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Determinants of risky behaviour in adolescence: Evidence from the UK

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Contents

Abstract

This paper provides new evidence on the prevalence of a variety of risk-taking behaviours amongst a nationally representative sample of 14-year olds in the UK. Adolescence is a period during which risk-taking increases sharply, with potential long-term effects on health and wellbeing. The paper considers different substance use, anti-social behaviour, criminal behaviour, gambling and sexual activity. It looks at prevalences, risk and protective factors for risk-taking, and dynamic participation in risk-taking from early to mid- adolescence. Risk factors for participation include being male, living in a single headed household, parental substance use, and puberty. The lack of socioeconomic gradients in most risky activities at this age is noteworthy, with the exception of criminal behaviour, which shows higher participation amongst lower socioeconomic groups. There is evidence that substance use – binge drinking and smoking - has risen sharply between ages 11 and 14.

Keywords Adolescence, risk-taking, substance use, anti-social behaviour, criminal activity, sexual activity, UK

1. Introduction

Adolescents are often characterised as excessively prone to risk taking and impulsivity as exemplified by the clustering of risky behaviours including harmful alcohol consumption, drug use, anti-social behaviour, and unprotected sexual activity. There is ample evidence that risk-taking rises sharply in adolescence (J. J. Arnett, 2000; Gardner & Steinberg, 2005). It is a period during which the negative effects of risk-taking are more salient, with implications for young people's wellbeing (Steinberg, 2005), and there are longer term adverse effects on educational attainment, morbidity and premature mortality. Such preventable and self-inflicted behaviour is widely considered to be one of the greatest threats to health and development facing young people in developed countries (Blum & Nelson-Mmari, 2004; Williams, Holmbeck, & Greenley, 2002).

Risk-taking in adolescence has been explained by a combination of psychological, contextual and neurobiological factors (Baumrind, 1987; Jessor, 1991). On the contextual side, there are important social behaviour changes during adolescence as individuals start to spend less time with family members and more time with peers (Csikszentmihalyi, 1977; Larson and Richards, 1991). In terms of psychology, adolescents have not yet attained adult cognitive function in self-regulation - inhibiting inappropriate behavioural or emotional responses (reviewed in Steinberg, 2008; Casey et al., 2002; Luna, 2009; Tottenham et al., 2011). Biologically, the adolescent brain undergoes profound development (Blakemore & Choudhury, 2006), and sensation seeking increasing abruptly around the time of puberty, especially in the presence of peers, peaking around age 15 (Steinberg, 2008). All of these changes contribute to increased risk behaviour during adolescence.

There is considerable evidence showing family influences on adolescent health risk behaviours (Chassin et al., 2005; Duncan, Tildesley, Duncan, & Hops, 1995), and specifically that the familiar cluster of risk factors— living in poverty, poor parenting, dysfunctional family patterns, substance use in the home— is associated with risk behaviours, although the precise mechanisms have not been clearly established. For instance, using the Avon Longitudinal Study of Parents and Children MacArthur et al. (2012) find that the prevalence of a number of risk behaviours varies by gender, with girls having higher engagement in tobacco smoking, self-harm and a lack of physical activity, and boys in contrast, showing higher levels of anti-social and criminal behaviours, cannabis use and vehicle-related risk behaviours. The influence of peers is known to increase adolescent risk taking (J. Arnett, 1992; Steinberg, 2008). On

substance use, Chassin, Presson, Todd, Rose, and Sherman (1998) shows that alongside demographic influences, other factors such as prenatal exposure to substances, genetic propensity to addiction and disinhibition, and poor parenting, all of which show socioeconomic gradients, are likely to affect substance use via increased difficulty regulating their behaviour, higher impulsivity and poorer executive functioning. This underlines the need for rich longitudinal data in order to understand the antecedents and consequences of risky behaviours.

Whilst we know that participation in risky behaviour starts at a young age (Chowdry, Kelly and Rasul 2013), engagement in risky behaviour is by no means ubiquitous in adolescence, and the emergence of such behaviour is determined by a myriad of individual, family and societal factors. In this paper, we explore the level of engagement in risky behaviour, and determinants of risky behaviours in mid-adolescence, aged 14, amongst a large, contemporaneous and nationally representative UK sample. Age 14 is particularly pertinent, with some evidence that it is the age at which some risky choices peak (Burnett, Bault, Coricelli, & Blakemore, 2010). We also consider early manifestations of risky behaviours, at age 11, and how behaviour at age 14 is determined by a variety of characteristics of young people including their personal characteristics such as gender, ethnicity and puberty, family circumstances such as parental education and occupation, parental risky behaviours (substance use) and relationships (time with friends, closeness to parents). In using longitudinal data, a key contribution is to assess how engagement in risky behaviours changes over time, over a critical period when sharp rises are expected; and how it relates to circumstances and experiences during childhood, alongside current circumstances.

There is a long history of school-based programmes and other interventions to reduce participation in risky behaviour, but little consensus remains on what works or who to target, and when. This work aims to help identify policy modifiable risk factors in risk-taking amongst today's current generation of adolescents in the UK.

2. Data

The UK's Millennium Cohort Study is a highly multi-disciplinary longitudinal study following a nationally representative cohort of just over 19,000 individuals born at the turn of the new millennium, throughout all four countries of the UK. Its latest, sixth sweep, was completed in early 2016 when cohort members were aged 14. A total of 11,726 families took part (11,872 individuals). Previous sweeps took place at ages 9 months, 3, 5, 7 and 11 years. In this paper, we use data mainly from the sixth sweep of the study, when cohort members were asked a variety of questions about their education, mental health and wellbeing, family, friends and relationships, daily activities and risky behaviours, among other things. All questions were answered by young people as part of an electronic self-completion questionnaire in private in their homes. The focus of this paper is on self-reported risky behaviours at age 14.

3. Prevalence of risky behaviour

The specific forms of behaviour we examine are substance use (including smoking, alcohol consumption, and illicit drug use), anti-social behaviour (including public nuisances, graffiti without permission, and vandalism, shoplifting and theft, and assault), engagement in criminal activity (including police contact, gang membership, and cybercrime), gambling, and sexual risky activity (including intimate sexual behaviour and underage sex, protected or otherwise). The population of interest is young people in the UK aged 14. All data are weighted to account for sampling and non-response. All outcome variables are defined in Table A1 in the Appendix.

The extent to which each of these activities is considered a risky behaviour will largely be determined by frequency of engagement. For instance, for activities such as smoking/drinking, it is important to distinguish between one-off experimentation and regular smoking/ binge drinking. In the empirical analysis, where possible, we distinguish between general participation and genuinely risky behaviours. We also show differences in these behaviours by gender, and by country of residence within the UK.

3.1 Substance Use

We first look at substance use at age 14, which includes alcohol, smoking and illegal drug taking.

3.1.1 Alcohol

The figures below show that just under half of 14 year olds have tried alcohol at least once, and there are no significant gender differences in this activity.

Figure 1

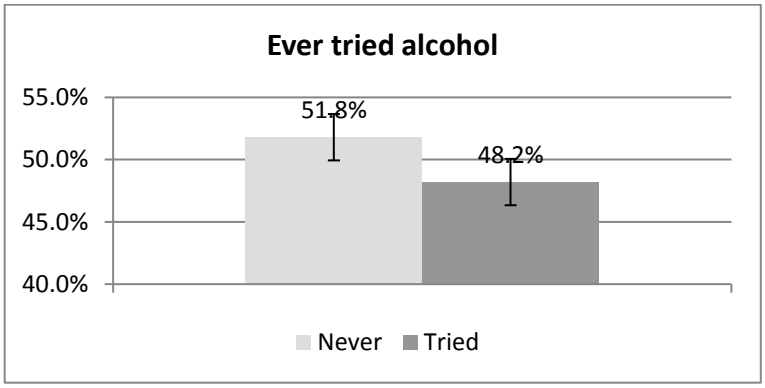


Figure 2

Whilst interesting, the above metric does not capture risky behaviour in terms of alcohol consumption. To look at this more closely we analyse participation in binge drinking, defined as having 5 or more drinks at a time on at least one occasion. We see that around one in ten 14-year olds have engaged in binge drinking (Figure 3) - the overall prevalence amongst 14-year olds is 10.6%, a proportion that is similar across males and females (Figure 4).

Figure 3

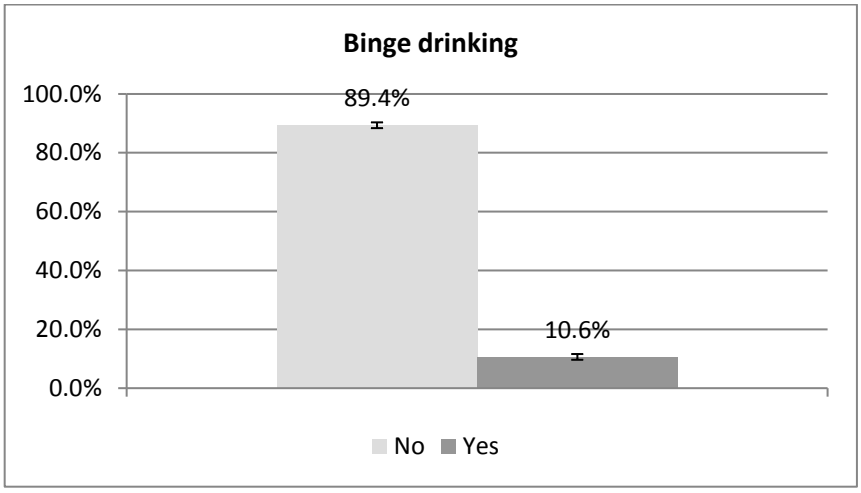
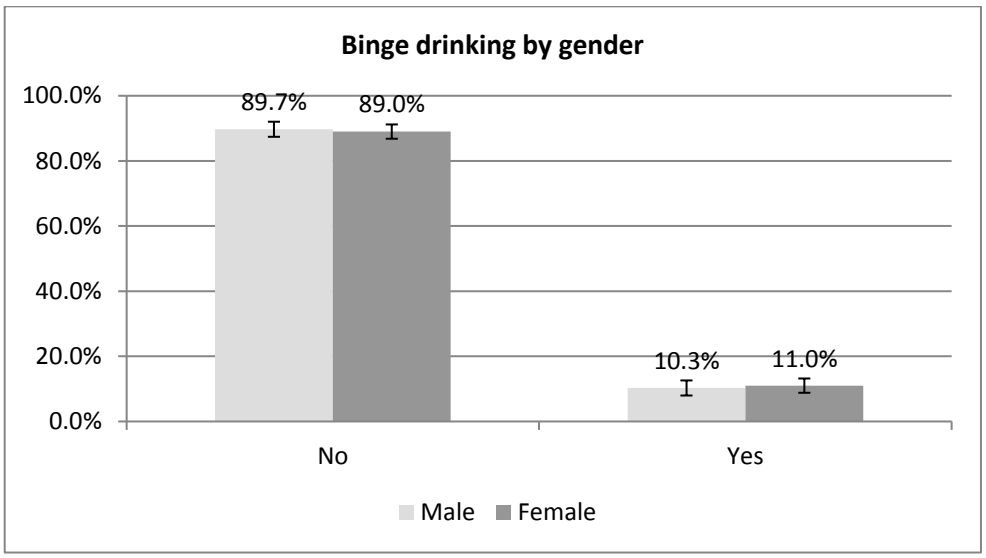


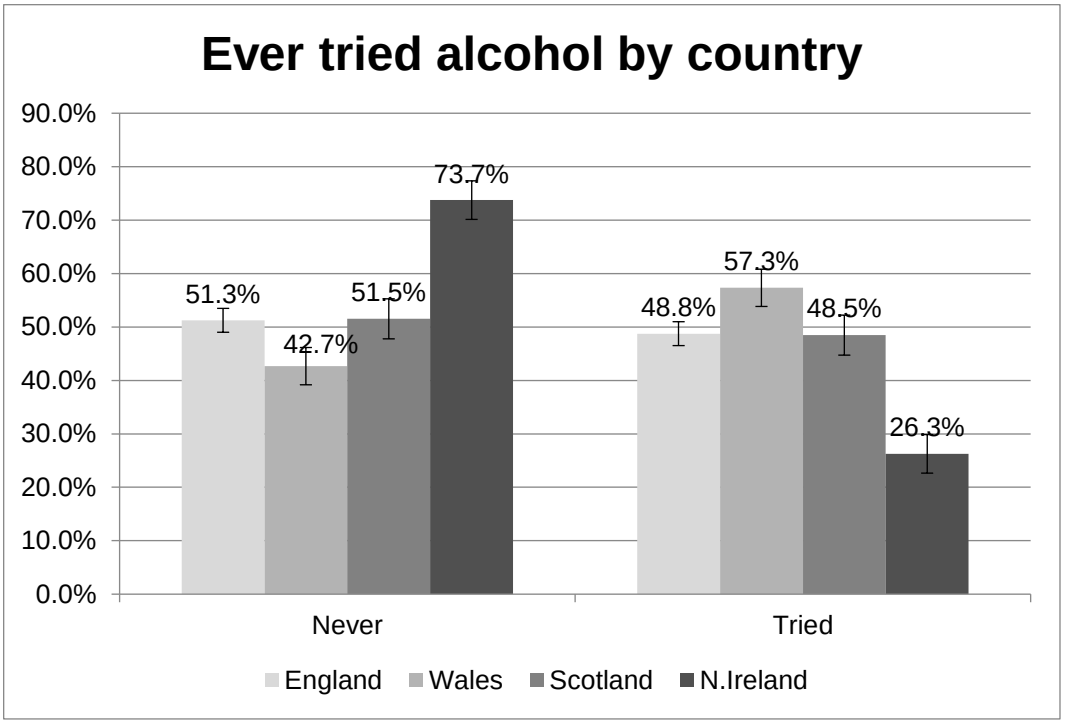
Figure 4



We next look at how this varies by country (Figure 5). Young people in Wales are most likely to have tried alcohol (57%) and those in Northern Ireland are least likely (26.3%)

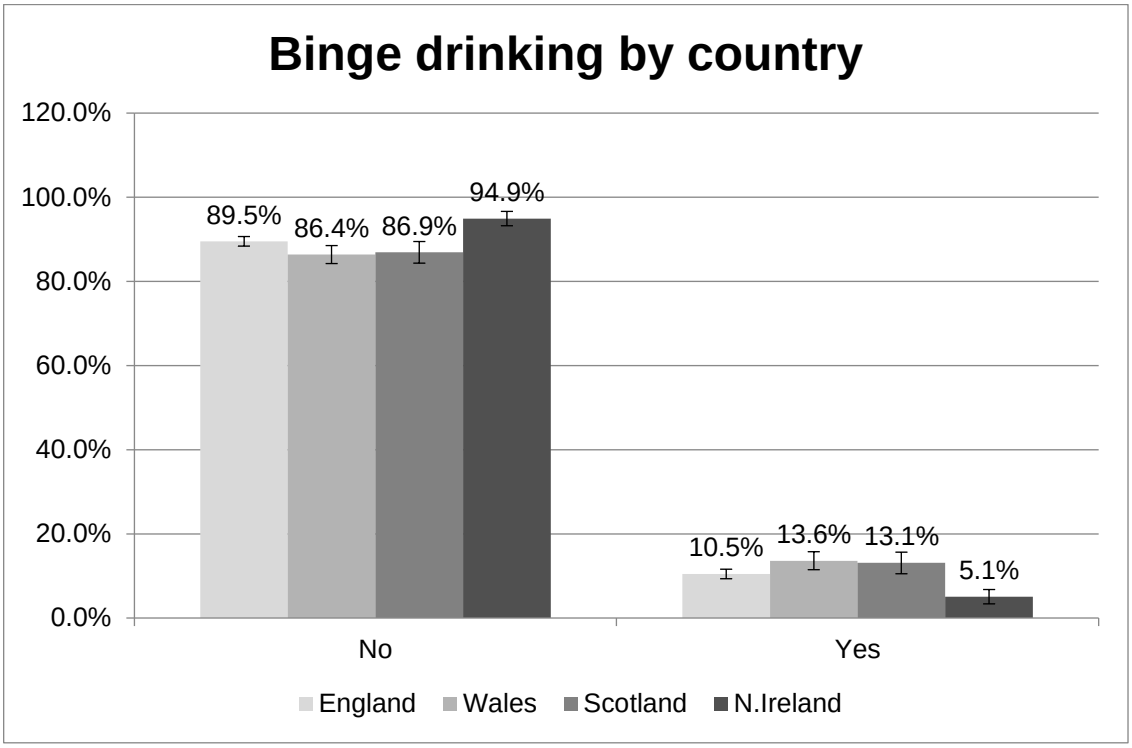
– both are statistically significant – and indeed what is striking from the figure below is the relatively low proportions who have ever tried a drink in Northern Ireland, compared to the other three countries of the UK.

Figure 5



When we look at binge drinking (Figure 6), we see that it is significantly lower in Northern Ireland than in other UK countries, at 5.1%; compared to around 10% in England and 13% in Wales and Scotland.

Figure 6



3.1.2 Tobacco

Turning next to tobacco smoking (Figure 7), we see that the proportion of 14-year olds classified as regular smokers is just under 3%, and around 14% have tried smoking at least once (but are not regular smokers). The vast majority, 83.2%, have never smoked any tobacco at all.

