University College London

Mental Health

Initial findings from the Millennium Cohort Study at Age 23

Young adulthood has long been a critical period for the development and emergence of mental health difficulties[1]. Between ages 17 and 23, young adults typically leave the supervision of education settings and their homes (although to a lesser extent than in previous generations) and begin independent lives. There are concerns that the current generation of young adults are experiencing heightened mental health difficulties compared to previous generations[2]. To understand how this generation's mental health symptoms, experiences and conditions are changing over time, and to inform policies designed to improve lives and mitigate strains on the National Health Service (NHS), analysis of rich longitudinal data is required.

This briefing summarises mental health prevalence rates reported by 9,675 young adults in the latest wave of the Millennium Cohort Study (MCS) between late 2023 and early 2025. We also compare mental health prevalence rates to cohort members' reports from previous MCS waves and to another cohort study, Next Steps, which was collected 10 years earlier when their cohort were ages 25 and 32. We cover three sets of outcomes: overall mental health (psychological distress and longstanding mental health conditions), emotional problems (using brief indicators for symptoms of anxiety and depression) and serious mental health outcomes (self-harm and lifetime suicide attempts). The breadth of demographic information in the MCS allows us to also examine inequalities in mental health across the UK and its constituent nations, as well as across four key factors: sex, socioeconomic background, ethnic background and sexual minority identity.

ABOUT THE DATA

Millennium Cohort Study Age 23 Sweep

The Millennium Cohort Study (MCS) is a UK longitudinal birth study. It has been following the lives of around 19,000 young adults 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.

AUTHORS

Dr Dominic Kelly

Professor Emla Fitzsimons

Key findings

- Rates of almost all mental health difficulties measured at age 23 are higher than at age 17, except for incidence of self-harm.
- Rates of self-reported longstanding mental health conditions among young adults have risen sharply compared to a similar-aged cohort assessed a decade ago.
- Young females report worse mental health than young males for all outcomes.
- Four in ten sexual minority young adults report high levels of psychological distress and nearly five in ten report a longstanding mental health condition.
- Cohort members who grew up in low socioeconomic backgrounds report a higher prevalence of almost all mental health outcomes compared to their peers from higher socioeconomic backgrounds.
- Self-harm and suicide attempts remain part of the lived experience for a significant minority of young people; at least one in ten report a lifetime suicide attempt.

Results

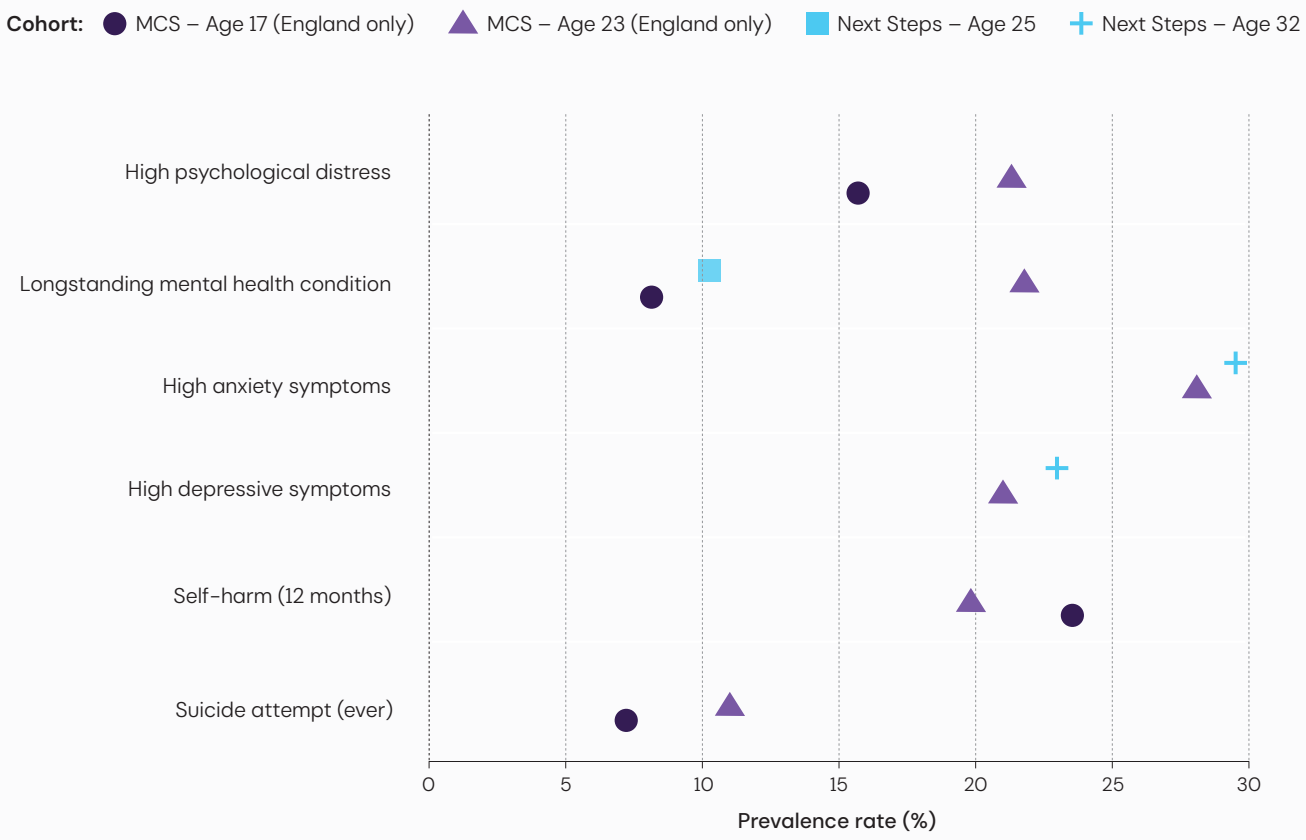
Cohort members generally reported worse mental health symptoms, experiences and conditions at age 23 than at age 17. Figure 1 shows the prevalence of mental health outcomes at age 23 and compares rates to the age 17 wave of the MCS.

