

Drinkaware Parents' Campaign Evidence

This document is a desk review of published evidence on the associated risks of underage drinking.

Sources of the statistics used in the poster advertising:

Drinking weekly aged 14. 5 times more likely to use hard drugs than children who don't. (Best et al, 2000)

- UK study of a cohort of London schoolchildren. N=2,971. Mean age = 13.6. Asked about history of drinking, smoking and drug taking. Also about attitudes to drugs (positive and negative).
- Drinkers = "Drinking alcohol at least once a week" (25% of sample).
- Results: Adolescent drinkers are more likely to take drugs than non-drinkers, and have less negative attitudes to drug taking. Among those who neither drank nor smoked, 7% had ever taken drugs. Among non-drinkers incl. smokers, 9% had ever taken drugs. Among drinkers who didn't smoke, 33%. Among drinkers inc smokers, 45%. Risk of taking drugs is 5.3x higher among all drinkers than among all non-drinkers. Drinkers also have less negative attitudes to drugs.
- Reference: Best et al (2000). Drinking and smoking as concurrent predictors of illicit drug use and positive drug attitudes in adolescents. *Drug and Alcohol Dependence*, 60(3), 319-321.

Being drunk just once aged 13. Twice as likely to have unprotected sex. (Mann et al, 2009)

- Alcohol use aged 13-14 increases the risk of unprotected sex
- Data: Those who had been drunk at least once aged 13-14 were twice as likely to report not using a condom at first sex (OR = 2.0) and to report not using contraception at first sex (OR = 2.2.) than those who had not been drunk aged 13-14. They were also 3x more likely to report having sex before 16.
- Notes: Reanalysis of a survey of 14,089 English and Scottish pupils, with follow up.
- Reference: Mann et al. (2009). Early alcohol use and sexual activity in young people: a secondary analysis of the Ripple and Share school survey data. *HIV Medicine*, 11 (Suppl. 1), 86. Downloaded from http://onlinelibrary.wiley.com/doi/10.1111/j.1468-1293.2010.00841_2.x/pdf

Being drunk, just once, under 16 years old. 85% more likely to be involved in violence. (Bellis et al, 2009)

- A survey of 9,833 15-16 year olds in North West England in 2008.
- Increased risk of involvement in youth violence-as victims or perpetrators
- It shows that binge drinking (5+ drinks/session) even once raises risk of being involved in violence while drunk by 85%. (OR = 1.85 for those who binge drink less than once/month vs. those who never binge drink.)
- Reference: Bellis et al (2009). Teenage drinking, alcohol availability and pricing: a cross-sectional study of risk and protective factors for alcohol-related harms in school children. *BMC Public Health*, 9, 380. Downloaded from <http://www.biomedcentral.com/1471-2458/9/380>

Sources of the additional statistics used in the radio advertising:

Being drunk, just once, under 16 years old. 58% more likely to suffer a serious injury. (Jiang et al, 2008)

- This is based on data from Canada. Based on survey of 7031 students aged 11-15 in 2001/2. Measures: Frequency of drinking (<1/week; 2-4 times/week; 5+times/week); Ever been drunk (Never, Once, 2-3 times, 4+ times). Serious injury = injuries which led to: (1) hospital admission overnight; or (2) missed at least 1 full day of school or usual activities; or (3) internal injury requiring operation.
- Those who had been drunk once had a 58% increased chance of serious injury; drunk 2-3 times = 47%; drunk 4+ times = 74%. (OR 1.58, 1.47, 1.74 respectively).
- Reference: Jiang et al (2008). Alcohol Consumption and Injury Among Canadian Adolescents: Variations by Urban–Rural Geographic Status. *The Journal of Rural Health*, 24, 143-147. Downloaded from <http://onlinelibrary.wiley.com/doi/10.1111/j.1748-0361.2008.00150.x/full>

Children who drink at 13 are more likely to get worse grades or be expelled. (Ellickson et al, 2003; Viner and Taylor, 2007)

Underage drinking linked with increased risk of poor grades, truancy, suspension and dropping out of education (Ellickson et al, 2003).

- Longitudinal survey of US school pupils over several waves. N=6338 at grade 7 (aged 12-13, 1985); N=4265 at grade 12 (aged 17-18, 1990); and N=3369 at age 23 (aged 23, 1995). Survey measured alcohol and drug use as well as problem behaviours and school/work performance.
- Alcohol use was defined as: Non-drinkers (0 drinks in last 12 months); Experimenters (<3 drinks in last 12 months, 0 in last month); Drinkers (3+ drinks in past year or drink in past month).
- Drinkers were significantly more likely than non-drinkers to: skip school (61.7% vs 44.7%), get worse grades (31.6% vs 20.5%) be suspended (16.9% vs 8.4%) or drop out (26.7% vs 4.3%).
- Reference: Ellickson et al (2003). Ten Year Prospective Study of Public Health Problems Associated with Early Drinking. *Pediatrics*, 111(5), 949-955. Downloaded from <http://pediatrics.aappublications.org/content/111/5/949.full.html>

Underage drinking linked with increased risk of expulsion (Viner and Taylor, 2007).

