inexpensive) method of reducing a particular type of risky behaviour. The idea behind the programme makes intuitive sense to both the public and policy makers. In the case of SS, it appears obvious that children made aware of the harsh realities of prison would want to avoid criminal behaviour at all costs. Second, given the apparent logic of the programme, there is no appetite to conduct or wait for the results of randomised trials to understand whether and how it works. The new panacea programme therefore becomes widespread. Third, evidence from randomised trials subsequently emerges, which suggests that the programme is not effective. For SS, this evidence emerged in the early 1980s (Finckenauer, 1982; Lewis, 1983; Lipsey, 1992). Fourth, in light of the new evidence, support and enthusiasm for the panacea programme wanes. However, the programme does not disappear and continues to have strong supporters.

A more recent programme based on similar principles is 'Straight Talking', where teenage mothers talk to young people about the challenges they face. Again, the programme makes intuitive sense: there are high financial, social and emotional costs associated with becoming a teenage mother. If young people better understand these costs, then they should take action to prevent pregnancy. The programme won a Guardian Charity Award in 2008 and a GlaxoSmithKline Impact Award. Yet the authors of this report could find no evidence of any randomised experiment that could assess its effectiveness. To date the only external evaluation is a qualitative study conducted using a sample of 21 students who had received the programme (Corlyon, 2005). The

[22] This may be considered an example of behavioural change theory ideas of 'salience' (a form of engagement relevant to the participants) and 'credible messenger' (using role models or individuals with influence as a vehicle for delivering messages).

evaluation did not examine the impact on teenage pregnancy. We make no claims about the effectiveness of Straight Talking. A randomised control trial may or may not reveal that it is highly successful; at present there is no information to make a judgement either way.

Summary

Evidence from meta-analyses and specific programme examples suggests that the consequences approach has not yet proved to an effective method of preventing or reducing participation in risky behaviour. Whilst such programmes have succeeded in changing knowledge and awareness, it has proved much harder to change behaviour. A summary of the conclusions from the literature and our assessment of the questions that remain unanswered are provided in Box 5.1.

Box 5.1. Summary of findings on the consequences approach

Conclusions from the literature

- The consequences approach is more effective at changing beliefs than at changing behaviour.
- Consequences-based programmes continue to operate, even though there is little evidence that they reduce risky behaviour.

Unanswered questions

- There is limited information on why these programmes were not successful at reducing risky behaviour. Is the lack of success attributable to the approach itself, to the behaviour that it tries to deter, or to the method of delivery?

5.2 The social norms approach

The social norms approach seeks to affect behaviour not by highlighting the negative consequences, but by instead providing correct information about the prevalence of that behaviour among one's peers. In this section we consider the use and effectiveness of social norms approaches in programmes that aim to reduce or prevent risky behaviour. The approach is also used in wide range of other contexts, including sun-cream use, healthy eating, and energy use; these wider uses are discussed in Section 5.5.

In the context of risky behaviour, the social norms approach is based on two premises. First, that the behaviour of an individual is affected by the behaviour

or perceived behaviour of their peers. Second, that young people overestimate the prevalence of risky behaviour or risky activities amongst their peers. If both premises are true, then correcting any misperceptions could have an effect on participation in risky behaviour.

The first premise stems from well-established peer effects literature, which establishes associations, and attempts to establish causal links, between individual and peer behaviour. This literature has tended to focus on young people, but considers a wide range of outcomes. For examples of studies that examine risky behaviour see Fletcher (2009) and Lundborg (2006). Within our framework, the behaviour of peers can be viewed as changing either the expected costs or the expected benefits of a particular activity. These costs and benefits can be financial, such as the costs of obtaining drugs or alcohol, or social, including the existence or absence of social stigma or expected social 'kudos' associated with risky behaviour.

The second premise is based on a newer body of evidence that young people regularly overestimate the prevalence of risky behaviour or risky activities amongst their peers (Lewis et al, 2007; Martens et al, 2006; Wolfson, 2007). The degree of misperception is typically positively associated with individual participation in risky behaviour, and negatively associated with measures of well-being (Clapp & McDonnell, 2000; Stephenson & Sullivan, 2009; Duncan et al, 2006; Mollborn, 2010). Misperceptions operate in similar way to real peer behaviour, by affecting the expected costs and benefits attached to a particular activity.

As with the consequences approach, social norms programmes can be delivered in a number of different ways. The effectiveness of particular message is highly likely to depend as much on how that message is delivered as the content of the message itself. Social norms programmes have tended to use a social marketing approach, disseminating their message through posters, radio-adverts, text messages, and other forms of mass media (McAlaney et al, 2011). However, it is important to note that a consequences message could also be delivered through the same channels. The importance of the method of delivery is discussed further in section 5.3.

Social norms programmes gained prominence through their use at US colleges and universities. A 2002 survey conducted by the Harvard School of Public Health found that almost half of all four-year colleges had adopted some form of social norms marketing campaign, and that most focused on alcohol consumption (Weschler et al, 2003).

The social norms approach has a growing number of advocates in the academic, charity and private sectors. However, despite enthusiastic support, the evidence for the effectiveness of social norms still has limitations and is certainly not unequivocal. This does not mean that the approach is not, or cannot, be successful, but it does suggest caution against hastily accepting social norms approaches as another 'panacea'. In the rest of this section we describe the reasons why it is difficult to make a judgment on the effectiveness of social norms programmes, and what we can learn from existing evidence.

5.2.1 Shortcomings of the existing social norms literature

Lack of comparison or control groups

The development of the social norms approach has much in common with the panacea phenomenon described in the previous section. In particular, social norms campaigns swept across US colleges without strong evidence from randomised controlled trials (RCTs). This also makes it difficult to assess effectiveness afterwards, as the appropriate comparison group is not clear (McAlaney et al, 2011; Toomey et al, 2007). A useful example is the Montana model of social norms marketing, developed by a leading proponent of the social norms approach – Jeff Linkenbach – and included in the Social Norms Approach Handbook (Linkenbach, 2003; Perkins 2003). The Montana model provides a seven-step process for implementing and evaluating social norms programme delivered through social marketing. However, at no point does the model, or accompanying toolbox, mention the need for or existence of a comparison group.[23]

Recently, there has been some recognition that comparison groups are an important component of any evaluation, and a number of newer studies have featured them (Berwick et al, 2008; Hughes et al, 2008). In a school-based setting, Balvig & Holmberg (2011) use a RCT to evaluate a social norms campaign that focused on reducing cigarette smoking amongst Danish school children aged 11–13. They find no effect on tobacco or alcohol use, although there are reductions in other forms of anti-social behaviour.

Mixed evidence

Some reviews have concluded that these campaigns have succeeded in reducing both misperceptions and excess alcohol consumption (Perkins,

[23] The model does stress the need for a baseline survey, but that is not sufficient as any underlying trends over time in risky behaviour would still be conflated with the impact of the policy.

2003; Berkowitz, 2005). Perkins & Craig (2006) examine one successful intervention that targeted student athletes at a particular university. Alcohol-related norms were tested prior to the intervention. The student athletes were then provided with information on norms amongst other student-athletes, through print media, posters, and email. Results indicated that pre-intervention the students overestimated alcohol consumption amongst their peers. Post-intervention misperceptions were reduced, whilst frequent personal consumption, high quantity social drinking, and a composite measure of negative consequences (including drink-related violence and impacts on academic achievement), all declined by 30 per cent or more.