At age 23, 21% reported high levels of psychological distress (an increase of 5 percentage points [pp] since age 17) and 22% reported having a longstanding mental health condition (an increase of 14pp since age 17). High levels of anxiety and depressive symptoms were reported by 28% and 21% of MCS cohort members, respectively, at age 23. Compared to age 17, a lower percentage of cohort members at age 23 had hurt themselves on purpose in the last year (20%, down 3pp). This trend is expected: existing longitudinal research establishes that self-harm rates peak in adolescence and then decline in young adulthood[4]. However, reports by age 23 of ever attempting to end one's life have risen since age 17 to 11% (from 7% reported at age 17).

Figure 1 also includes comparisons for some of these prevalence rates with data from the Next Steps study (collected when the cohort members were approximately 25 years old between 2015 and 2016, and 32 years old between 2022 and 2023). The Next Steps sample was drawn from England: therefore, the following comparisons are only made with MCS cohort members from England. Cross-cohort comparisons should only be treated as indicative.

In 2015, at a comparable age (age 25), 10% of the Next Steps sample reported having a longstanding mental health condition, suggesting that the rates of mental health problems have potentially doubled in the past decade (22% in MCS). This could speak to an increase in symptoms, or potentially to an increase of awareness of symptoms in the intervening decade. At age 32 in Next Steps, 30% and 23% of the sample had high anxiety and depressive symptoms, respectively. The rates at age 23 in the MCS sample being only slightly lower (by about 2pp each) than the Next Steps sample for these emotional problems is notable, given that the median age of onset for a mood disorder (anxiety, depression) is about 31 years[1] and that the Next Steps sample had 9 more years of life to develop these problems than the MCS sample.

FIGURE 1: MENTAL HEALTH OUTCOMES ACROSS SWEEPS AND COHORTS



Note: Proportions based on weighted survey responses. The estimates for the MCS cohort in this figure are limited only to cohort members from England in order to facilitate closer comparisons with the Next Steps sample (who were only drawn from England).

Data & methods

At age 23, 9,675 MCS cohort members completed a self-report survey (more information on the specific measures used in the analyses can be found in the box on page 3). Results have been adjusted with population weights to ensure that estimates are nationally representative. Prevalence at age 23 is based on the total sample who took part in the age 23 sweep and responded to that particular set of items. Prevalence rates of mental health outcomes at age 17 in the overall sample can be found in a previous study[3]. Rates of change between age 17 and age 23 are based exclusively on the sample of those who completed *both* age 17 and age 23 sweeps and therefore may not match previously reported numbers. Where a demographic may have changed since age 17 (i.e. sexual minority identity), *only* for comparisons of change between age 17 and age 23, the identity reported at age 17 is used.

