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Substance use and addictive behaviours

Initial findings from the Millennium Cohort Study at Age 23

Substance use and addictive behaviours can be harmful and impact individuals' health, relationships, and educational and employment prospects[1,2]. They can also incur societal costs across healthcare, social care, and criminal justice[3]. Studying young people's substance use and addictive behaviours is important as many lifelong behaviours begin in adolescence and young adulthood.

This briefing examines a range of substance uses and addictive behaviours among participants in the Millennium Cohort Study (MCS), a UK nationally representative cohort tracking the lives of over 19,000 individuals who were born around the millennium. It focuses on young people's experiences at age 23, where a total of 9,675 took part in the survey. It also examines change since ages 14 and 17, enabling a deeper understanding of how these behaviours develop and shift over time.

Alongside conventional substances such as alcohol, tobacco, and drugs, the analysis considers newer trends including vaping, as well as the prevalence of gambling problems in the context of rising online accessibility. By looking beyond traditional forms of substance use, the research provides a more comprehensive picture of the pressures and risks facing young adults today.

Findings at age 23 are broken down across key groups, including by sex, ethnicity, country of residence, and educational pathways. To explore generational differences, comparisons are also made to Next Steps, a nationally representative English cohort born a decade earlier and surveyed at a similar age (age 25) in 2015/16. Studying young people's substance use and addictive behaviours helps researchers and policymakers stay informed on emerging trends and enables them to adapt their responses accordingly.

ABOUT THE DATA

Millennium Cohort Study Age 23 Sweep

The Millennium Cohort Study (MCS) is a UK longitudinal birth study. It is following the lives of around 19,000 young people born across England, Scotland, Wales and Northern Ireland in 2000–02. At age 23, 9,675 study members took part in a 60–75 minute survey, either online or with an interviewer. Data from this and previous sweeps of MCS are available to download from the UK Data Service.

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Key findings

- At age 23, binge drinking was common, with 68% reporting it at least once in the past year and 29% doing so at least monthly, up from 10% at 17.
- Smoking remained steady from 17 to 23 (8–9%) but rose since age 14 (1.2%), while daily vaping grew sharply to 19% at 23 from 3% at 17.
- Nearly half had tried cannabis and almost a third had tried harder drugs, compared to one in three and one in ten, respectively, at age 17.
- Gambling was reported by 32% of 23-year-olds, with 4% experiencing gambling problems.
- Males were more likely to binge drink frequently, smoke, use drugs, and report gambling problems.
- Substance use was more common among White and Mixed groups, than among Asian and Black ethnicities.
- University-educated drank alcohol more frequently, while non-university peers smoked, vaped, and reported gambling problems more often.
- Frequent binge drinking was notably higher in Scotland and Northern Ireland than in England or Wales.

Results

Differences in substance use and addictive behaviours from adolescence to early adulthood

The prevalences of substance use and addictive behaviours at age 23 are shown in Figure 1. Where available, figures are shown also for earlier in adolescence at age 14 and 17, providing insight into how these behaviours have changed over time.