Like the findings for alcohol, there are no stark gender differences in smoking (Figure 8). Rates of regular smoking are significantly lower in Northern Ireland than in other countries (Figure 9).

Figure 7

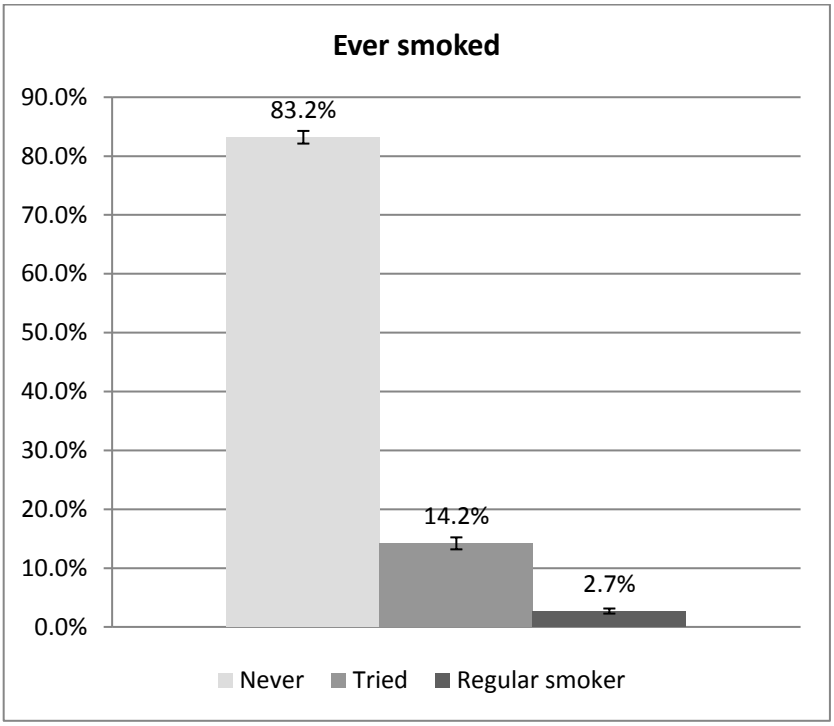


Figure 8

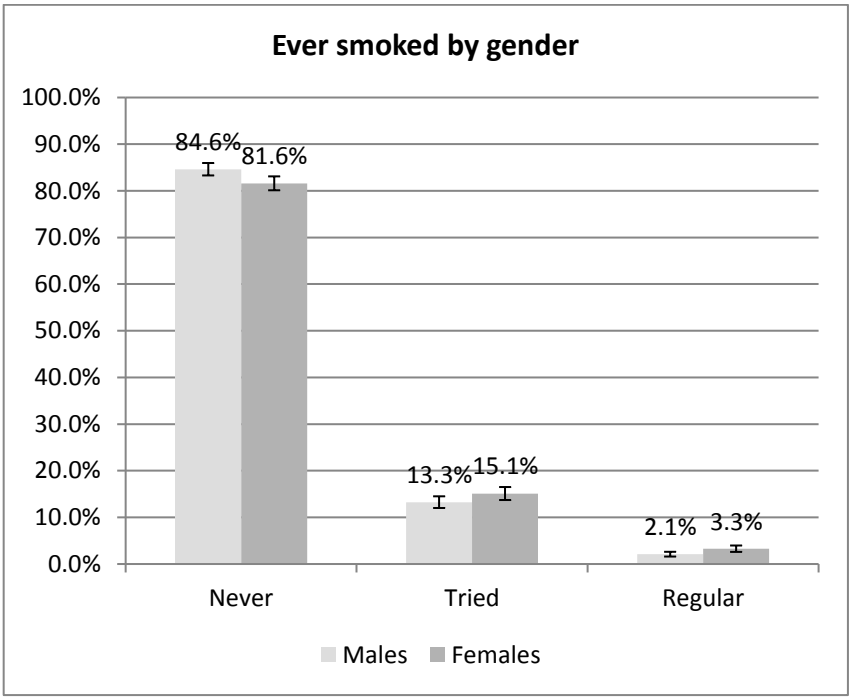
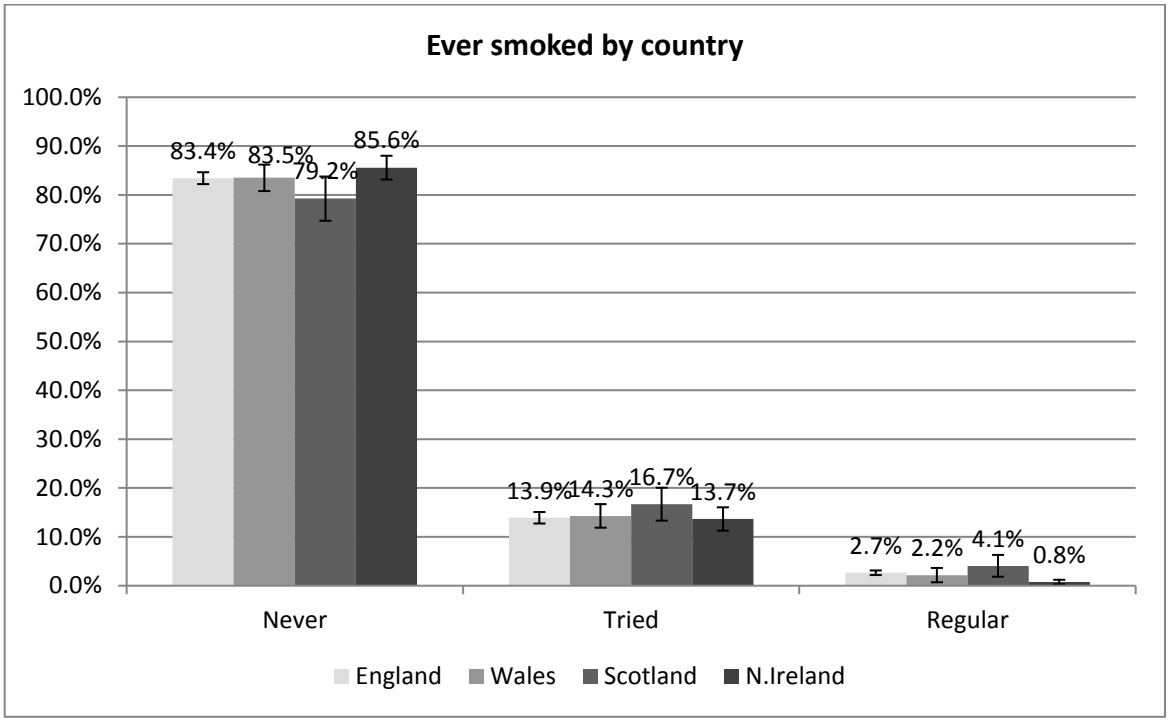


Figure 9



3.1.3 Drug taking

Around 6% of 14-year olds have tried drugs, and the majority of this is in the form of cannabis (Figure 10). Participation by gender is fairly similar (Figure 11), and rates are slightly higher in Scotland and England than in Wales and Northern Ireland, though not statistically significantly so (Figure 12).

Figure 10

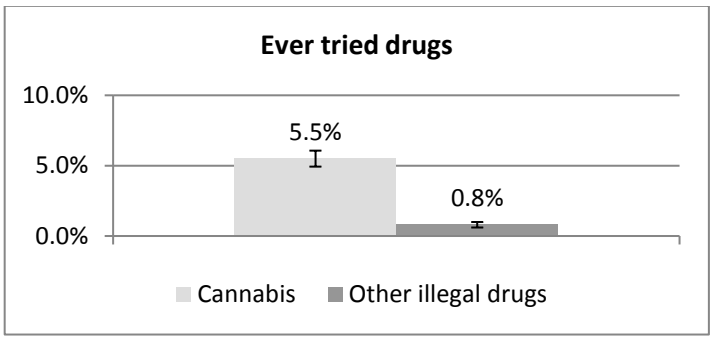


Figure 11

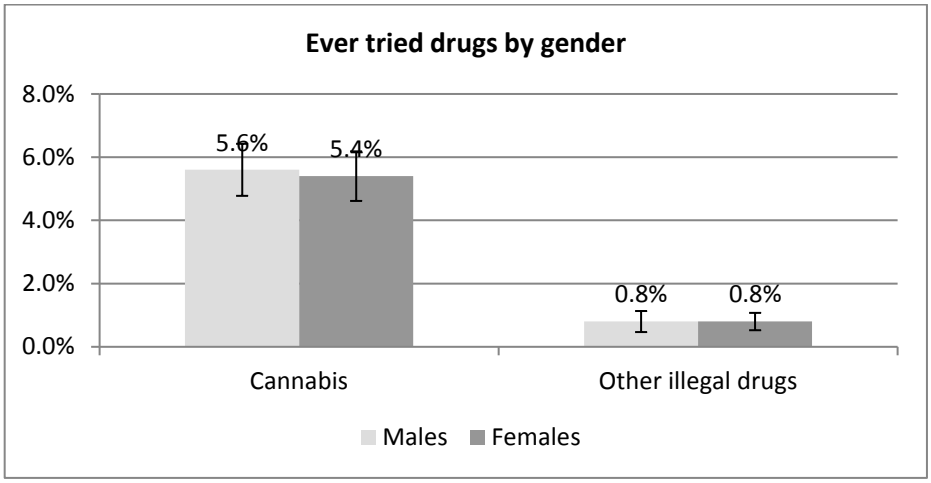
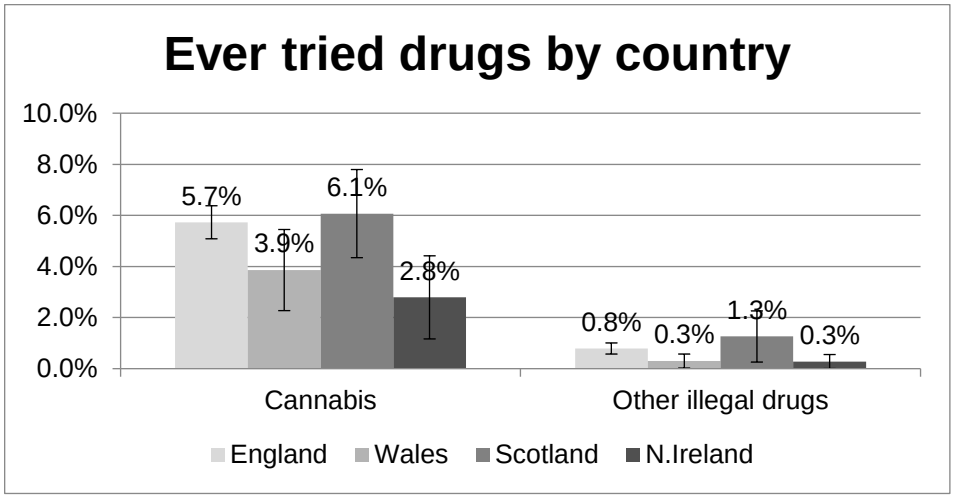


Figure 12



3.1.4 Level of substance use

We next look at the extent of substance use across all three (smoking, drinking, drug-taking), distinguishing between 'experimental' and 'problematic' behaviour. In 'experimental', we include (positive reports of at least one of): tried cigarettes but not regular smoker, tried alcohol but never binged, never smoked cannabis/smoked cannabis at most 1-2 times, and never took other illegal drugs. In 'problematic' we include (positive reports of at least one of): regular tobacco cigarette smoker, binge drinking at least once, smoked cannabis 3 times or more, or has taken other illegal drugs. Figure 13 below shows that around 4 in 10 14-year olds have engaged in experimental substance use, and around 1 in 10 (12%) in problematic substance use. 5 in 10 14-year olds have never tried alcohol, cigarettes or drugs. There are no stark gender differences (Figure 14).

Figure 13

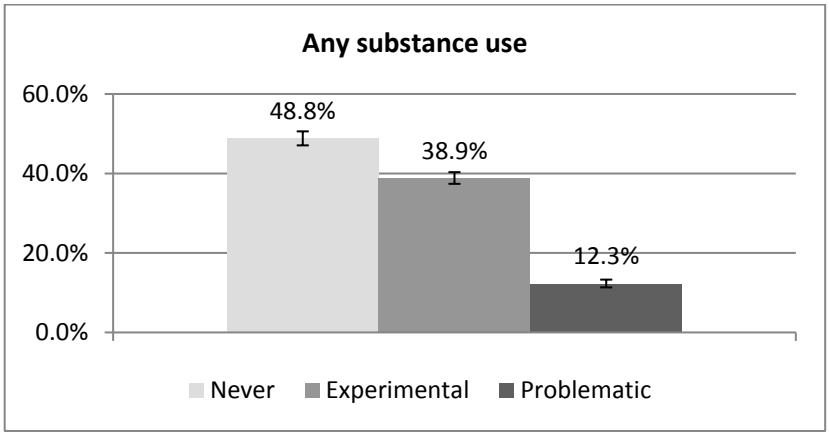
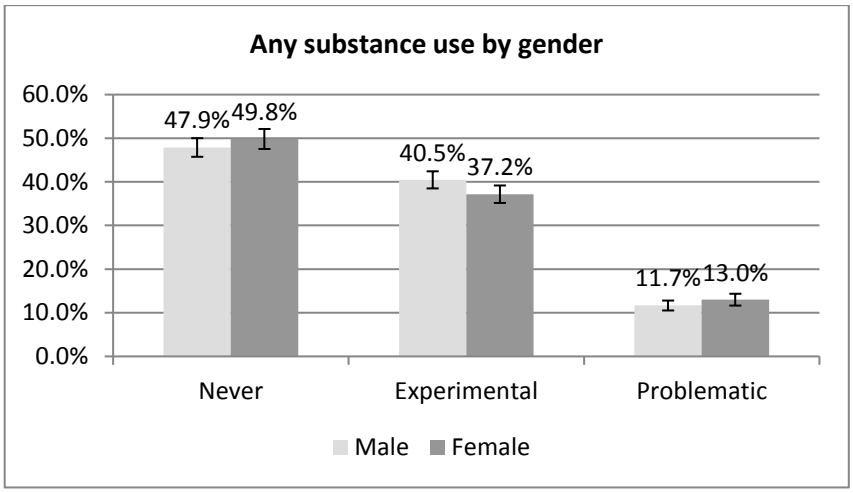


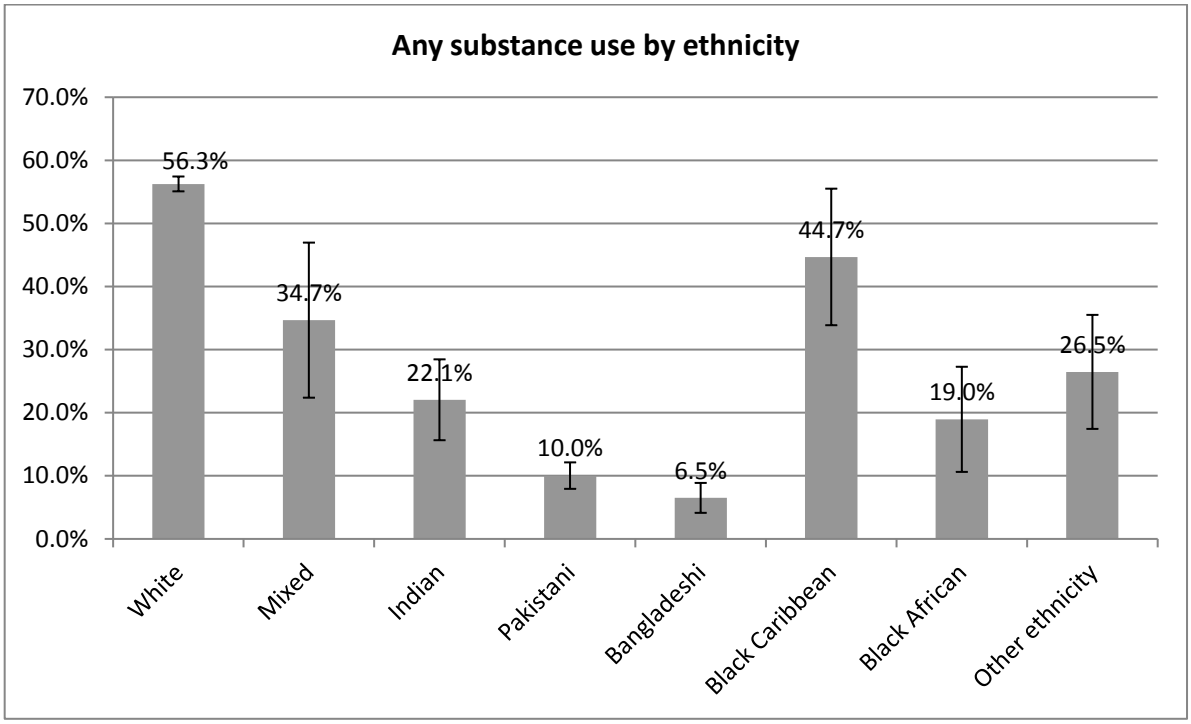
Figure 14



3.1.5 Substance use and ethnicity

As shown in Figure 15 below, there are substantial variations between ethnic groups in terms of substance use. The prevalence of use is highest amongst young people of White origin (56.3%), whilst the lowest rates were seem for those of Bangladeshi background, of whom only 6.5% reported that they had tried any substances.