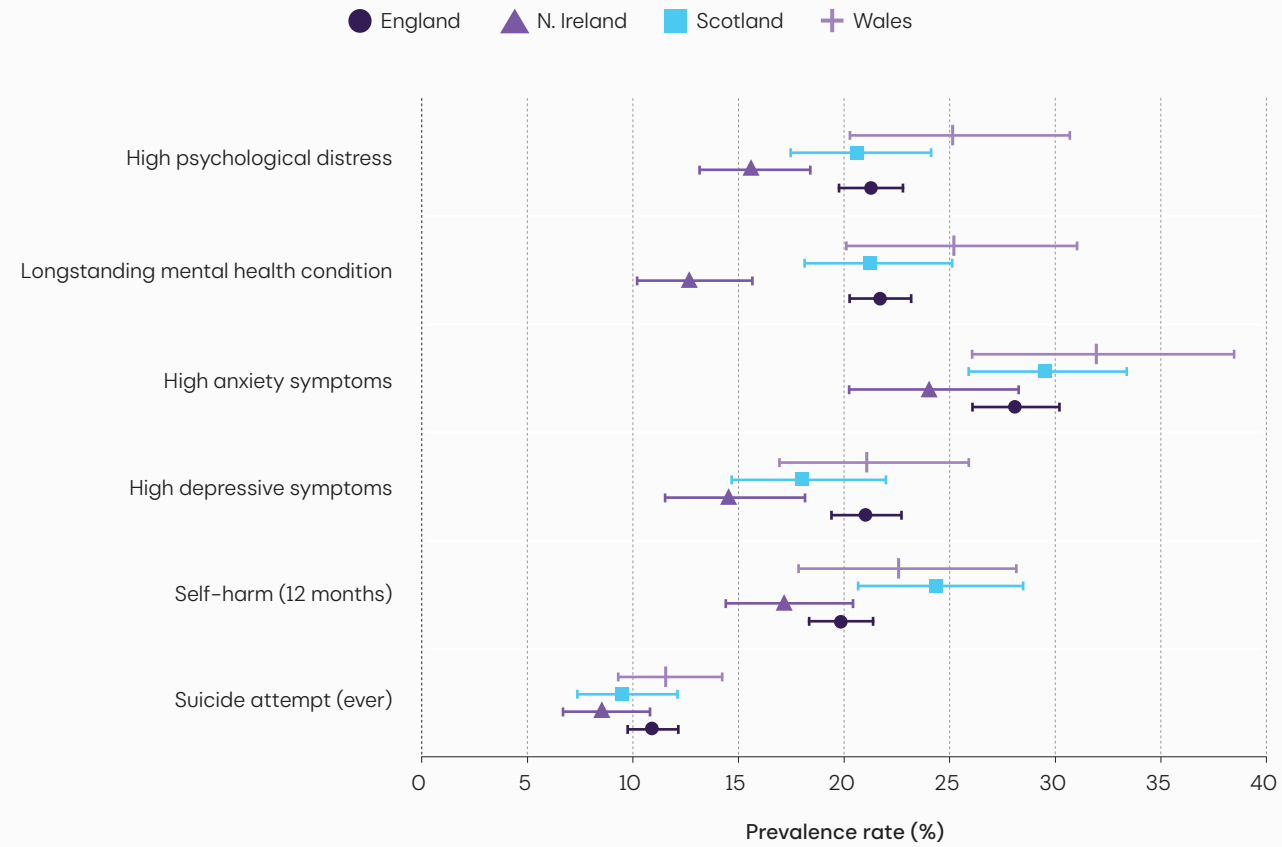
Geography

There were minimal differences in the rates of mental health symptoms, experiences and conditions across England, Wales and Scotland (see Figure 2), but there was some evidence that Northern Ireland had lower prevalence rates for selected mental health outcomes. Cohort members from Northern Ireland reported lower rates of high psychological distress (16%) compared to those in England (21%) and Wales (25%). Regarding longstanding mental health conditions, while the other nations reported prevalence rates between 21–25%, Northern Ireland had a prevalence rate of 13%.

Cohort members from Northern Ireland also reported lower rates of high depressive symptoms than those in England (15% vs. 21%) specifically, but the rates of high anxiety symptoms across the nations were more comparable. Northern Irish cohort members also reported a lower prevalence of self-harm in the past 12 months (17%) compared to Scottish cohort members (24%), but there were no differences in the rates of reporting lifetime suicide attempts across the four nations.

