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Smoking, drinking and drug use among hard to reach children and young people; an evidence synthesis report

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Contents

Executive summary

This rapid review was produced by the Risk Factors Intelligence's Evidence Synthesis Team for the Public Health England (PHE) Population Health Survey Board. The report examined the prevalence of smoking, drinking and drug use (and any evidence of trends in these behaviours) among 'hard to reach' children and young people. Hard to reach include those children and young people who are young offenders, not in education, employment or training (NEET), truants, care leavers, homeless individuals or those living in socio-economically disadvantaged areas.

The context for this review is that the existing surveys commonly used to monitor and measure the scale of smoking, drinking and drug use prevalence among young people suggest these behaviours are generally declining. However, it is unclear whether hard to reach populations were well represented in these surveys.

Methodological differences make comparison across studies difficult. For example, findings were often based upon only small numbers of individuals from hard to reach populations, studies used a wide variety of different age ranges or measurement scales and often relied upon self-reports. However, taken together, the 46 papers included in this review showed that prevalence of smoking and drug use is much higher among these hard to reach subgroups than the general population.

The evidence for alcohol was more mixed, which may be due to alcohol being less impacted by being hard to reach. There was also very little data (from only 3 papers) on trends in smoking, drinking and drug use behaviours among hard to reach children and young people. Therefore, it is difficult to determine whether the declines in prevalence across the general population of children and young people are also true among particular subgroups.

More consistent monitoring of smoking, drinking and drug use among hard to reach subgroups over time would help to build the evidence base and highlight any disparities across the entire spectrum of children and young people.

1. Introduction

This rapid review[1] was produced by the Risk Factors Intelligence's Evidence Synthesis Team for the Public Health England (PHE) Population Health Survey Board. The report examined the prevalence of and trends in smoking, drinking and drug use among hard to reach children and young people. The surveys used to measure and monitor risk behaviours among children and young people (including the annual Smoking, Drinking and Drug Use (SDD) survey of 11-15 year olds in England) indicate that these behaviours are generally declining at the population level (see data in section 2 of this review on prevalence). However, given the limited prevalence data available for particular hard to reach subgroups in such data sources it is unclear whether such declines are universal (1, 2).

There is no single definition of what is meant by 'hard to reach', but the term tends to be used in the context of health or social inequalities or vulnerabilities (3). The term usually refers to those individuals likely to be disadvantaged, often at multiple levels, due to personal, material or social characteristics and who are at risk of poor outcomes (4).

The recent report of the Children's Commissioners - '*On measuring the number of vulnerable children in England'* - identified a wide range of such individuals including those living in care, persistent truants, young offenders, children of substance misusing parents, homeless young people, sex workers, the unemployed or those living in more deprived areas; such groups are not mutually exclusive (1, 5). Improving health, reducing inequalities and enabling all young people to reach their full potential are core PHE goals (6).

Therefore, this review systematically searches the available literature for key hard to reach groups of interest (such as truants and offenders) identified through liaison with the project team.[2] The aim is to help build the evidence base and further understanding of smoking, drinking and drug use among the more vulnerable subgroups of children and young people in the general population.

[1] A rapid review is a type of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a short period of time (Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health information and libraries journal. 2009;26(2):91-108).
[2] The steering group included staff with specialisms in alcohol, smoking, drugs, research and evidence retrieval.

2. Data on prevalence of smoking, drinking and drug use among children and young people

As noted, the existing surveys and national data sources for tracking smoking, drinking and drug use prevalence among children and young people suggest that these behaviours are generally declining (although some prevalence's showed an increase between 2014 and 2016 which needs further investigation) (7). For example, the annual SDD survey of 11-15 year olds in England[3] showed that:

- in 2016 19% of pupils had ever smoked (6% currently smoke), 44% had ever drunk alcohol and 24% had ever taken drugs
- although smoking and drinking prevalence are on a continuing downward trend ever taken drugs prevalence increased between the 2014 and 2016 surveys (e.g. only 15% had ever taken drugs in 2014)
- while part of the rise since 2014 in ever used drugs is likely due to question changes[4] it still represents a substantial increase (8)

Other national surveys, although not directly comparable, found similar evidence for prevalence of and trends in risk taking behaviour among children and young people generally. For example:

- 24% had ever smoked according to the What about YOUth (WAY) 2014 survey of 15 year olds in England (9)[5]
- the Health Survey for England (HSE) 2015 showed among those aged 8-15 years that 16% of boys and 15% of girls had ever drunk alcohol (the lowest ever level) and this rate has declined steadily since 2003 when prevalence was 45% (10)
- the Crime Survey for England and Wales (CSEW) 2014/15, among those aged 16-24 years, showed that 36.5% had taken any drugs ever in their lifetime (while 19.4% had used any drug in the last year) and despite recent levelling off this represented a downward trend over the last decade (11)

[3] The sample size in the 2014 survey was around 6,000 and it was around 12,000 in 2016.
[4] The new questions asked about ever using nitrous oxide and new psychoactive substances. Future surveys will help determine if this represents a genuine change in trend.
[5] Compared with 35% amongst 15 year olds according to the SDD 2014 (prevalence estimates are said to be lower in the WAY survey of 15 year olds as it is administered at home with parents present). All data drawn from the National Pupil Database records.

Some of the national surveys already measure smoking, drinking and drug use prevalence among particular subgroups of the younger population, but these tend only to cover a limited range of groups and only those in school settings or living in private households (as it is these locations from which the survey samples are taken). For example, the recent SDD showed that drug taking prevalence was higher among truants or those who had been excluded compared with among other pupils (7).[6]

The Department for Children and Families *Narrowing the gap in outcomes for vulnerable groups* report also found (using NHS survey data) that smoking, drinking and drug use prevalence was higher among truants and that smoking was higher among those from lower socio-economic groups, as measured by the number of books in the home (12). The *WAY* survey also found that those living in the most deprived areas were more likely to have ever smoked than those in the least deprived (27% and 21% respectively) (13).

[6] Similarly, truants were more likely to be regular smokers compared with pupils who had never truanted (odds ratio=1.93) and similarly for pupils excluded at least once, compared with those who had not (odds ratio=1.77).

3. Method

The current evidence synthesis systematically searched and synthesised the available academic and grey literature on risk behaviour prevalence and trends among hard to reach groups. The aim was to comprehensively examine smoking, drinking and drug use prevalence across a broader range of groups than is routinely available and across a variety of different settings.

This synthesis was based on a single research question, developed in liaison with a small steering group from across PHE:

What is the prevalence of smoking, drinking, and drug use, and evidence of any trends in such behaviours among hard to reach children and young people?[7]

Due to the lack of definition of 'hard to reach', a sensitive search strategy was developed in order to retrieve as much relevant literature as possible. This included generic search terms for retrieving papers on hard to reach groups and the 3 risk behaviours as well as more specific population search terms[8] (for example, population terms such as offending, disadvantaged, anti-social or low attainers and behaviour terms such as cocaine or marijuana).

Sources searched

A wide variety of databases and search engines were included: Ovid Medline (plus a UK filter), Ovid Embase (plus a UK geographical filter), Health Management Information Consortium (HMIC), Cochrane Library, Social Policy and Practice, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Soc Index, SCIE's Social Care Online, Campbell Collaboration, Google Scholar for grey literature, Google and subject specific websites such as the Home Office, Department for Education and DrugWise. The Ovid Medline search strategy developed by Knowledge and Library Services (KLS) is included in Appendix 1. Searches of other databases were similar and available on request.

[7] Members of the steering group helped to decide upon the terms for the hard to reach subgroups that were included in search strategy to help retrieve relevant papers.
[8] Initial test searches suggested this would be helpful.

Inclusion and exclusion criteria

Inclusion criteria:

- language: published in English
- study type: review, RCT, cohort, case control, cross-sectional, observational, longitudinal
- literature type: academic/journals articles and grey literature
- year of publication: January 2007 to September 2017 (see Appendix 2 for the exact publication dates for each search)
- population: children and young people aged between 11 and 25 years
- derived from UK (for reviews and synopses, the majority of the primary studies included in the review had to be derived from the UK)