- Longitudinal study of UK 1970 birth cohort.
- Compares binge drinkers (2 or more episodes of drinking four or more drinks in a row in the past 2 weeks) with non-binge drinkers at age 16.
- Risk of permanent expulsion was four times higher (OR=3.9) for binge drinkers vs non-binge drinkers.
- Reference: Viner and Taylor (2007). Adult outcomes of binge drinking in adolescence: findings from a UK national birth cohort. *Journal of Epidemiology and Community Health*, 61, 902–907. Downloaded from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2652971/>

174 children a month are admitted to hospital for alcohol related causes.

Reference: Health and Social Care Information Centre (2014), Statistics on Alcohol 2014.
[Online]. Downloaded from <http://www.hscic.gov.uk/catalogue/PUB15483>

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Alcohol and drug-taking

Summary of the evidence

There is a clear and consistent association between alcohol and increased risk of drug-taking. This does not imply that drinking alcohol directly causes children to take drugs, but it is more likely that children who drink will also take drugs. This association is present in cross-sectional and longitudinal studies; found across the UK, Europe, the US and Australia; persistent across time; appears in studies of both concurrent behavior and of long-term relationships. The association holds when studies correct for age, gender, socio-economic status and other factors. The strength of the relationship varies across studies dependent on methodology and the precise variables used from 40% increased risk to 6x increased risk. The most common increase in risk in the different studies is between 3x and 5x.

Additional supporting studies

Increased risk of ecstasy, cocaine and cannabis use among underage “excessive drinkers” (Best et al, 2006).

- Survey of South London schoolchildren aged 14-16. N=2078. “No reason not to believe representative” of UK schoolchildren of same age.
- “Drunk” = Had 10 or more units per drinking occasion. Report uses term “excessive drinkers” for those who have done this.
- 1.3% of non-drinkers have used ecstasy; 3.9% of those with 1-4 excessive drinking occasions; 12.1% of those with 5+ excessive drinking occasions.
- Reference: Best et al (2006). Excessive drinking and other problem behaviours among 14–16 year old schoolchildren. *Addictive Behaviors*, 31, 1424-1435. Downloaded from <http://www.sciencedirect.com/science/article/pii/S0306460305002947>

Binge drinking among teenagers increases likelihood of drug use in adulthood (Viner and Taylor, 2007).

- A longitudinal study of Brits born in 1970. N=11,621. Cohort asked about drinking at age 16. Binge drinking defined as “4+ drinks on two occasions in last 2 weeks”. Follow up at age 30 asked about illicit drug use in last 12 months. Binge drinkers had 40% more risk of using illicit drugs.
- Limitations: Binge drinking def. doesn’t equate to drunk just once. Drug use only in last 12 months at age 30 so tends to underreport risk.
- Reference: Viner and Taylor (2007). Adult outcomes of binge drinking in adolescence: findings from a UK national birth cohort. *Journal of Epidemiology and Community Health*, 61, 902–907. Downloaded from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2652971/>

Underage drinking increases risk of becoming drug user in later life (Hingson et al, 2008).

- Re-analysis of survey of US adults who have ever drunk alcohol. N=27,616. Survey data from 1991/92.
- Survey measured alcohol and drug taking including age of onset. Analysis controls for age, gender, race/ethnicity, education, marital status, cigarette use history, childhood depression, family history of alcoholism, and personal history of alcohol dependence.

- Drinking (any alcoholic drink, not counting sips or tastes) age <16 increases odds of using illicit drugs 3x. Increases odds of drug dependence 2-3x.
- Reference: Hingson et al (2008). Age at Drinking Onset, Alcohol Dependence, and Their Relation to Drug Use and Dependence, Driving Under the Influence of Drugs, and Motor-Vehicle Crash Involvement Because of Drugs. *Journal of Studies On Alcohol And Drugs*, 69(2), 192-201. Downloaded from <http://www.ncbi.nlm.nih.gov/pubmed/18299759>

High risk drinking among adolescents increases risk of using amphetamines, ecstasy and cocaine by 3-3.5x (Patton et al, 2004).

