

# Depression, Suicidality and Alcohol Abuse among Medical and Business Students

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## Abstract

We determined the prevalence and correlates of depression, alcohol abuse and suicidal ideation among medical and business students in Trinity College, Dublin and University College, Dublin. We rated depression and suicidal ideation in the past month with the Beck Depression Inventory (BDI) and alcohol abuse with the CAGE. Of 539 students registered, 338 (62.7%) responded. 47 (13.9%) students were depressed, scoring 10 on the BDI. 83 (24.6%) students had an alcohol use disorder (CAGE =2). Alcohol abuse was more common among business students than medical students (AOR=2.9; 95% C.I.=1.7–5.1); there were no other inter-faculty differences. 20 (5.9%) students reported suicidal ideation in the last month. Suicidal ideation correlated positively with stressful life events (AOR=1.4; 95% C.I.=1.1–1.7), and negatively with social support (AOR=0.6; 95% C.I.=0.5–0.7). These findings suggest that students are a vulnerable group, and underscore the need for mental health education and psychosocial support services in universities.

## Introduction

There is a popular perception that college days are ‘the happiest days of your life’<sup>1</sup>, but often the evidence does not support this view. In fact, university students around the world are vulnerable to depression, alcohol abuse, and suicidality.<sup>2–4</sup> There are three prima facie reasons for hypothesising that Irish students are at unusually high risk. Firstly, the prevalence of depressive disorder in urban Ireland is high.<sup>5</sup> Secondly, Ireland has the third-highest per capita alcohol consumption in the EU<sup>6</sup> and by far the highest rate of binge drinking.<sup>7</sup> Thirdly, while suicide rates among young adults elsewhere in northern Europe have stabilised<sup>8</sup> or declined,<sup>9</sup> the rate among Irish 15–24 year-olds has increased,<sup>10</sup> and a large proportion of this age group is in full-time education.<sup>11</sup> However, there has been no comprehensive study of psychiatric morbidity among students in Ireland. In this study, 338 medical and business students from two universities in Dublin completed standardised validated questionnaires measuring depression and suicidal ideation, alcohol abuse, and psychosocial variables. The study aims were (1) to determine the rate and correlates of depression, suicidal ideation, and alcohol abuse and (2) To determine whether medical and business students differed in their rates of depression, suicidal ideation, or alcohol abuse.

## Method

The study settings were University College, Dublin (UCD) and Trinity College, Dublin (TCD). We obtained ethical approval in each university. We emailed questionnaires to all students in four pre-final year classes: fifth year Medicine in both universities, third year Business in UCD, and third year Economics in TCD. The total number of students contacted was 539, of whom 317 were in Medicine and 222 in Business. One week after circulating the email, we presented a synopsis of the study at pre-arranged lectures, then distributed and collected the questionnaires. We calculated response rate as the percentage of students registered in the classes who returned study questionnaires rather than the percentage attending these specific lectures who returned the questionnaires; this was in keeping with the methodology of the most similar Irish study, conducted by the National Suicide Research Foundation (NSRF) among students in University College, Cork.<sup>12</sup> Study participation was entirely anonymous: anonymity has been identified as a key issue in studies of student depression, and concerns about lack of anonymity may lead to inaccurate responses.<sup>13</sup> For this reason, we did not collect any demographic or personally identifying data.

