OPEN ACCESS

University of BRISTOL

McLaughlin, J. C., & Gunnell, D. J. (2020). Suicide deaths in university students in a UK city 2010-2018: case series. *Crisis: Journal of Crisis Intervention and Suicide Prevention*. https://doi.org/10.1027/0227-5910/a000704

Peer reviewed version

Link to published version (if available):
10.1027/0227-5910/a000704

Link to publication record in Explore Bristol Research
PDF-document

University of Bristol - Explore Bristol Research
General rights

1 **Abstract**

2 *Background*

3 There are longstanding concerns over the mental health and suicide risk of university students in the
4 UK and internationally.

5 *Aims*

6 Identify risk factors for suicide amongst students attending universities in a UK city.

7 *Method*

8 Suicide deaths between January 2010 and July 2018 were identified from university records. An
9 audit tool was used to collate data from university records and coroners' inquest files.

10 *Results*

11 37 student deaths were identified. Only 10.8% of the students had disclosed a mental health issue at
12 university entry. There was strong statistical evidence that students that died by suicide were more
13 likely to have been male, experiencing academic difficulties (repeated years, changing course and
14 suspension of studies were all associated with 5-10 fold increased risk) and in need of financial
15 support than other students.

16 *Limitations*

17 The coroners' records were only available for around half of the deaths. Healthcare records were not
18 available.

19 *Conclusion*

20 Markers of academic and financial difficulty should be considered as flags to identify students at
21 heightened risk. Improved disclosure of mental health issues at university registration could
22 facilitate targeted support for vulnerable students.

23 **Keywords**

24 Suicide, university, college, student, risk factors

25

Introduction

There has been longstanding concern over the mental health and suicide risk of university students in the UK and internationally (Schwartz, 2006; Keith Hawton, 2012; Carpenter, 1959; Uchida & Uchida, 2017). Data from the Office for National Statistics (ONS) in the UK indicate that the rate of suicide for university students in England and Wales has increased in recent years (Gunnell, Caul, Appleby, John, & Hawton, 2019). Nevertheless the ONS data (Office for National Statistics, 2018), and international studies (Schwartz, 2006) indicate that the rate of suicide is lower amongst students than in the general population of similar ages. These lower rates may reflect the well-recognised reduced risk of suicide amongst people from affluent backgrounds, those with higher levels of educational attainment and those without serious mental illness (Batty, et al., 2018) as such groups are likely to be over-represented in university populations.

Few studies have reported on the academic and university-specific factors associated with suicide in university students and published case series often include small numbers of cases and lack comparison risk factor data from the wider student population; a psychological autopsy study of UK university student suicides in 2000-2005   suggested that the experience of transition for these students had been a significant factor and academic difficulties were reported for half the deaths (n=10) (Stanley, Mallon, Bell, & Manthorpe).

We undertook a detailed case review of 37 deaths by suicide of students studying at the two universities in a UK city between 2010-2018 to identify possible risk factors for suicide amongst students and to inform suicide prevention in university settings. Both universities are large, high-ranking, UK institutions (ranked top 50 in the UK in 2020 (UKuni, 2020)), with around 20,000 undergraduate and postgraduate students enrolled from around the UK, and with a high proportion (10-15%) of overseas students.

Methods

Deaths by suicide

University student information databases including deaths (by any cause) together with information from wellbeing service/vulnerable students' service teams concerning the cause of death were used to identify student suicides between January 2010 to July 2018. Neither university kept a formal register of suicide deaths.

Following accepted research practice in England, supported by findings from previous studies of coroner-records (Gunnell, et al., 2013) we included in the case review deaths certified by the coroner as suicide or given open conclusions(formerly known as verdicts), as well as some receiving narrative and accident conclusions, where staff indicated suicide as the likely cause of death. Due to resource limitations coroner data were not collected for deaths outside the study area (n=20).

Audit tool

A 74-item audit tool (see e-supplement) was developed to collate sociodemographic, clinical and university study-related information about each case. The tool was initially developed by DG, based on proformas used in previous studies of coroner records (see e.g. (Gunnell, et al., 2013)) and findings from the recent literature on student suicide (Schwartz, 2006; Uchida & Uchida, 2017;

65   Stanley, Mallon, Bell, & Manthorpe) and further refined with input from UK experts on student
66   suicide and Public Health England.

67   Data to complete the form came from a number of sources (Fig 1). Academic and sociodemographic
68   data for all deaths was provided directly by the university central IT system teams (including but not
69   limited to the student administration, residences, schools, secretary's office and finance office
70   systems). Further information was available for a subset of students (n=35 deaths) from the
71   university student wellbeing and support service teams. Inquest records held by the PLACEHOLDER3
72   Coroner (n=17 deaths) were made available to JM and used to complete any further fields on the
73   form. JM and DG discussed approaches to coding variables and reviewed the first 3 completed forms
74   together.