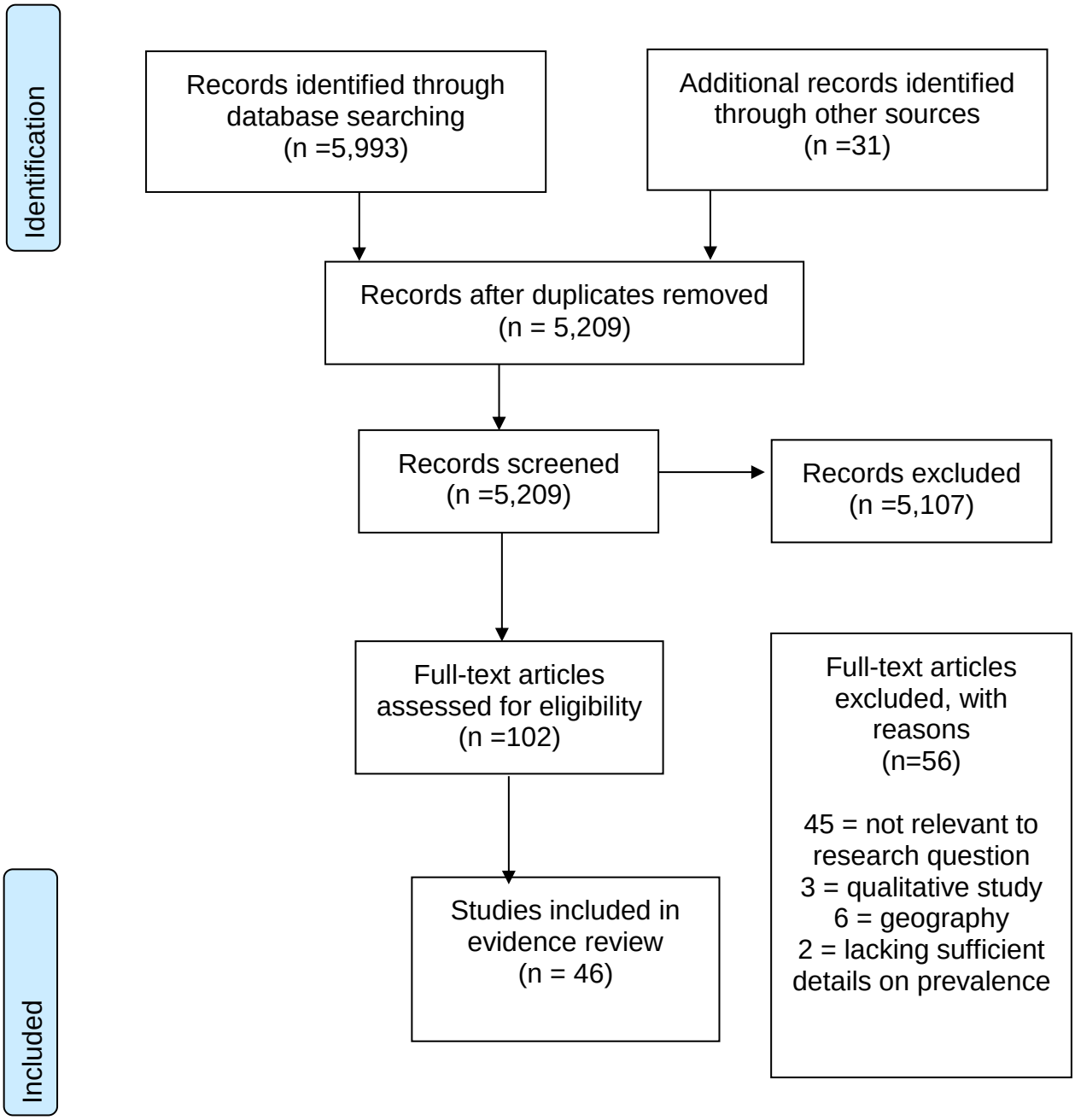
Exclusion criteria:

- qualitative research
- not concerned directly with the research question

Screening

The library search retrieved just over 6,000 titles or abstracts; 5,993 from academic databases and 31 from Google Scholar (Figure one). Following the screening (carried out by one reviewer) in accordance with the inclusion and exclusion criteria a total of 46 papers remained. Data extraction tables were set up and agreed by the project team. No quality assessment was made of the evidence.

Figure one: PRISMA Flow Diagram for the prevalence of risk behaviours review[9]



[9] From Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7).

