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**Citation:** McManus, S. & Gunnell, D. (2020). Trends in mental health, non-suicidal self-harm and suicide attempts in 16-24-year old students and non-students in England, 2000-2014. *Social Psychiatry and Psychiatric Epidemiology*, 55(1), pp. 125-128. doi: 10.1007/s00127-019-01797-5

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# Trends in mental health, non-suicidal self-harm and suicide attempts in 16–24-year old students and non-students in England, 2000–2014

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Received: 19 August 2019 / Accepted: 9 October 2019 / Published online: 30 October 2019  
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## Abstract

There are concerns about high levels of mental ill-health amongst university students, but little is known about the mental health of students compared to non-students over time. Using data on young people (16–24) from three UK National Psychiatric Morbidity Surveys (2000, 2007, and 2014), we found no evidence that the overall prevalence of common mental disorder (CMD), suicide attempts, or non-suicidal self-harm (NSSH) differed between students and non-students, although there was an indication that CMDs rose markedly in female students between 2007 and 2014. A rise in NSSH is apparent in both students and non-students.

## Background

Recent studies indicate that levels of common mental disorders (CMD), self-harm and suicide are rising among young people, especially young women [1–3]. There have been particular concerns about university students, with fivefold increases in the number of UK students reporting mental health problems in the last decade [4]. Students may have become more vulnerable since the introduction of university fees in England in 1998, with fees rising threefold to £9000 per year in 2012 [5]. Alternatively, rising trends could reflect changes in levels of mental ill-health amongst young people in general.

International research indicates that university students have similar levels of CMD as non-students [6] and most mental health problems begin before students arrive at university. The authors are aware of no previous studies that

have compared trends over time in the prevalence of CMD, suicide attempt, and self-harm between students and non-students in England. Here we report an analysis of Adult Psychiatric Morbidity Survey (APMS) data for 2000, 2007 and 2014 among 16–24-year-old students and non-students in England, overall and separately for men and women.

## Methods

Each wave of the APMS used a similar stratified random probability design to produce a sample representative of the household population. The response rate was 69% in 2000, and 57% in 2007 and 2014. A 1993 survey in the series was not included in the current analyses because comparable data were not available for all the outcomes and controls used. Those living in university halls of residence at the time of the interview were under-represented. Trained research interviewers conducted interviews in people's own homes and averaged 1.5 h.

Verbal informed consent was obtained from participants. Written information about the survey was provided in advance, and further written information on how to withdraw consent was provided at the end of the interview. Most of the questionnaire was administered face-to-face [7].

CMD was ascertained using the Clinical Interview Schedule—Revised, an interviewer-administered structured interview covering symptoms in the past week [8].

Lifetime non-suicidal self-harm (NSSH) was established with affirmative responses to the face-to-face question:

**Electronic supplementary material** The online version of this article (<https://doi.org/10.1007/s00127-019-01797-5>) contains supplementary material, which is available to authorized users.

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‘Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself?’. Suicide attempt was elicited separately: ‘Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?’

Student status was asked of those not in paid work in the past week. Housing was classified as owner-occupied or rented. People in arrears with payments in the past year were identified; indicated by disconnection from utilities because of failure to pay and being ‘seriously behind in paying within the time allowed’ for any of a range of services and obligations. Banded scores from the Alcohol Use Disorders Identification Test were used to control for patterns of alcohol use [9].

APMS participants aged 16–24 and resident in England were selected. Analyses used weighted data to account for selection probabilities and patterns of non-response; true (unweighted) sample sizes are presented. Descriptive analyses were carried out using SPSS v25.0. Stata v14.1 was used for multiple variable logistic regression analyses to test the association between student status and CMD. Missing data were minimal and excluded from analyses. Interaction term ‘student\*sex’ was entered into the regression models to test whether the effect on mental health of being a student differed for men and women.

## Results

Participants aged 16–24 were classified as students (103 in 2000; 106 in 2007; 122 in 2014) or non-students (563 in 2000; 462 in 2007; 438 in 2014). The proportion of the sample identified as students increased from 16.2% in 2000, to 20.7% in 2007, and 24.2% in 2014.

At each point in time, the prevalence of CMD was similar in students and non-students and there was little evidence of increases in either group over time (Fig. 1, Supplementary Table 1).