Figure 15



3.2 Anti-social behaviour

We next look at the prevalence of anti-social behaviour amongst 14-year olds in the UK, which includes public nuisance (noisy or rude in public place), graffiti without permission, and vandalism, shoplifting and theft, and assault. Looking first at 'destructive' behaviours, we see that overall, around 14% have caused public nuisance at least once in the last 12 months, just under 3% have done graffiti without permission, and 3.6% vandalism (Figure 16). Females are slightly less likely to engage in these behaviours than males (Figure 17).

Figure 16

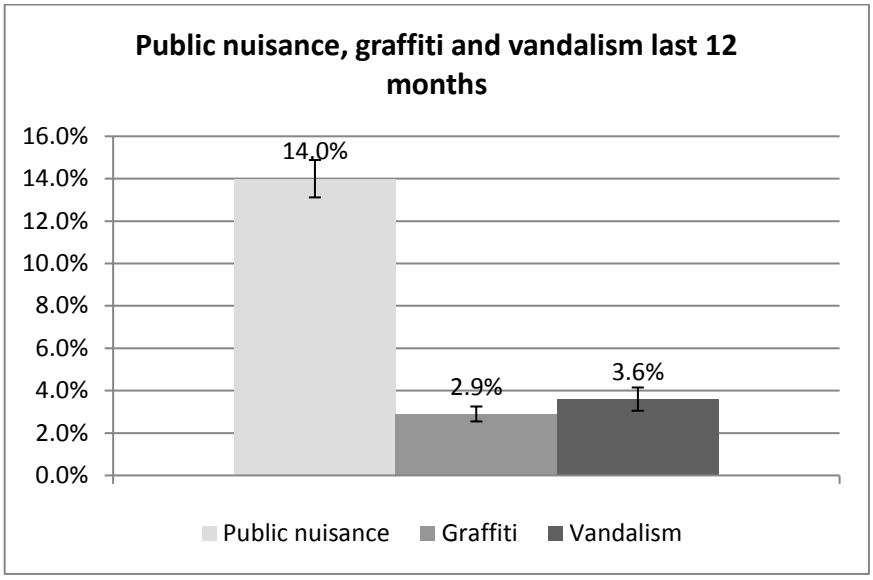
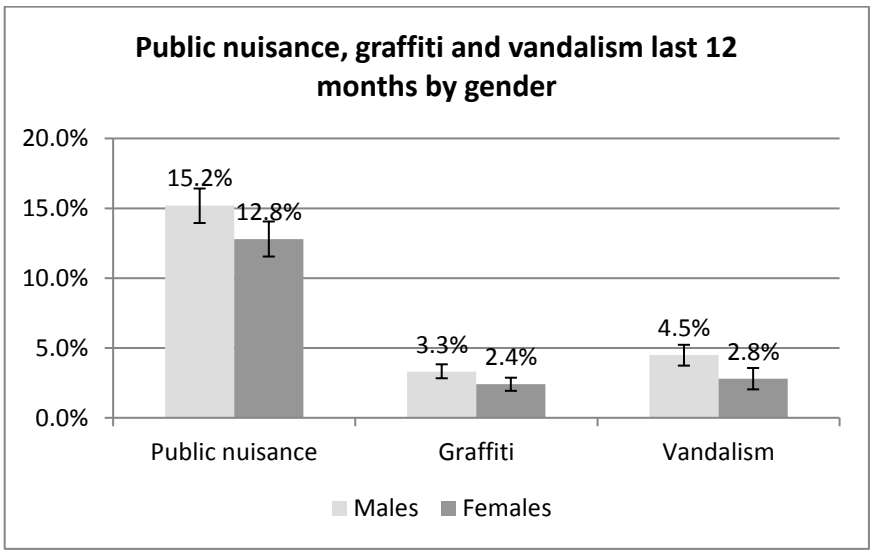
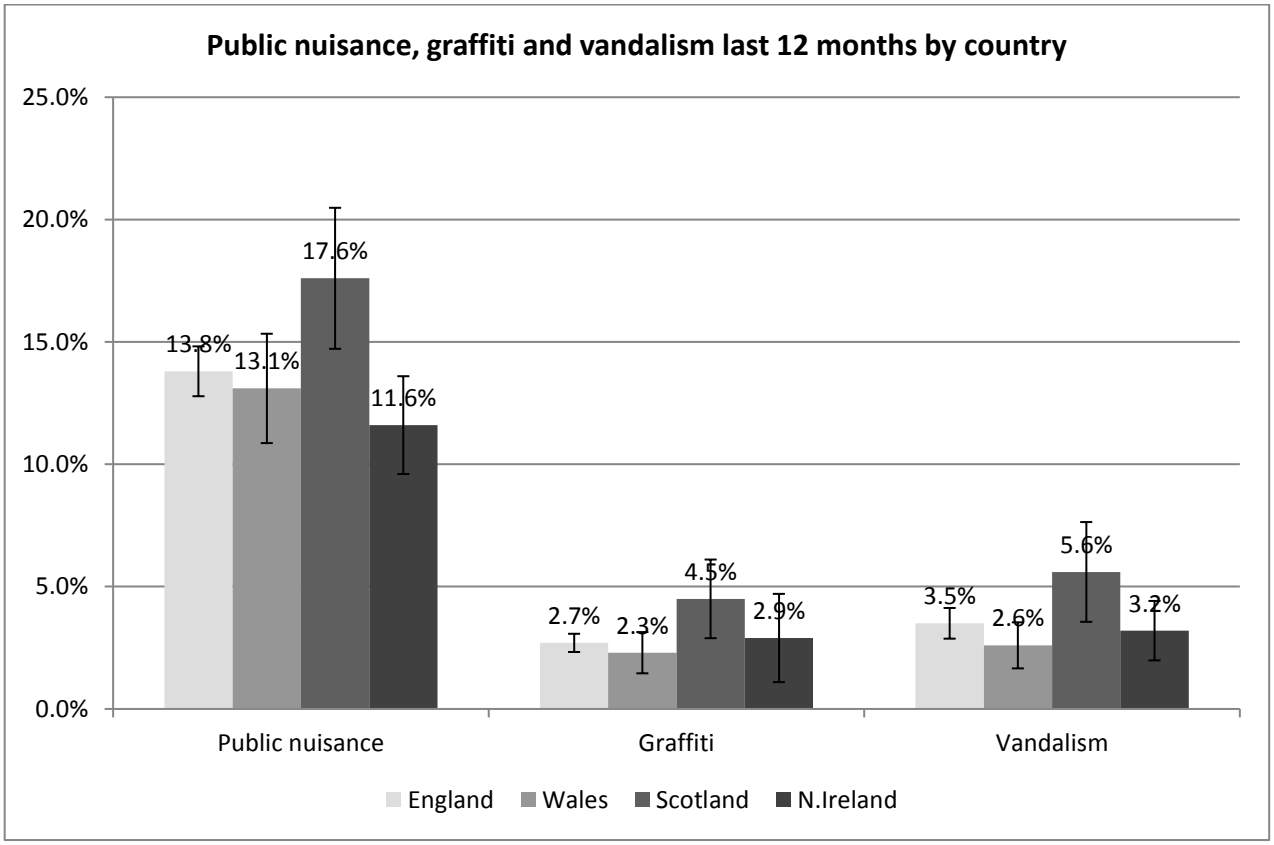


Figure 17



Country differences emerge in these raw differentials, with higher rates of reporting of public nuisances, graffiti and vandalism in Scotland than in the other countries of the UK, although these differences did not reach statistical significance (Figure 18).

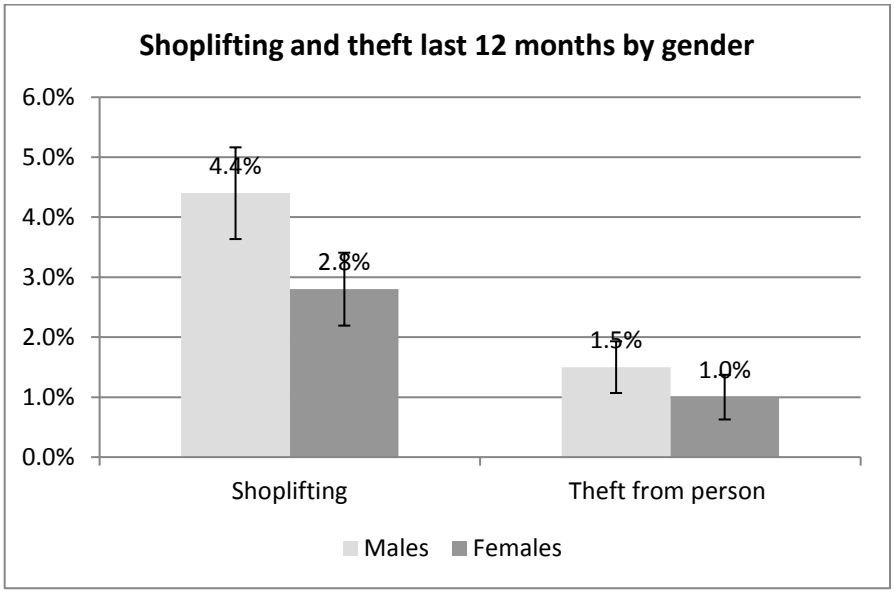
Figure 18



Looking next at self-reported shoplifting and thefts, we see that overall levels of ever having participated in the last 12 months are 3.6% and 1.3% for shoplifting and theft respectively (Figure 19), and shoplifting slightly higher amongst males than females (Figure 20).

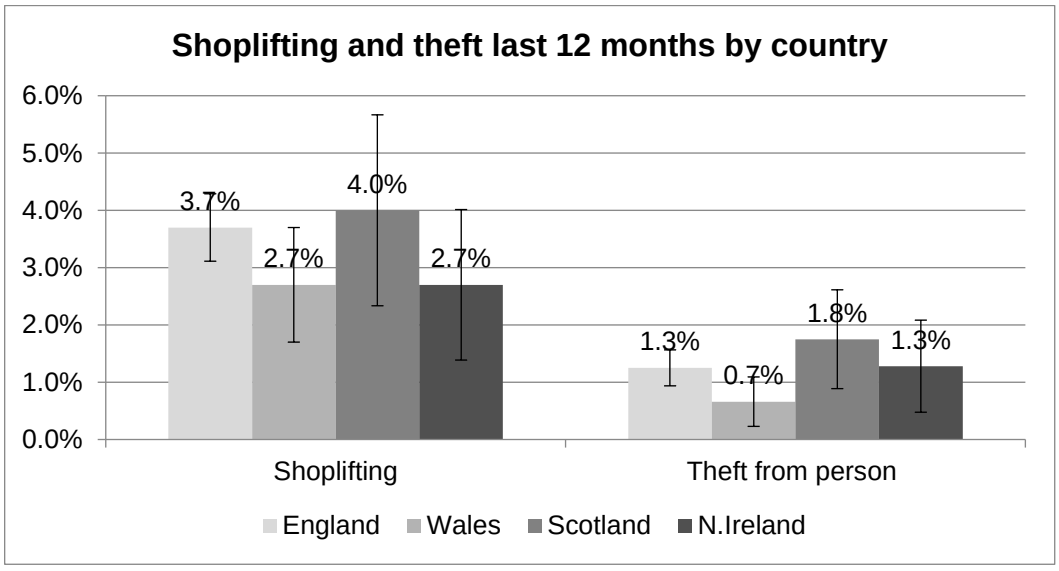
Figure 19

Figure 20



Looking at country differences (Figure 21), we see that rates of participation in shoplifting and theft are highest in Scotland, although this country difference is not statistically significant.

Figure 21



Participation in physical assault - measured as having shoved, hit, slapped or punched someone - are high at age 14 at just over 31%, and assault using a weapon is reported at 1.1% (Figure 22). There are stark gender differences (Figure 23), with males almost

twice as likely to report having assaulted than females, and over three times more likely to report assault with a weapon - 1.7% versus 0.5% - though from a relatively low base.

Figure 22

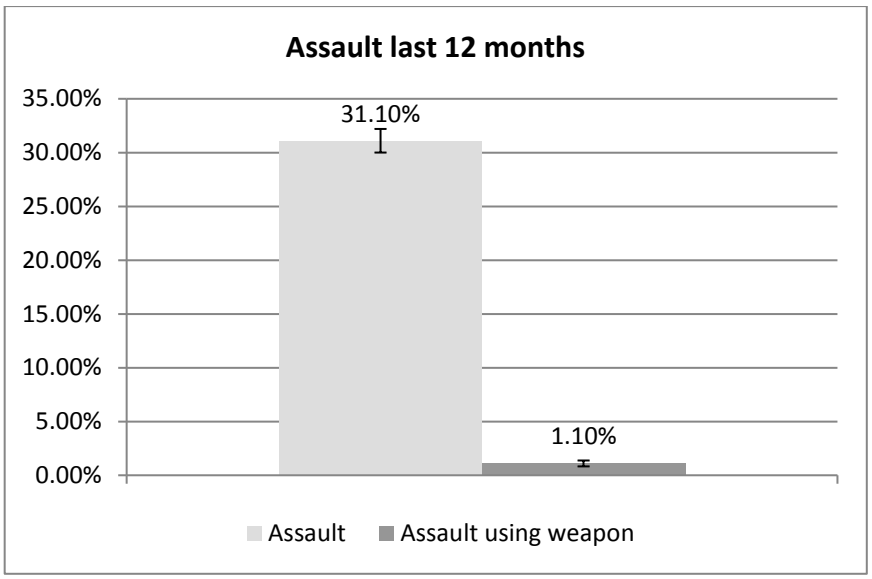
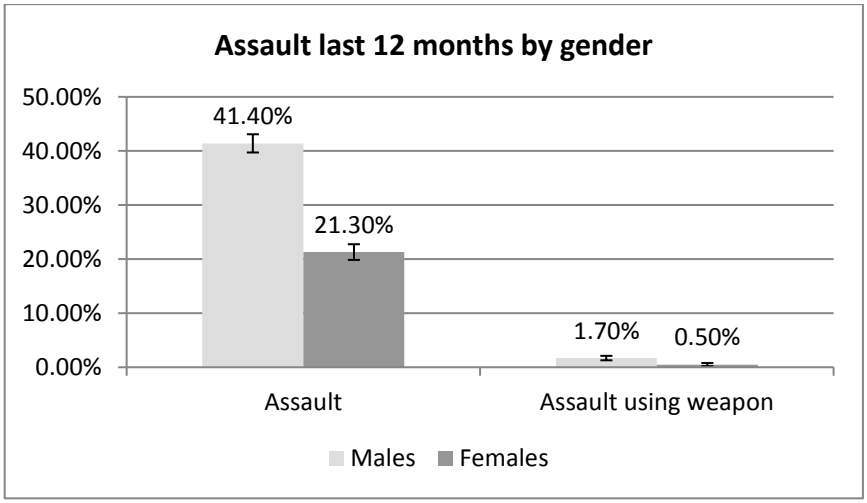
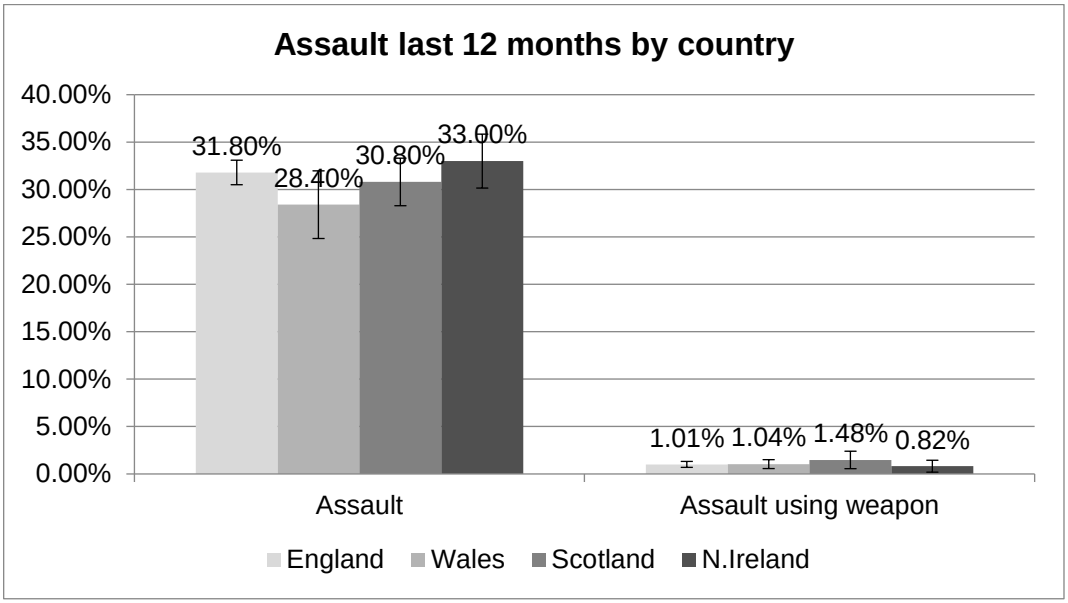


Figure 23



Assault is lowest in Wales and highest in Northern Ireland (Figure 24), though differences between countries are small and not statistically significant.