- Longitudinal survey of Australian children from age 15 until age 24/5. Eight waves in all. N=1943.
- Drinking levels assessed based on self-reported diary of last week's drinking. High risk drinking = 43 units/week (males) and 28 units/week (females).
- High risk drinkers are more likely to take amphetamines (OR=3.5), ecstasy (OR=2.9) and cocaine (OR=2.9).
- Reference: Patton et al (2007). Trajectories of adolescent alcohol and cannabis use into young adulthood. *Addiction*, 102(4), 607-15. Downloaded from <http://www.ncbi.nlm.nih.gov/pubmed/17286642>

Binge drinking among teenagers increases likelihood of cocaine use (Miller et al, 2007)

- US analysis of national school survey. Ages 12-18. N=14,214.
- Binge drink = Within last 30 days, 5+ drinks within couple of hours. Among those who binge drank once, 6.1% had used cocaine in last 30 days. Among those who had not binged, 1.5%. Therefore being drunk once = 4x more likely to use cocaine.
- Reference: Miller et al (2007). Binge Drinking and Associated Health Risk Behaviors Among High School Students. *Pediatrics*, 119(1), 76-85. Downloaded from <http://pediatrics.aappublications.org/content/119/1/76.full.html>

Charts

From Sutherland and Wilner, 1998

- A study of UK schoolchildren. N=5492. Schools not selected to be nationally representative.
- Analysis of "regular" use defined as "at least once a week, for 3 months"). Except for intoxication, which was any occurrence.

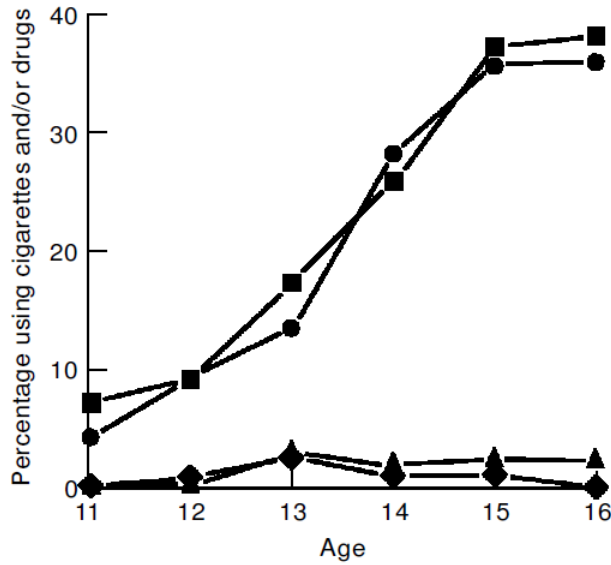


Figure 3. Cigarettes and/or illicit drugs at different ages: proportions of alcohol drinkers and alcohol abstainers using. ●, Males drinkers; ▲, male abstainers; ■, female drinkers; ◆, female abstainers.

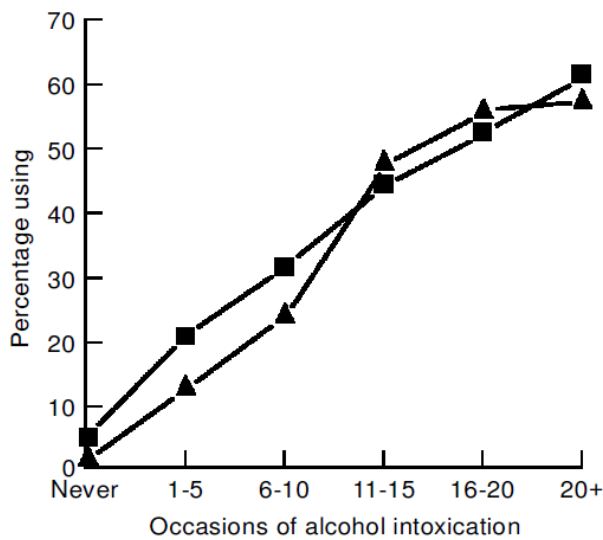


Figure 4. Cigarette and illicit drug use in relation to frequency of alcohol intoxication. The "Never" category does not include non-drinkers. ■, Cigarettes; ▲, drugs.

Reference: Sutherland and Wilner (1998). Patterns of alcohol, cigarette and illicit drug use in English adolescents. *Addiction*, 93(8), 1199-1208. Downloaded from <http://onlinelibrary.wiley.com/doi/10.1046/j.1360-0443.1998.93811998.x/abstract>

Quotes

From Eggington et al, 2007.

- A longitudinal study of children from Northern England, aged from 13-18.
- N=815
- Quotes taken from interviews with participants at age 18.