75   The students' healthcare and counselling service records were not made available, except where
76   they formed part of the coroner's records, due to confidentiality concerns.

77   POLAR 3 (Participation of Local Areas) was used as a proxy area measure of socioeconomic
78   deprivation for students whose parents lived in the UK (Office for Students, 2019). POLAR quantifies
79   relative levels of youth participation in higher education, based on parents' address.

80   Comparative data for each university's wider student population was drawn from the following
81   sources:

82   •   Proportion of all students enrolled in 2014/15 who were male, overseas students, full-time
83   students, post-graduate students, and in their first year of study (Higher Education Statistics
84   Agency, 2019).
85   •   Proportion of all placed applicants in 2014 who were in each POLAR quintile (Universities
86   and Colleges Admissions Service, 2018).
87   •   Proportion of all students enrolled in 2018 who were aged 30+ (University published data
88   PLACEHOLDER1&2).
89   •   Bespoke enquiries raised with the universities' administration teams concerning academic
90   difficulty and receipt of bursaries (available for 2017/18).

91   As data were not available for the whole study period, we used data from the year closest to the
92   midpoint of the study period (2014) wherever possible.

93   *Analyses*

94   Descriptive statistics were used to summarise the characteristics of the student suicide deaths.
95   Incidence rate ratios (IRR) for potential risk factors were estimated using the 'iri' command and
96   Poisson regression in Stata version 13. For the IRR calculation the mean proportion of each variable
97   (see sources described above) was applied to the background population of 113815 students
98   admitted to the universities over the timeframe of the study (2010-2017), multiplied by 8.5 (the time
99   period of the study) to give number of person years at risk.

100   For the free-text qualitative data fields, data were summarised and thematic trends were
101   documented. In acknowledgement of the incomplete access to records and therefore the likely
102   underestimates for many variables, estimates were described in terms of "at least x%".

103   *Ethics approval / data sharing agreement*

104   This work was undertaken as part of best practice endeavours within the actions of the existing

105   institution-led suicide prevention response groups; therefore prospective ethics approval was not

106   required. The PLACEHOLDER1 Faculty of Health Science Research Ethics Committee (FREC) met and

107   reviewed the documentation provided outlining the suicide case review and the ethical guidelines

108   followed and confirmed that good ethical principles were adhered to and have issued a

109   recommendation letter for publication.

Results

Sociodemographic characteristics

Thirty-seven suicide deaths were identified. Coroners' records were available for 17 (45.9%) of the deaths and student support team records for 35 (94.6%), all had data from one or other of these two sources (Fig 1). Nineteen (51.4%) of the deaths occurred away from the city, generally in or near to the student's own/family home.

Table 1 presents the sociodemographic and university registration characteristics of the deaths and comparison data for all students. Twenty-four (64.9%) were male and one was transgender. Compared to the general student population at the two universities males were at increased risk (IRR 2.40 (95% confidence interval (CI) 1.15, 5.26) p=0.012) compared to females.

The median age at the time of death was 21 years (range 18 - 54, interquartile range 20 – 25). There was no strong statistical evidence of an increased risk amongst older students, those from more deprived backgrounds (as indexed by POLAR quintile), or amongst ethnic minority or overseas students (Table 1).

Over one third (37.8%) of the students suicides held a bursary and this was associated with increased risk (IRR 5.48 (2.61, 11.11) p<0.001). A further four (10.8%) had other evidence of financial difficulty.

Only four students (10.8%) declared that they had a mental health condition on entry to the university or on their UCAS application.

Academic characteristics

There was no evidence that risk of suicide differed according to year of study, undergraduate vs. postgraduate or full-time vs. part-time (Table 1). There was no evidence of disproportionate numbers of deaths by course or Faculty (data not shown).

There was strong statistical evidence that the proportion of students who needed to resit exams, repeat years, changed course or suspended study was higher in students that died by suicide compared to other students (IRRs ranged from 2.47 (CI 1.13 to 5.11) for exam resits to 31.52 (CI 14.43 to 65.10) for suspension of studies; Table 2). Almost half (n=18 (48.6%)) of the students that died experienced one or more of the three indicators of academic difficulty with a prevalence of <5% in the general student population (i.e. repeated a year, changed course, suspended studies).