Figure 24



3.3 Criminal activities

In this section we consider engagement in criminal activities, including gang membership, cybercrime and police contact. We first look at gang membership (Figure 25): around 2.2% of respondents are currently in a gang, and 1.8% were previously in a gang. Rates are very slightly higher for females than for males, though not statistically so and overall proportions are relatively low throughout (Figure 26).

Gang membership is slightly higher in Scotland and Northern Ireland, than in England and Wales, though proportions throughout are below 4% in all countries, and country differences are not statistically significant (Figure 27).

Figure 25

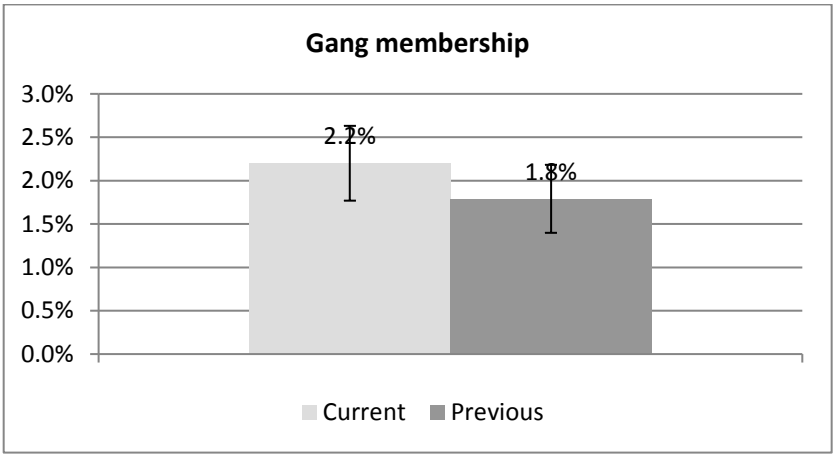


Figure 26

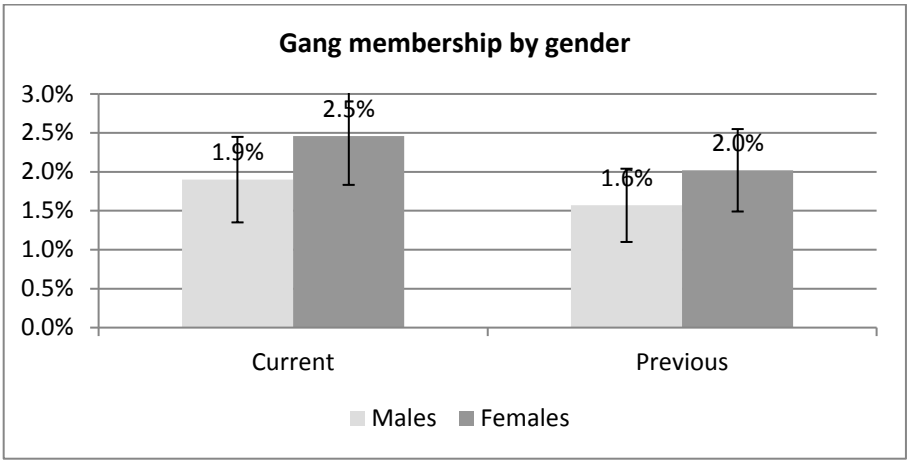
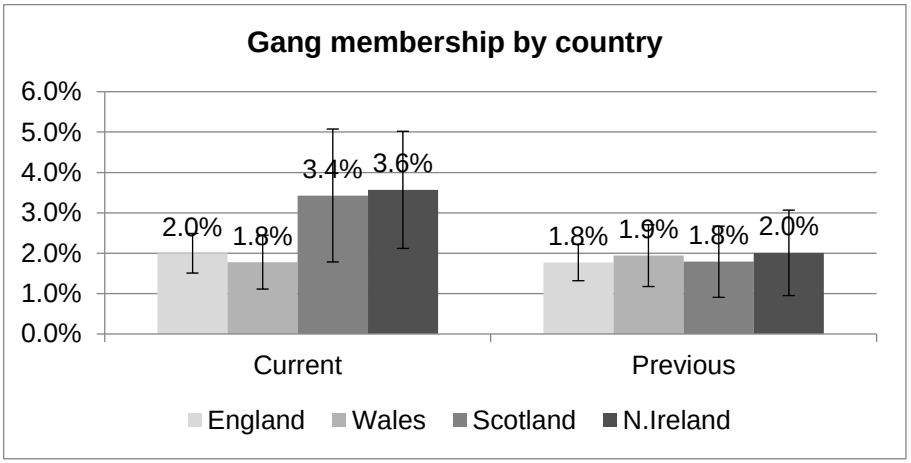


Figure 27



We next look at cybercrime. Around 5% of respondents report having hacked at least once in the past 12 months, and just under 1% have sent a virus (Figure 28). The proportions are slightly higher among males than females (Figure 29), and country differences are small (Figure 30).

Figure 28

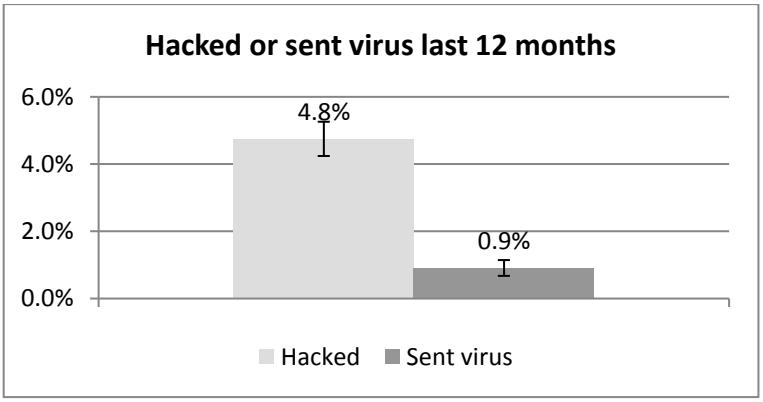


Figure 29

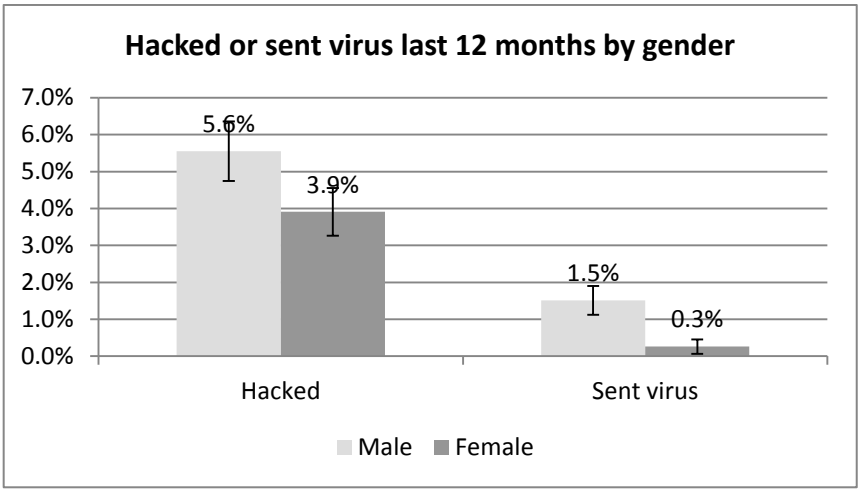
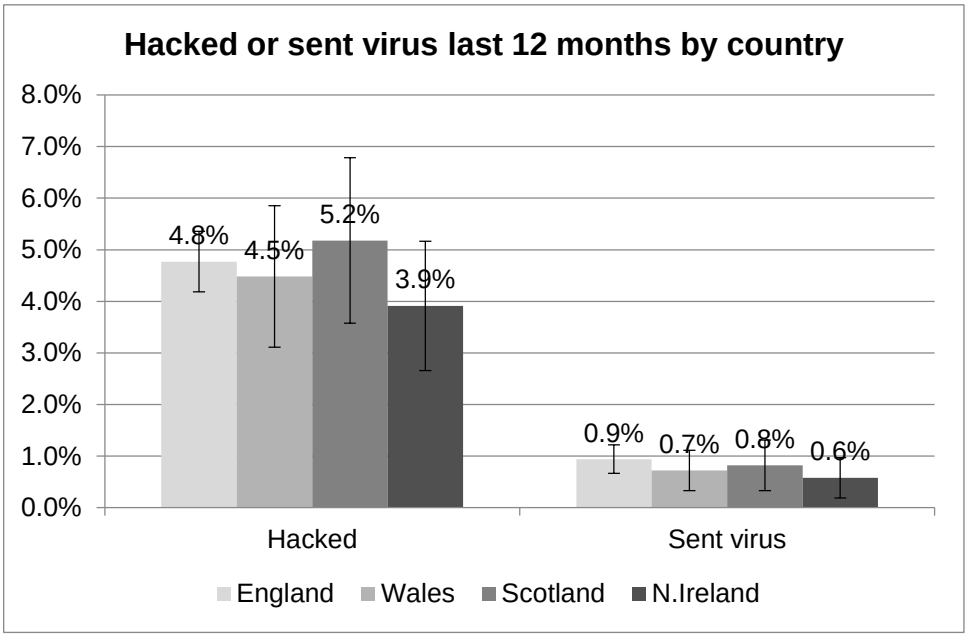


Figure 30



Looking next at the extent of contact with the police by age 14 (Figure 31), we look at the most severe level of contact and distinguish between: being stopped and questioned only (9.6%), being cautioned by police (8.2%), and being arrested (1.3%) (all categories are mutually exclusive). Stark gender differences are evident, with males more likely than females to have been in contact with the police in all of these ways (Figure 32).

The patterns by country are interesting, with 14-year olds in Scotland reporting significantly higher levels of contact with the police compared to the other three countries (Figure 33).

Figure 31

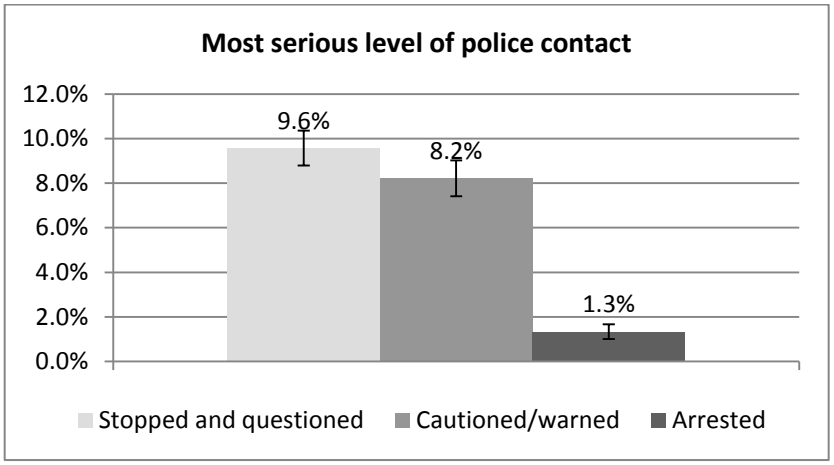


Figure 32

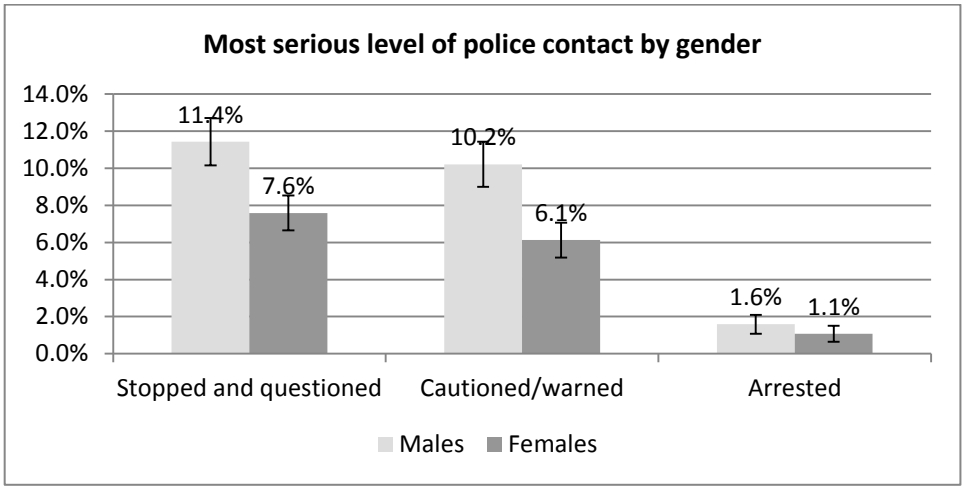
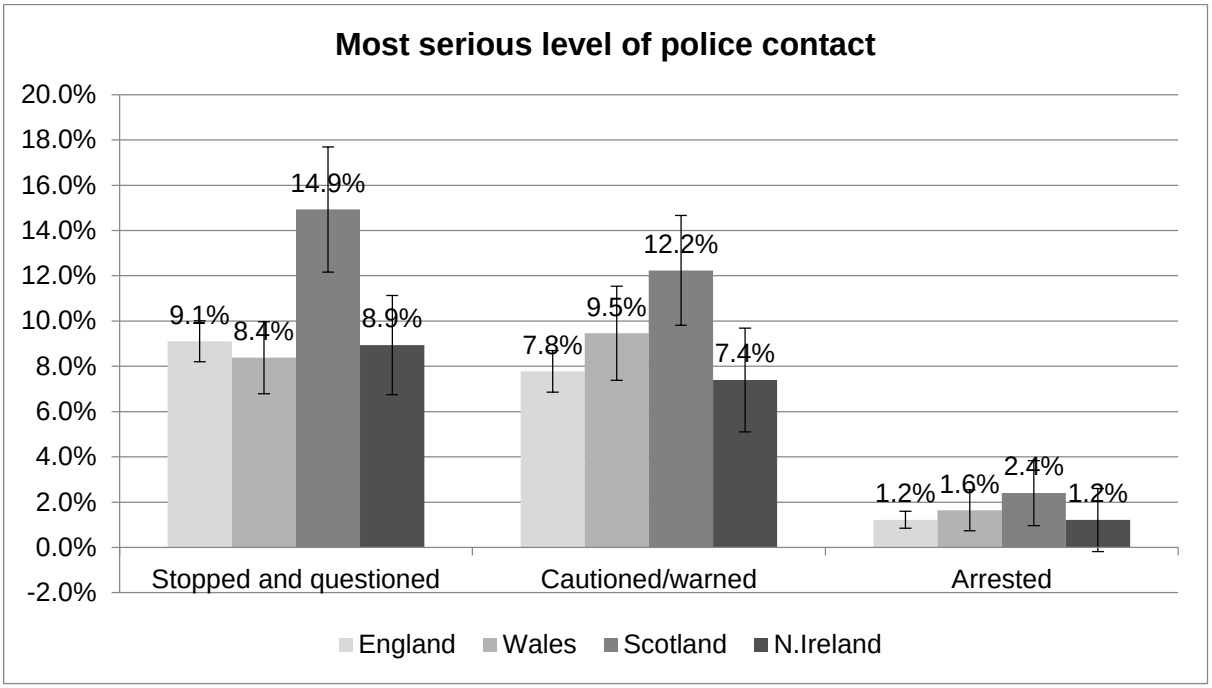