Like because drink in a way leads you onto drugs cos when you're drinking you know you just take it. (Male 1, 18 years)

Oh yes, cos sometimes like I won't really like doing em till I'm drunk if you know what I mean, then you're like 'yeh, I'll have some of that', so I think most of the times when I do it I'm drunk. (Male 2, 18 years)

'I just got right drunk and I thought my girlfriend's gone into Bradford so well just a bit doesn't matter. I started off alright and I had three lines in the space of 15 minutes. And I'd never done it before. (Male 2, 18 years)

We'd gone out to a club and me friend's girlfriend gave some (cocaine) to us and we tried it and that was the first time. It was like getting drunk but a lot more extreme. . . .Well the first time you take anything you're scared but I just did it. I were mortal drunk so I weren't thinking much. (Male 3, 18 years)

Reference: Eggington et al (2007). Going out drinking: the centrality of heavy alcohol use in English adolescents' leisure time and poly-substance-taking repertoires. *Journal of Substance Use*, 7, 125-135. Downloaded from <http://informahealthcare.com/doi/abs/10.1080/14659890209169342>

From Coleman and Cater, 2005.

- 64 interviews with children aged 14-17 regarding drinking and risky behaviour.

I think it's really hard, cos, if you're drunk then, and someone says, 'here we are, do some of this', then you're just going to be like, 'oh go on then', but when you're sober you might go, 'oh no'. (Male, 15)

Reference: Coleman and Cater (2005). Underage 'risky' drinking: Motivations and outcomes. York: Joseph Rowntree Foundation. Downloaded from <http://www.jrf.org.uk/sites/files/jrf/1859352812.pdf>

Alcohol and sexual health

Summary of the evidence

There is a clear and consistent association between underage drinking and risky sexual behaviour. This does not imply direct causation; however, it does show that children who drink are more likely to take risks with their sexual health. The association between underage drinking and both underage sex and unprotected sex appears in studies from the UK, the US and Europe; it has been shown in both longitudinal and cross-sectional studies; it has been found in different studies over at least the past 20 years. In the case of the association between underage drinking and failure to use a condom, studies show that the risk to children who drink is around twice as high as for children who don't.

Additional supporting studies

Alcohol use at a young age is associated with unprotected sex (Parkes et al, 2006).

- Survey of 1322 Scottish school pupils
 - Data: Regular drinking before 15 = 68% higher chance of unprotected sex (not gender specific).
 - Regular drinking = being drunk "about once a week" or "more than once a week". (Self-reported).
- Reference: Parkes et al (2006). Explaining Associations between Adolescent Substance Use and Condom Use. *Journal of Adolescent Health*, 40(2), 180.e1-18. Downloaded from <http://www.ncbi.nlm.nih.gov/pubmed/17259059>

Girls who were drunk at first intercourse less likely to use condoms (Leigh, 2002; Dye and Upchurch, 2006).

- A meta-analysis conducted on thirteen studies from 1966 to 2000, investigated the links between alcohol consumption and condom use (Leigh, 2002). Of these, two asked about first sexual encounter (one in America published in 1995, one in Norway published in 1990). The meta-analysis found that those who drank at their first sexual encounter were less likely to use condoms than those who did not (OR 0.54, 95% CI 0.44-0.66).
- An analysis of the 1994-95 Longitudinal Study of Adolescent Health data on 6,867 American school children (12-18 year olds) found that girls who reported they were inebriated at first sexual intercourse were significantly less likely than girls who were sober to use a condom at first intercourse (OR 0.43 p<0.001) (Dye and Upchurch, 2006).
- References: Leigh (2002). Alcohol and Condom Use: A Meta-Analysis of Event-Level Studies. *Sexually Transmitted Diseases*, 29(8), 478-482. Dye and Upchurch (2006). Moderating effects of gender on alcohol use. Implications for condom use at first intercourse. *Journal of School Health*, 76(3), 111-116.

Early alcohol use is a marker of later sexual risk including low condom use, multiple sexual partners, STIs and early pregnancy (Newbury-Birch et al, 2008).

- This is a systematic review of reviews concerning the impact of alcohol on teenagers and young people. As a review of general risks associated with alcohol, it finds significant patterns:
- "Despite the methodological weakness of research in this field, there is a large body of evidence which reports consistent trends between alcohol use and a range of adverse

effects. This convergence allows us to draw credible conclusions about the impact of drinking on young people (particularly around or following puberty)” (page 2).The review identifies the following adverse consequences to be associated with drinking:

1. Alcohol consumption is associated with not using a condom on a young person’s first sexual encounter.
 2. Alcohol consumption is associated with increased likelihood of having sex and of having sex at a younger age.
 3. Alcohol consumption may be associated with unprotected sex.
 4. Alcohol consumption may be associated with teenage pregnancy.
 5. Alcohol consumption may be associated with the likelihood of catching sexually transmitted diseases
- The link between drinking and unprotected sex in first sexual encounters might be explained by personality factors and propensity for risk-taking.
- Reference: Newbury-Birch et al (2008). Impact of Alcohol Consumption on Young People: A Systematic Review of Published Reviews. Department for Children Schools and Families. Research Report DCSF-RR067. Downloaded from <http://dera.ioe.ac.uk/11355/1/DCSF-RR067.pdf>

Increased risk of having sex under 16 for girls and boys who drink (Bellis et al, 2008).