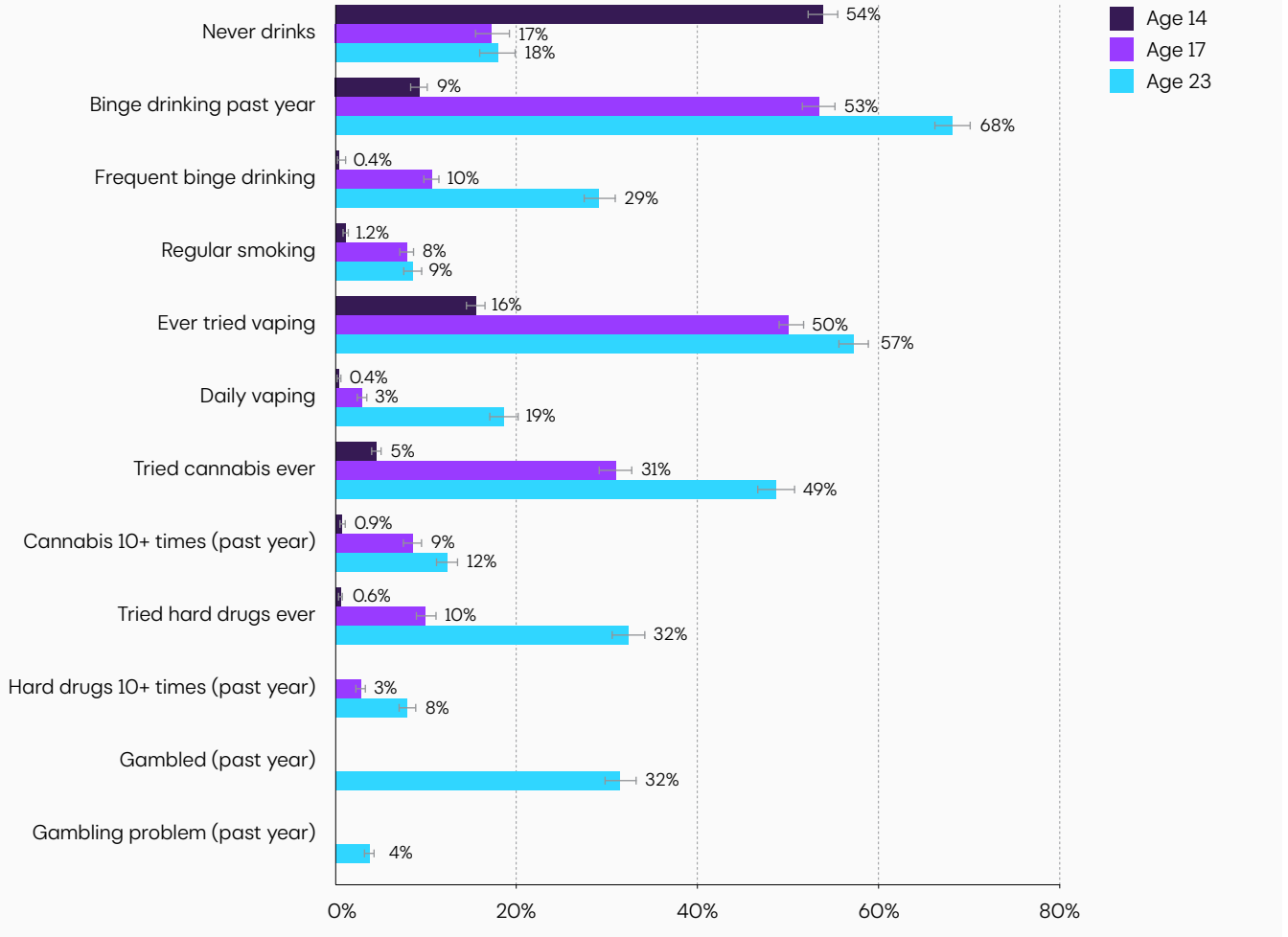
We see that from early adolescence to early adulthood, the proportion of those who never drink decreases substantially, from 54% at age 14 to 18% at age 23. Binge drinking is prevalent among young people at age 23, with 68% reporting this in the past year. This is a marked increase since adolescence with 53% reporting this at age 17, and 9% at age 14. Similarly, there is a substantial increase over time in those who binge drink frequently (monthly or more), which was less than 1% at age 14, rising to 10% at age 17, and then to 29% at age 23.

Regular smoking was reported by 9% at age 23, with no significant increase since age 17 at 8%, but a substantial increase since age 14 at 1.2%. Vaping on the other hand, especially those who reported daily use, had increased significantly at age 23 where 19% reported daily vaping, up from 3% at age 17, and from less than 1% at age 14.

Use of cannabis and harder drugs had increased substantially at age 23. Nearly half had ever tried cannabis (49%) and around a third (32%) had ever tried harder drugs, compared to age 17 where these figures were 31% for cannabis and 10% for harder drugs. Regular use of these substances – defined as using ten or more times in the past year – is also more prevalent at age 23, with 12% using cannabis and 8% using harder drugs regularly, compared to 9% and 3% respectively at age 17.

At age 23, around a third (32%) reported gambling in the past year, while 4% experienced a gambling problem – such as feeling guilty about gambling, others criticising or identifying the gambling as problematic, or because gambling had caused financial problems. As the gambling timeframe differed at ages 14 and 17, we do not make comparisons with age 23.

FIGURE 1: SUBSTANCE USE AND ADDICTIVE BEHAVIOURS AT AGE 23 AND EARLIER IN ADOLESCENCE



How do substance use and addictive behaviours vary for different groups?

Figure 2 shows how substance use and addictive behaviours at age 23 differ by participants' sex, ethnicity, educational pathway, and country of residence.

Sex

We see that most behaviours were more prevalent among males. Compared to females, males reported significantly higher rates of frequent binge drinking (31% vs 27%), regular smoking (10% vs 7%), frequent use of cannabis (16% vs 9%) and frequent use of harder drugs (10% vs 6%). Males especially reported problematic gambling at a much higher rate (7%) compared to their female peers (1%). Rates of daily vaping were similar in males (18%) and females (19%).