Evidence for the success of the social norms approach serves to boost its popularity. However, for each article claiming that a particular social norms programme was effective, there is another that claims the reverse. (see Weschler et al (2003) and Tommey et al (2007) for reviews, and Clapp et al (2003), Swanson et al (2004), and Russell et al (2009) for specific examples). Russell et al (2009) consider one such programme, which took place at large urban university in the United States. The semester-long 'Done 4' programme was comprised of an intensive print media campaign, with the central message that three-quarters of students consume no more than four drinks at parties. However, the follow-up surveys indicated that there was low recognition of the campaign itself, and no change in drinking behaviour. This is in contrast to the findings of, for example, Perkins & Craig (2006).

Russell et al (2009) attribute the failure of Done 4 to a poorly constructed marketing tool, illustrating that the precondition for a successful social norms intervention is that perceptions are changed (McAlaney et al, 2011). However, even where perceptions do change, effects on behaviour may be small (Bewick et al, 2008; Hughes et al, 2008). Russell et al (2009) also suggest that the period of the intervention might have been too short. Previous evidence has suggested that social norms campaigns can take two years to produce an effect on alcohol consumptions (Haines & Spear, 1996; Perkins & Craig, 2002).

Conflation with other approaches/delivery methods

Social norms or normative education is often combined with other approaches in prevention programmes. As such, it is difficult to assess the independent role of the social norms approach. Since the mid-1990s, many school-based interventions have adopted a social influences (SI) type approach. The SI approach posits that risky behaviour is determined by the interplay of personal factors and social influences from peers, the media, wider society or particular institutions. Social influence can be direct and active, or indirect and passive.

Hence, peers can influence participation in risky behaviour through teasing and threats (direct and active), or through social norms, by influencing the value young people attach to particular activities. The SI approach aims to inoculate young people against both types of pressure (Cuijpers, 2002).

SI programmes typically have two components. The first is resistance skill training, which focuses on methods and skills required to resist direct peer pressure. The second is normative education, or correcting misperceived social norms. The aim of the latter is to establish more conservative social norms, so as to reduce or even reverse indirect peer pressure (see Djikstra et al, 1999, for an example).

Although the SI approach is widely used, it only provides a very basic framework for designing interventions. As a result, programmes falling within this category can be highly varied in nature (Cuijpers, 2002). Elements may include providing information, resistance training, correcting social norms, and developing confidence and communication skills (Wolfe et al 2009; Segawa et al, 2005; Djikstra et al, 1999). There is therefore limited scope to identify the specific impact of social norms, independently of all other factors.

Where social norms and resistance skills approaches have been compared directly, results seem to suggest that the social norms approach is more effective (McBride, 2003; Angus and Stead, 2004). For example, Hansen and Graham (1991) who compare the effectiveness of a programme that aimed at establishing conservative social norms to the efficacy of resistance skill training, for reducing alcohol, cigarette and marijuana use. They find that that the groups who received the social norms treatment reported lower use of all three drugs one year later, while there were no effects of resistance skills training.

Summary

The social norms approach to reducing risky behaviour was first introduced to US college campuses more than a decade ago. In the years since, the approach has spread to schools, and can be found across the developed world. Despite enthusiastic support from some academics, charities, firms, and policy-makers, empirical evidence provides only limited and mixed support for the success of the approach. In general, the social norms approach appears to have much in common with earlier ‘panacea’ programmes that have sought to reduce risky behaviour in the past. More work is needed to assess whether the social norms approach is more effective than the alternatives, and what the crucial ingredients are to a

successful programme. The conclusions from this literature and remaining unanswered questions are summarised in Box 5.2.

Box 5.2. Summary of findings on the social norms (SN) approach

Conclusions from the literature

- Despite vocal advocates, evidence on the effectiveness of SN programmes is far from proven. The reasons for this are three-fold:
    1. Many SN programmes have not been evaluated using experimental techniques.
    2. The evidence that has emerged is very mixed.
    3. The social SN approach is often combined with other approaches in a single prevention programmes, making any impacts of SNs social norms difficult to disentangle.
- The evidence limitations highlighted do not mean that the SN approach cannot be successful. Effectiveness might depend on how the programme is delivered and in what environment. However, the shortcomings we highlight do suggest that policy-makers should exercise caution when deciding to implement or endorse the approach.
- Correcting misperceptions is a necessary but not sufficient condition for changing behaviour. Campaigns that do not change misperceptions do not affect behaviour, in either theory or practice (see Russell et al (2009) for an example). However, changing misperceptions does not guarantee success (McAlaney et al, 2011) either.
- Even where SN programmes are effective, impacts on misperceptions are far larger than those on behaviour (McAlaney et al, 2011).

Unanswered questions

- What is the importance of the SN approach relative to the use of social marketing?
- What is the optimal proximity of norms (for example, school, class, or age group), and how often should those norms be updated?
- How effective would SN approaches be in a community setting?

5.3 Method of delivery

The first cross-cutting theme, relevant to the design of both consequences and social norms based programmes, is that of how the programme is delivered: each is compatible with multiple delivery methods. Despite our focus on the different approaches, meta-analyses that collate results from randomised control trials suggest programme delivery is found to be at least as important as the content. In particular, interactive programmes are on

average more effective at changing behaviour than those that involve only passive learning (Tobler et al, 2000).[24] Programmes that use passive forms of learning do succeed in improving knowledge, but produce little change in behaviour. Tobler et al (1999) find that interactive programmes are more likely to be successful because they offer students a forum to exchange ideas and experiences, and to develop and test new skills.

Any comparison of the consequences and social norms approaches must be careful not to conflate differences in content with variation in delivery methods. Examples of the consequences approach tend to be didactic, in part because they are older. From their inception on US college campuses onwards, social norms programmes are more frequently implemented using social marketing techniques.

Social marketing may be defined as the application of marketing principles (product, price, promotion, and place), so as to influence behaviour for the individual or collective good (Andreasen, 2002; Lefebvre & Flora, 1988). The social norms approach and social marketing technique are therefore two distinct concepts. As noted by McAlaney et al (2011), social norms approaches are the product and social marketing is the packaging. Messages correcting misperceived social norms can be conveyed by a teacher reading from a piece of paper. Equally, the consequences approach can be implemented using social marketing techniques.

One example where mass media campaigns and social marketing work successfully when combined with the consequences approach is in the AIDS awareness campaigns of the early 1980s. In the UK, the government conducted a major public health campaign in 1986 and 1987 to provide information about AIDS and how to avoid it. This included a leaflet drop to every household in the country; the 'AIDS — don't die of ignorance' campaign in the national press, on radio, and on television; and National AIDS Week. Over the course of the campaign, there were large declines in sexually transmitted infections. Subsequent programmes have focused on specific groups, such as gay men, ethnic minorities, and young people (Darrow, 1997; Nicholl et al, 2001).