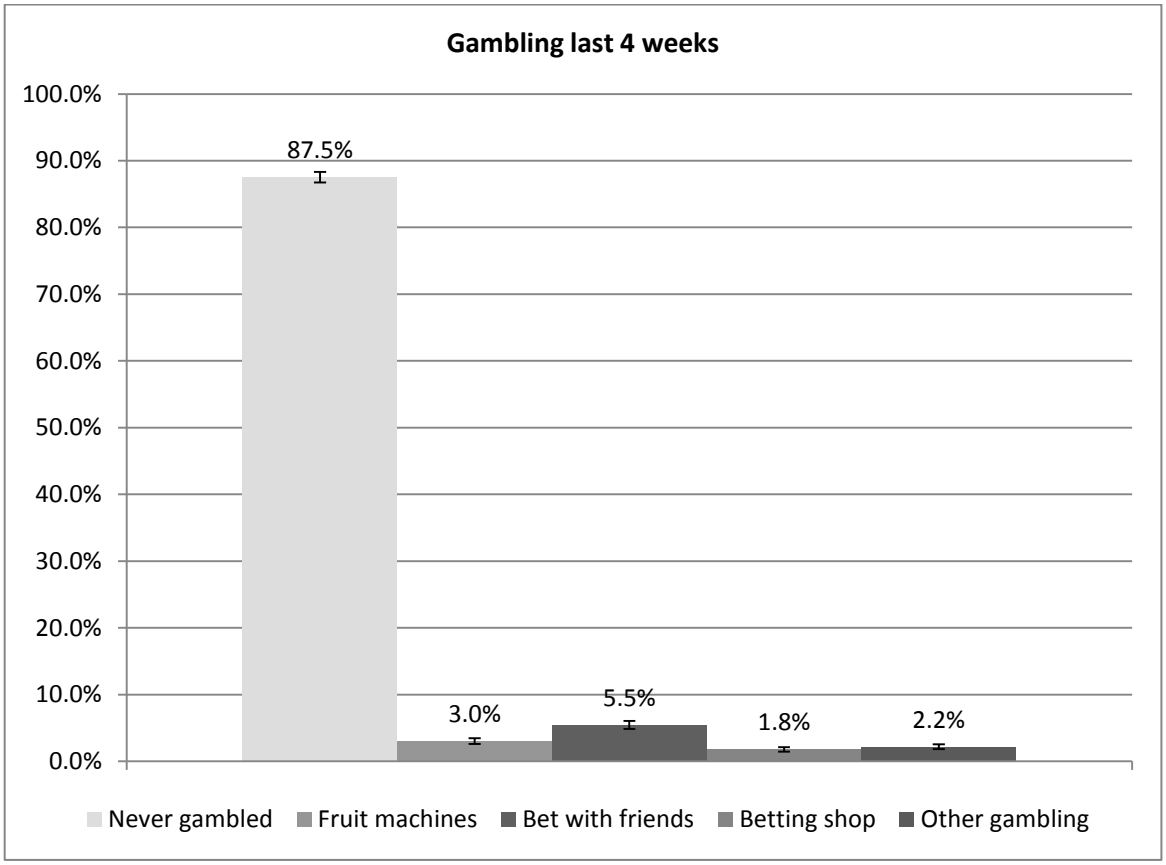
Figure 33



3.4 Gambling

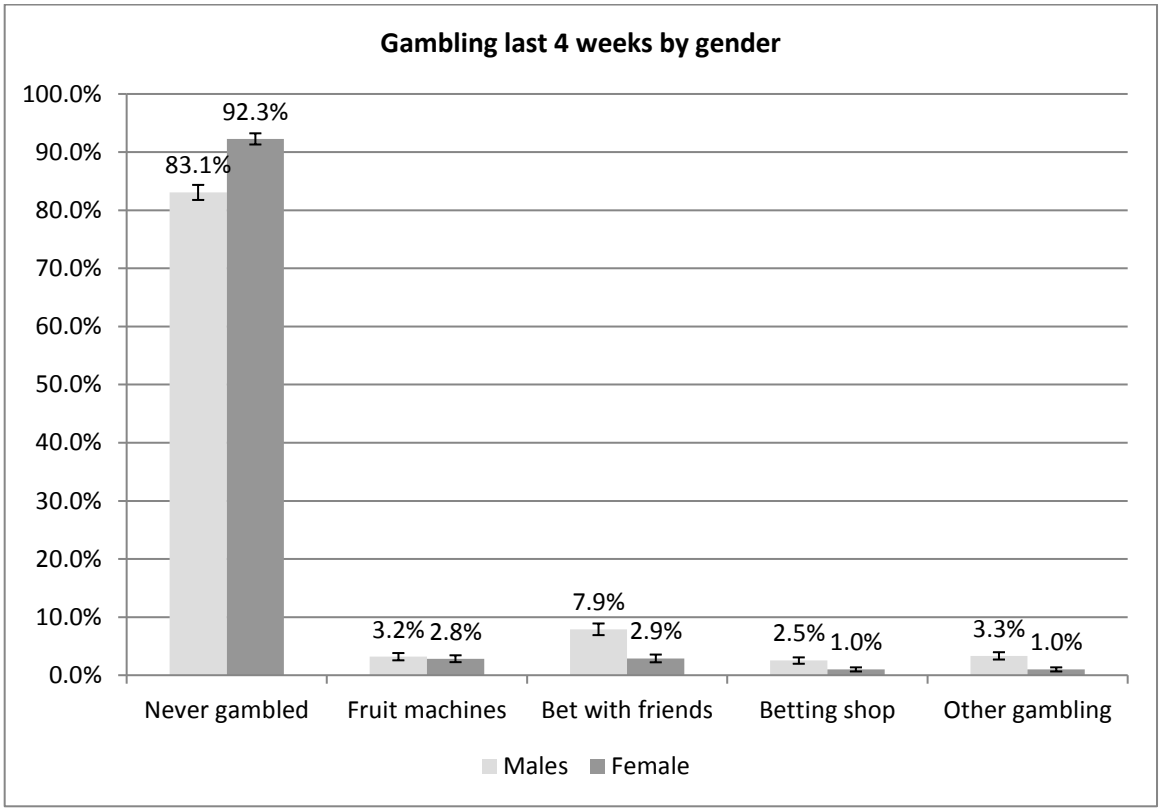
The proportion of 14-year olds that reports having gambled in the last 4 weeks is 12.5% (Figure 34). The majority of this is informal bets with friends (5.5%), followed by fruit machines (3%). Interestingly, gambling on the internet (as captured in the 'other' category) is very low at 14, and certainly not starkly different to betting shop gambling (at 1.8%).

Figure 34



There are gender differences in gambling (Figure 35), with just over 92% of females never having gambled, compared to 83% of males. Differences by gender are mainly driven by gambling with friends, with this being more common among males (7.9%) than females (2.9%).

Figure 35

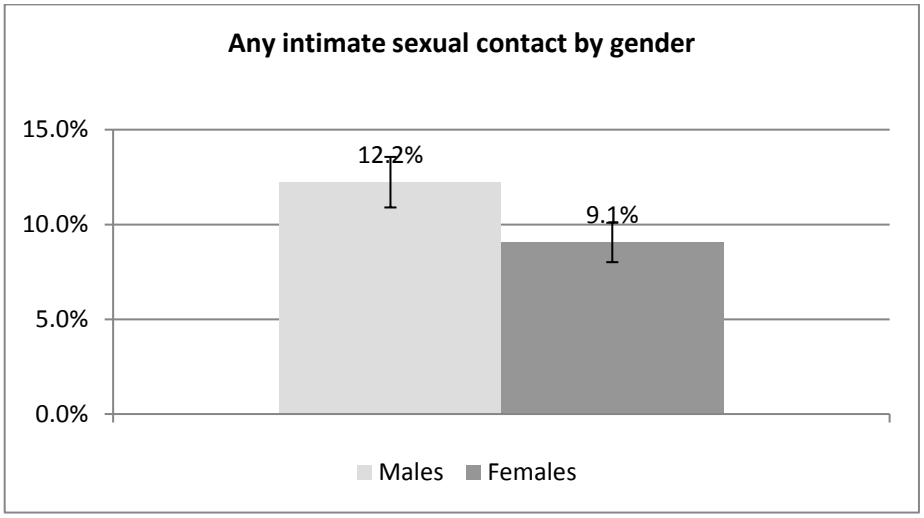


3.5 Sexual behaviour

We next look at sexual activity, and first at any sexual intimate contact, which includes intimate touching, oral sex, or sexual intercourse. We see that just over 10% of 14-year olds report having had any sexual intimate contact (Figure 36) – around 12% of males and 9% of females (Figure 37). Therefore, the vast majority, 9 in 10 14-year olds, have not had any intimate sexual contact.

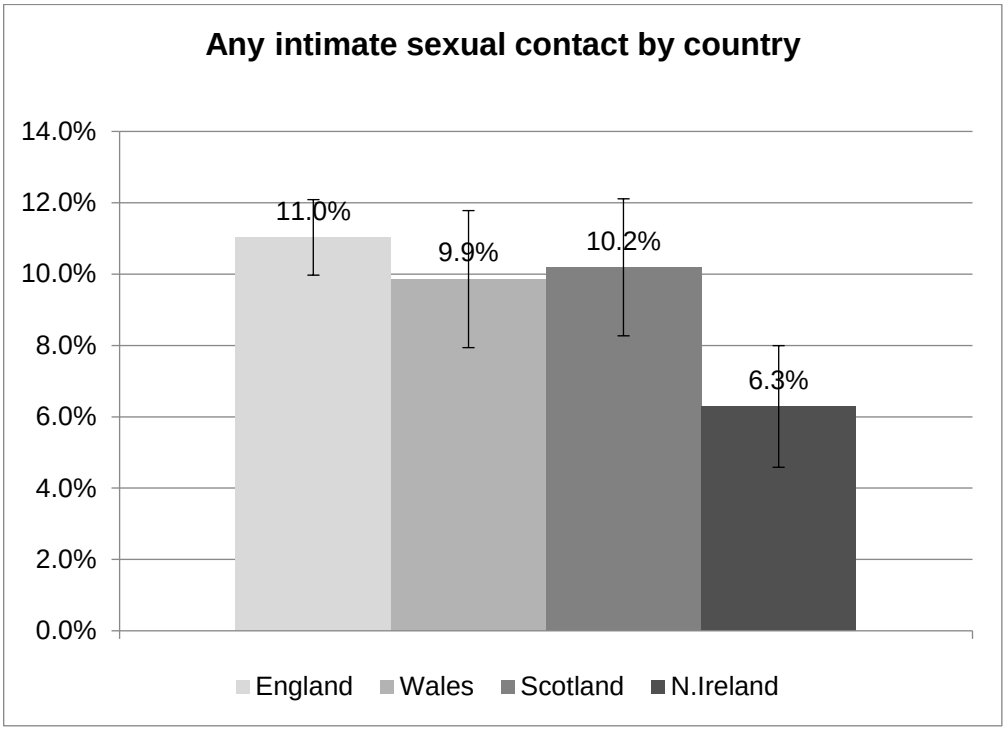
Figure 36

Figure 37



The proportions of 14-year olds reporting intimate sexual contact are lowest in Northern Ireland at just over 6%; rates in the other three countries are fairly comparable at around 1 in 10 (Figure 38).

Figure 38



The legal age of consent for sexual intercourse in the UK is 16, and by age 14 we find that 2% report having had sexual intercourse (protected or otherwise) (Figure 39), a figure that is similar across males and females (Figure 40), and across countries (Figure 41).

Figure 39

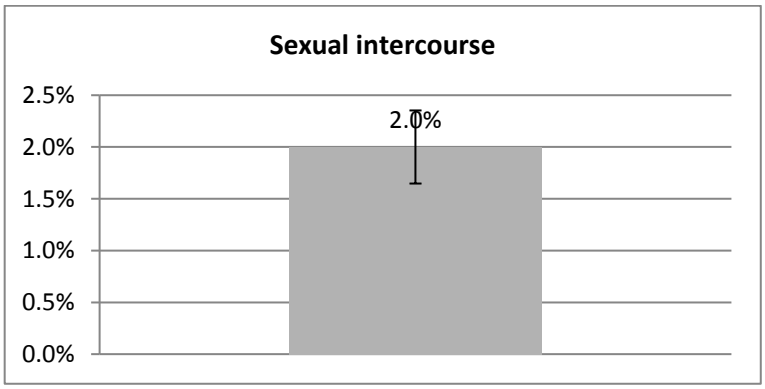


Figure 40

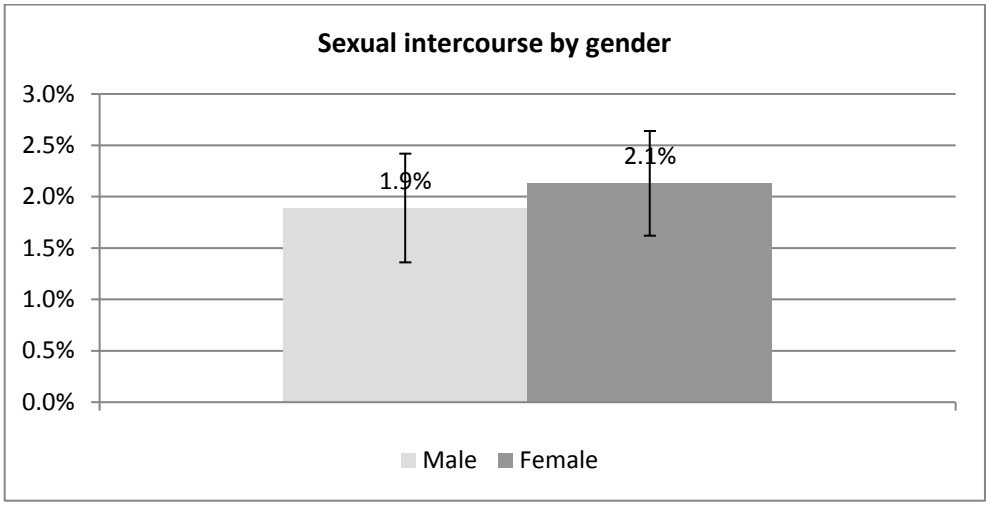
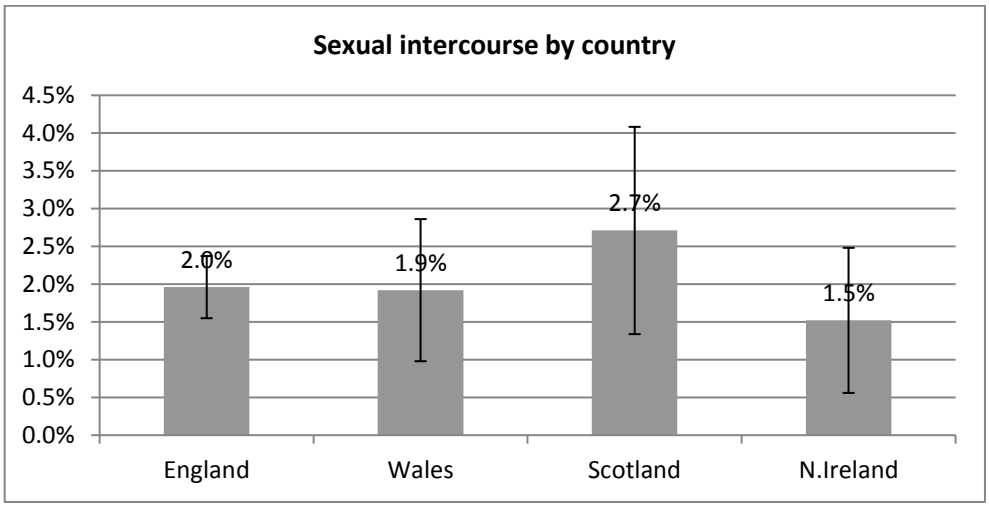


Figure 41



4. Characteristics of young people who engage in risky behaviour

In this section, we estimate multivariate regression models to analyse the factors associated with participation in risky behaviours. We look in turn at: substance use, anti-social behaviour, criminal activity, gambling, and sexual activity. As the tables that follow show, each of the models adjusts for a range of background factors, including:

Individual factors: Gender, age in months, ethnicity, pubertal status, sexual identity, internalising and externalising behaviour, time spent with friends, closeness to parents

Family factors: Parental education, parental occupation, single-headed household, maternal mental health, parental substance use

Area factors: Country of residence within the UK, perceived local area safety

Whilst we control for a rich array of background factors, in interpreting the findings we caution that the associations we show cannot be interpreted as causal, as there may be other unobserved factors affecting both outcomes and the regressors (background factors).

Looking first at substance use, we distinguish between experimental and problematic substance use in Table 1. Looking first at experimental use, we see from Table 1 that males are significantly more likely to engage in this compared to females; and ethnic minorities are significantly less likely to, compared to White British. For instance, participation amongst Bangladeshi young people is 36 percentage points (ppt) lower than amongst White. Interestingly, there are no striking differences by parental education, and small differences by parental occupation, with those children whose parents are in a routine/manual or intermediate occupation 3 percentage points more likely to have engaged in substance use at least once. Scottish and Northern Irish show levels of participation that are, respectively, 7 ppt and 25 ppt lower than their English counterparts. The negative and significant Scottish coefficient is noteworthy, given the raw differentials showed somewhat higher prevalences in Scotland, and reflect compositional differences in ethnicity between Scotland and England which, once controlled for, explain the raw differences. Other positive correlates include: pubertal status (having started or completed), sexuality (identifying as homosexual/bisexual), single headed household, and parental substance use. Experimental substance use is increasing in time spent with friends. Whether the young person has a close relationship with parents or not is not significantly associated with substance use.

When we look at problematic substance use, we see that the main predictors are generally similar, though coefficients are, as expected given lower prevalence, much lower. The only country showing significantly lower levels is Northern Ireland.