4. Results

Study characteristics

This section explores and synthesises the key findings from the 46 papers included in the review (further details from each study are available in separate extraction tables). Overall, the papers covered a range of UK geographies and a mix of study designs including:

- longitudinal studies (18 papers)
- cross-sectional studies (18 papers)
- other study types (6 papers)[10]
- review papers (4 papers)

The included studies used a wide range of surveys or existing data sources to help explore smoking, drinking and drug use prevalence or trends among hard to reach children or young people. For example, data sources used in the papers in this review included the Avon Longitudinal Study of Parents and Children (ALSPAC), the Longitudinal Study of Young People In England (LSYPE), the Belfast Youth Development Study (BYDS), the Offending, Crime and Justice Survey (OCJS) and the UK Millennium Cohort Study (MCS).[11] Other papers were based on further sources of data including one off surveys in a young offenders institute or sexual health clinic, needs assessment files from a young homeless person's service or case records in social services.[12]

Studies in the review also covered a wide variety of different groups of children or young people who could be considered hard to reach such as those NEET, those attending specialist education units (due to emotional, behavioural or learning difficulties), young offenders in secure units, those with experience of local authority care, homeless young people, those who had truanted or been excluded and those living in more disadvantaged neighbourhoods.

A degree of caution in interpreting the results is recommended due to a number of methodological considerations as follows:

- prevalence figures for a particular vulnerable or hard to reach group are often based on only small numbers potentially reducing the generalisability of findings, for

[10] The 6 other studies included, for example, repeated cross-sectional studies.
[11] A full list is available in Appendix 3.
[12] The review level papers could of course include a mix of different types of studies.

example, only 130 looked after young people[13] in one study (14), 55 'disadvantaged' young people in another (15) or as few as 19 young people living in care in one further paper (16)

- while some studies report data from hard to reach individuals in mainstream school settings or living in private households, others report prevalence among vulnerable populations in a more specialist settings such as a young offenders institute[14]
- comparison across different studies is largely not possible, for example, due to differences in populations, age ranges, the date a particular survey was undertaken or variety in the definitions used to measure a particular risk behaviour/s
- not all papers examine the statistical significance of any differences in the detected prevalence (14) and similarly where a result between groups was, for example, higher but not significantly so (17), this could partly be due to the small numbers of hard to reach individuals recruited for the study and the associated lack of power
- most results are based upon self-reports of smoking, drinking and drug use and in some studies parents could be present which may impact on the results obtained

Prevalence of smoking, drinking and drug use

3 review level papers all found prevalence was higher among a variety of hard to reach subgroups, across a range of measures, compared with the general population:

- one review of smoking behaviour found higher prevalence among certain young people, including those who were from multiply deprived backgrounds, entitled to free school meals or looked after by the local authority (18)
- a review of the health needs among young people aged 10-17 years in prisons in England and Wales found higher substance misuse rates compared with the general population of the same age (19)
- a rapid evidence synthesis, that included an examination of hospital admissions related to underage drinking (arguably at the most extreme end of risk taking behaviour), found those UK regions with the highest levels of social deprivation had the highest under 18s admission rates due to alcohol-specific conditions (20)

A total of 23 studies[15] in the review showed higher prevalence of smoking, drinking or drug use among hard to reach subgroups of children and young people compared with a specific comparator population (often the general population) which helped highlight the disparities (7, 14-17, 25, 27-43).

[13] Looked after young people include a varied group. For example, those whose parents may have abused or neglected them and who are living with relatives/friends, foster carers or in residential care.
[14] Or papers produced a prevalence estimate by, for example, combining national data from those living in private households alongside data from smaller surveys with a particular hard to reach subpopulation.
[15] A table summarising prevalence data for 5 key hard to reach groups is provided in Appendix 5.

Differences in prevalence for the hard to reach groups were, therefore, particularly apparent and specific examples here included:

- 50% of NEET young people aged 16-24 years in Scotland smoked[16] compared with 28% of young Scots overall (25)
- 16.3% young NEET aged 18 were cannabis dependent in UK compared with 2.7% among their non-NEET counterparts (37)
- 10% of English school pupils aged 11-15 years who ever truant or were excluded said they took drugs frequently compared with 1% among never truant or were excluded (7)
- 82% of excluded pupils in Belfast, Northern Ireland aged 11-15 years ever used cannabis compared with 43% generally (38)
- 40% of Northern Irish children aged 11-12 years attending an Emotional and Behavioural Difficulty (EBD) unit had ever used cannabis, compared with only 8% among their mainstream school counterparts (39)
- 54% of young male offenders aged 13-18 years in Cardiff, Wales drink hazardously compared with 27% among their secondary school non-offending counterparts (40)
- 16.4% of looked after young people in Glasgow aged 11-18 years had ever tried drugs compared with 9.0% among young people in schools generally (14)
- 25% of disadvantaged young people[17] in England aged 13-14 years had ever tried cannabis compared with 10% among young people generally (15)
- 30% of 'neglected'[18] young people aged 14-15 years had ever smoked compared with 11% among 'cared for' young people (41)
- 30.6% of English young people aged 16-24 years living in the most deprived households currently smoke compared with 18.1% in the least deprived (42)
- 28% of young people aged 15 and 16 years in North West England with a smoking parent regularly smoke compared with 10% among those whose parents didn't smoke (43)

6 of the research papers that covered a range of hard to reach groups and UK geographies, found considerably high prevalence but without reference to a specific comparator population. These prevalence were often however based on only small sample sizes and should be treated with caution. However, it was of note that these papers often reported upon the more extreme behaviours (eg problem use of a particular substance). For example:

[16] Smokers defined here as those who answered "yes" to the question "Do you smoke cigarettes nowadays?" all except 0.1% smoke at least one a day.
[17] Defined as those who lived in a single parent family, received low-income benefits or had a parent without any GCSE or equivalent qualification.
[18] Based on self-reports of the level of emotional support received from their parents.

- 63% of homeless young people had problem alcohol use in a North East England study (21)[19]
- 10.8% of looked after young people aged 16-17 years had substance misuse problems[20] in a study across England and Wales (22)
- 85.4% of young offenders (mean age 18.5 years) in Scotland had ever used cannabis (70.1% had ever used cocaine, powder) (23)[21]
- 89% of young adult prisoners aged 18-20 years had ever used cannabis in an England and Wales paper (24)[22]
- an estimated 94% of homeless young people aged 16-24 years regularly smoked in one Scottish study (25)[23]
- 15% of young people aged 16-17 years overall in one longitudinal study across England were classed as substance misusers (26)[24]

Alongside the 32 papers which found high prevalence, overall only a small number of studies [7] showed prevalence of smoking, drinking or drug use was similar or lower among some hard to reach young people compared with the general population or a control group, for example:

- 53% of children with moderate learning difficulties (attending a special school in Northern Ireland) ever used tobacco compared with 70% among controls attending mainstream school (44)[25]
- lifetime tobacco use among children in Year 12 living in residential care (74%) was similar to among those not from care (70%)(16)[26]
- similar numbers of excluded children in Ireland aged 11-15 years ever drank alcohol compared with the overall sample (94% and 91% respectively in Ireland (38))
- heavy drinking was higher among non-NEET aged 16-24 years compared with NEET in a study across England and Scotland (45)
- ever used alcohol was similar among children with attention deficient hyperactivity disorder in Wales (mean aged 14.5 years) compared with controls: 52.1% and 53.8% respectively (36)

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[19] This result was part of snap-shot survey of 668 homeless young people nationwide, but the author does not specify absolute numbers from the North East (and prevalence of problem alcohol abuse nationwide was much lower: only 7%).Contextual information suggested these figures reflected increases in binge drinking rather than alcohol dependence.

[20] Substance misuse is defined as 'intoxication by (or regular excessive consumption and/or dependence on) psychoactive substances, leading to social, psychological, physical or legal problems'. It includes problematic use of both legal and illegal drugs (including alcohol when used in conjunction with other substances).

[21] Sample size 134.

[22] Based on a sample size of 94 prisoners.

[23] This prevalence is estimated using different sources: the results of a national Scottish household survey alongside English prevalence data, and should therefore be treated with caution.

[24] Defined as those who drank alcohol on most days, had ever tried cannabis and were relatively heavy smokers (smoking at least 6 cigarettes a week). Based on 1,211 young people.

[25] The prevalence among the control is arguably high here. But the data are from a pre-2007 survey when smoking prevalence among the general population was higher than currently. It is possible hard to reach data would be similar or higher under different circumstances (eg larger sample size).