There are limited direct parallels between the AIDS campaigns of the 1980s and school based programmes to prevent risky behaviour in 2012. However, the example does serve to illustrate two important points. First, both the consequences and social norms approach are compatible with social marketing. Second, the consequences approach might be appropriate in

[24] Tobler and Statton (1997) find that interactive programmes are at least twice as effective as passive programmes.

specific situations. These might include cases where the potential threat to health is particularly severe and young people have almost no knowledge from other sources. However, risky sexual behaviour and drug and alcohol misuse are unlikely to fulfil both of these conditions.

More recent developments have seen the increased use of technology or social media to deliver information. Examples include an individualised text-messaging programme designed to help college students quit smoking (Obermayer et al, 2004), and an Australian campaign to promote sexual health though emails and text messages about STIs (Lim et al, 2007). Although there have been some promising early results, there are few rigorous evaluations of these types of programmes. It is therefore difficult to draw any firm conclusions on their overall effectiveness (Lim et al, 2008). Evidence from Tobler et al (1999) and Tobler et al (2001) suggest these methods might have a greater level of success if there is interactive component, rather than the passive transmission of information

Box 5.3. Summary of methods of delivery

Conclusions from the literature

- Methods of delivery are crucial to the success of an intervention in reduce risky behaviour, irrespective of the programme approach.
- The consequences and social norms approaches are consistent with multiple delivery methods.
- Interactive techniques are more effective than didactic methods.

Unanswered questions

- Would the same programme have different effects if it were delivered in two different ways?
- The relative weight placed on content verses delivery when comparing the consequences and social norms approaches.
- Is the social marketing form of delivery more effective when combined with the social norms approach, relative to the consequences approach?

5.4 Timing of interventions and persistence of impacts

The second cross-cutting theme of programme design is that of timing. Even prevention programmes with optimal content and delivery methods may prove unsuccessful if they are administered too early or too late. McBride (2003)

describes three periods of young people's development where interventions might be affective: inoculation, early relevancy, and later relevancy.

There are at least three reasons for such prevention programmes at the early inoculation stage, when very few students are engaged in risky behaviour. First, to discourage initiation, it is important that young people receive information before they are faced with the choice about whether to participate in risky behaviour. Second, in the absence of information from schools, young people may rely more heavily on less reliable sources, such as peers. Third, younger students might be more receptive to information provided by teachers, as the importance of conformity and peer acceptance tends to grow after early-adolescence (Botwin & Griffin, 2007; McBride, 2003). These potential advantages must be weighed against the risk that early intervention could normalise risky behaviour at a younger age.

The advantage of intervening once young people are exposed to risky behaviour is that the information, corrected social norms, or the skills provided can be applied immediately. This reduces the possibility that information is forgotten, or that any resistance skills acquired deteriorate between the intervention and when a young person first encounters risky behaviour. Whether the programme is implemented at early or late relevancy may affect its relative success in prevention as opposed to reductions in intensity or use or harm reduction.

Another issue relevant for consideration here is that, irrespective of the content and delivery methods used, there are very few instances where interventions have generated permanent or long-run reductions in risky behaviour beyond the life of the intervention.[25] For example, Ellickson et al (1993) find that project ALERT, which follows the SI model, reduced the use of both marijuana and tobacco only whilst the project was in operation. Similarly, Peterson et al (2000) find no long-run effects of a smoking prevention programme.[26] This is perhaps less important when the aim of the programme is to delay a behaviour, such as drinking, but it has clear implications for the effectiveness of programmes that seek to prevent behaviour, such as those directed towards illicit drug use.

The deterioration of programme effects and the need to provide age-relevant information or social norms mean that the ideal prevention programme would

[25] Gneezy et al (2011) review the literature on the use of (financial) incentives on various dimensions, including lifestyle habits. In keeping with the literature reviewed here, they find that programme effects are typically confined to the short run.

[26] For further evidence on the deterioration of programme effects, see McCambridge & Strang (2004).

begin early and be sustained across school years (Swann et al, 2003; Haines & Spear, 1996; Perkins & Craig, 2002). However, schools may be subject to financial and timetabling constraints. Even where information campaigns or programmes are sustained, there is no guarantee of success. Where booster treatments have been administered, meta-analyses suggest that their effectiveness is at best unproven (Cuijpers, 2002).

Where interventions are one-off, or limited in number, it is not necessarily true that it is better to intervene many years before the expected onset of risky behaviour. Some research has focussed on the optimal age to intervene, or whether it is possible to intervene too early. For example, Marsiglia et al (2011) compare drug use among those who received the drug prevention programme 'keepin' it REAL' in the 5th grade (age 10–11), 7th grade (age 12–13) or both. Intervening in the 5th grade had no effect upon trajectories of drug use from 5th to 8th grade, whilst the 7th grade intervention reduced use of marijuana and inhalants. There was no additional benefit of receiving the treatment in both grades.

Box 5.4. Summary of timing of interventions

Conclusions from the literature

- Where impacts are found, they are usually confined to the short-run.
- There are reasons why prevention programmes should start early, before young people are exposed to risky behaviour. However, later interventions may offer young people a greater opportunity to practice their new skills or apply the new information while it is fresh.
- A one-shot intervention, or an intervention of a limited duration, must weigh the advantages of early intervention against the risk that the programme effects will deteriorate over time.

Unanswered questions

- Most interventions do not follow young people after they have left the intervention site (school or university). Studies on the long-run effects of interventions are therefore limited.
- More information is need on the rate at which programme effects deteriorate and factors that might alleviate that deterioration.
- Do the same interventions have different effects on different age groups or cohorts? How much does programme success hinge on implementation at the correct time?

5.5 Social norms, information and other behaviour

A number of studies have attempted to use information provision and social norm corrections to improve people's decision-making outside of the area of risky behaviour. The purpose of this section is to understand whether any of the evidence on the use of these approaches in other contexts may have relevant lessons for application to risky behaviour.

Bere et al (2006) and Fogarty et al (2007) survey the use of such approaches to affect another aspect of young people's behaviour: the diet and exercise of school-aged children. Their findings from examining these interventions are similar to the summaries presented in Sections 5.1 and 5.2. In particular: (i) information and social norm campaigns do typically affect knowledge; (ii) this change in knowledge does not necessarily translate into changes in behaviour; (iii) where there are changes in behaviour (in this context, increased fruit and vegetable consumption, for example), the impact typically disappears once the programme ends. The research in this area thus broadly supports findings on risky behaviour interventions, but provides little that is new.

Beyond this, there is a wider literature on the effects of social norms interventions other decision-making among the broader population. One example is domestic energy usage, and the impact of providing households with information on how their usage compares to that of their neighbours.

In a recent example, Allcott (2011) finds that sending letters to households comparing their energy usage with that of 100 similar neighbours leads to reductions in electricity consumption of between 1.3 per cent and 3.3 per cent. This is not only statistically significant but also quantitatively significant: it is equivalent in magnitude to the effect of an 11–20 per cent increase in the price of electricity. Ayres et al (2009) also find similar effects on both electricity and gas consumption – on average, a 2.1 per cent reduction – of providing households with social comparisons. However, they also observe that energy consumption *increases* among households who previously had the lowest energy consumption. This is known as the 'boomerang effect': those whose behaviour is deemed 'better' than average bring their behaviour in line with it, thereby reducing the total effectiveness of the intervention.