Table 1: Substance use (smoking, drinking, cannabis, other drugs)

	Ever tried[1]		Problematic use[2]	
VARIABLES	coef	se	coef	se
Male	0.06***	(0.01)	0.02*	(0.01)
Age in months	0.00***	(0.00)	0.00***	(0.00)
Ethnicity (omit White):				
Mixed	-0.21***	(0.06)	-0.07*	(0.03)
Indian	-0.24***	(0.03)	-0.09***	(0.01)
Pakistani	-0.34***	(0.02)	-0.08***	(0.01)
Bangladeshi	-0.35***	(0.02)	-0.06***	(0.02)
Black Caribbean	-0.10+	(0.05)	-0.03	(0.03)
Black African	-0.30***	(0.04)	-0.08***	(0.02)
Other ethnic group	-0.19***	(0.04)	-0.07***	(0.02)
Parental education (omit NVQ1):				
NVQ2	-0.00	(0.03)	0.02	(0.02)
NVQ3	-0.02	(0.03)	-0.01	(0.02)
NVQ4	-0.05*	(0.02)	-0.00	(0.02)
NVQ5	-0.03	(0.03)	-0.00	(0.02)
Parental occupation (omit higher managerial/ professional):				
Intermediate occupations	0.03+	(0.01)	0.01	(0.01)
routine and manual occupations	0.03	(0.02)	0.00	(0.01)
Family size	-0.01	(0.00)	-0.01*	(0.00)
Country (omit England):				
Wales	0.02	(0.02)	0.01	(0.01)
Scotland	-0.07***	(0.02)	0.00	(0.02)
N. Ireland	-0.25***	(0.02)	-0.08***	(0.01)
Area safety (omit not at all safe):				
not v. safe	-0.03	(0.06)	0.05	(0.04)
safe	-0.03	(0.05)	0.03	(0.03)
v. safe	-0.04	(0.05)	0.04	(0.04)
Single-headed household	0.07***	(0.02)	0.02+	(0.01)
Internalising behaviour	-0.01**	(0.00)	0.00	(0.00)
Externalising behaviour	0.00***	(0.00)	0.00**	(0.00)
Maternal mental health	0.00	(0.00)	0.00	(0.00)
Parent alcohol use	0.03***	(0.00)	0.01	(0.00)

Parent drug use	0.08**	(0.03)	0.07*	(0.03)
Puberty (omit body hair not begun growing):				
Body hair barely growing	0.06	(0.04)	-0.00	(0.02)
Body hair definitely growing	0.17***	(0.04)	0.04+	(0.02)
Body hair completely grown	0.26***	(0.04)	0.12***	(0.03)
Bisexual or homosexual **(omit heterosexual)**	0.16***	(0.02)	0.11***	(0.02)
Time spent with friends (never/don't have any friends):				
less often than once a month	-0.00	(0.03)	-0.01	(0.02)
at least once a month	0.09**	(0.03)	0.02	(0.02)
at least once a week	0.08**	(0.02)	0.03	(0.02)
most days	0.14***	(0.02)	0.07***	(0.02)
Life satisfaction	-0.00	(0.00)	-0.00	(0.00)
Closeness to parents (omit not very close):				
Fairly close	0.03	(0.10)	0.04	(0.06)
V. Close	0.05	(0.10)	0.04	(0.06)
Extremely close	0.02	(0.10)	0.03	(0.06)
Constant	-0.37*	(0.18)	-0.50***	(0.14)
Observations	11,282		11,280	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

[1] Ever tried: cigarettes, alcohol, cannabis, or other drugs

[2] Problematic use: regular smoker, have tried binge drinking, tried cannabis or other drugs.

When we look at the separate categories classified as ‘substance use’, in Table 1A, we see that ethnic minorities (Indian, Pakistani, Black Africa) are less likely to have engaged in each of them, compared to Whites. Binge drinking is significantly lower for all ethnic groups, compared to Whites. The lack of a gradient in parental education is evident across all activities, though interestingly those whose parents have higher levels of education (bachelor degree level) are slightly (1ppt) more likely to have tried illegal drugs than those whose parents have the lowest level of formal qualifications. Lower substance use in Northern Ireland is evident across all activities, and in Wales it is lower for drug-taking, relative to England. The positive association with pubertal status is driven by binge drinking and cannabis. Parental drug use is positively associated with binge drinking and cannabis use in 14-year olds. Interestingly, we

observe a positive association between closeness to parents and smoking and 'other' drug use.

Table 1A: Problematic substance use by type

	Binge drink ever		Regular smoker		Ever tried cannabis		Other drugs	
VARIABLES	coef	se	coef	se	coef	se	coef	se
Male	0.02*	(0.01)	-0.00	(0.00)	0.02***	(0.01)	0.00	(0.00)
Age in months	0.00***	(0.00)	0.00	(0.00)	0.00*	(0.00)	0.00	(0.00)
Ethnicity (omit White):								
Mixed	-0.08***	(0.02)	-0.01	(0.01)	-0.00	(0.03)	-0.01***	(0.00)
Indian	-0.08***	(0.01)	-0.02***	(0.01)	-0.03***	(0.01)	-0.01**	(0.00)
Pakistani	-0.09***	(0.01)	-0.03***	(0.01)	-0.02+	(0.01)	-0.00	(0.01)
Bangladeshi	-0.07***	(0.02)	-0.02+	(0.01)	-0.02	(0.01)	-0.01+	(0.00)
Black Caribbean	-0.08**	(0.02)	-0.02	(0.01)	0.01	(0.02)	-0.01	(0.01)
Black African	-0.07***	(0.02)	-0.04***	(0.00)	-0.03*	(0.01)	-0.01**	(0.00)
Other ethnic group	-0.06***	(0.02)	-0.02**	(0.01)	-0.03**	(0.01)	0.00	(0.01)
Parental education (omit NVQ1):								
NVQ2	-0.00	(0.02)	-0.00	(0.01)	0.02	(0.01)	0.00	(0.00)
NVQ3	-0.03	(0.02)	-0.01	(0.01)	0.00	(0.02)	0.00	(0.00)
NVQ4	-0.01	(0.02)	-0.01	(0.01)	0.01	(0.01)	0.01+	(0.00)
NVQ5	-0.01	(0.02)	-0.02	(0.01)	0.01	(0.01)	0.00	(0.00)
Parental occupation (omit higher managerial/ professional):								
Intermediate occupations	0.01	(0.01)	-0.00	(0.00)	-0.01	(0.01)	0.00	(0.00)
routine and manual occupations	0.00	(0.01)	0.01	(0.01)	0.00	(0.01)	0.00	(0.00)
Family size	-0.01*	(0.00)	-0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)
Country (omit England):								
Wales	0.02	(0.01)	-0.01	(0.01)	-0.02**	(0.01)	-0.01**	(0.00)
Scotland	0.00	(0.01)	0.01	(0.01)	-0.01	(0.01)	0.00	(0.01)
N. Ireland	-0.06***	(0.01)	-0.02***	(0.00)	-0.03***	(0.01)	-0.01**	(0.00)
Area safety (omit not at all safe):								
not v. safe	0.04	(0.03)	0.02	(0.02)	0.02	(0.03)	0.01	(0.01)
safe	0.02	(0.03)	0.01	(0.01)	0.02	(0.02)	0.00	(0.01)
v. safe	0.02	(0.03)	0.02	(0.02)	0.02	(0.02)	0.00	(0.01)

Single-headed household	0.02	(0.01)	0.01	(0.01)	0.03**	(0.01)	-0.00	(0.00)
Internalising behaviour	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Externalising behaviour	0.00**	(0.00)	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)
Maternal mental health	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Parent alcohol use	0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)	-0.00+	(0.00)
Parent drug use	0.06*	(0.03)	0.01	(0.02)	0.04*	(0.02)	0.01	(0.01)
Puberty (omit body hair not begun growing):								
Body hair barely growing	-0.01	(0.02)	-0.02	(0.02)	-0.02	(0.02)	-0.01	(0.01)
Body hair definitely growing	0.03	(0.02)	-0.01	(0.02)	0.01	(0.02)	-0.01	(0.01)
Body hair completely grown	0.09***	(0.02)	0.02	(0.02)	0.05**	(0.02)	0.00	(0.01)
Bisexual or homosexual **(omit heterosexual)**	0.06**	(0.02)	0.02+	(0.01)	0.10***	(0.02)	0.01	(0.01)
Time spent with friends (never/don't have any friends):								
less often than once a month	-0.01	(0.02)	-0.00	(0.01)	-0.01	(0.01)	0.00	(0.01)
at least once a month	0.02	(0.02)	0.00	(0.01)	0.01	(0.02)	-0.00	(0.00)
at least once a week	0.02	(0.01)	0.00	(0.01)	0.01	(0.01)	-0.00	(0.00)
most days	0.06***	(0.02)	0.01	(0.01)	0.03*	(0.01)	0.00	(0.00)
Life satisfaction	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)
Closeness to parents (omit not very close):								
Fairly close	0.07	(0.05)	0.02+	(0.01)	-0.02	(0.05)	0.02+	(0.01)
V. Close	0.04	(0.05)	0.03***	(0.01)	-0.03	(0.06)	0.01+	(0.00)
Extremely close	0.04	(0.05)	0.02**	(0.01)	-0.03	(0.06)	0.01*	(0.00)
Constant	-0.40***	(0.11)	-0.09	(0.06)	-0.21+	(0.12)	-0.01	(0.03)
Observations	11,312		11,292		11,325		11,325	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Turning to anti-social behaviour, we see from Table 2 that males are 20 ppt more likely to engage in this compared to females. The socioeconomic gradient as measured by parental education is interesting, showing an increased likelihood of engagement at higher levels of parental education (degree or above). Other positive correlates include: single headed household, parental substance use, and pubertal status. Regarding ethnicity, we see that Black Caribbeans (Black Africans) are 10 (9) ppt more likely to report antisocial behaviour compared to Whites.

Table 2: Anti-social behaviour (Public nuisance, graffiti, vandalism, shoplifting, theft from person, burglary, assault, carrying knife/weapon)

VARIABLES	coef	se
Male	0.21***	(0.01)
Age in months	0.00	(0.00)
Ethnicity (omit White):		
Mixed	-0.08	(0.06)
Indian	-0.02	(0.04)
Pakistani	-0.02	(0.03)
Bangladeshi	0.00	(0.04)
Black Caribbean	0.10*	(0.04)
Black African	0.09+	(0.05)
Other ethnic group	0.03	(0.05)
Parental education (omit NVQ1):		
NVQ2	0.03	(0.03)
NVQ3	0.02	(0.03)
NVQ4	0.03	(0.02)
NVQ5	0.06*	(0.03)
Parental occupation (omit higher managerial/ professional):		
Intermediate occupations	0.01	(0.01)
routine and manual occupations	0.02	(0.02)
Family size	0.00	(0.00)
Country (omit England):		
Wales	-0.03	(0.02)
Scotland	0.01	(0.02)
N. Ireland	0.01	(0.02)
Area safety (omit not at all safe):		
not v. safe	-0.02	(0.06)
safe	-0.03	(0.05)
v. safe	-0.06	(0.05)
Single-headed household	0.06**	(0.02)
Internalising behaviour	-0.01**	(0.00)
Externalising behaviour	0.00**	(0.00)
Maternal mental health	0.00+	(0.00)
Parent alcohol use	0.01+	(0.00)

Parent drug use	0.12***	(0.03)
Puberty (omit body hair not begun growing):		
Body hair barely growing	0.13***	(0.04)
Body hair definitely growing	0.19***	(0.03)
Body hair completely grown	0.25***	(0.04)
Bisexual or homosexual **(omit heterosexual)**	0.12***	(0.03)
Time spent with friends (never/don't have any friends):		
less often than once a month	0.00	(0.03)
at least once a month	-0.02	(0.03)
at least once a week	0.03	(0.03)
most days	0.04	(0.03)
Life satisfaction	-0.00	(0.00)
Closeness to parents (omit not very close):		
Fairly close	0.06	(0.10)
V. Close	0.09	(0.10)
Extremely close	0.02	(0.10)
Constant	-0.22	(0.19)
Observations	11,322	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

We next look separately at the two most prevalent activities within antisocial behaviour – public nuisance and assault. Table 2A shows that males are significantly more likely to engage in each; those from Indian or Pakistani backgrounds are less likely to report having caused a public disturbance, and those from Black Caribbean or Black African backgrounds are more likely to report having engaged in some form of assault. There is no gradient by parental education, though some evidence that those whose parents have a degree or higher are more likely to report having assaulted (significant at 10% level only). Pubertal status and sexual identity are strongly associated with each activity, and there is a positive relationship with time spent with friends.

Table 2A: Public nuisance and assault

	Public nuisance		Assault	
VARIABLES	coef	se	coef	se
Male	0.04***	(0.01)	0.22***	(0.01)
Age in months	0.00*	(0.00)	0.00	(0.00)
Ethnicity (omit White):				
Mixed	0.00	(0.05)	-0.07	(0.06)
Indian	-0.07***	(0.02)	0.01	(0.04)
Pakistani	-0.04+	(0.02)	0.00	(0.03)
Bangladeshi	-0.04	(0.02)	0.02	(0.04)
Black Caribbean	0.00	(0.04)	0.13**	(0.04)
Black African	-0.03	(0.03)	0.10+	(0.05)
Other ethnic group	-0.01	(0.05)	0.03	(0.04)
Parental education (omit NVQ1):				
NVQ2	0.01	(0.02)	0.03	(0.02)
NVQ3	0.01	(0.02)	0.02	(0.03)
NVQ4	0.01	(0.02)	0.02	(0.02)
NVQ5	0.02	(0.02)	0.05+	(0.03)
Parental occupation (omit higher managerial/ professional):				
Intermediate occupations	0.00	(0.01)	0.01	(0.01)
routine and manual occupations	-0.00	(0.01)	0.01	(0.01)
Family size	-0.00	(0.00)	0.01	(0.00)
Country (omit England):				
Wales	-0.02	(0.01)	-0.03+	(0.02)
Scotland	0.02	(0.02)	-0.00	(0.02)
N. Ireland	-0.03*	(0.01)	0.02	(0.02)
Area safety (omit not at all safe):				
not v. safe	-0.01	(0.05)	0.03	(0.05)
safe	-0.01	(0.05)	0.02	(0.05)
v. safe	-0.02	(0.05)	-0.02	(0.05)
Single-headed household	0.05***	(0.01)	0.06**	(0.02)
Internalising behaviour	-0.00	(0.00)	-0.01**	(0.00)
Externalising behaviour	0.00*	(0.00)	0.00**	(0.00)
Maternal mental health	0.00	(0.00)	0.00+	(0.00)
Parent alcohol use	0.01+	(0.00)	0.00	(0.00)

Parent drug use	0.02	(0.02)	0.10**	(0.03)
Puberty (omit body hair not begun growing):				
Body hair barely growing	0.02	(0.03)	0.13***	(0.03)
Body hair definitely growing	0.05+	(0.03)	0.18***	(0.03)
Body hair completely grown	0.08**	(0.03)	0.22***	(0.03)
Bisexual or homosexual **(omit heterosexual)**	0.05*	(0.02)	0.07**	(0.02)
Time spent with friends (never/don't have any friends):				
less often than once a month	0.01	(0.02)	0.02	(0.03)
at least once a month	0.03	(0.02)	-0.02	(0.03)
at least once a week	0.04*	(0.02)	0.02	(0.03)
most days	0.06***	(0.02)	0.03	(0.03)
Life satisfaction	0.00	(0.00)	-0.00	(0.00)
Closeness to parents (omit not very close):				
Fairly close	0.07	(0.05)	0.02	(0.10)
V. Close	0.09+	(0.05)	0.05	(0.09)
Extremely close	0.06	(0.05)	-0.01	(0.09)
Constant	-0.40**	(0.14)	-0.24	(0.17)
Observations	11,329		11,330	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

We next look at criminal behaviour, shown in Table 3. Positive correlates include: being male, living in Scotland, single headed household, parental drug use, pubertal status, and spending time with friends most days. Ethnic minorities are in general less likely to engage in criminal behaviour compared to Whites, particularly those of Pakistani, Bangladeshi and Black African origins. There is a gradient by parental education, with those whose parents have relatively high levels of education less likely to engage in it. Cohort members living in Scotland are significantly more likely (9ppt) to be engaged in this type of activity.

Table 3: Criminal behaviour (police contact, gang membership, cybercrime)

VARIABLES	coef	se
Male	0.11***	(0.01)
Age in months	0.00	(0.00)
Ethnicity (omit White):		
Mixed	-0.02	(0.06)
Indian	-0.04	(0.04)
Pakistani	-0.09***	(0.02)
Bangladeshi	-0.06+	(0.03)
Black Caribbean	0.01	(0.06)
Black African	-0.11***	(0.03)
Other ethnic group	-0.10**	(0.03)
Parental education (omit NVQ1):		
NVQ2	-0.03	(0.03)
NVQ3	-0.05+	(0.03)
NVQ4	-0.07*	(0.03)
NVQ5	-0.06+	(0.03)
Parental occupation (omit higher managerial/ professional):		
Intermediate occupations	-0.03+	(0.01)
routine and manual occupations	0.01	(0.02)
Family size	-0.00	(0.00)
Country (omit England):		
Wales	-0.00	(0.02)
Scotland	0.09***	(0.02)
N. Ireland	-0.01	(0.02)
Area safety (omit not at all safe):		
not v. safe	0.06	(0.06)
safe	0.03	(0.06)
v. safe	0.02	(0.06)
Single-headed household	0.09***	(0.02)
Internalising behaviour	-0.00	(0.00)
Externalising behaviour	0.01***	(0.00)
Maternal mental health	0.00*	(0.00)
Parent alcohol use	0.00	(0.00)
Parent drug use	0.07*	(0.03)

Puberty (omit body hair not begun growing):		
Body hair barely growing	0.01	(0.03)
Body hair definitely growing	0.08**	(0.03)
Body hair completely grown	0.13***	(0.03)
Bisexual or homosexual **(omit heterosexual)**	0.13***	(0.03)
Time spent with friends (never/don't have any friends):		
less often than once a month	0.00	(0.03)
at least once a month	0.01	(0.03)
at least once a week	0.03	(0.02)
most days	0.12***	(0.02)
Life satisfaction	-0.00	(0.00)
Closeness to parents (omit not very close):		
Fairly close	0.06	(0.08)
V. Close	0.10	(0.07)
Extremely close	0.05	(0.07)
Constant	-0.26	(0.17)
Observations	11,305	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

When we look at the separate activities within this category, shown in Table 3A below, we see strong ethnic differences across the activities, with Whites on average reporting higher levels. There is a strong parental education gradient for 'being stopped and questioned by police', but not for any of the other activities.