Data on submission of extenuating circumstances forms (ECFs, forms submitted by students who felt their performance in a university assessment had been affected by health or social concerns) was unavailable for students that died at one of the institutions; data from the other institution indicated that students that died were at least 3-4 times more likely to have submitted ECFs than other students.

Mental health and help seeking

The extensiveness of the available data on mental health and social circumstances was greater for some cases than others, so percentages presented in this section are likely under-estimates (see Fig 1). At least eleven (29.7%) of the students who died had a history of self-harm. At least nineteen

148 (51.4%) had evidence that they were known to the NHS regarding any mental health difficulties, at
149 least fifteen (40.5%) were known to secondary mental health services at some point in their lives.

150 Thirteen (35.1%) made initial contact with student support services and then either failed to
151 complete registration, respond to initial contact or to attend one or more appointments. In some
152 cases, these contacts were many months before death. At least eleven (29.7%) of the students that
153 died by suicide had sought help from academic or administrative staff in their university school or
154 department.

155 There was some evidence of higher than expected levels of illegal drug misuse within the last year
156 (at least eleven (29.7%) compared to 20% of 16-24yr-olds nationally (Home Office, 2018)) and
157 alcohol misuse (at least ten (27.0%), by contrast only 14% of 16-24yr-olds in England drink more than
158 21 units of alcohol a week) (NHS Digital, 2016).

159 Significant concerns about the students that died by suicide had been identified by their peers in at
160 least five (13.5%) of the cases, but these peers had felt uncertain about how to help.

161 Five students who died had no evident social, academic or previous mental health risk factors.

162 *Other risk factors*
163 Most of the students who died had no current partner (n=32, 86.5%); at least nine (24.3%) had
164 recent relationship difficulties or breakups and at least ten (27.0%) had some evidence of social
165 isolation (living alone or noted to have few friendships). Difficulties in family circumstances e.g.
166 interpersonal discord or immediate family bereavements were common (in at least 16 (43.2%) of
167 cases), but levels of these factors in the wider student population are not known so comparison was
168 not possible.

169 *Methods of suicide*
170 The most commonly used method was by hanging (n=21, 56.8%). The other main methods were
171 jumping from a height (n=6, 16.2%) and self-poisoning (n=5, 13.5%). No students obtained their
172 means for suicide from university premises.

173

174

Discussion

Students that died by suicide were more likely than other students at their institutions to: be male, be in receipt of a bursary or other financial assistance or have experienced academic difficulties. Three factors were particularly strongly related to risk: suspension of studies, repeating a year and changing course; 18 students (48.6%) that died by suicide had at least one of these factors recorded, compared to a prevalence in the wider student population of <5%.

Other factors that appeared to be related to risk, but for which there were no robust comparison data, were drug or alcohol misuse, personal life difficulties including relationship break-up or bereavement, prior self-harm or suicide attempts and previous or current contacts with secondary care mental health services. These are all well-recognised risk factors for suicide in the general population (Turecki & Brent, 2016).

Very few (10.8% (n=4)) of the students had disclosed a mental health issue when they registered with the university and up to half (48.6% (n=18)) had no record of contact with health services for mental health issues.

Comparison with existing literature

Few studies have reported on associations between academic difficulty and suicide risk in university students. Data from Japan indicate that students within later years of study who need to repeat years or who took academic leave of absence were at heightened risk of suicide (Uchida & Uchida, 2017). In a recent study of suicides amongst young people in England (National Confidential Inquiry into Suicide and Homicide (NCISH): Annual Report 2017), common antecedents of suicide included alcohol misuse (23%), illicit drug misuse (23%), social isolation (27%) and a diagnosis of mental illness (47%) (Healthcare Quality Improvement Partnership (HQIP), 2017), all factors that were pronounced in this case review.

A recent analysis of student suicides in England and Wales (Gunnell, Caul, Appleby, John, & Hawton, 2019) suggested that around 17% occurred in those who had been in current or recent contact with NHS psychiatric services. This figure is in line with Japanese data indicating 16% of students had a psychiatric diagnosis (Uchida & Uchida, 2017) and data from the USA indicating that only around a quarter of student suicides were counselling service clients (Schwartz, 2006). The higher figure in our study (41%) may reflect the fact that we were only able to estimate life time rather than recent contacts. Of note, only 12% of suicide deaths in the NCISH study had evidence of contact with college / university support services, although over a third (38%) had evidence of some mental health service contact (Healthcare Quality Improvement Partnership (HQIP), 2017); in our case review, mental health contacts with health and care services were even higher (51.4%) and this is likely to be an underestimate as we did not have full access to health records.