[26] Uses 2008 survey data (for more details see extraction tables) and control data will be high.

- area deprivation was not linked to drinking prevalence at age 15 in one Scottish study (33)
- lifetime smoking prevalence among looked after children and young people in Glasgow aged 11-18 years was similar to among young people generally (9% and 8% respectively) (14)

Trends in smoking, drinking and drug use among hard to reach

Only a small number of papers [3] examined trends in smoking, drinking and drug use prevalence among hard to reach children and whether these behaviours are declining as detected among the general population in existing surveys. The evidence in the current review, albeit limited appeared to be somewhat mixed:

- the rate of substance misuse problems among looked after children aged 10-17 years had fallen between 2011 and 2013 from 4.2% to 3.5% (46)
- drug use prevalence among vulnerable pupils (who had truanted or been excluded) had declined considerably between 2003 and 2014 according to SDD data (7), for example, reported Class A drug taking in the last year dropped from 14% to 8% and taking drugs at least once a month from 21% to 6%
- smoking prevalence among young NEET had not changed between 1999-2000 and 2005-2006 according to Scottish Household Survey (SHS) data (25)[27]

Factors associated with smoking, drinking and drug use among hard to reach

A small number of papers (15)[28] used logistic regression (or other methods) to identify the groups more likely to smoke, drink or take drugs or the particular personal characteristics or socio-economic factors associated with such prevalence (7, 31, 47-59).[29] From these papers, it is possible to identify whether being from a hard to reach group was associated with smoking, drinking and drug use. Some authors also distinguished between ‘early’ and ‘late onset’ risk factors and suggested that, while some factors might persist over time, others can be much more short lived or ‘transitory’ (57). Examples of associations were from:

- a factor analysis which showed that ‘anti-social behaviour and attitudes’ were the most influential factors linked to drug taking[30] among 11-16 year olds in Wales (58)

[27] The author presents data in a chart with no actual figures.
[28] Some of the prevalence papers already listed also used logistic regression (or other method) to identify possible risk factors for smoking, drinking and drug use prevalence and examples of findings are included here (more details can be found in the comments column in the separate data extraction tables).
[29] Authors did not always state actual figures and only described these narratively.
[30] The author did not give precise figures but stated prevalence for drugs were significant at the $p< 0.001$ level for the overall sample.

- a literature review which found the strongest evidence for young people's interactions with their families as key predictors of drug use (including low parental discipline or family cohesion) (57)
- a modelling of OCJS data which showed that 'serious anti-social behaviour' was also significantly associated with taking any drug among those aged 10-16 years in England and Wales (47)[31]
- a logistic regression which showed truants or those excluded aged 11-15 years in England, were more likely to regularly smoke compared with those who had never truanted or been excluded (odds ratio (OR) of 1.93, p = 0.012, CI 1.16-3.22 and 1.77, p = 0.018, CI 1.10-2.83 respectively) (7)
- a logistic regression which showed deprivation level[32] among those aged 11-15 years in England was associated with increases in smoking or drug use, for example, ORs of 1.73 (p<0.001,CI 1.60-1.86) for regular smoking and 1.30 (p<0.001, CI 1.17-1.46) for regular drug use, although not drinking alcohol (59)

[31] The author did not give actual data but stated weak parental attitudes to bad behaviour and being in trouble at school (including truanting and exclusion) were also associated.
[32] Measured by free school meal entitlement.

5. Summary/Conclusions

In summary, this evidence review examined literature from the last decade to help answer the research question: What is the prevalence of smoking, drinking and drug use, and evidence of any trends in such behaviours among hard to reach children and young people? Despite methodological differences across studies making comparison difficult, taken together the evidence reviewed here shows that prevalence of smoking and drug use is higher among a wide variety of hard to reach subgroups including, for example, young offenders, young NEET or homeless individuals compared with the general population.

Such disparities in prevalence were particularly apparent in studies that included a specific comparator group. Evidence for alcohol appears somewhat more mixed. Future research could also explore prevalence of the 3 risk behaviours among hard to reach groups not identified through the search (such as those with limiting long term illness).

It is currently difficult to determine from the available literature whether the declines in risk behaviours among children and young people generally (as noted in sources such as the SDD, WAY, HSE and CSEW surveys) are also true for the hard to reach populations of children and young people here. However, there was some evidence of downward trends in, for example, drug taking among those who truant or are excluded. Further research is needed here.