Ethnicity

In terms of ethnicity, some notable differences were observed. Substance use and addictive behaviours were generally more common among young people of White and Mixed heritage, and less common among those of Asian and Black backgrounds. However, the small sample sizes of ethnic minority groups limit the ability to detect statistically significant differences with confidence.

Educational pathway

There were several differences between young people who had pursued higher education (i.e. university) compared to those who had not. Frequent binge drinking was more common among the higher education group (33% vs 26%). However, for other types of behaviours the prevalence was higher among those without higher education. Regular smoking was reported by 13% of those without higher education, compared to 4% of those with higher education. A similar pattern is seen for daily vaping (25% vs 12%), and for reporting a gambling problem (5% vs 3%). For frequent use of cannabis and hard drugs, there were no significant differences based on young people's educational pathways.

Country

There were few country differences in substance use and addictive behaviours. The only country difference observed was in rates of frequent binge drinking, which were higher in Scotland (37%) and Northern Ireland (35%) compared to England (28%) and Wales (26%).

How do substance use and addictive behaviours in early adulthood compare to the previous generation

Where measures were sufficiently comparable, substance use at age 23 in the Millennium Cohort Study (MCS) was compared with substance use at age 25 in the Next Steps (NS) cohort, who were born around a decade earlier. Generally, patterns of substance use were more similar than different across the two cohorts[4].

The proportion of non-drinkers was identical in both cohorts (18%). Frequent binge drinking was slightly more common in the MCS than in NS (29% vs 25%). This difference was largely driven by lower rates among females in the NS cohort, which may reflect life-stage factors such as pregnancy or breastfeeding. Among males, rates of frequent binge drinking were very similar in MCS (31%) and NS (30%).

There were no substantial cohort differences in ever having tried cannabis (49% in MCS vs 46% in NS). A slightly higher proportion of the MCS cohort reported ever having used harder drugs compared with NS (32% vs 27%). However, it is important to highlight that there were some methodological differences by NS being asked about fewer types of hard drugs than the MCS (8% vs 12%), which may account for the small difference in results.

The most striking generational difference was in daily smoking, which was reported by 9% of the MCS compared with 20% of the NS cohort, indicating a substantial decline in smoking across generations.

Daily smoking has fallen sharply among the younger cohort:

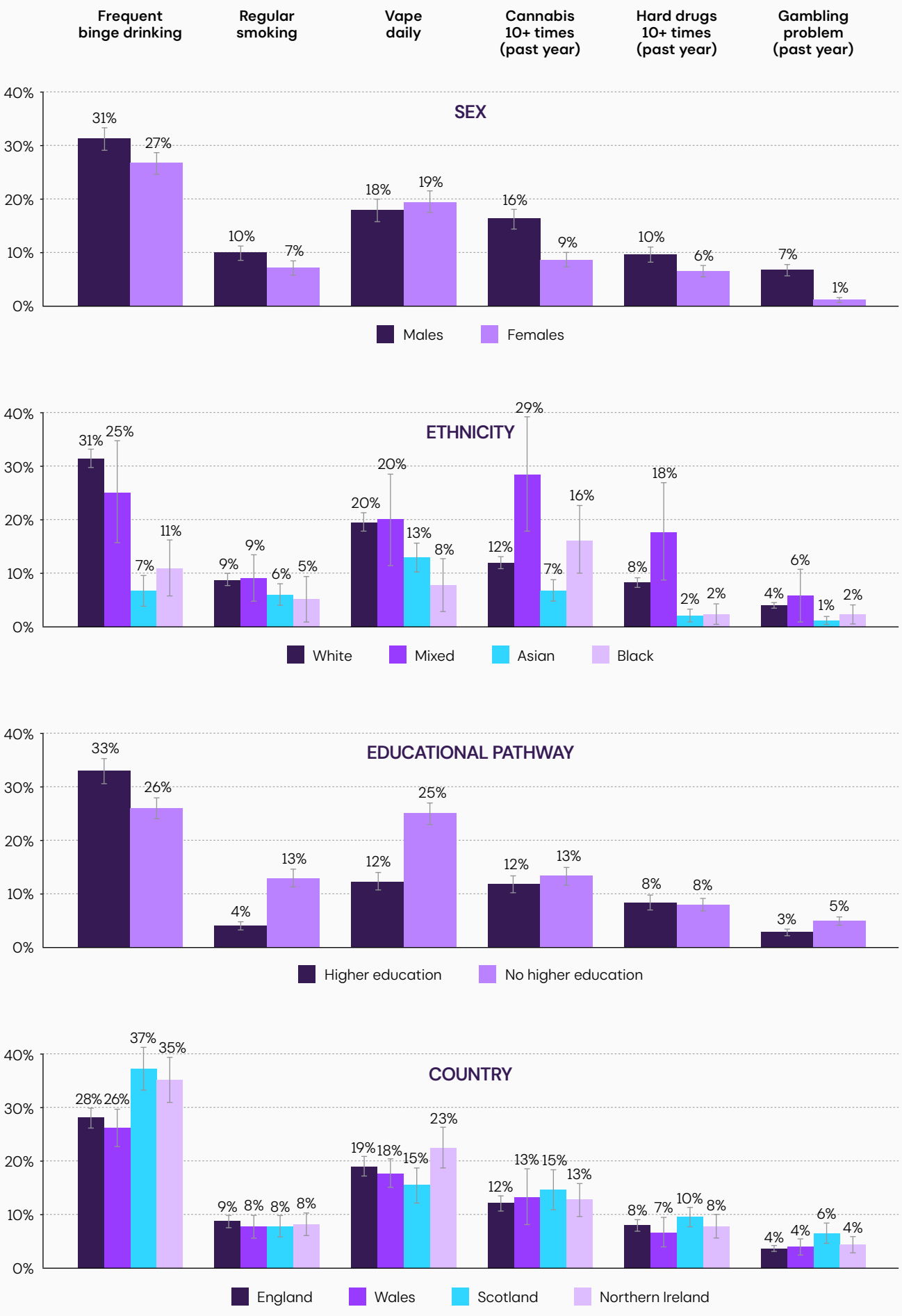
9%

of those born in 2001–2002 smoked at age 23 compared with

20%

of those born in 1989–1990 at age 25.

FIGURE 2: SUBSTANCE USE AT AGE 23 BY SEX, ETHNICITY, EDUCATIONAL PATHWAY, AND COUNTRY



Considerations for policymaking

Findings highlight the need for sustained policy attention to substance use and addictive behaviours in young adults. The sharp rise in many behaviours between adolescence and early adulthood shows how risks intensify during this stage. Encouragingly, smoking had not increased since adolescence, unlike in older cohorts (BCS70 and Next Steps)[5]. Around one in ten participants smoked in early adulthood in the MCS, in contrast to two in ten in the Next Steps cohort born a decade earlier[4], aligning with historically low national figures among young people today[6]. However, regular vaping (reported by one in five) seems to have substituted smoking. While vaping is considered the safer option, evidence of harm is emerging[7] with long-term consequences still largely unknown. Drinking behaviour, use of cannabis, and hard drug use, show no significant generational change compared to a decade ago.

Behaviours are unevenly distributed across groups. Males report higher rates of binge drinking, drug use, and gambling problems, while those not pursuing higher education show greater prevalence of smoking, vaping, and gambling-related harms. Ethnic differences, though harder to interpret due to smaller sample sizes, indicate that some groups may be more engaged in these risky behaviours than others. These inequalities suggest that interventions may need to be targeted to specific subgroups. The lack of consistent country-level variation—except in binge drinking—suggests that national policies rather than localised responses may be appropriate.

Overall, policymakers should view these results as evidence of both emerging risks such as vaping and gambling and entrenched challenges like alcohol and drugs.

Opportunities for future research

The MCS age 23 data provide a valuable opportunity to examine how substance use and addictive behaviours evolve as young people transition into adulthood. By combining data at age 23 with earlier sweeps at ages 14 and 17, researchers can track developmental trajectories, identifying when behaviours emerge, stabilise, or diminish. Because respondents have been followed longitudinally, collecting rich and diverse data since birth, this allows for exploration of early risk and protective factors influencing behaviours in young adulthood. This is critical for designing effective prevention and intervention strategies.

Researchers can also investigate how structural and social factors shape patterns of use and whether these disparities widen or narrow across early adulthood. Or how transitions in education, employment, and housing relate to addictive behaviours.

In addition, the inclusion of newer behaviours such as vaping and gambling, both of which have attracted increasing concern in terms of public health, creates opportunities to study how these influence risks to health, mental health, and other important aspects of young people's lives. Evidence gaps remain around the long-term consequences of these behaviours. Future analysis of MCS data could help fill these gaps, strengthening the evidence base for both policy and practice.

About the Millennium Cohort Study

The Millennium Cohort Study (MCS) is a UK longitudinal birth study. It is following the lives of around 19,000 young people born across England, Scotland, Wales and Northern Ireland in 2000-02. There have been seven main sweeps of MCS to date, at ages 9 months, 3, 5, 7, 11, 14, 17 and 23 years. It has tracked measures such as physical, socio-emotional, cognitive and behavioural development, economic circumstances, parenting, relationships and family life across the life course. MCS is core funded by the Economic and Social Research Council and a consortium of government departments.

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