- In a survey of 1,341 Europeans aged 16-35 (including 144 individuals from Liverpool, England), alcohol use before the age of 16 was associated with having sex before the age of 16 in both genders (OR 3.47). Importantly however, drinking before age 16 was associated with a greater risk in girls (OR 5.7) having sex before this age, compared with the risk in boys (OR 2.47)
- Reference: Bellis et al. (2008). Sexual uses of alcohol and drugs and the associated health risks: A cross sectional study of young people in nine European cities. BMC Public Health, 8, 155. Downloaded from <http://www.biomedcentral.com/1471-2458/8/155/>

Areas with high teenage alcohol-related hospital admissions also have high teenage pregnancy and STI rates (Cook et al, 2010).

- Cook et al analysed teenage pregnancy data, teenage STI data and teenage alcohol-related hospital admission data, within (small to midsized) geographical areas. They discovered associations between rates of harmful alcohol use (as measured by hospital admissions) and rates of teen pregnancy and teen STIs within geographical areas. Note that this is aggregated – where there are teenagers drinking, there is an increased risk of teenage pregnancy/STI – but the data does not prove that a specific pregnant/infected teen had been drinking. The association is at an epidemiological level.
 - If a Lower Super Output Area (LSOA) – an ONS-defined area of c.1500 people - has at least one alcohol related hospital admission of a teenage girl, that area has a 29% higher chance of having teenage pregnancies and a c.20% higher chance of having teenage STIs.
- Reference: Cook et al (2010). Contributions of alcohol use to teenage pregnancy and sexually transmitted infection rates. Liverpool: North West Public Health Observatory. Downloaded from http://www.nwph.info/nwpho/Publications/teenage_pregnancy_alcohol_2010.pdf

Association found between underage drinking and increased risk of forced sex (Bellis et al, 2009).

- This paper reports on a survey among 9,833 15-16 year olds (analysis restricted to 8,263 drinkers) in the North West of England.
- The data show strong links from increasing alcohol consumption, increased drinking frequency, and increased binge drinking frequency to increased regretted alcohol related sexual encounters. Those who binge-drank (5 or more drinks per session) 3+ times per week were 7 times more likely to have regretted alcohol related sexual encounters.
- Reference: Bellis et al (2009). Contributions of Alcohol to Teenage Pregnancy: An initial examination of geographical and evidence based associations. Liverpool: North West Public Health Observatory. Downloaded from http://www.alcohollearningcentre.org.uk/library/NWPHO_Teenage_Pregnancy_Contributions_of_Alcohol.pdf

Alcohol use is an independent risk factor for intentions to engage in unprotected sex, and as risky sex intentions have been shown to be linked to actual risk behaviour, the role of consumption in the transmission of HIV and other STIs may be of public health importance (Rehm et al, 2012).

- This is a meta-analysis of 12 quantitative studies on the effect of changes in Blood Alcohol Content BAC on intention to have sex without a condom. The studies were all from the USA, partly conducted among university students and partly in “communities” i.e. non-University settings. Specific ages are not given but given the university setting at least some will be among young adults.
- The meta-analysis found that an increase in BAC from 0 to 0.1 mg/ml led to a 2.9% increase in intention to have unprotected sex.
- Rehm et al (2012). Alcohol consumption and the intention to participate in unprotected sex; Systematic review and meta-analysis of experimental studies. *Addiction*, 107, 51–59. Downloaded from <http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2011.03621.x/abstract>

Quotes

From “Underage Risky Drinking”, JRF 2005

But sometimes you get off with someone and you'll just be like, Oh why did I do that? He's really really ugly ... Or like, or like, um, last Friday I ended up getting off with another boy ... No, that wouldn't have happened if I was sober. It wouldn't have happened at all. (Female, 15)

You end up pulling ranker people and more of them I suppose ... And I pulled like three people in one night and I was so drunk. And it was so rank, and I was just like, 'Ah I'm never doing that again'. (Female, 17)