After adjustment for age, sex, socioeconomic factors, and alcohol use, the odds of CMD in students compared to non-students were 0.96 in 2000 (95% CI 0.45, 2.07), 0.78 in 2007 (95% CI 0.38, 1.61), and 1.03 in 2014 (95% CI 0.56, 1.90) (Supplementary Table 2).

In 2000 and 2007 the relationship between student status and CMD was similar for men and women. However, in 2014 an interaction between student status and sex was evident ( $p=0.001$ ). In 2014, student status as a predictor of CMD had an adjusted odds ratio (aOR) of 0.40 in men ( $p=0.107$ , 95% CI 0.13, 1.22), but 1.53 in women ( $p=0.267$ , 95% CI 0.72, 3.25). Figure 1b shows that the proportion of male students with CMD remained stable over time, while Fig. 1c indicates the rate of CMD in female students may have risen, from 17.7% (95% CI 9.9%, 29.8%) in 2007 to

35.5% (95% CI 26.8%, 45.2%) in 2014. No comparable increase was evident in female non-students, nor in male students or non-students.

An upward trend in lifetime NSSH was evident in both male and female students: from 6.1% (95% CI 2.7%, 13.2%) in 2000 to 10.9% (95% CI 7.8%, 15.0%) in 2014 (Supplementary Fig. 1a). Non-students experienced a similar rise from 5.2% (95% CI 3.5%, 7.7%) in 2000 to 14.6% (95% CI 12.3%, 17.2%) in 2014. Supplementary Fig. 1b shows that the prevalence of having made a suicide attempt consistently appeared lower in students (4.9% [95% CI 2.6%, 9.0%] in 2014) than in non-students (7.9% [95% CI 6.1%, 9.4%]), although confidence intervals were very wide and overlapped. There was little clear evidence of change over time or differences between men and women in suicide attempts.