Five (13.5%) students had no evident flags of concern or contributory factors for their suicide. This type of occurrence is also reflected in a recent national study of suicide in young people where 29% (n=84) deaths were deemed 'out of the blue' (University of Manchester, 2017).

16.2% of the suicides reported in our study were aged >30 years – a finding in keeping with studies from the USA (Silverman, Meyer, Sloane, Raffel, & Pratt, 1997) and Sweden (Lageborn, Ljung, Vaez, & Dahlin) but lower than a recent study of all student suicides in England (Gunnell, Caul, Appleby,

215 John, & Hawton, 2019). In keeping with findings from Japan (Uchida & Uchida, 2017)and in recent
216 ONS analysis (Gunnell, Caul, Appleby, John, & Hawton, 2019) we found no evidence of a heightened
217 risk of suicide during the first year of study.

218

219 *Strengths and limitations*

220 To our knowledge this is the largest study of student suicide deaths in the UK to draw on evidence
221 from students' individual academic records and compare these with the wider student population.
222 This approach elicited information on academic and university setting specific risk factors and points
223 of concern that have not been widely reported previously.

224 Nevertheless, our findings should be interpreted in the light of a number of limitations. First,
225 healthcare and counselling service records were not included due to data sharing limitations and
226 may have offered further insights. We did, however, obtain relevant healthcare information from
227 the coroner inquest records (available for almost half the cases). Both coroner and wellbeing
228 records data varied in length and detail, but one or the other of these sources was available for all
229 students. These factors have likely resulted in underestimates of the prevalence of some factors, in
230 particular personal/social factors and mental health and substance misuse. Second, we did not have
231 coroners' conclusions for all deaths outside the study area and so we may have been over- or under-
232 inclusive of relevant deaths. Third, the case series study design cannot determine whether the
233 factors detected such as academic and personal difficulties preceded or were partly a result of
234 mental distress. This does not change the importance of noting these strong associations and
235 therefore the consideration of these factors as important risk markers. Fourth, POLAR is an
236 imperfect measure of socioeconomic position, as it is related to area-of-residence rather than
237 individual characteristics and it only measures an area's university participation rate rather than
238 other, more direct socioeconomic measures such as income and employment levels. Fifth, coroner
239 data were extracted by a single researcher, without inter-rater reliability testing other data were
240 provided from multiple sources. Sixth, some of our data on risk factor levels in the wider student
241 population was drawn from a single year – this may lead to an over- or under-estimation of levels.
242 Last, the denominators for our risk ratio estimates were estimated relatively crudely based on the
243 best available data, but it is unlikely that this approach will have biased the risk estimates.

244 *Conclusions*

245 A number of UK universities are piloting risk screening tools, based on routinely available data (e.g.
246 attendance, academic and student registration data). We identified a number of university-specific
247 risk markers for student suicide which could be considered in risk identification tools and the design
248 of university processes for struggling students:

249 - Demographics: male, in receipt of a bursary or other financial assistance
250 - Markers of academic difficulty, particularly repeating a year, changing course and
251   suspension of studies.

252

253 Due to the low incidence of suicide, the specificity of prediction tools based on these factors is likely
254 to be relatively low, and whilst such approaches may help institutions identify high risk students, it is
255 important they also focus on whole-institution population-based approaches aimed at, for example,

256 enhancing student wellbeing, preventing alcohol and drug misuse and encouraging help-seeking

257 (Universities UK, 2018) .

258

259 The low number of students disclosing mental health difficulties on university entry represents a

260 further priority area for action as improved disclosure rates at registration could facilitate targeted

261 support of vulnerable students.

262 Research is now urgently required into how best to intervene to reduce risk associated with these

263 factors and evaluate ongoing initiatives to address these problems.

264

265 Our audit tool is available (e-supplement) for use by institutions seeking to identify risk factors in

266 their student populations.

267

268 **Electronic Supplementary Material**

269   ESM 1. Audit tool (Electronic Supplementary Material 1 - audit tool.pdf)

References

Batty, G. D., Kivimaki, M., Bell, S., Gale, C. R., Shipley, M., Whitley, E., & Gunnell, D. (2018). Psychosocial characteristics as potential predictors of suicide in adults: an overview of the evidence with new results from prospective cohort studies. *Translational Psychiatry, 8*, 22. doi:10.1038/s41398-017-0072-8

Carpenter, R. (1959). Statistical analysis of suicide and other mortality rates of students. *Br J Prev Soc Med, 13*(4), 163-174. doi:10.1136/jech.13.4.163