I went to school and all my other friends, they said to my face, 'you dirty cow', cos I did something but I couldn't remember it ... I felt really bad about it. (Female, 15)

Most of the times I've had sex has been when I've drunk, actually all of them, apart from one. Apparently I went off with this group of men ... It turns out they couldn't find me and I was in the toilets with these men and they told me that like a couple of weeks after and I just thought, 'oh my

god, what am I doing?’ ... when I actually think about it, it was cos I was drunk, and then it makes me feel bad and then I just drink more. So it’s kind of a downward spiral, alcohol. (Female, 17)

I’ve done not having safe sex and that before, and that was when I was drunk. It was like New Year’s Eve and I wished I never did that. I would never have done it if I was sober. (Male, 17)

Yeah, because if, like, you’re really nervous about having sex, you’d have to drink more wouldn’t you? And you’d be so out of it that you’d totally forget about using contraception. (Male 17)

I’ve actually woken up next to a girl and I didn’t have a clue who she was. And, when I got up, I was like, ‘What’s your name?’ Like, ‘Who are you?’ She explained herself, I couldn’t remember it, man. I was thinking, ‘How the hell couldn’t I remember that? ... I don’t remember’. (Male, 16)

Reference: Coleman and Cater (2005). Underage ‘risky’ drinking: Motivations and outcomes. York: Joseph Rowntree Foundation. Downloaded from <http://www.jrf.org.uk/sites/files/jrf/1859352812.pdf>

Alcohol and anti-social behaviour

Summary of the evidence

There is a clear and consistent association between underage drinking and various types of anti-social behaviour. This association does not imply direct causation; however, it does show that children who drink are more likely to be involved in anti-social behaviour – either as perpetrators or victims. The association between underage drinking and anti-social behaviour, including violence, crime, and victimization has been found in studies from the UK, the US and Europe; it has been shown in both longitudinal and cross-sectional studies; it has been found in different studies over at least the past 20 years. In the case of the association between underage drinking and involvement in violence, studies (which vary in methodology and in precisely what is being measured) show that the risk to children who drink is between 80% and 100% higher.

Additional supporting studies

Self-reported link between alcohol consumption and fighting/trouble with police (Hibell et al, 2012).

- ESPAD is a European wide survey of school pupils, with a large, representative UK sample. It does not give comparison figures for non-drinkers.
- The 2011 ESPAD survey of 15 and 16 year olds in the UK, which indicated that following alcohol consumption, 14% of boys and 10% of girls had been in trouble with the police in the last 12 months and 17% of boys and 7% of girls had been in a fight.
- Reference: Hibell et al (2012). The 2011 ESPAD Report Substance Use Among Students in 36 European Countries. Stockholm: The Swedish Council for Information on Alcohol and Other Drug. Downloaded from http://www.espad.org/Uploads/ESPAD_reports/2011/The_2011_ESPAD_Report_FULL_2012_10_29.pdf

Youth who drink are more likely to get in fights than non-drinkers (Smith-Khuri et al, 2004).

- A study of 11, 13 and 15 year olds across five countries (Ireland, Israel, Portugal, Sweden, USA). N=22,139. Survey conducted 1997-98.
- Among those who drink the chances of being in a physical fight were higher both within-country and across all countries. Having been drunk ever was associated with an increased risk of being in a physical fight of 81%.
- Reference: Smith-Khuri et al. (2004). A cross-national study of violence-related behaviors in adolescents. Archives of Pediatrics & Adolescent Medicine, 158(6), 539-544. Downloaded from <http://archpedi.jamanetwork.com/article.aspx?articleid=485732>

The underage drinkers who drink at least once a week commit a disproportionate number of offences, particularly violent offences (Matthews, Brasnett and Smith, 2006).

- The Offending, Crime and Justice Survey is a 2004 nationally representative survey of 10-17 year olds in the UK. N=3172.
- 39% of those who drank at least once a week, and 26% of those who drank 1-3 times a month, had committed violent offences, compared to 11% of those who did not drink.
- Reference: Matthews, Brasnett and Smith (2006). Underage drinking: findings from the 2004 Offending, Crime and Justice Survey. Home Office Findings 277. Downloaded from <http://webarchive.nationalarchives.gov.uk/20110218135832/rds.homeoffice.gov.uk/rds/pdfs06/r277.pdf>

Evidence suggests that the risk of violent and sexual assault victimization increase as the level of alcohol intake increases (Howard et al, 2008; Mohler-Kuo et al, 2004).