Routine monitoring of smoking, drinking and drug use by hard to reach subgroups would help to further understand prevalence among the full spectrum of children and young people, particularly those outside mainstream settings such as schools or private households and also help to measure trends over time. Alternatively, it may be possible to model the prevalence of smoking, drinking and drug use in hard to reach populations, using existing data sources, although this possibility would need to be fully investigated. Reducing inequalities and enabling all young people to reach their full potential are core PHE goals (6). Therefore, accurately capturing and tracking any disparities in risk taking behaviour and related health outcomes is important towards achieving these overarching aims.

6. Limitations

- only one reviewer completed the screening and extraction of data, which therefore introduces a risk of error
- the studies included in the review covered a wide range of different populations across a variety of geographical areas
- it is possible that specific contextual factors within specific locations mean the results cannot be generalised to the whole of the UK
- no quality assessment was made of the papers and therefore it is not possible to comment on the strength of the evidence included in the review
- prevalence of a particular risk behaviour was often based on only a small sample size

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8. Appendix

Example Ovid Medline search strategy

1. hard to reach.tw.
2. hard-to-reach.tw.
3. difficult to reach.tw.
4. difficult-to-reach.tw.
5. hidden.ti.
6. (marginalis* or marginaliz*).tw.
7. vulnerable.tw.
8. underserved.tw.
9. under-served.tw.
10. high risk.ti.
11. disengaged.tw.
12. disadvantaged.tw.
13. incarcerated.tw.
14. high-risk.ti.
15. (at-risk or at risk).tw.
16. (abuse* or neglect*).tw.
17. Vulnerable Populations/
18. (truancy or truant*).tw.
19. (offending or criminal).tw.
20. anti-social behav*.tw.
21. (early sexual debut or early sexual activit*).tw.
22. (parent* substance misuse or parent* substance abuse*).tw.
23. low attainment.tw.
24. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25. (child or children).tw.
26. young.tw.
27. teenage*.tw.
28. adolescen*.tw.
29. (teen or teens).tw.
30. Young Adult/
31. Adolescent/
32. youth*.tw.
33. 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32
34. 24 and 33
35. children in need.tw.
36. "Child of Impaired Parents"/
37. 34 or 35 or 36
38. (risk* adj2 behaviour).tw.
39. (risk* adj2 behavior).tw.
40. risk-taking.tw.
41. drug* use*.tw.
42. (drug* adj2 (misuse or abuse)).tw.
43. (crack or cocaine or hash or weed or marijuana).tw.
44. "substance use".tw.
45. (substance adj2 (misuse or abuse)).tw.
46. (alcohol* adj2 drink*).tw.
47. tobacco.tw.
48. smok*.tw.
49. cigarette*.tw.
50. exp Alcohol Drinking/
51. Smoking/
52. Marijuana Smoking/
53. exp Substance-Related Disorders/
54. 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53
55. incidence.tw.
56. prevalence.tw.
57. (percentage or proportion).tw.
58. survey*.tw.

59. cohort*.tw.
60. case-control.tw.
61. cross-sectional.tw.
62. prevalence/
63. incidence/
64. trends.tw.
65. longitudinal.tw.
66. epidemiologic studies/ or exp case-control studies/ or exp cohort studies/ or exp cross-sectional studies/
67. 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66
68. 37 and 54 and 67
69. limit 68 to yr="2007 - 2017"
70. exp Great Britain/
71. (national health service* or nhs*).ti,ab,in.
72. (english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.
73. (gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.
74. (bath or "bath's" or ((birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachusetts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.
75. (bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's" or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.
76. (aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.
77. (armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.
78. or/70-77
79. (exp africa/ or exp americas/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp oceania/) not (exp great britain/ or europe/)
80. 78 not 79
81. 69 and 80

Date parameters for searches in individual sources

Ovid Medline plus UK filter (January 2007 to 20 September 2017)
Ovid Embase plus UK filter (January 2007 to 2017 week 38)
HMIC (to July 2017)
Cochrane Library (Issue 9 of 12, September 2017)
Social Policy and Practice (no year restriction)
CINAHL (January 2007 to 21 Sept 2017)
Soc Index (January 2007 to 21 September 2017)
SCIE's Social Care Online (21 September 2017)
Google Scholar (2007 to 25 September 2017)