National averages should be interpreted cautiously, as they may obscure significant disparities in mental health outcomes across different groups and settings (urban, rural) within each nation. Further details by subgroups across the UK are provided below.

FIGURE 2: DIFFERENCES BY NATION IN MENTAL HEALTH OUTCOMES AT AGE 23



Note: Proportions based on weighted survey responses

Mental health measures

Psychological distress (Kessler-6) measures overall mental health, asking cohort members how often in the past 30 days they had felt anxious, low in mood or hopeless (score of 13+ out of 24 = high). Prevalence rates of longstanding mental health conditions (defined as expected to last 12 months or more) are based on self-reports; although measured in previous MCS waves, this sweep is the first time that this measure has been focused on.

We measure anxiety problems with the GAD-2 and depressive symptoms with the PHQ-2, which are both brief screening tools that can indicate clinically meaningful problems. Both ask about the frequency of excessive worry and anxiety (GAD-2) and depressed mood and sadness (PHQ-2) over the past two weeks (score of 3+ out of 6 = high). These items were administered to the 77% of cohort members who participated in the main stage of data collection.

Serious mental health outcomes comprise self-harm – whether the cohort member reported hurting themselves on purpose over the past 12 months – and suicide attempts – whether the cohort member reported that they had ever hurt themselves with the intention of ending their own life. These items were asked to the 95% of cohort members who participated in any stage of data collection except the online mop-up survey.

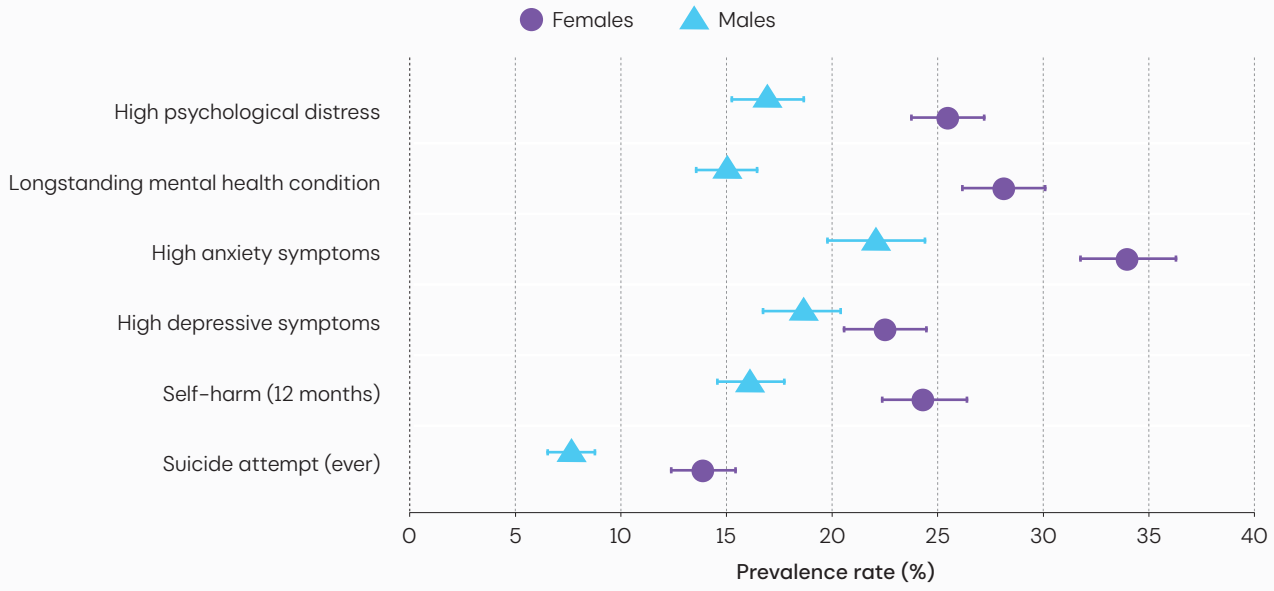
Sex

As was also seen at age 17, for all measures, females had worse mental health than males (see Figure 3). There was, however, some indication that the sex gap in mental health may have narrowed between age 17 and age 23, as the increase in prevalence rates over time was higher for males compared to females. However, given that there was no mental health outcome where males had a higher prevalence rate than females by age 23, it suggests that the sex gap has in some cases narrowed but not inverted.