- Howard et al analysed a survey of US college students, conducted in 2005. N=551 (227 males and 324 females). The findings show that those who frequently drink in social situations have increased risk of sexual assault victimization (97% overall, 75% among women) compared to those who never drink. Binge drinking in last 30 days increased the risk 7.7x for women.
- Mohler-Kuo et al reanalysed of surveys of female US college students in 1997, 1999 and 2001. Total N=23,980. Analysis is based on drinking habits of the college as a whole, as well as individuals. Individual data shows that frequent (3+ occasions in past 2 weeks) heavy episodic drinking (4 drinks in 2 hours) while at college increases the risk of rape 5x (OR 4.97). Heavy episodic drinking while at high school (i.e. 16-18) increases the risk of rape 3x (OR 2.9).
- References: Howard et al (2008). Prevalence and psychosocial correlates of alcohol-related sexual assault among university students. Adolescence, 43(172), 733–750. Downloaded from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2679161/>. Mohler-Kuo et al (2004). Correlates of Rape while Intoxicated in a National Sample of College Women. Journal of Studies on Alcohol and Drugs, 65(1), 37-45. Downloaded from http://www.jsad.com/jsad/article/Correlates_of_Rape_while_Intoxicated_in_a_National_Sample_of_College_Women/1107.html

Compared with non-drinkers, underage drinkers were more likely to steal, commit an offence, be arrested, and engage in predatory behaviour (Ellickson et al, 2003).

- Longitudinal survey of US school pupils over several waves. N=6338 at grade 7 (aged 12-13, 1985); N=4265 at grade 12 (aged 17-18, 1990); and N=3369 at age 23 (aged 23, 1995). Survey measured alcohol and drug use as well as problem behaviours and school/work performance.
- Alcohol use was defined as: Non-drinkers (0 drinks in last 12 months); Experimenters (<3 drinks in last 12 months, 0 in last month); Drinkers (3+ drinks in past year or drink in past month).
- Findings: Drinkers at age 12-13 were – by 18 years old – more likely than non-drinkers to: steal (36.3% vs 19.3%); sell drugs (14.8% vs 4.4%); use predatory violence (30.8% vs 17.4%); break the law (12.6% vs 5.9%); get arrested (32.5% vs 16.3%).
- Reference: Ellickson et al (2003). Ten Year Prospective Study of Public Health Problems Associated with Early Drinking. *Pediatrics*, 111(5), 949-955. Downloaded from <http://pediatrics.aappublications.org/content/111/5/949.full.html>

Excessive drinking linked to increase in delinquent behavior (Best et al, 2006).

- Survey of South London schoolchildren aged 14-16. N=2078. “No reason not to believe representative” of UK schoolchildren aged 14-16.
- “Excessive drinkers” = Had 10 or more units per drinking occasion.
- Survey included five types of delinquent/anti-social behaviour: truancy, shoplifting, stealing, joyriding, being warned by the police.
- Overall, those who reported any excessive drinking had a 26% higher chance of involvement in at least one of the above.
- Reference: Best et al (2006). Excessive drinking and other problem behaviours among 14–16 year old schoolchildren. *Addictive Behaviors*, 31, 1424-1435. Downloaded from <http://www.sciencedirect.com/science/article/pii/S0306460305002947>

Quotes

I suppose I used to get like really depressed and stuff and then drink too much, there was like one day my friend's girlfriend like, I knew she cheated on him, cos I was there, and then she denied it to my face and I was drunk and I just smacked her, and knocked her out. And then I beat him up and I just went a bit mad, basically ... it makes it easier when you're drunk. If I was sober, I would have sat her down and would have spoken to them together whereas, because I was drunk, I felt that that was the only way I could do it. (Female, 17)

Uh, it was, I got really lary one time, because uh, some guy down [name of town] punched one of my mates in the face. And I went after him and he just pulled a knife out. And, if I hadn't been drunk, I probably wouldn't have gone after him. So that was pretty awful. But there is something about being drunk that does trigger you off, because I hate violence. I can't stand it. But, if I do see someone I don't particularly like at all, and I'm very drunk... (Male, 15)

I've been arrested for being drunk and disorderly. When there was like police driving past and we were caught and stuff like that. (Male, 16)

Reference: Coleman and Cater (2005). Underage 'risky' drinking: Motivations and outcomes. York: Joseph Rowntree Foundation. Downloaded from <http://www.jrf.org.uk/sites/files/jrf/1859352812.pdf>

Alcohol and injury

Evidence summary

There is a clear and consistent association between alcohol and increased risk of severe injury. Independent studies and systematic reviews show that alcohol is: more likely to be present in adolescents for trauma admissions than for other medical causes; associated with a higher likelihood of injury and complications; associated with a higher risk of more severe injuries. This association is found across different countries and over time.