To measure depression, we used the Beck Depression Inventory (BDI).<sup>14</sup> Although the BDI is a measure of symptomatic severity rather than a diagnostic measure, it correlates well with other measures of depression in student populations,<sup>15</sup> and is often used as a diagnostic screen.<sup>2</sup> We categorised BDI scores as standard: 0–9 indicated no depression, 10–18 mild depression, 19–29 moderate depression, and 29–63 severe depression. As our measure of suicidal ideation, we used item 9 of the BDI, which is scored 0–3. In keeping with the Europe-wide ODIN study of suicidal ideation,<sup>16</sup> a BDI-9 score of 1 or more was ‘actual suicidal ideation’ and a score of 2–3 was ‘serious suicidal ideation’.<sup>17</sup> Depression and suicidal ideation were rated over the previous month. We assessed alcohol abuse with the CAGE (range 0–4).<sup>18</sup> A score of 2 or more indicated an alcohol use disorder.<sup>19</sup> We measured social support with the Oslo Scale,<sup>19</sup> and used the List of Threatening Experiences scale (LTE)<sup>20</sup> to quantify stressful life events in the past six months. We used univariate analysis to identify unadjusted correlates of outcome variables – BDI total, BDI-9, and CAGE alcohol abuse – then used regression models to determine which correlates independently predicted the outcome (dependent) variables. We excluded BDI total score from regression models with BDI-9 as dependent variable.

## Results

### Characteristics of the sample and response rate

338 students completed and returned the questionnaires, a response rate of 62.7%. Business students were more likely to respond (n=190; 85.5%) than medical students (n=148; 47.6%) (OR=6.8, 95% C.I.=4.4–10.4). There were no significant differences between TCD and UCD medicine or between TCD Economics and UCD Business on any outcome variable. Thus, we considered it valid to treat TCD and UCD medical students as one group (Medicine) and to treat TCD Economics and UCD Business students as one group (Business). Table 1 shows BDI total, BDI-9 and CAGE scores for Medicine and Business.

### BDI Depression: prevalence and correlates

Forty seven (13.9%) students were depressed, and 291 (85.1%) were not. Thirty five (10.4%) students were mildly depressed; 4 (1.2%) moderately; and 8 (2.4%) severely. There was a trend towards a higher prevalence of depression among medical students ( $p=0.09$ ). The mean BDI score was 5.0 (S.D.=7.4; median=3.0); there was no inter-faculty difference in mean BDI ( $p=0.48$ ). Greater depression was associated with lower social support ( $R^2$  change=0.15,  $p<0.001$ ) and a greater number of stressful life events ( $R^2$  change=0.06,  $p<0.001$ ).

### Suicidal ideation: prevalence and correlates

Twenty (5.9%) students had thoughts of suicide in the past month, while 318 (94.1%) students had none. Fourteen (4.1%) students reported suicidal thoughts without intent; and 6 (1.8%) students reported ‘serious suicidal ideation’.<sup>17</sup> Suicidal ideation did not differ between faculties. All suicidal ideation correlated positively with stressful life events (AOR=1.4; 95% C.I.=1.1–1.7) and negatively with social support (AOR=0.2; 95% C.I.=0.1–0.5). Serious suicidal ideation correlated negatively with social support (AOR=0.5, 95% C.I.=0.4–0.7) and positively with CAGE total (AOR=1.9, 95% C.I.=1.0–3.5).

### Alcohol abuse: prevalence and correlates

Eighty three (24.6%) students scored 2 or more on the CAGE, indicating an alcohol use disorder. More business students (n=62; 34.6%) than medical students (n=21; 15.4%) were above the cut-off for alcohol abuse (OR=2.9, 95% C.I.=1.7–5.1), and in multivariate analysis, enrolment in Business was the only predictor of alcohol abuse (AOR=3.0, 95% C.I.=1.7–5.2).

## Discussion

Fourteen per cent of our participants were depressed, and over five per cent reported suicidal thoughts in the past month; a small minority reported serious suicidal ideation. Around a quarter had an alcohol use disorder. The prevalence of depression we found was consistent with that reported in a recent systematic review.<sup>21</sup> The prevalences reported in the literature vary widely,<sup>22</sup> the rate reported here is mid-range. The same can be said of the prevalence of suicidal ideation we found: just over half that found in a landmark study in Atlanta,<sup>23</sup> but three times that reported by the NSRF authors.<sup>12</sup> The rate of serious suicidal ideation we report is comparable to that reported by the ODIN authors.<sup>16</sup> Psychosocial factors were key correlates of depression and suicidality. The variable most strongly correlated with each was social support. Social support appeared to be protective – for instance, as social support increased, depression decreased. The cross-sectional design of this study leaves the question of causality unanswered: it could be that depressed participants underestimated their true level of social support. However, social support is known to be protective against depression.<sup>23,24</sup> Life events also correlated with depression, and life events predicted ‘actual suicidal ideation’ while alcohol abuse was associated with serious suicidal ideation. A correlation between alcohol and suicidality among students is not a novel finding.<sup>25</sup>