For overall mental health, 25% of females reported high psychological distress (compared to 17% of males) and 28% of females reported a longstanding mental health condition (compared to 15% of males). Since age 17, males reported larger increases in high levels of psychological distress than females (6pp vs. 4pp), but females reported much larger increases (19pp vs. 9pp) in the prevalence of longstanding mental health conditions.

Although females had a higher prevalence of high levels of anxiety (34% vs. 21%) and high levels of depressive symptoms (22% vs. 19%), the latter represented the smallest sex difference across mental health outcomes. Females also reported more serious mental health outcomes: 24% had self-harmed in the past 12 months (compared to 16% of males), which is consistent with the sex gap in self-harm also observed at age 17 (8pp) in the same sample[5]. In addition, 14% of females reported ever self-harming with the intention of ending their life (compared to 8% of males) – by age 17, the rate was 10% of females (and 4% of males).

FIGURE 3: SEX DIFFERENCES IN MENTAL HEALTH OUTCOMES AT AGE 23



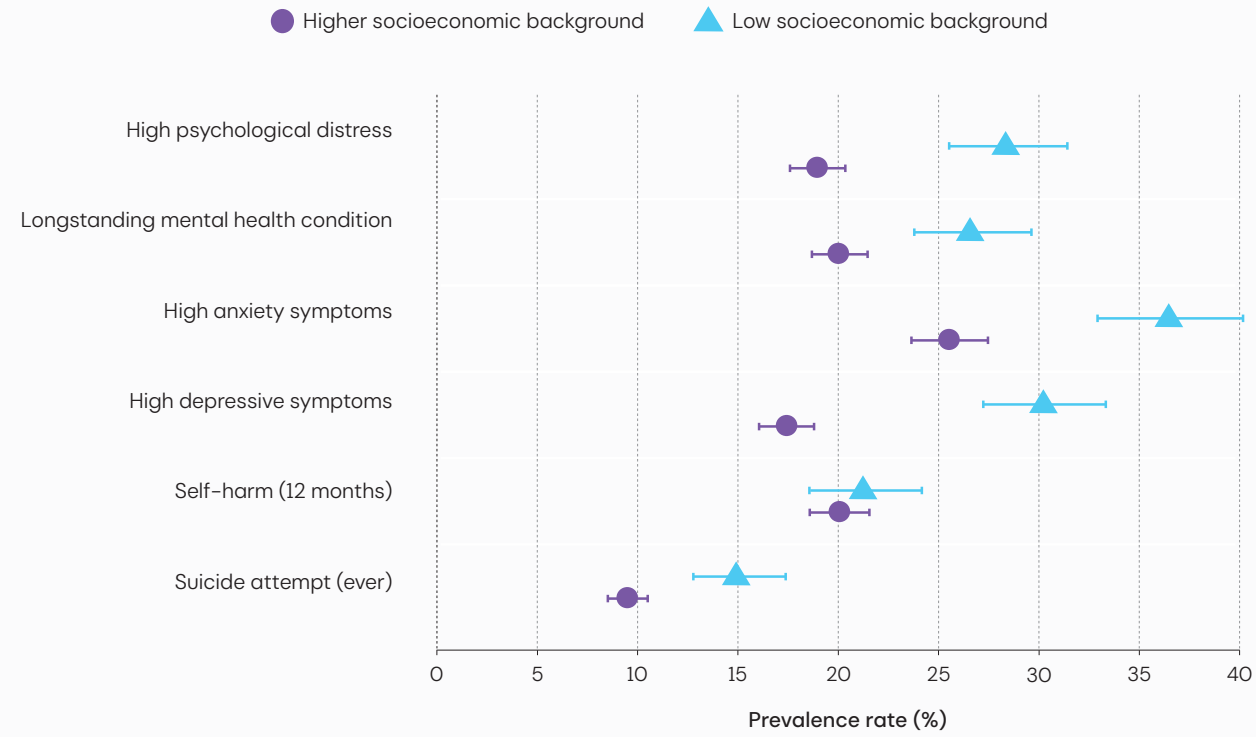
Note: Proportions based on weighted survey responses

Socioeconomic background

Socioeconomic background (SEB) can be represented in a number of different ways. In this briefing, we use a measure of each cohort member's family income at mid-adolescence, operationalised as being above or below 60% of the area median at age 14 (or the most recently available prior sweep). Figure 4 demonstrates that for every measure of overall mental health and emotional symptoms, cohort members from families who had low incomes (low SEB) had worse mental health outcomes than other families.