This could clearly be an issue for social norms interventions applied in other areas, such as risky behaviour among young people. One way in which this effect can be mitigated is by providing the information selectively: as Ayers et

al (2009) state, it is possible in principle to provide no information to those households which had the lowest levels of energy usage. Another strategy might be to supplement the objective comparison against one's peers (e.g. whether it is higher or lower than average) with some sort of judgement about whether it is 'good or 'bad'. In the intervention analysed by Allcott (2011), if a household's energy consumption was between the 20th percentile and the average, the letter they received informed them that their behaviour was "Good", along with one smiley face. If a household's consumption was below the 20th percentile, the letter informed them that their behaviour was "Great" along with two smiley faces.

Overall, to summarise the lessons from considering other contexts where similar approaches have been trialled, the key new finding is that there can be a risk of 'boomerang' effects which could reduce the overall effectiveness of an intervention. The risk of these effects should be borne in mind when designing or implementing interventions to reduce risky behaviour, and strategies should be considered to minimise them.

5.6 Summary of literature on the provision of information and social norms

Overall, it is clear from the research that there is no single view as to the effectiveness of interventions that provide information about the consequences of risky behaviour or about social norms. Whether these interventions work depends entirely on the context, the nature of the intervention and how it is delivered. While the evidence is generally limited and mixed, some broad lessons have emerged from the review:

- Correcting misperceptions is a necessary but not sufficient condition for changing behaviour. The consequences and social norms approaches are more effective at changing perceptions than at changing behaviour.
- Consequences-based and social norms-based approaches continue to operate, even though there is little rigorous evidence that they reduce risky behaviour. This is often because they are combined with other interventions as part of an overall prevention programme; they have not been evaluated using rigorous experimental techniques; and whether they have been rigorously evaluated, they have produced mixed evidence.
- The (limited) evidence on the long-run impact of these approaches generally shows that that they do not generate a sustained reduction in risky behaviour beyond the duration of the programme.
- Approaches that use interactive techniques to engage with young people are more likely to be effective, at least in the short run while the programme is in operation.
- A one-shot intervention, or an intervention of a limited duration, must weigh the advantages of early intervention against the risk that the programme effects will deteriorate over time.
- Social norms approaches implemented in other contexts have revealed the risk of perverse responses such as 'boomerang effects', whereby people's behaviour worsens if they are informed that their behaviour was previously better than average. This is a risk that ought to be borne in mind.

The limitations that have been highlighted do not mean that these approaches cannot be useful or successful. However, the shortcomings do suggest that policy-makers should exercise caution when deciding to implement or endorse the approach.

A key challenge to making judgements about the effectiveness of these approaches, or whether such approaches should be adopted, is the number of unanswered questions that have emerged, due mainly to a lack of evidence. The key unanswered questions are:

- Where consequence-based or social norms-based approaches have been found to be unsuccessful, is this due the approach itself, to the behaviour that it tries to deter, or to the method of delivery?
- Would the same programme have different effects if it were delivered in two different ways?
- How effective would these approaches are be if they were delivered in a community setting rather than a school setting?
- Is the social marketing form of delivery more effective when combined with the social norms approach, relative to the consequences approach?
- What rate do programme effects deteriorate at, and are there any factors that might alleviate that deterioration?
- What is the ideal age to at which to begin an intervention?
- Do the same interventions have different effects on different age groups or cohorts? How much does programme success hinge on implementation at the correct time?
- Do interventions conducted in other countries (mainly the United States) translate directly into a UK context?
- What is the effectiveness of interventions in reducing the future consequences and harm associated with risky behaviour, rather than (or in addition to) the prevalence of it?

While these represent important knowledge gaps, many of these questions could be addressed by implementing suitable trials and evaluations within a UK environment, and then tracking the results over a sufficient time period.

6. Conclusions and implications for policy

In this report, we have reviewed some of the existing research evidence on the prevalence of certain types of risky behaviour among young people, along with the risk factors associated with it, and provided additional quantitative evidence where possible to provide a fuller descriptive picture. We have also reviewed the available literature on interventions that aim to reduce risky behaviour by providing information on social norms or on the consequences of such behaviour.

This section draws together the insights from each section to help understand what can be learnt for future policies and interventions aimed at reducing risky behaviour. This report does not make any recommendations about *whether* a social norms intervention should be implemented – such a judgement requires broader evidence beyond the scope of this report – but rather, *how* it should be implemented if it were planned.

6.1 Summary of overall report

Summary of evidence on prevalence and trends

Existing research has shown that rates of participation in self-reported risky behaviour have generally been on a downward trend since the turn of the millennium for smoking, drinking and using drugs. There has also been a trend to delay the point at which young people first engage in sexual activity.

Drinking alcohol appears to be the most commonly reported risky behaviour, and reported participation in a given risky behaviour appears to increase with age. This is somewhat but not entirely consistent with the pattern in hospital admissions. The fertility rates of young females, which are only a partial measure of risky behaviour, increase steadily between the ages of 13 and 19.

Further analysis of hospital admissions data reveals a strong link between drug- and alcohol-related admissions over time: those who have been admitted for one at age 14-16 are more likely to be readmitted for either risky behaviour at age 17-19. Also, amongst women, early drug or alcohol admission substantially increases the probability of childbirth aged 17-19. Additionally, the evidence reveals that almost 40 per cent of girls who give birth aged 14-16 will give birth again aged 17-19. Taken together, these findings indicates that there are high risk groups which could be targeted when implementing an intervention, but also that reductions in admissions for

drugs or alcohol among 14-16 year olds could have additional benefits in terms of reducing readmissions at age 17-19.

Existing research has also identified a number of factors that are associated with the likelihood of participating in risky behaviour. The main risk factors that emerge are:

- Gender;
- Ethnicity;
- Religious beliefs;
- Social interactions with friends;
- Attitudes to crime and education;
- Being a victim of bullying or crime;
- Truancy or exclusion from school.

Additional analysis conducted for this report demonstrates that individual schools themselves, or the neighbourhoods they reflect, can be a quantitatively important risk factor. Individual schools may therefore constitute useful target groups for a potential intervention. We find that schools with high truancy rates are more likely to have higher levels of risky behaviour (given the background characteristics of the pupils). Within such schools, pupils can then be targeted on the basis of the above individual-level risk factors that have emerged as important.

Summary of evidence on giving information to reduce participation

Overall, it is clear from the research that there is no single view as to the effectiveness of interventions that provide information about the consequences of risky behaviour or about social norms. Whether these interventions work depends entirely on the context, the nature of the intervention and how it is delivered. The high-level findings that have emerged, where evidence has been available, are that:

- The consequences and social norms approaches are more effective at changing perceptions than at changing behaviour.
- Programmes based on the consequences-based approach continue to operate, even though there is little rigorous evidence that they reduce risky behaviour.

- The social norms approach is typically combined with social marketing techniques. Although these programmes have a number of strong and advocates, there are substantive gaps in the evidence base that make it hard to draw conclusions about their overall effectiveness.
- The (limited) evidence on the long-run impact of both these approaches generally shows that that they do not generate a sustained reduction in risky behaviour beyond the duration of the programme.