Additional supporting studies

Adolescents who tested positive for alcohol were more likely to be injured than alcohol-negative adolescents (Sindelar, Barnet and Spirito, 2004).

- This is a review of data collected from teenagers (aged 13-19) from medical settings with regard to alcohol ingestion which concluded:
- Overall alcohol use among adolescent patients in emergency departments is about 5% - but the rate increases to about one third to one-half among adolescent trauma admissions.
- Alcohol-positive adolescent patients are more likely than alcohol-negative patients to be injured or to have a history of prior injury, to be admitted to the hospital trauma unit, and to have injury complications that can affect treatment (e.g. altered mental status).
- "Thus it is clear that alcohol misuse is associated with more severe injury and more intensive and costly treatment."
- Reference: Sindelar, Barnet and Spirito (2004). Adolescent Alcohol Use and Injury: A summary and critical review of the literature. *Minerva Paediatrica*, 56, 291-309. Downloaded from http://www.wiphl.org/uploads/media/Sindelar_2004_Adolescent_EtOH_use_and_injury.pdf

Adolescent trauma patients with positive blood-alcohol contents (BAC) suffer more severe injuries than BAC-negative patients (Kowalenko et al, 2013; Hicks et al, 1990)

- Kowalenko et al:
 - Analysis of US National Trauma Bank data, using age, alcohol presence, Injury Severity Score (ISS) and mortality
 - Analysis by age group, including 11-20 year olds
 - Among 11-20 year olds, ISS was significantly higher among those who had positive BAC.
- Hicks et al:
 - Study of three groups of trauma patients: adolescents who were blood alcohol content (BAC) negative; BAC positive adolescents; adult drinkers. N=1,215.
 - Recorded ISS score and mortality
 - Among adolescents with injuries, BAC positive adolescents had higher ISS score than BAC negative adolescents.
- References: Kowalenko et al (2013). Alcohol and Trauma – In Every Age Group. *The American Journal of Emergency Medicine*, 31(4), 705–709. Downloaded from

<http://www.sciencedirect.com/science/article/pii/S0735675713000065>. Hicks et al (1990). Alcohol and the adolescent trauma population. Journal of Pediatric Surgery, 25(9), 944-949. Downloaded from <http://www.sciencedirect.com/science/article/pii/0022346890902352#>

Alcohol and school performance

Evidence summary

There is a clear and consistent association between alcohol and increased risk of poor educational outcomes. Studies have shown that alcohol is clearly associated with increased risk of truancy, increased risk of poor academic performance, increased risk of expulsion and increased risk of not completing education. This association is consistent over time and across Scotland, England and the US.

Additional supporting studies

Underage drinking linked with increased risk of truancy and expulsion (McAra, 2004).

- Longitudinal study of Edinburgh schoolchildren over 4 waves.
- Covering ages 11-15 (First Year to Third Year).
- Exclusion: By Third Year, alcohol use was almost twice as high among those excluded compared to non-excluded pupils (44% vs 23%).
- Truancy: By Third Year, alcohol use was over twice as high among those playing truant compared to those who did not: (38% vs 14%).
- Reference: McAra (2004). Truancy, School Exclusion and Substance Misuse. The Edinburgh Study of Youth Transitions and Crime Number 4. Edinburgh: Centre for Law and Society, The University of Edinburgh. Downloaded from <http://www2.law.ed.ac.uk/cls/esytc/findings/digest4.pdf>

Underage drinking linked with increased risk of not completing education (Green and Ross, 2010).

- Based on Longitudinal Study of Young People in England (LSYPE)
- Study of 1st Sept 1989 to 31st August 1990 birth cohort. N= c. 10,000
- Compares different frequencies of drinking at age 14 with non-drinkers for a variety of educational outcomes.
- Drinking once a month at 14 years old increases odds of not completing education by 40% (OR for remaining in full-time education = 0.71).
- Reference: Green and Ross (2010). Young people's alcohol consumption and its relationship to other outcomes and behaviour. Department for Education Research Report DFE-RR005. London: National Centre for Social Research. Downloaded from <http://dera.ioe.ac.uk/87/1/DFE-RR005.pdf>

Underage drinking linked with increased risk of exclusion (Fuller, 2009).

- Based on survey of England school pupils aged 11-15 in autumn 2008. N=7,798
- Pupils who had ever been excluded were 46% more likely to have drunk alcohol in the past week than those who had never been excluded.
- Reference: Fuller (2008). Drug Use, Smoking and Drinking among young people in England 2008. London: NHS Information Centre for Health and Social Care. Downloaded from: <http://www.hscic.gov.uk/catalogue/PUB00350/smok-drin-drug-youn-peop-eng-2008-rep2.pdf>