Low SEB cohort members had a 9pp higher rate at age 23 of high levels of psychological distress (28% vs. 19%) and had a greater prevalence rate of longstanding mental health conditions (27% vs. 20%). The SEB gap in psychological distress had widened since age 17 (4pp at age 17; 7pp at age 23). The largest differences by socioeconomic background were in emotional problems: 36% of low SEB cohort members had high anxiety symptoms (11pp higher than their peers) and 30% had high depressive symptoms (13pp higher than their peers). Although there were no SEB differences in the prevalence of self-harming in the past year at age 23, low SEB cohort members had a higher prevalence rate of having reported self-harming with the intention of ending their life (15% vs. 9%).

FIGURE 4: SOCIOECONOMIC BACKGROUND DIFFERENCES IN MENTAL HEALTH OUTCOMES AT AGE 23



Note: Proportions based on weighted survey responses

1 in 5

of the sample have:

- High psychological distress
- A longstanding mental health condition
- High depressive symptoms
- A report of self-harming in the past year

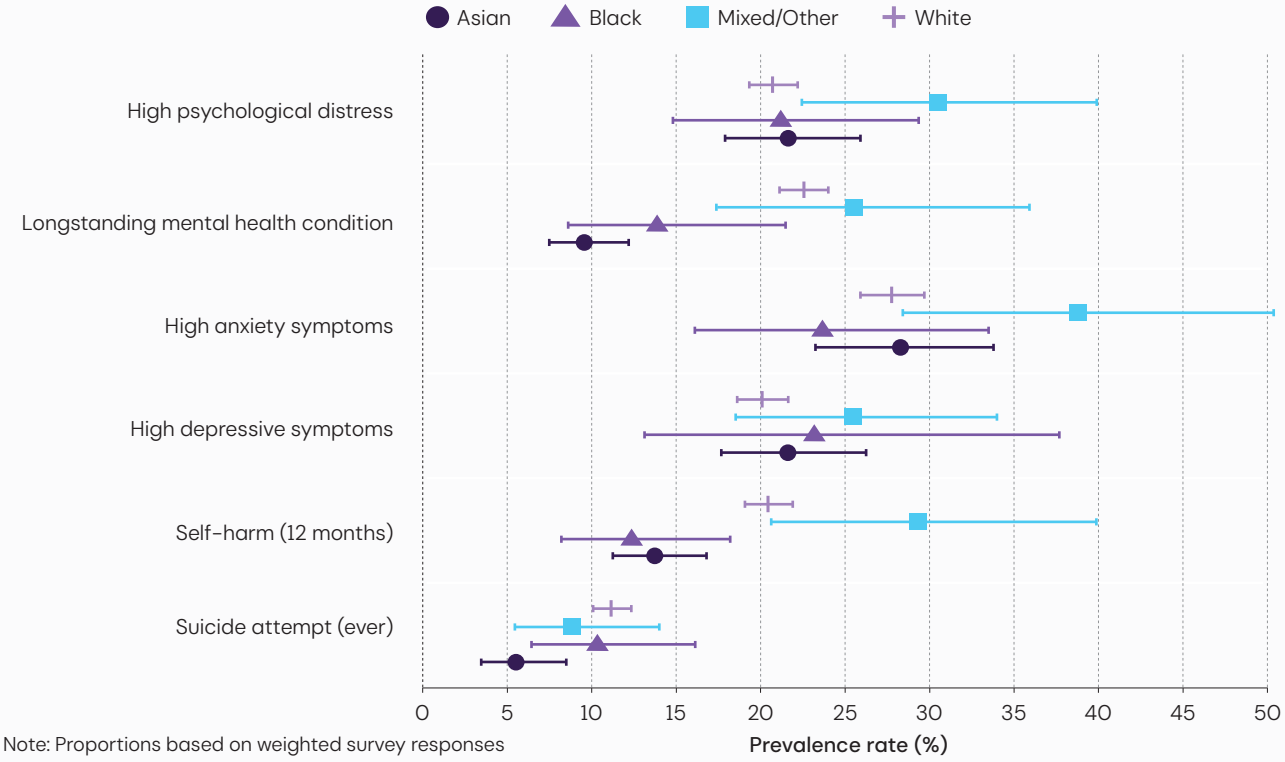
Ethnic background

By age 23, 18–19% of the participating sample were from an ethnic minority background (11% Asian, 3% Black, 4% Mixed and from other ethnicities), which was similar to the proportions at age 17. Although at age 17, high psychological distress was more prevalent among White cohort members than minority ethnic cohort members, this difference by ethnic background is no longer consistently observed at age 23 (see Figure 5).