Gunnell, D., Benewith, O., Simkin, S., Cooper, J., Klineberg, E., Rodway, C., & Hawton, K. (2013). Time trends in Coroners' use of different verdicts for possible suicides and their impact on officially reported incidence of suicide in England: 1990-2005. *Psychol Med, 43*, 1415-1422. doi:10.1017/S0033291712002401

Gunnell, D., Caul, S., Appleby, L., John, A., & Hawton, K. (2019). The incidence of suicide in University students in England and Wales 2000/2001-2016/2017: record linkage study. *Journal of Affective Disorders, 261*, 113-120. doi:10.1016/j.jad.2019.09.079

Healthcare Quality Improvement Partnership (HQIP). (2017). *National Confidential Inquiry into Suicide and Homicide: Annual Report 2017.* Retrieved from https://www.hqip.org.uk/resource/national-confidential-inquiry-into-suicide-and-homicide-annual-report-2017/#.XOUvV4lKiUl

Higher Education Statistics Agency. (2019). *Higher Education Statistics Agency.* Retrieved July 2019, from Who's Studying in HE?: https://www.hesa.ac.uk/data-and-analysis/students/whos-in-he#

Home Office. (2018, July). *Drug Misuse: Findings from the 2017/18 Crime Survey for England and Wales.* Home Office. doi:ISBN 978-1-78655-690-5

Keith Hawton, H. B. (2012). Suicide and deliberate self-harm in Oxford University students over a 30-year period. *Soc Psychiatry Psychiatr Epidemiol, 47*, 43-51.

Lageborn, C., Ljung, R., Vaez, M., & Dahlin, M. (n.d.). Ongoing university studies and the risk of suicide: a register-based nationwide cohort study of 5 million young and middle aged individuals in Sweden, 1993-2011. *BMJ Open, 7*, e014264. doi:10.1136/bmjopen-2016-014264

NHS Digital. (2016). *Health Survey for England.* NHS Digital. Retrieved from https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/health-survey-for-england-2016

Office for National Statistics. (2018). *Estimating suicide among higher education students, England and Wales: Experimental Statistics.* Office for National Statistics.

Office for National Statistics. (2018). *Number of suicides in higher education students by month of occurrence, deaths registered in England and Wales, 12 months ending July 2001 to 12*

307   *months ending July 2017 combined.* Office for National Statistics. Retrieved August 2018,
308   from https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages

309 Office for Students. (2019, June). *POLAR – Participation of Local Areas*. Retrieved August 1st, 2018,
310   from https://www.officeforstudents.org.uk/data-and-analysis/polar-participation-of-local-
311   areas/

312 Schwartz, A. (2006). College student suicide in the United States: 1990-1991 through 2003-2004. *J*
313   *Am Coll Health, 54*, 341 - 352. doi:doi.org/10.3200/JACH.54.6.341-352

314 Silverman, M., Meyer, P., Sloane, F., Raffel, M., & Pratt, D. (1997). The big ten suicide study: a 10
315   year study of suicides on midwestern university campuses. *Suicide Life Threat Behav, 27*,
316   285-303. doi:doi.org/10.1111/j.1943-278X.1997.tb00411.x|

317 Stanley, N., Mallon, S., Bell, J., & Manthorpe, J. (n.d.). Trapped in transition: findings from a UK study
318   of student suicide. *British Journal of Guidance & Counselling, 37*(4), 419-433.
319   doi:10.1080/03069880903161427

320 Turecki, G., & Brent, D. (2016). Suicide and suicidal behaviour. *Lancet, 387*(10024), 1227-1239.
321   doi:10.1016/S0140-6736(15)00234-2

322 Uchida, C., & Uchida, M. (2017). Characteristics and risk factors for suicide and deaths among college
323   students: a 23-year serial prevalence study of data from 8.2 million Japanese college
324   students. *J Clin Psych, 78*, e404 - e412.

325 UKuni. (2020). *UKuni university rankings*. Retrieved January 15th, 2020, from
326   https://www.ukuni.net/universities

327 Universities and Colleges Admissions Service. (2018). *Sex, area background and ethnic group (End of*
328   *Cycle 2017). UCAS Analysis and Insight.* Retrieved August 1st, 2018, from www.ucas.com.

329 Universities UK. (2018). *Suicide-safer Universities.* Universities UK. Retrieved November 2019, from
330   https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2018/guidance-
331   for-universities-on-preventing-student-suicides.pdf

332 PLACEHOLDER1 university data.

333 University of Manchester. (2017). *Suicide by children and young people. National Confidential Inquiry*
334   *into Suicide and Homicide by People with Mental Illness (NCISH).* Healthcare Quality
335   Improvement Partnership.

336 PLACEHOLDER2 university data

337

338

339

340