Examples of the surveys or sources of data used in papers

- Avon Longitudinal Study of Parents and Children (ALSPAC)
- Belfast Youth Development Study (BYDS)
- British Household Panel Survey (BHPS)/British Youth Panel Survey (BYPS)
- Cardiff longitudinal ADHD sample study (CLASS)
- Health Behaviour in School-aged Children (HBSC) survey
- Health Survey for England (HSE)
- Longitudinal Study of Young People in England (LSYPE)
- Looked after children (LAC) local authority data returns
- Million Adolescent Clinical Inventory (MACI)
- National Child Development Study (NCDS)
- Offending Crime and Justice Survey (OCJS)
- Oxford Monitoring System for Attempted Suicide
- Scottish Health Survey (SHeS)
- Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)
- Smoking, Drinking and Drug Use (SDD) survey
- UK Millennium Cohort Study (MCS)
- Youth Cohort Study (YCS)

Summary table of prevalence among 5 key hard to reach groups of young people[33]

Group	Examples of prevalence	**Age** (years)	**Study** (area, author, year)
NEET	50% **ever smoked** (28% among whole sample) and smoking prevalence **unchanged between 1999-2000 and 2005-2006**	16-24	Scotland, NHS Scotland 2009
	46% **currently smoke** (27% among non-NEETS), **20% drink heavily**[34] (25% among non-NEET)	16-24	Scotland/England, Stewart 2017
	16.3% **dependent on cannabis** (2.7% among non-NEET)	18	England/Wales, Goldman 2016
Offenders / young adult prisoners	85.4% **ever used cannabis,** 70.1% **ever used cocaine (powder)**	18.5, mean age	Scotland, McKinlay 2009
	85.17 (mean score) **abuse substances**, (43.85 among youth club attendees)	12-17, females	North East, Kennedy 2015
	54% **drink hazardously**, (27% among their secondary school non-offending counterparts)	13-18, males	Cardiff, Hallingberg 2015
	40% (who are also looked after) **abuse drugs**, (27% among those looked after who never offended)	10-18	England, Darker 2008
	80% **ever used cannabis**	18-20	England and Wales, Plant 2012
Homeless young people	28.9% **with a mental health disorder were alcohol dependent** (11.2% alcohol dependent among the general population with a mental health disorder)	16-23	Wales, Hodgson 2015
	94% **regular smokers** (NB estimated prevalence based on a number of sources)	16-24	Scotland, NHS Scotland 2009
	28% known (**or suspected to) use illegal drugs** (rising to 47% among those also with **mental health problems) and** 7% report **problem alcohol use** (rising to 15% among those also **with mental health problems**)	16-25	London, Centrepoint 2010
Excluded pupils	**More likely** (odds ratio 1.77, p=0.018, CI 1.10-2.83) **to regularly** smoke compared with those pupils never excluded (NB author does not provide percentages)	11-15	England, Agalioti-Sgompou 2015
	10% who ever truant or were excluded **took drugs frequently** (3% among pupils overall)	11-15	Belfast, McCrystal 2007
	96% **ever used tobacco**, 82% **ever used cannabis** and 94% **ever drank alcohol** (compared with 68%, 43% and 91% respectively among their general school counterparts)	14-15	Belfast, McCrystal 2009
	86.9% **ever used cannabis** (46.6% among pupils overall)		
Looked after young people	16.4% **ever tried drugs**[35] (9.0% among the general young population in schools)	11-18	Glasgow, Vincent 2017
	40% who were **also continuous offenders** said they **abuse drugs** (27% abuse drugs among those who had never offended)	10-18	England, Darker 2008
	10.8% had **substance misuse problems**[36]	16-17	England/Wales, DfE 2014
	9% **never smoked** (a similar prevalence of 8% among young people generally)	11-18	Glasgow, Vincent 2017

[33] Where the author included a specific comparator group this is included in the table.
[34] In this instance the NEET group were less likely to engage in the risk behaviour.
[35] 43% of all the looked after young people surveyed were living in foster care and 15% in residential care.
[36] This is of all children in that age group. A total of 3.5% had substance abuse problems among all looked after children aged 10-17 years as a whole.

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