The limitations that have been highlighted do not mean that these approaches cannot be useful or successful, especially as part of a broader prevention programme. Further research is warranted to address a large number of answered questions that our review has uncovered. At a high level, the most important knowledge gaps are:

- Where consequence-based or social norms-based approaches have been found to be unsuccessful, is this due the approach itself, to the behaviour that it tries to deter, or to the method of delivery?
- Would the same programme have different effects if it were delivered in two different ways?
- What rate do programme effects deteriorate at, and are there any factors that might alleviate that deterioration?
- Do the same interventions have different effects on different age groups or cohorts? How much does programme success hinge on implementation at the correct time?
- Do interventions conducted in other countries (mainly the United States) translate directly into a UK context?
- What is the effectiveness of interventions in reducing the future consequences and harm associated with risky behaviour, rather than (or in addition to) the prevalence of it?

While these represent important knowledge gaps, many of these questions could be addressed by implementing suitable trials and evaluations within a UK environment, and then tracking the results over a longer time period.

6.2 Implications for potential interventions

This section uses the summaries above to produce a set of recommendations to inform the design and structure of any future potential social norms intervention, if one were to be implemented. Clearly, in light of the knowledge gaps that this report has outlined, it is not possible to make specific recommendations that are substantiated by evidence. Nevertheless, the following broad lessons would seem to be:

- Schools may be a natural and convenient choice as the environment within which to deliver any interventions. Firstly, a number of interventions surveyed, including the most robust ones, were delivered in this way. Secondly, individual schools can be used as an effective way of identifying potential target groups; a starting point for this might be schools with high truancy rates.
- Given the evidence on the dynamics of risky behaviour, the ages of 13 or earlier might seem like a priority for interventions aiming to reduce drug- or alcohol-related risky behaviour. Evidence also suggests that interventions aiming to reduce criminal behaviour should focus on the 10–12 age group.
- The nature of the behaviour itself is also important. Interventions that are only effective in the short term are more likely to delay participation in risky behaviour rather than prevent it altogether. This might be a more acceptable outcome for alcohol consumption or sexual activity than for drug usage.
- Interactive programmes seem to be more effective than didactic methods or those which use passive forms of learning. Typically, an interactive programme would involve a curriculum of group sessions delivered over a term or throughout the academic year.
- In the context of a social norms intervention, the provision of information should be designed carefully in order to reduce the likelihood of boomerang effects, taking into account lessons from other research areas.
- Further research, perhaps through the implementation of more trials in a UK context, would address some of the many knowledge gaps that this review has uncovered, and would enable additional recommendations to be made regarding specific features of an intervention.

Both the consequences and social norms approach are premised on the same theory: that risky behaviour can be reduced by increasing the expected costs relative to the perceived benefits. The success of a given programme therefore depends on the extent to which young people's estimates of the relative costs and benefits can be shifted.

There are important differences between the consequences and social norms approaches, which we highlight in Section 5. However, a review of the literature also suggests that how a programme is delivered is as least as important as the precise content or approach. More generally, broader behaviour theory offers a number of insights that should be explored in order to improve programme implementation and effectiveness. In particular, at least three elements from the MINDSPACE checklist (Cabinet Office & Institute for Government, 2010) merit consideration:

- Messenger: we are heavily influenced by who communicates information. Who should deliver programmes to reduce risky behaviour?
- Salience: our attention is drawn to that which is novel and seems relevant to us. What information do young people already have? Can we avoid repetition and ensure that information is relevant?
- Affect: our emotional associations can powerfully shape our actions. How can we create a programme that evokes an emotional response, without relying on scare tactics?

While the literature reviews and evaluations that this report has examined provide little to no evidence on the impact of these factors for programme effectiveness, such factors are nevertheless likely to be important. They can provide a useful starting point for design of potential future programmes, alongside the findings and recommendations of this report.

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Appendix A: Data sources used in empirical analysis

This report provides empirical analysis from three data sources: the Longitudinal Study of Young People in England (LSYPE), the Offending Crime and Justice Survey (OCJS), and the Hospital Episode Statistics (HES). Each data source has different content and different strengths and weaknesses; this report therefore aims to combine insights from each of them.

Longitudinal Study of Young People in England (LSYPE)

The LSYPE started in 2003/04, when its participants were aged 13 and in Year 9. At the time of writing, the study has tracked this cohort for seven waves, until the age of 19, although due to issues with the consistency over time which information is recorded, this report focuses on data from the first three waves (age 13–15). The study design involved sampling schools and then sampling groups of children within those schools. The initial sample size at age 13 was 15,770.

While the LSYPE contains information on some forms of risky behaviour, particularly between the ages of 13 and 15, its main strength is in the detail of the demographic and socio-economic characteristics that are also recorded. There is also extensive information on young people's beliefs and attitudes, and the nature of their home and school environments.

The LSYPE has previously been used extensively, both by the Department for Education and other research organisations, to provide evidence on the activities that young people participate in.

Offending Crime and Justice Survey (OCJS)

The OCJS was an annual cross-section study that operated between the 2003 and 2006, involving a random sample of young people aged 10–25 residing in private households in England and Wales. The analysis in this report focuses on survey participants aged between 13 and 19. Some of the survey participants were then surveyed again in the following years, meaning that a four-year longitudinal dataset also exists alongside the annual cross-sectional data sets. The analysis in this report is based on the four-year longitudinal dataset and the 2006 cross-sectional data set.

Compared with the LSYPE, the OCJS has less information on background characteristics (such as parental education and socio-economic status). There

is basic information on household income. The main benefit of the OCJS over and above the LSYPE is that the OCJS provides richer and more detailed information on risky behaviour. In particularly, it provides more specific information on drug usage and criminal offences.

There has also been previous research carried out using the OCJS, some of which is briefly cited in this report.

Hospital Episode Statistics (HES)

The Inpatient Hospital Episode Statistics (HES) provide an administrative record of all admissions to Hospital in England. The data cover all those admitted with the intention of an overnight stay, or those formally admitted to a hospital bed for a day case procedure. Treatment in Accident and Emergency departments or outpatient clinics is not included. As such, the data capture only the most serious health events Information is provided at episode level, defined as a period of care under one consultant. Each episode records information on the patient and the care they receive, including month and year of birth, ethnicity, home postcode, length of stay, diagnoses and operations. Data is comparable from 1997 onwards.

The HES data contains relatively little information on the background of the patients themselves; its strength lies both in its size – as a complete national database – and in the very rich classifications of the various conditions with which patients are admitted. Patients have their own unique identifier, which means that repeat admissions to hospital can be observed for the same patient. We focus on the hospital admissions of two 2-year cohorts: those born in 1987 or 1988, and those born in 1984 or 1985. To be clear, the data include all hospital admissions amongst these cohorts, not a sample from the population.