Table 3A: Criminal behaviour by type

	Ever stopped and questioned by police		**Ever cautioned or formally warned by police**		**Ever arrested**		**Ever gang member**		**Hacked or sent virus in last 12 months**	
VARIABLES	coef	se	coef	se	coef	se	coef	se	coef	se
Male	0.08***	(0.01)	0.05***	(0.01)	0.01**	(0.00)	-0.00	(0.01)	0.03***	(0.01)
Age in months	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Ethnicity (omit White):										
Mixed	-0.05	(0.04)	-0.07**	(0.02)	0.01	(0.02)	0.00	(0.03)	0.00	(0.04)
Indian	-0.02	(0.05)	-0.06***	(0.01)	0.00	(0.01)	-0.02+	(0.01)	-0.03**	(0.01)
Pakistani	-0.08***	(0.02)	-0.05**	(0.02)	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)

Bangladeshi	-0.08**	(0.03)	-0.07***	(0.02)	-0.01*	(0.00)	0.01	(0.01)	-0.01	(0.01)
Black Caribbean	0.03	(0.07)	0.01	(0.04)	0.03	(0.04)	-0.02+	(0.01)	-0.04*	(0.02)
Black African	-0.09***	(0.02)	-0.06**	(0.02)	-0.01***	(0.00)	-0.04***	(0.01)	-0.02	(0.02)
Other ethnic group	-0.10***	(0.02)	-0.08***	(0.01)	-0.01**	(0.00)	-0.01	(0.02)	-0.02	(0.02)
Parental education (NVQ1):										
NVQ2	-0.05*	(0.02)	0.01	(0.02)	0.00	(0.01)	-0.01	(0.01)	0.00	(0.01)
NVQ3	-0.05+	(0.03)	-0.01	(0.02)	-0.00	(0.01)	-0.02	(0.01)	-0.01	(0.01)
NVQ4	-0.08**	(0.03)	-0.02	(0.02)	-0.00	(0.01)	-0.02	(0.01)	0.00	(0.01)
NVQ5	-0.07**	(0.03)	-0.01	(0.02)	-0.01	(0.01)	-0.02	(0.02)	0.01	(0.01)
Parental occupation (omit higher managerial/ professional):										
Intermediate occupations	-0.01	(0.01)	0.01	(0.01)	0.00	(0.00)	-0.00	(0.01)	-0.02*	(0.01)
routine and manual occupations	0.02	(0.01)	0.02	(0.01)	0.00	(0.00)	0.01	(0.01)	-0.01	(0.01)
Family size	-0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
Country (omit England):										
Wales	-0.01	(0.01)	0.01	(0.01)	0.00	(0.00)	-0.00	(0.01)	-0.00	(0.01)
Scotland	0.09***	(0.02)	0.05***	(0.01)	0.01	(0.01)	0.01	(0.01)	-0.00	(0.01)
N. Ireland	-0.01	(0.02)	-0.02	(0.02)	-0.00	(0.01)	0.02+	(0.01)	-0.01	(0.01)
Area safety (omit not at all safe):										
not v. safe	0.09*	(0.04)	0.02	(0.05)	0.02*	(0.01)	-0.00	(0.03)	-0.02	(0.03)
safe	0.06+	(0.04)	-0.02	(0.05)	0.02**	(0.01)	-0.02	(0.03)	-0.01	(0.03)
v. safe	0.05	(0.04)	-0.04	(0.05)	0.01*	(0.01)	-0.02	(0.03)	-0.02	(0.03)
Single-headed household	0.06***	(0.02)	0.04**	(0.01)	-0.01	(0.00)	0.02+	(0.01)	0.02**	(0.01)
Internalising behaviour	-0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)
Externalising behaviour	0.01***	(0.00)	0.00***	(0.00)	0.00	(0.00)	0.00*	(0.00)	-0.00	(0.00)
Maternal mental health	0.00+	(0.00)	0.00+	(0.00)	0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
Parent alcohol use	0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
Parent drug use	0.07*	(0.03)	0.02	(0.02)	0.00	(0.01)	0.01	(0.02)	0.02	(0.02)
Puberty (omit body hair not begun growing):										
Body hair barely growing	-0.00	(0.03)	-0.02	(0.03)	-0.02	(0.01)	0.01	(0.01)	-0.01	(0.02)
Body hair definitely growing	0.05+	(0.03)	0.00	(0.03)	-0.01	(0.01)	0.02*	(0.01)	0.01	(0.02)
Body hair completely grown	0.07*	(0.03)	0.02	(0.03)	-0.01	(0.01)	0.04**	(0.01)	0.03+	(0.02)
Bisexual or homosexual **(omit heterosexual)**	0.07**	(0.02)	0.03+	(0.02)	0.03+	(0.02)	0.03+	(0.02)	0.08***	(0.02)

Time spent with friends (never/don't have any friends):										
less often than once a month	-0.02	(0.02)	0.01	(0.02)	-0.00	(0.00)	0.01	(0.01)	0.02	(0.02)
at least once a month	0.01	(0.02)	0.01	(0.02)	0.00	(0.00)	0.00	(0.01)	0.02	(0.01)
at least once a week	0.02	(0.02)	0.02	(0.02)	0.01*	(0.00)	0.01	(0.01)	0.02	(0.01)
most days	0.10***	(0.02)	0.07***	(0.02)	0.01**	(0.00)	0.03**	(0.01)	0.01	(0.01)
Life satisfaction	-0.00	(0.00)	-0.00	(0.00)	-0.00*	(0.00)	-0.00	(0.00)	0.00	(0.00)
Closeness to parents (omit not very close):										
Fairly close	0.04	(0.07)	0.05	(0.05)	-0.03	(0.05)	0.01	(0.03)	0.00	(0.03)
V. Close	0.06	(0.07)	0.07	(0.05)	-0.03	(0.05)	0.01	(0.03)	0.02	(0.03)
Extremely close	0.03	(0.07)	0.05	(0.05)	-0.03	(0.05)	0.00	(0.03)	0.00	(0.03)
Constant	-0.26+	(0.14)	-0.12	(0.12)	-0.01	(0.07)	-0.08	(0.09)	0.02	(0.08)
Observations	11,327		11,331		11,340		11,328		11,322	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Finally, we look at the number of behaviours reported, a continuous measure of all antisocial and criminal behaviours (public nuisance, shoplifting, graffiti, vandalism, carry weapon, burglary, assault, assault with weapon, theft, cautioned or arrested, gang membership, cybercrime) to capture intensity of activity, shown in Table 3B below. The number of activities reported is lower in Wales and higher in Scotland, compared to England (though significant at 10% level only); being male, living in a single-headed household, parental drug use, puberty and time with friends and are positive predictors of intensity.

Table 3B: Antisocial or criminal behaviours

	Any antisocial or criminal behaviours		**Number of antisocial or criminal behaviours**	
VARIABLES	coef	se	coef	se
Male	0.18***	(0.01)	0.42***	(0.03)
Age in months	0.00	(0.00)	0.00+	(0.00)
Ethnicity (omit White):				
Mixed	-0.07	(0.05)	-0.17	(0.13)

Indian	-0.03	(0.04)	-0.20**	(0.07)
Pakistani	-0.03	(0.03)	-0.13+	(0.07)
Bangladeshi	-0.01	(0.04)	-0.10	(0.10)
Black Caribbean	0.07+	(0.04)	0.01	(0.09)
Black African	0.07	(0.05)	-0.13	(0.10)
Other ethnic group	-0.00	(0.05)	-0.06	(0.17)
Parental education (omit NVQ1):				
NVQ2	0.01	(0.03)	0.06	(0.06)
NVQ3	-0.01	(0.03)	-0.02	(0.07)
NVQ4	-0.00	(0.03)	-0.00	(0.07)
NVQ5	0.03	(0.03)	0.03	(0.07)
Parental occupation (omit higher managerial/ professional):				
Intermediate occupations	0.00	(0.01)	-0.02	(0.04)
routine and manual occupations	0.02	(0.02)	-0.01	(0.04)
Family size	0.00	(0.00)	-0.00	(0.01)
Country (omit England):				
Wales	-0.01	(0.02)	-0.08+	(0.04)
Scotland	0.03+	(0.02)	0.10+	(0.05)
N. Ireland	-0.00	(0.02)	-0.03	(0.05)
Area safety (omit not at all safe):				
not v. safe	-0.05	(0.06)	0.04	(0.16)
safe	-0.06	(0.05)	-0.09	(0.15)
v. safe	-0.09+	(0.05)	-0.15	(0.15)
Single-headed household	0.07***	(0.02)	0.24***	(0.05)
Internalising behaviour	-0.01**	(0.00)	-0.01	(0.01)
Externalising behaviour	0.00***	(0.00)	0.01***	(0.00)
Maternal mental health	0.00+	(0.00)	0.01	(0.01)
Parent alcohol use	0.01*	(0.00)	0.00	(0.01)
Parent drug use	0.10**	(0.03)	0.25**	(0.10)
Puberty (omit body hair not begun growing):				
Body hair barely growing	0.13***	(0.04)	0.07	(0.12)
Body hair definitely growing	0.18***	(0.03)	0.26*	(0.11)
Body hair completely grown	0.23***	(0.04)	0.44***	(0.12)
Bisexual or homosexual **(omit heterosexual)**	0.16***	(0.03)	0.49***	(0.09)
Time spent with friends (never/don't have any friends):				
less often than once a month	0.02	(0.03)	0.06	(0.07)

at least once a month	-0.01	(0.03)	0.05	(0.08)
at least once a week	0.04	(0.03)	0.15*	(0.07)
most days	0.07*	(0.03)	0.25***	(0.06)
Life satisfaction	-0.00	(0.00)	0.00	(0.00)
Closeness to parents (omit not very close):				
Fairly close	0.06	(0.10)	0.24	(0.22)
V. Close	0.10	(0.10)	0.32	(0.20)
Extremely close	0.04	(0.10)	0.17	(0.20)
Constant	-0.14	(0.20)	-1.01*	(0.50)
Observations	11,872		11,872	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Finally, looking at sexual activity in Table 4, we see that positive correlates include: being male, single headed household, parental substance use, puberty reached, identify as homosexual/bisexual, time spent with friends (most days). Pakistani and Bangladeshi ethnicities are less likely to have engaged in this activity, and those living in Scotland and Northern Ireland are also less likely to have had intimate sexual contact, compared to those in England (2 ppt and 5 ppt respectively).

Table 4: Intimate contact

VARIABLES	coef	se
Male	0.06***	(0.01)
Age in months	0.00***	(0.00)
Ethnicity (omit White):		
Mixed	-0.03	(0.02)
Indian	-0.03	(0.02)
Pakistani	-0.04***	(0.01)
Bangladeshi	-0.04**	(0.01)
Black Caribbean	0.04	(0.06)
Black African	0.01	(0.04)
Other ethnic group	0.00	(0.03)

Parental education (omit NVQ1):		
NVQ2	0.03+	(0.02)
NVQ3	0.02	(0.02)
NVQ4	0.01	(0.02)
NVQ5	0.01	(0.02)
Parental occupation (omit higher managerial/ professional):		
Intermediate occupations	-0.00	(0.01)
routine and manual occupations	-0.01	(0.01)
Family size	-0.01*	(0.00)
Country (omit England):		
Wales	-0.02+	(0.01)
Scotland	-0.02*	(0.01)
N. Ireland	-0.05***	(0.01)
Area safety (omit not at all safe):		
not v. safe	0.01	(0.03)
safe	0.00	(0.03)
v. safe	0.01	(0.03)
Single-headed household	0.02+	(0.01)
Internalising behaviour	-0.00	(0.00)
Externalising behaviour	0.00	(0.00)
Maternal mental health	0.00	(0.00)
Parent alcohol use	0.01**	(0.00)
Parent drug use	0.06*	(0.03)
Puberty (omit body hair not begun growing):		
Body hair barely growing	-0.02	(0.03)
Body hair definitely growing	0.03	(0.03)
Body hair completely grown	0.10***	(0.03)
Bisexual or homosexual **(omit heterosexual)**	0.12***	(0.02)
Time spent with friends (never/don't have any friends):		
less often than once a month	0.02	(0.02)
at least once a month	0.02	(0.01)
at least once a week	0.02	(0.01)
most days	0.05***	(0.01)
Life satisfaction	-0.00	(0.00)
Closeness to parents (omit not very close):		
Fairly close	-0.03	(0.06)

V. Close	0.01	(0.06)
Extremely close	-0.01	(0.06)
Constant	-0.39**	(0.13)
Observations	11,380	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

5. The dynamics of participation in risky behaviour

This section provides longitudinal evidence on the dynamic aspects of participation in risky behaviour, between ages 11 and 14, spanning an important transitional period from end of primary school to secondary school, alongside key physiological changes and increased peer interactions. Dynamics are considered in two ways. First, we look at the point at which participation in risky behaviour starts. Second, we consider the transitions that young people make between different types of risky behaviour as they become older. This may have important policy implications for the age at which interventions should be targeted and the activities at which they should be targeted.

5.1 Age of participation in risky behaviour

We first take a look at age of first participation in risky behaviours, for alcohol and smoking (no data available for other outcomes). We see in Figure 42 that amongst those who ever tried alcohol, 17% did so before age 12, and the remainder since age 12. Males are more likely to have tried at a younger age than females, with just under 20% having tried before age 12, compared to around 13% of females (Figure 43). See Maggs, Staff, Patrick, Wray-Lake, and Schulenberg (2015) for analysis of drinking at age 11, using the Millennium Cohort Study.

Figure 42

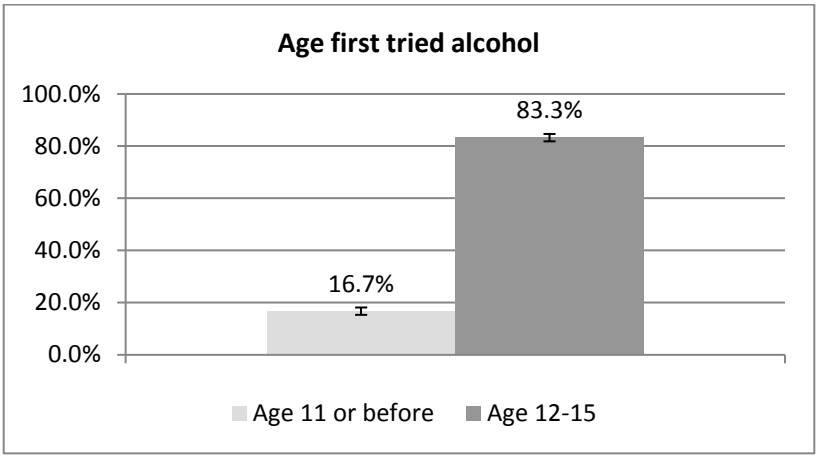
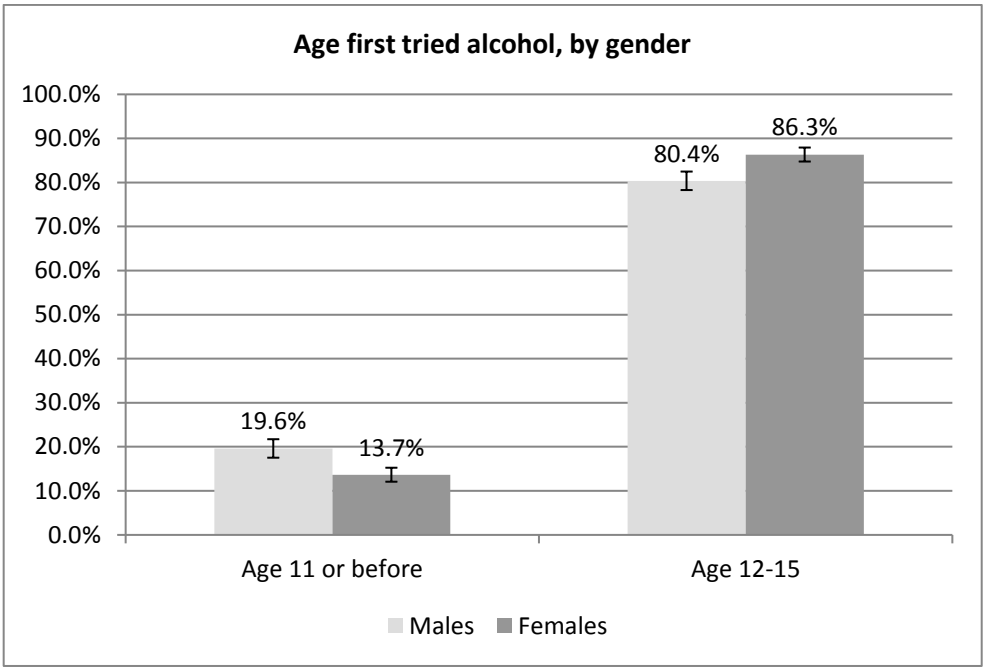


Figure 43



Turning to smoking, we see that amongst those who have tried it, just under 15% did so before age 12, with the remainder since then (Figure 44). Although males are more likely than females to have tried at a younger age, at 16.7% versus 13% (Figure 45), this gender difference is not statistically significant.