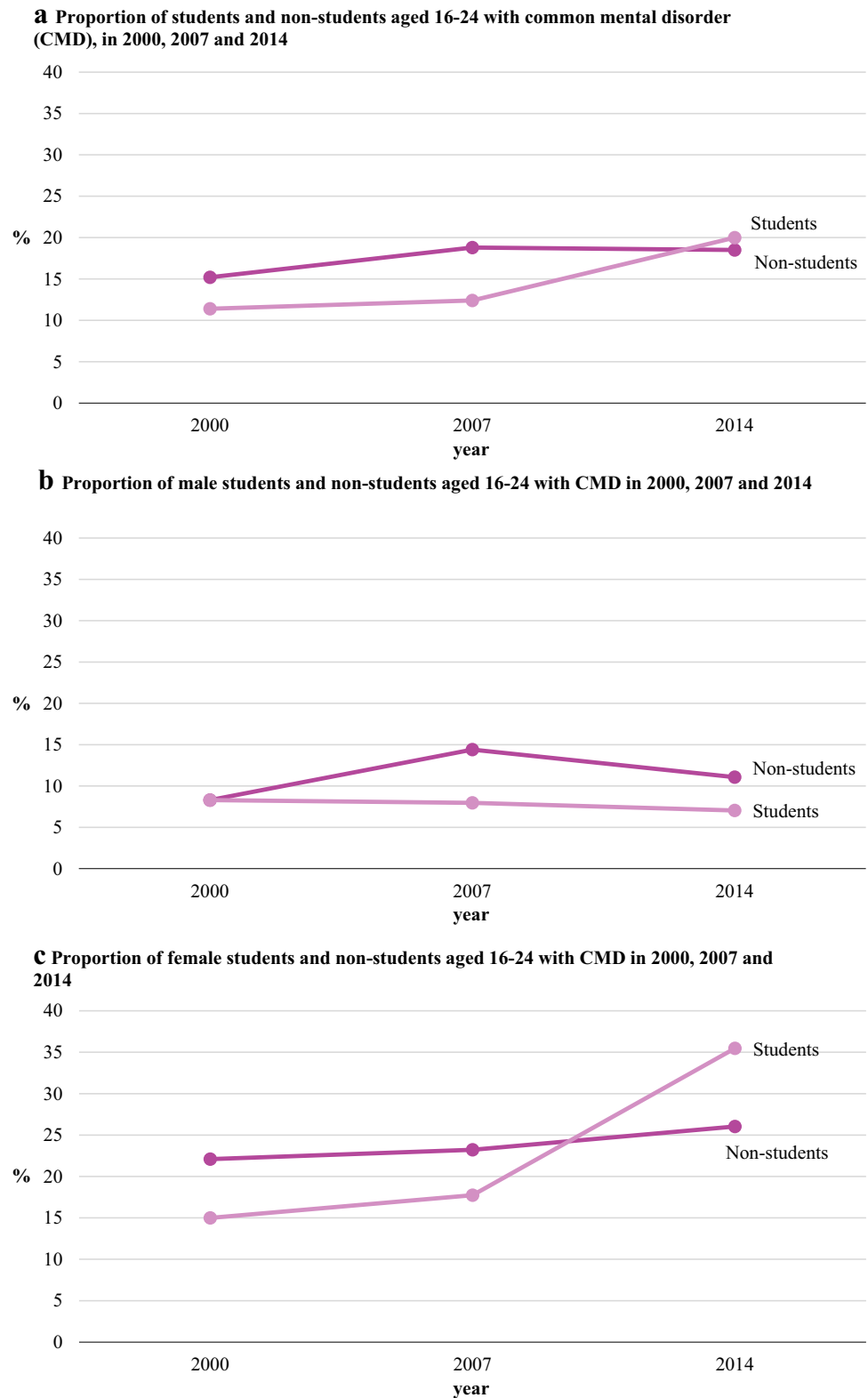
## Discussion

The prevalence of CMD was similar in students and non-students. However, between 2007 and 2014, there was a doubling in CMD prevalence (from 17.7 to 35.5%) in female students but not in female non-students or males. There was evidence of a rise in NSSH between 2000 and 2014, but this was evident in students and non-students. In keeping with national data on rates of suicide in students [10], a smaller proportion of students than non-students appear to report making suicide attempts, with no clear evidence of adverse trends over time. It is possible the rise in CMD evident in females in 2014 was linked to the rise in fees in 2012.

Whilst this study provides valuable preliminary data on student mental health relative to the general population, findings must be interpreted in the light of several limitations. First, the small student sample size (ranging from 103 students aged 16–24 in APMS 2000 to 122 in APMS 2014) meant we only had power to detect marked differences between students and non-students. Second, as student status was not a focus of the surveys, students who combined studying with paid employment were not identifiable as students; this group may be particularly vulnerable to mental health problems due to the pressures of combining work and study. Third, some respondents who identified as students will not have been studying at university; some were students at secondary schools and further education colleges, e.g., on apprenticeships. Fourth, our focus was on 16–24-year olds: mature students and post graduate students will have been under-represented. Lastly, we investigated three mental health-related outcomes at three time periods in male and female students, the number of comparisons we made increases the risk of false-positive findings.

This exploratory analysis is broadly reassuring concerning the mental health of students compared to non-students, but it highlights the previously reported adverse trends in

**Fig. 1** **a** Proportion of students and non-students aged 16–24 with common mental disorder (CMD), in 2000, 2007 and 2014. **b** Proportion of male students and non-students aged 16–24 with CMD in 2000, 2007 and 2014. **c** Proportion of female students and non-students aged 16–24 with CMD in 2000, 2007 and 2014



NSSH in young people regardless of student status. The analysis indicates there may have been a rise in vulnerability to CMD in female students in recent years. This finding

requires replication in large samples and, if real, full investigation of the particular stressors contributing to their distress.

**Acknowledgements** The English Department of Health and Social Care (DHSC) is the primary funder of the Adult Psychiatric Morbidity Surveys, which were commissioned by NHS Digital. These analyses were independent research funded by the National Institute for Health Research (NIHR) Public Health Research Consortium (PHRC) Policy Research Programme (PHEHF50/27). DG is supported by the NIHR Biomedical Research Centre at University Hospitals Bristol NHS Foundation Trust. The views expressed in this brief report are those of the authors and not necessarily those of the NIHR or the DHSC. We are indebted to the tens of thousands of people across England who generously participated in Adult Psychiatric Morbidity Surveys.

## Compliance with ethical standards

**Conflict of interest** The authors confirm that they have no interests to declare.

**Ethics statement** The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. This secondary analysis was approved by the National Centre for Social Research's ethical review committee.

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