Appendix B: Additional results from LSYPE data

Table B.1 Importance of different factors for reported alcohol consumption

	Sex only	Region only	Sex and region	+ School fixed effects	+ Socioeconomic variables
Male	-0.0133		-0.0163	-0.0194*	-0.0165
	[0.0114]		[0.0110]	[0.0109]	[0.0107]
East Midlands		0.229***	0.229***	0.292	0.207
		[0.0297]	[0.0296]	[0.214]	[0.229]
East of England		0.243***	0.244***	0.260***	0.201***
		[0.0260]	[0.0260]	[0.0652]	[0.0609]
North East		0.223***	0.223***	-0.151	-0.226
		[0.0299]	[0.0298]	[0.168]	[0.173]
North West		0.195***	0.196***	0.441**	0.363
		[0.0270]	[0.0270]	[0.223]	[0.238]
South East		0.228***	0.228***	0.145**	0.0925
		[0.0241]	[0.0240]	[0.0565]	[0.0608]
South West		0.280***	0.281***	0.0960	0.0117
		[0.0260]	[0.0260]	[0.161]	[0.156]
West Midlands		0.142***	0.143***	-0.113	-0.206
		[0.0278]	[0.0277]	[0.135]	[0.137]
Yorkshire & Humber		0.215***	0.216***	0.267	0.206
		[0.0273]	[0.0272]	[0.217]	[0.234]
Mixed ethnicity					-0.127***
					[0.0276]
Indian ethnicity					-0.379***
					[0.0188]
Pakistani ethnicity					-0.449***
					[0.0199]
Bangladeshi ethnicity					-0.414***
					[0.0190]
Black Caribbean ethnicity					-0.170***
					[0.0301]
Black African ethnicity					-0.339***
					[0.0233]
Other ethnicity					-0.284***
					[0.0289]
Mother NVQ level 1					0.0106
					[0.0210]
Mother NVQ level 2					0.0342**
					[0.0149]
Mother NVQ level 3					0.0124
					[0.0187]
Mother NVQ level 4/5					0.0295*
					[0.0162]
Mother Other qualifications					0.0523
					[0.0353]
2nd income quintile					0.0260*
					[0.0153]
3rd income quintile					0.0212
					[0.0170]
4th income quintile					0.0228
					[0.0185]
Top income quintile					0.0385**
					[0.0177]
Constant	0.520***	0.325***	0.333***	0.363***	0.422***
	[0.00895]	[0.0196]	[0.0206]	[0.0936]	[0.100]
Observations	14,512	14,512	14,512	14,512	14,512

Note: Table shows coefficients from a least-squares regression model relating the outcome to the variables listed. Each column is a different model specification. * = statistically significant 10% level; ** = statistically significant at 5% level; *** = statistically significant at 1% level. Numbers in brackets are standard errors.

Table B.2 Importance of different factors for reported smoking

	Sex only	Region only	Sex and region	+ School fixed effects	+ Socioeconomic variables
Male	-0.0441***		-0.0448***	-0.0506***	-0.0500***
	[0.00559]		[0.00550]	[0.00599]	[0.00587]
East Midlands		0.0393***	0.0419***	-0.0180	-0.0509
		[0.0127]	[0.0129]	[0.134]	[0.140]
East of England		0.0321***	0.0334***	-0.0656	-0.0822
		[0.0114]	[0.0115]	[0.0642]	[0.0649]
North East		0.0575*	0.0585*	0.109	0.0697
		[0.0331]	[0.0333]	[0.114]	[0.119]
North West		0.0281**	0.0306***	0.136	0.0870
		[0.0112]	[0.0115]	[0.128]	[0.126]
South East		0.0324***	0.0335***	-0.0155	-0.0309
		[0.0118]	[0.0120]	[0.0515]	[0.0497]
South West		0.0399***	0.0423***	0.0211	0.0395
		[0.0123]	[0.0123]	[0.0885]	[0.0914]
West Midlands		0.0265**	0.0287**	0.0332	0.0506
		[0.0114]	[0.0115]	[0.0966]	[0.0956]
Yorkshire & Humber		0.0343***	0.0358***	0.0353	0.00126
		[0.0118]	[0.0120]	[0.127]	[0.130]
Mixed ethnicity					-0.0365***
					[0.0110]
Indian ethnicity					-0.101***
					[0.00949]
Pakistani ethnicity					-0.0985***
					[0.0103]
Bangladeshi ethnicity					-0.117***
					[0.0150]
Black Caribbean ethnicity					-0.0510***
					[0.0129]
Black African ethnicity					-0.109***
					[0.0126]
Other ethnicity					-0.0950***
					[0.0113]
Mother NVQ level 1					-0.0102
					[0.0138]
Mother NVQ level 2					-0.0216**
					[0.00922]
Mother NVQ level 3					-0.0228**
					[0.0101]
Mother NVQ level 4/5					-0.0292***
					[0.00937]
Mother Other qualifications					0.0205
					[0.0228]
2nd income quintile					-0.0242**
					[0.0105]
3rd income quintile					-0.0395***
					[0.0107]
4th income quintile					-0.0483***
					[0.0108]
Top income quintile					-0.0539***
					[0.0106]
Constant	0.106***	0.0543***	0.0756***	0.0845	0.147**
	[0.00496]	[0.00692]	[0.00780]	[0.0668]	[0.0688]
Observations	14,671	14,671	14,671	14,671	14,671

Note: See note to table B.1.

Table B.3 Importance of different factors for reported cannabis usage

	Sex only	Region only	Sex and region	+ School fixed effects	+ Socioeconomic variables
Male	0.0154***		0.0151***	0.0141**	0.0147**
	[0.00580]		[0.00573]	[0.00638]	[0.00634]
East Midlands		-0.00482	-0.00561	-0.0751	-0.0897
		[0.0122]	[0.0121]	[0.0988]	[0.0999]
East of England		-0.00290	-0.00330	-0.0968*	-0.108**
		[0.0137]	[0.0137]	[0.0533]	[0.0521]
North East		0.00619	0.00600	0.0785	0.0650
		[0.0249]	[0.0249]	[0.123]	[0.124]
North West		0.0141	0.0133	0.0113	-0.0112
		[0.0128]	[0.0127]	[0.131]	[0.129]
South East		0.00891	0.00858	0.00547	-0.000726
		[0.0117]	[0.0117]	[0.0435]	[0.0452]
South West		0.0447***	0.0440***	0.0656	0.0824
		[0.0162]	[0.0161]	[0.127]	[0.138]
West Midlands		-0.00367	-0.00438	0.0280	0.0425
		[0.0129]	[0.0129]	[0.118]	[0.119]
Yorkshire & Humber		0.00454	0.00406	0.0107	-0.00236
		[0.0154]	[0.0154]	[0.110]	[0.109]
Mixed ethnicity					0.0468***
					[0.0168]
Indian ethnicity					-0.0806***
					[0.00976]
Pakistani ethnicity					-0.0888***
					[0.0111]
Bangladeshi ethnicity					-0.0796***
					[0.0149]
Black Caribbean ethnicity					-0.00474
					[0.0195]
Black African ethnicity					-0.0725***
					[0.0173]
Other ethnicity					-0.0821***
					[0.0135]
Mother NVQ level 1					-0.00399
					[0.0119]
Mother NVQ level 2					0.0111
					[0.00910]
Mother NVQ level 3					0.0113
					[0.0110]
Mother NVQ level 4/5					0.0208**
					[0.00977]
Mother Other qualifications					0.0115
					[0.0197]
2nd income quintile					-0.0150
					[0.00979]
3rd income quintile					-0.00825
					[0.0101]
4th income quintile					-0.0313***
					[0.0108]
Top income quintile					-0.0385***
					[0.0112]
Constant	0.0890***	0.0893***	0.0821***	0.0891	0.0968
	[0.00447]	[0.00884]	[0.00914]	[0.0653]	[0.0666]
Observations	14,957	14,957	14,957	14,957	14,957

Note: See note to table B.1.