Figure 44

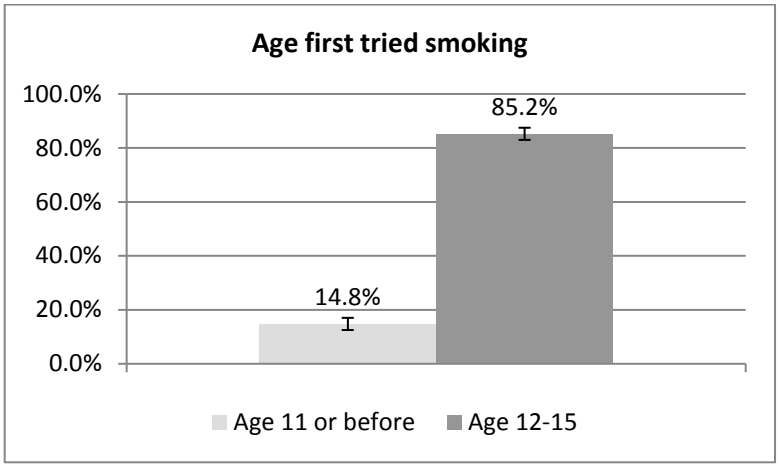
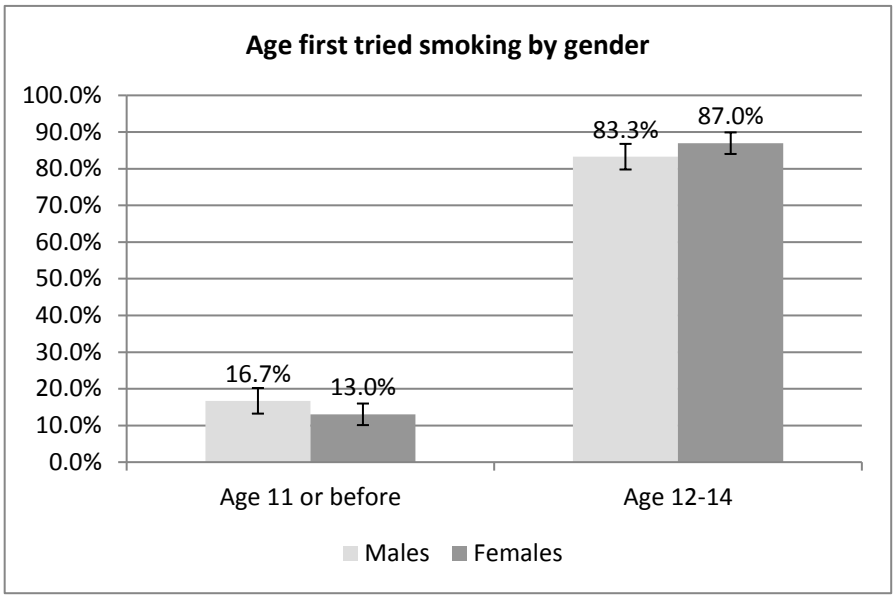
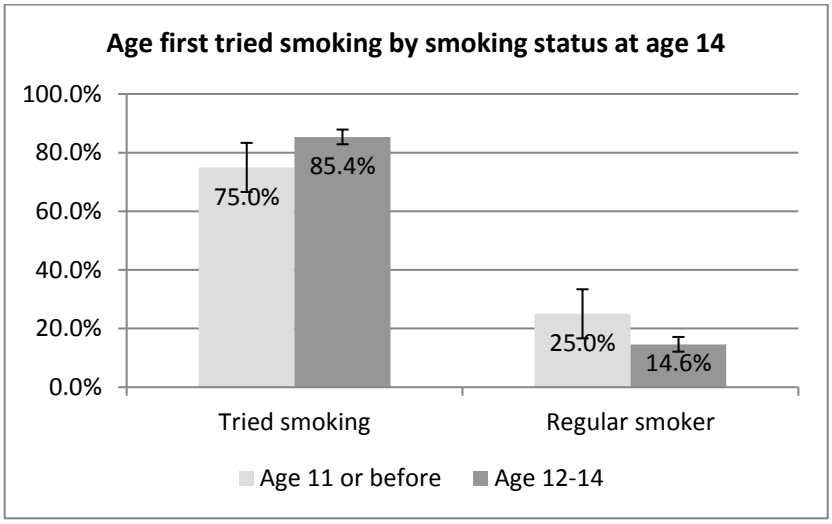


Figure 45



Finally, for those who had first tried smoking at age 11 or before, 25% said that they were regular smokers by age 14. This is compared to those who had tried their first cigarette age 12-14, of whom 15% reported being regular smokers at age 14. See Figure 46. This suggests that early targeting, in primary school, may be important in preventing addictive smoking behaviour.

Figure 46



5.2 Trajectory of risky behaviour between ages 11 and 14

Analysis was next conducted to look at whether individuals who reported a risky behaviour at age 14 reported the same behaviour at age 11. Items which were reported at age 14 but not at age 11 were omitted.[1]

We first consider risky substance overall. We see in Figure 47 that substance use (binge drinking, whether ever smoked[2]) increased sharply between ages 11 and 14, from around 4% to 21%.

[1] Omitted, as not present in age 11 survey: Drugs; gambling; anti-social behaviour (present at age 11 but question differences precluded comparisons with age 14; cybercrime, CJS contact, street-gang activity (criminal behaviour); intimacy; sexual intercourse.

[2] Smoking regularity is not reported at age 11, so for this reason we use 'whether ever smoked' only.

Figure 47

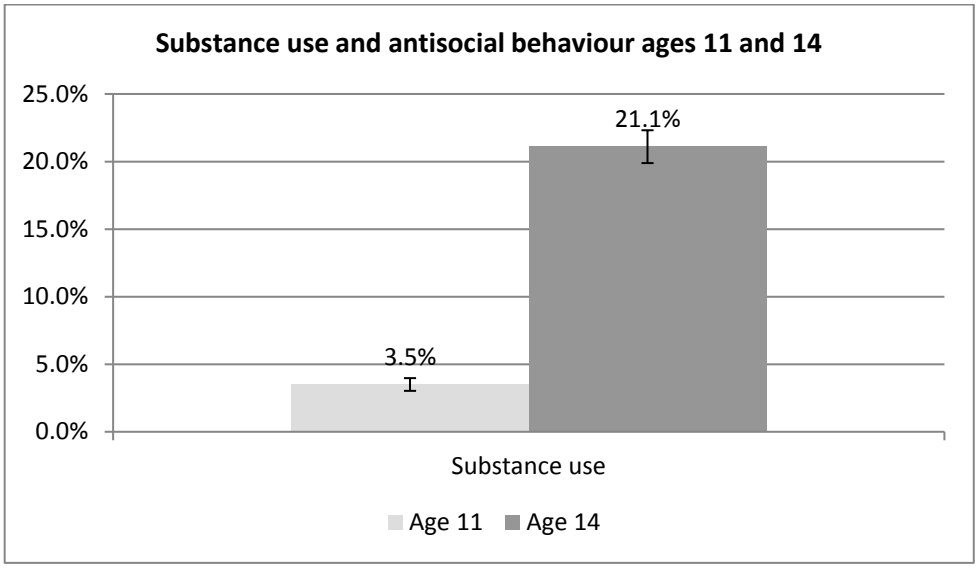


Figure 48 below shows that increases in risky substance use are driven by both risky (binge) drinking, from 0.6% at age 11 to around 11% at age 14, and smoking, from 3% to 17%. It also shows a substantial increase in young people who have ever tried alcohol, from 13% at age 11 to 48% at age 14.

Figure 48

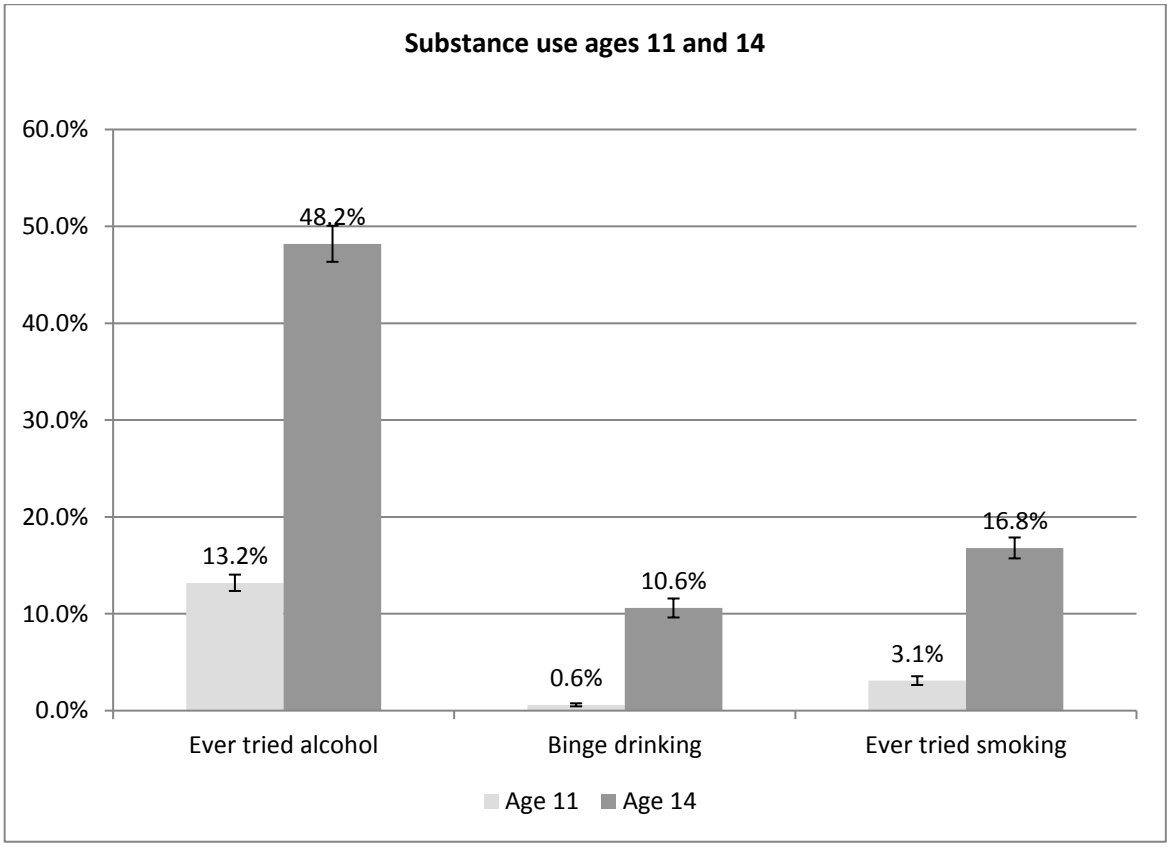


Table 5 below shows proportions engaged in substance use at age 11 only, age 14 only, both ages, and never. The column 'both ages' captures those who are engaged in more persistent behaviour by age 14; the 'age 11 only' and 'age 14 only' are those who report participation at that age only. We see that 0.5% of the sample have engaged in binge drinking at age 11 but have stopped by age 14; and 9% have started this activity since age 11. For smoking, 3% reported this at age 11 but not at age 14, whilst 14% had tried smoking for the first time after the age of 11. The proportions reporting participation at both ages are low - 0.1% for drinking and 1% for smoking.

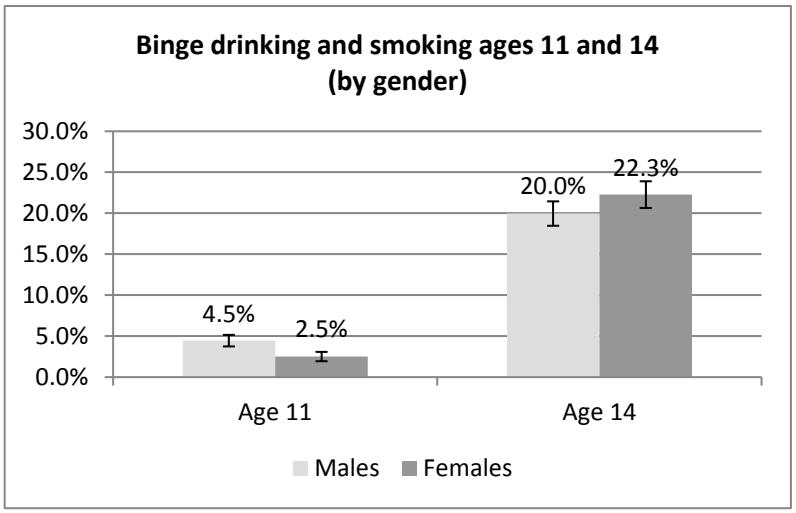
Table 5: Prevalence of risky behaviour at ages 11 and 14

Risky behaviours	Age 11 only	Age 14 only	Both ages	Never
Substance use overall	**0.03**	**0.18**	**0.02**	**0.77**
Binge drinking	0.005	0.09	0.001	0.90
Smoking	0.03	0.14	0.01	0.82

Notes to table: N restricted to cohort members present in the survey at both age 11 and 14.

We next turn to gender differences at ages 11 and 14, shown in Figure 49 below. We see that the increases in substance use are similar for males, from 4.5% to 20%, and for females, from 2.5% to 22.3%.

Figure 49



6. Conclusion

Using self-reported data on a nationally representative sample of 14-year olds, we have looked at the prevalence of engagement in different types of risky behaviours, and associated risk factors. We looked separately at substance use, anti-social behaviour, criminal activity, and sexual activity. Whilst around one in two adolescents have tried alcohol by the time they are 14, one in ten have engaged in binge drinking by this age; around 14% have tried smoking at least once, and just under 3% classify themselves as regular smokers; around 6% of 14-year olds have tried drugs, and the vast majority of this is in the form of cannabis. The most common forms of anti-social behaviours include causing a public nuisance (around 14%) and physical assault - having shoved, hit, slapped or punched someone - at around 31% on average, but significantly higher amongst males (41%) than females (21%). Reported criminal activity is highest for police contact - whether has been stopped and questioned by police is around 10%, and the proportion having been given a formal caution or warning by police is around 8%, a rate that is noticeably higher in Scotland than in other countries of the UK, at around 15% and 12% respectively, compared to less than 10% in all other countries. In terms of cybercrime, we find that rates of hacking (5%) are higher than rates of virus sending (1%). Finally, sexual intercourse by age 14 (protected or otherwise) is around 2%.

Common predictors of risky behaviours include being male, living in a single headed household, parental substance use, and having reached puberty, suggesting important targets for intervention. We also found strong ethnic and country differences in participation, with patterns varying by type of risky activity. Whilst we have considered different types of risky behaviours separately, future work will look at the clustering of risky activities in adolescence and the underlying determinants.

In terms of how risky behaviours have changed between ages 11 and 14, we observe large increases for binge drinking, from just under 1% to 1%, and ever smoked from 3% to 17%. Data were however not available to analyse changes from age 11 to age 14 in antisocial and criminal activities.

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Appendix

Table A1: Definition and measurement of risky behaviours

Substance use	
Alcohol	Ever had an alcoholic drink that is more than a few sips
Alcohol binge	Ever had five or more alcoholic drinks at a time
Tobacco	Ever smoked cigarette (excluding e-cigarettes)
Cannabis	Ever smoked cannabis/weed/marijuana/dope/hash/skunk
Other illegal drugs	Ever taken other illegal drugs (e.g. ecstasy, cocaine, speed)
Anti-social behaviour	
Public nuisance	Noisy or rude in a public place so that people complained or got into trouble (last 12 months)
Graffiti	Written things or sprayed paint on a building, fence or train or anywhere else forbidden (last 12 months)
Vandalism	Damaged something in a public place (e.g. burning, smashing or breaking things like cars, bus shelters and rubbish bins) (last 12 months)
Shoplifting	Taken something from a shop without paying for it (last 12 months)
Theft from person	Stolen from someone, e.g. a mobile phone, money etc. (last 12 months)
Burglary	Ever gone into someone's home without permission to steal or damage something
Assault	Shoved, hit, slapped, punched someone (last 12months)
Assault using a weapon	Used or hit someone with a weapon (last 12 months)
Carry weapon	Ever carried a knife or other weapon for own protection, because someone else asked, or in case of getting into a fight
Criminal activities	
Gang membership	Member of a gang (i.e. group of young people who hang around together, and have a specific area or territory; have a name, a colour or something else to identify the group; possibly have rules and a leader; who may commit crimes together)
Cyber crime	
Hacked	Assessed or hacked into someone else's computer, e-mail or social networking account without permission (last 12 months)
Sent virus	Used internet to send viruses, or other harmful software to damage or infect other computers (last 12 months)
Police contact	
Stopped and questioned	Ever stopped and questioned by police
Cautioned or warned	Ever formally warned or cautioned by a police officer
Arrested	Ever arrested and taken to police station
Gambling	Spent money on gambling in last 4 weeks (fruit machines, private bet with friend, betting shop, other gambling)
Sexual behaviour	
Any intimate sexual contact	Performed or received touching under clothing, touching private parts, oral sex, or sexual intercourse (last 12 months?)
Sexual intercourse	Sexual intercourse (last 12 months?)