The only variable to predict alcohol abuse was faculty, with business students more likely to have an alcohol use disorder than medical students. Three potential reasons suggest them-selves for this finding, which we have not seen elsewhere in the literature. There may be a genuine difference in rates of alcohol abuse, partly explained by demographic differences between faculties. Medical classes typically include more non-EU students than other faculties, and non-EU students may be less likely to drink alcohol. As we did not collect demographic data, we cannot comment definitively. The other potential explanations are the disparity in response rates, leading to selection bias, and differences between faculties in the level of under-reporting. We discuss these below, as limitations of the study.

The principal strength of this study is the sample size, which compares favourably to those in the international literature.<sup>3,26</sup> Secondly, the assessments used were simple, well-validated and wide-ranging, giving a broad picture of students’ psychiatric morbidity and relating this to psychosocial factors. As such, this is the most comprehensive Irish study of psychiatric morbidity among university students: the excellent NSRF study<sup>12</sup> was a fine-grained analysis of suicidality and attitudes towards suicide, which did not refer to clinical correlates such as depression, alcohol abuse or psychosocial stressors. We studied across faculties, to allow results to be generalised more readily than a study of medical students alone.<sup>3,13,21,27</sup> The study was anonymous, with no identifying information collected, to maximise self-report accuracy.<sup>13</sup> The study has a number of limitations. When designing the study, we did not perform a power analysis to estimate the sample size required. Then, a substantial proportion of our initial sample did not respond. Although our overall response rate was superior to numerous major international studies,<sup>28</sup> it was over ten points lower than the NSRF study.<sup>12</sup> We emphasised anonymity<sup>13</sup> to the degree that we did not obtain such demographic data as age, gender and nationality, any of which may have correlated with our outcome variables.

Selection bias must be considered as a potential limitation, and the most notable selection bias was between faculties, with business students much more likely to participate than medical students. In fact, we consider the disparity in response rates to be one of the ancillary findings of the study. There is evidence that medical students who participate in this kind of research under-report symptoms, because of fears of stigmatisation or of documentation of depression on their academic record,<sup>13</sup> but under-reporting for this reason does not appear to have been an issue in our study. There was actually a trend towards higher depression scores among medical students than business students. There is no reason to suspect that medical students would under-report suicidality or alcohol abuse while accurately reporting depression. Overall, selection bias could have skewed our findings if those participants differed from non-participants with respect to the prevalence of psychiatric problems. For example, a student with depression or an alcohol use disorder may have been less likely than a typical student to attend the lecture at which the questionnaires were completed. On the other hand, some non-response was likely due to lack of interest, and students with mental health difficulties may have been more likely to be interested enough to respond. There was no evidence from our results that responders very markedly skewed either direction. A final limitation is that we assessed one-month suicidality rather than one-year or lifetime prevalence, as has been measured in other studies.<sup>26,29</sup> We chose the shorter period as retrospective assessment of suicidality is prone to error through recall bias,<sup>29</sup> and we judged that limiting the assessment period to one month would reduce the likelihood of such error.

In conclusion, many university students in Dublin are experiencing depression, suicidality, and alcohol use problems. Depression and suicidality are clearly associated with stressful life events, and social support appears to be protective. Alcohol abuse is associated with serious suicidal ideation. These findings suggest that students would benefit from an expansion of mental health education, including alcohol education, and psychosocial support services in universities. Further research could use more robust methods of diagnosis and more detailed evaluation of the demographic and psychosocial factors that predict serious mental illness, and elucidate the barriers to mental health research participation that exist among medical students.

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Comments:<br>

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