Table B.4 Importance of different factors for reported trouble with the police

	Sex only	Region only	Sex and region	+ School fixed effects	+ Socioeconomic variables
Male	0.0532***		0.0526***	0.0545***	0.0553***
	[0.00594]		[0.00585]	[0.00580]	[0.00576]
East Midlands		0.0645***	0.0612***	0.0373	0.0226
		[0.0127]	[0.0124]	[0.0713]	[0.0749]
East of England		0.0280***	0.0263**	0.0129	0.00703
		[0.0101]	[0.0103]	[0.0176]	[0.0184]
North East		0.125***	0.123***	0.181**	0.159**
		[0.0407]	[0.0403]	[0.0779]	[0.0687]
North West		0.0386***	0.0356***	0.130**	0.104*
		[0.0102]	[0.0101]	[0.0582]	[0.0566]
South East		0.0398***	0.0384***	-0.0295*	-0.0356**
		[0.0120]	[0.0117]	[0.0158]	[0.0156]
South West		0.0482***	0.0456***	-0.0411	-0.0153
		[0.0135]	[0.0136]	[0.0277]	[0.0333]
West Midlands		0.0332***	0.0306***	0.0583*	0.0881*
		[0.0102]	[0.0104]	[0.0354]	[0.0499]
Yorkshire & Humber		0.0561***	0.0543***	0.132*	0.114
		[0.0136]	[0.0135]	[0.0721]	[0.0719]
Mixed ethnicity					0.0323**
					[0.0143]
Indian ethnicity					-0.0446***
					[0.0116]
Pakistani ethnicity					-0.0860***
					[0.0130]
Bangladeshi ethnicity					-0.0802***
					[0.0182]
Black Caribbean ethnicity					-0.0167
					[0.0113]
Black African ethnicity					-0.0345**
					[0.0136]
Other ethnicity					-0.0682***
					[0.0126]
Mother NVQ level 1					-0.0147
					[0.0127]
Mother NVQ level 2					-0.0200**
					[0.00940]
Mother NVQ level 3					-0.0246**
					[0.00985]
Mother NVQ level 4/5					-0.0301***
					[0.00944]
Mother Other qualifications					0.0309
					[0.0236]
2nd income quintile					-0.0325***
					[0.0110]
3rd income quintile					-0.0426***
					[0.0101]
4th income quintile					-0.0463***
					[0.0104]
Top income quintile					-0.0620***
					[0.0104]
Constant	0.0530***	0.0387***	0.0139**	0.00726	0.0588*
	[0.00371]	[0.00589]	[0.00609]	[0.0287]	[0.0316]
Observations	13,770	13,770	13,770	13,770	13,770

Note: See note to table B.1.

Table B.5 Importance of school-level factors compared with family-level factors for participation in risky behaviour by gender and region, age 13

	Drinking	Smoking	Cannabis	Police trouble
Mother NVQ level 1	0.0106	-0.0102	-0.00399	-0.0147
Mother NVQ level 2	0.0342**	-0.0216**	0.0111	-0.0200**
Mother NVQ level 3	0.0124	-0.0228**	0.0113	-0.0246**
Mother NVQ level 4/5	0.0295*	-0.0292***	0.0208**	-0.0301***
Mother Other qualifications	0.0523	0.0205	0.0115	0.0309
2nd income quintile	0.0260*	-0.0242**	-0.0150	-0.0325***
3rd income quintile	0.0212	-0.0395***	-0.00825	-0.0426***
4th income quintile	0.0228	-0.0483***	-0.0313***	-0.0463***
Top income quintile	0.0385**	-0.0539***	-0.0385***	-0.0620***
Move 25pc-75pc of school FE	**0.280**	**0.126**	**0.148**	**0.121**

Note: Estimates show effect of changes in characteristics on probability of each outcome. For mother's education and income, the effect is relative to the lowest category (Mother no qualifications, or bottom income quintile).

Table B.6 Associations between school-level factors and school fixed effects

	Drinking	Smoking	Cannabis	Police trouble
School's KS2 average point score	-0.000128	-0.00111	0.00249	-0.00116
	(0.00482)	(0.00221)	(0.00264)	(0.00164)
School's KS2-KS3 value-added measure	-0.0253*	0.000946	0.00686	0.0136*
	(0.0133)	(0.00672)	(0.00764)	(0.00694)
School's KS3-KS4 value-added measure	0.00126	0.000304	5.12e-05	0.000313
	(0.00105)	(0.000398)	(0.000504)	(0.000345)
% pupils with 5 A*-C inc. English & Maths	0.000833	-0.000643	2.96e-05	-0.00121**
	(0.00104)	(0.000510)	(0.000623)	(0.000491)
% half days missed due to unauthorised absence	-0.00593	0.0155**	0.00867	0.0120***
	(0.0137)	(0.00604)	(0.00707)	(0.00459)
School has a sixth form	0.0591	0.00402	-0.00735	0.000483
	(0.0418)	(0.0146)	(0.0175)	(0.00976)
Grammar school	-0.0923	-0.0179	-0.0381	-0.0133
	(0.0567)	(0.0297)	(0.0345)	(0.0184)
Voluntary aided/controlled school	-0.0166	-0.0114	-0.000514	-0.0219**
	(0.0212)	(0.00979)	(0.0116)	(0.00913)
Special school	-0.174*	-0.0923*	-0.104*	-0.0366
	(0.0965)	(0.0490)	(0.0553)	(0.0548)
City Technology College	0.193	0.0230	0.147	-0.0237
	(0.143)	(0.0631)	(0.0970)	(0.0571)
Foundation school	-0.00196	0.0221	0.0213	0.00396
	(0.0376)	(0.0176)	(0.0211)	(0.0146)
Number of pupils on roll (all ages)	-4.22e-05	-1.06e-05	3.11e-06	-8.36e-06
	(4.25e-05)	(1.92e-05)	(2.16e-05)	(1.70e-05)
% of pupils eligible for FSM	-0.291	-0.224**	0.0110	-0.142
	(0.318)	(0.114)	(0.142)	(0.0965)
% of pupils with EAL	-0.155	0.0929	0.0228	-0.00857
	(0.125)	(0.0608)	(0.0691)	(0.0472)
% of pupils who are White British	-0.0893	0.0454	0.0425	-0.00750
	(0.148)	(0.0765)	(0.0878)	(0.0530)
Observations	14,512	14,671	14,957	13,770

Note: Table shows coefficients from a least-squares regression model relating the predicted school fixed effect for a particular risky behavior to the variables listed. * = statististically significant 10% level; ** = statistically significant at 5% level; *** = statistically significant at 1% level. Numbers in brackets are standard errors.