What is clear at age 23, however, is that a higher prevalence of White cohort members report having a longstanding mental health condition (23%) than ethnic minority cohort members (16%). When broken down by specific ethnic groups, White cohort members report having a longstanding mental health condition specifically more than Asian (10%) and Black (14%) cohort members but have a similar prevalence to Mixed/Other race cohort members (26%).

Although there were no clear trends by ethnic background for emotional symptoms, there were some nuanced patterns for serious mental health outcomes. A higher proportion of White (21%) and Mixed/Other (29%) cohort members had self-harmed in the past 12 months compared to Asian (14%) and Black (12%) cohort members. In addition, White cohort members (11%) reported a greater prevalence of attempting suicide via self-harm by age 23 than ethnic minority cohort members generally (8%) and especially Asian cohort members (6%).

FIGURE 5: DIFFERENCES BY ETHNIC BACKGROUND IN MENTAL HEALTH OUTCOMES AT AGE 23



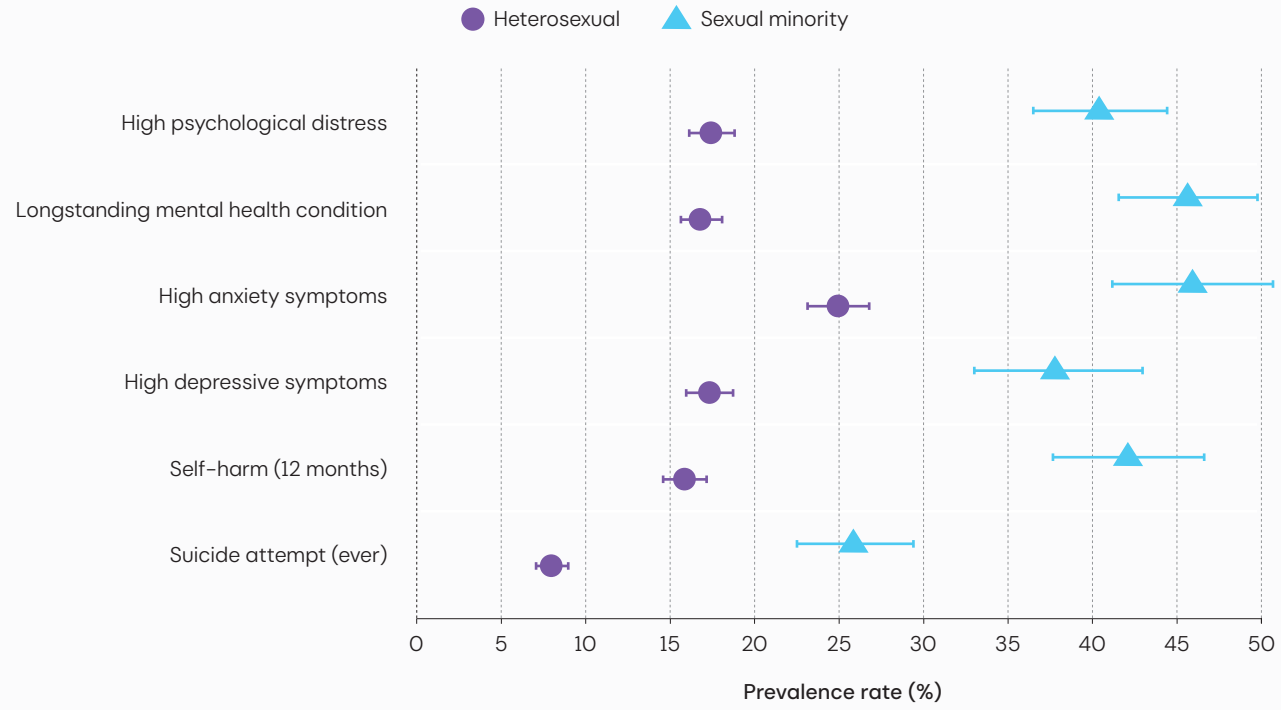
Note: Proportions based on weighted survey responses

Sexual identity

Sexual minorities include a wide range of self-reported sexualities including lesbian, gay, bisexual and other non-heterosexual identities. Sexual minority identity was reported by 15% of the MCS cohort (up from 11% at age 17): approximately 19% of females and 10% of males. As was the case at age 17[5], sexual minority cohort members reported greater prevalence rates than heterosexual cohort members for every mental health outcome. Figure 6 shows the extent of these differences.

Regarding overall mental health, 40% of sexual minority cohort members reported high psychological distress (compared to 17% of heterosexual cohort members) and 46% of sexual minority cohort members reported a longstanding mental health condition (compared to 17%). For emotional symptoms, 46% of sexual minority cohort members had high levels of anxiety (compared to 25% of heterosexual cohort members) and 38% had high levels of depressive symptoms (compared to 17%). Lastly, regarding serious mental health outcomes, 42% of sexual minority cohort members reported self-harm in the past 12 months, which, although high compared to the 16% prevalence in heterosexuals, was a 13pp decline since age 17. In addition, 26% of sexual minority cohort members reported ever attempting suicide by self-harming by age 23 (compared to 8% of heterosexual cohort members).

FIGURE 6: **SEXUAL IDENTITY DIFFERENCES IN MENTAL HEALTH OUTCOMES AT AGE 23**



Note: Proportions based on weighted survey responses. This analysis focuses on sexual orientation rather than gender identity; therefore, transgender experiences are not included in this specific analysis, as they relate to gender identity rather than sex or sexuality.

This is an **observational study**. This means that researchers did not control what the participants were exposed to, instead, they observed what happened to the different groups of people without intervening.

Considerations for policymaking

Results from age 23 of the MCS suggest that the mental health needs of this generation of young adults have mostly increased since they were last observed at age 17. In addition, comparisons with a past cohort study at age 25 (Next Steps, born 1989/1990) supports concerns that Gen Z's mental health needs are greater than those of past generations. Increased prevalence of reported mental health difficulties, especially longstanding conditions, relative to previous generations may reflect a rise in distress or a greater willingness to disclose difficulties due to shifting societal attitudes toward mental health, or both.

Addressing mental health issues from adolescence to early adulthood should have positive consequences across society: improving employment rates, productivity and overall wellbeing, as well as reducing demands on an already strained health system. Early adulthood represents an important transition in the UK health system: support tailored to the needs of this age group from Child and Adolescent Mental Health Services (CAMHS) ceases for most at age 18. This gap could be addressed through partnerships between higher and further education institutions and NHS mental health support teams[6]. The government's pledge to increase spending on mental health support, in addition to increasing support for the ideas in the National Youth Strategy[7] to decrease social isolation, could also be beneficial. In addition, extending CAMHS eligibility (e.g., until age 25) or setting up health support specifically for 18- to 25-year-olds[8] could be bold new strategies.

Although each mental health outcome was analysed here in isolation, in practice these difficulties co-occur and compound one another. Similarly, risk itself is rarely singular – an intersectional approach that considers how multiple identities and disadvantages, such as being female, being from a low socioeconomic background and having a sexual minority identity, combine to shape vulnerability may be useful. Together, these considerations point towards holistic approaches to mental health that move beyond "one size fits all" solutions and would align with existing NHS commitments to person-centred approaches to healthcare[9].

Opportunities for future research

The MCS now features nationally representative longitudinal data on its cohort members and their families spanning over two decades, including almost a decade of data specifically on mental health. Given that mental health data on parents have also been collected throughout MCS, the intergenerational element of mental health (i.e., relationship with genes and shared environments) can be tested in a way that few other datasets can offer. In addition, the MCS features substantial linkages with administrative records (education, health) which can be used to further understand the lives of young adults.

Data from the age 23 wave are also well-positioned to study the long-lasting effects of the early home environment on health. Researchers can leverage the rich array of early life factors measured in the MCS to better understand the predictors of young adult mental health. This would benefit not just our understanding of this generation but how best to prevent problems in future generations.

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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If you are affected by the issues in this research and need support

Whether you're concerned about yourself or a loved one, you can find local NHS urgent mental health helplines and a list of mental health charities, organisations and support groups offering expert advice, on the NHS website at: www.nhs.uk/conditions/stress-anxiety-depression/mental-health-helplines/.

When life is difficult, Samaritans are here – day or night, 365 days a year. You can call them for free on 116 123, email them at jo@samaritans.org, or visit www.samaritans.org to find your nearest branch.

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Contact

clsdata@ucl.ac.uk
@clscohorts.bsky.social
www.cls.ucl.ac.uk
UCL Centre for Longitudinal Studies

UKRI Economic and Social Research Council

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