Appendix C: Case studies of specific programmes

Author(s)	Country	Intervention	Age group	*N*	Follow-up period	Results	Depreciation of impact	Conclusions
Balvig and Holmberg (2011)	Denmark	School-based RCT featuring information on normative misperceptions and class discussion	11-13	188 (treatment), 161 (control)	12 months	No significant reduction in smoking or drinking. But reductions in various types of antisocial behaviour of ≈ 10 ppts	Unknown	Ripple effect: the correction of misperceptions regarding one type of risk behaviour influenced other types of misperceptions and risk behaviour as well
Dijkstra et al (1999)	Netherlands	School-based RCT consisting of videos about smoking. Booster treatment included magazines about smoking as well	13-15	≈500-600 (treatment), ≈1200-1500 (control)	6, 12 and 18 months	With booster: 7 ppts lower growth in smoking after 12 months, 5 ppts lower growth after 18 months	Only programme with booster was still effective 18 months later	See results
Ellickson et al (1993)	US	11 lesson curriculum focusing on helping 7th and 8th grade students develop the motivation and skils to resist drugs	7th-8th grade	4000	six times from grades 7 to 12.	Whilst in place, the program reduced cigarette and marijuana use (initiation fell by a third for those without prior experience of either drug). Impacts on alcohol were smaller. Programme worked equally well for high and low risk groups.	Once the lessons stopped, the programs effects stopped. The impacts on the knowledge of risk factors and consequences of risky behaviour persisted longer (up until 10th grade)	The impacts of the SI programme on behaviour were limited to the time when the intervention was in place. However, the programme did improve knowledge about the consequences of risky behaviour.

Hansen and Grahan (1991)	US	Four experimental conditions: resistance skills training; normative education; resistance skill training and normative education; neither intervention. (Interventions 4-10 lessons)	7th grade	3,011 pretested; 2416 successfully tracked and post-tested. Sample drawn from 12 junior high schools.	1 year	Normative education programme decreased measures of alcohol, marijuana, and cigarette smoking. No significant effects of resistance skill training.	N/A	Normative education in more effective in reducing risky behaviour than skills resistance training.
Marsiglia et al (2010)	US	Programme teaches decision making, risk assessment, communication skills, and drug resistance strategies (culturally grounded for Mexican Students). Four treatment and control groups: intervention in grade 5 only ; intervention in grade 7 only; intervention in grades 5 and 7; no intervention	5th and 7th grade	29 schools, 1670 students at baseline.	grade 8	Reductions in marijuana and inhalants use amongst those who were treated in grade 7. No additional effect from additional treatment in grade 5.	N/A	Intervening early and providing booster do not improve the results of SI programmes.

McCambridge and Strang (2004)	UK	Treatment group received a single session of Motivational Interviewing (MI) on alcohol, tobacco and illicit drug use. Control group received assessment only	16-20	100 treatment, 100 control	3 months, 12 month	Significant between-group differences were observed after 3 months with reduced consumption of cigarettes, alcohol and cannabis. These have largely disappeared by 12 months. Unexpected improvements by the assessment-only control group on a number of outcomes suggest the possibility of reactivity to the research assessment at 3-month follow-up.	No effects after 12 months	Little evidence of enduring intervention effectiveness shown by between-group differences after 12 months. Deterioration of effect is the most probable explanation, although reactivity to 3-month assessment, a late Hawthorne effect, cannot be ruled out
Perkins and Craig (2006)	US	Information on norms amongst student-athletes promoted through print media, posters, and email.	18-22	350-420 student athletes in each of three waves (1 pre, 2 post)	1 pre-wave, 2 post waves, each a year apart	High pre-intervention levels of misperceived norms. Intervention reduced misperceptions. Frequent personal consumption, high quantity social drinking, and negative consequences, all declined by 30% or more.	N/A	The social norms intervention was highly effective in reducing alcohol misuse in this high-risk collegiate subpopulation by intensively delivering data-based messages about actual peer norms through multiple communication venues.

Peterson et al (2000)	US	65 lessons from grade 3 to 10. Assessments on smoking attitudes and behaviour taken in grade 12 and 2 years post high school.	3rd grade - age 20	8388 (20 treatment school districts, 20 control school districts)	2 and 4 years	No impact on smoking behaviour in either of the follow-up periods.	2 years and 4 years.	No evidence that the SI school-based programme had a long run impact upon smoking behaviour.
Russell et al (2009)	US	The semester long "Done 4" programme was comprised of an intensive print media campaign, with the central message that three-quarters of students have 4 drinks or fewer when they party.	18-22	409 for survey 1, 401 for survey 2	1 and 4 months after the start of the interve ntion	After 1 month, only 13.9% of the surveyed students recognized the Done 4 slogan. Of those, 45.6% (N = 26) could accurately identify the purpose of the campaign as alcohol-related. In the second survey, Then only 9.5% of the surveyed students recognized the campaign slogan. Of those students, 31.6% (N = 12) could accurately identify the purpose of the campaign. In both surveys, alcohol use and perceived social norms, did not differ by campaign recognition.	N/A	Potential explanations for the campaign's failure include: (i) a poorly constructed marketing tool, which led to message confusion among the target student population; (ii) an insufficient intervention period.

Segawa et al (2005)	US	Three interventions. (1) Social development curriculum (SDC) = 16-21 lessons per year focusing on social competence skills necessary to manage situations in which high-risk behaviour occurs. (2) School/community intervention (SCI) = SDC and school-wide climate and parent and community components. (3) The control group received an attention-placebo health enhancement curriculum (HEC) of equal intensity to the SDC focusing on nutrition, physical activity, and general health care.	10-14	554	end of 5th, 6th, 7th, 8th grade.	Boys: SDC and SCI significantly reduced the rate of increase in violent behaviour (by 35% and 47% compared with HEC, respectively), provoking behavior (41% and 59%), school delinquency (31% and 66%), drug use (32% and 34%), and recent sexual intercourse (44% and 65%), and improved the rate of increase in condom use (95% and 165%). The SCI was significantly more effective than the SDC for a combined behavioral measure (79% improvement vs 51%). There were no significant effects for girls.	N/A	Theoretically derived social-emotional programs that are culturally sensitive, developmentally appropriate, and offered in multiple grades can reduce multiple risk behaviors for inner-city African American boys in grades 5 through 8. The lack of effects for girls deserves further research.

Somers and Fahlman (2001)	US	Baby Think it Over (BTIO) - baby simulator. Students took turns as "parents" for a period of two nights and three days (over a weekend) during which they were solely responsible for the care of their babies. Only 4-6 dolls, so experiment staggered over 10-12 weeks	10th-12th grade	151 treatment and 62 control	N/A	Quasi-experimental evidence does not reveal a statistically significant effect of BTIO on measures of attitudes towards sex and pregnancy, or measures of sexual behaviour. Some of the more narrative evidence suggests there was some impacts on attitudes. Almost all said they had medium or a large amount of experience with infants prior to the intervention.	N/A	The BTIO simulator did not produce significant changes in either attitudes or Behaviour

Tingle (2002)	US	Baby Think it Over - baby simulator. Perceptions of teen-age parenthood measured through 19 Likert-type items. Also included were a family communication item, items assessing intentions, and various demographic items. Students were administered a pretest and a posttest up to six weeks after the intervention. Includes teacher, parent and student survey.	Mean age 15.5	22 counties (10 control counties), 431 students (186 control students)	N/A	Overall, support existed for the BTIO intervention by parents and reachers. Most teachers and parents felt the program was effective at increasing communication about parenting and changing teens' attitudes in a desired direction. Most teachers reported that the intervention was not disruptive to their classes. However, results from student surveys did not reveal the same support. Student changes in attitudes and beliefs about parenting after the intervention were minimal.	Up to 6 weeks post-test survey	Student changes in attitudes and beliefs about parenting after the intervention did not occur. While minor changes occurred in both directions, positively and negatively, the magnitude of change was minimal.

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