

## Suicide

# Suicide literacy, suicide stigma and help-seeking intentions in Australian medical students

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## Abstract

**Objective:** The purpose of this study was to measure levels of suicide literacy and stigma amongst Australian medical students in comparison to a general university population, and to assess medical students' help-seeking intentions.

**Method:** A cross-sectional survey was administered to 165 currently-enrolled Australian National University (ANU) postgraduate medical students and 54 final year undergraduate medical students at the University of Adelaide. These samples were compared to another sample of 676 general members of the ANU, undertaken six months earlier.

**Results:** Final year postgraduate and undergraduate students had significantly higher levels of mental health literacy (measured using the Literacy of Suicide Scale) than other medical students or general university staff and students. Suicide stigma (measured using the Stigma of Suicide Scale) was comparable across the samples. Less exposure to suicide was associated with greater stigma and increased intentions of informal help seeking. Students who normalised suicide had significantly lower intentions of seeking help for thoughts of suicide.

**Conclusions:** The findings indicate that exposure to suicidal people through clinical experience may improve knowledge about suicide but may lead to more negative attitudes toward informal help-seeking. The suicide prevention curriculum should aim to raise mental health literacy levels, reduce stigmatising attitudes and limit the normalisation of suicide.

**Keywords:** suicide, medical education, stigma, mental health literacy, help seeking

Suicidal risk has been shown to be significantly higher in doctors relative to the general population. This hazard appears to manifest early, as an increased risk of suicide is already detectable in young doctors who are still training in medical school.<sup>1</sup> Previous research<sup>2</sup> has shown that as many as 14% of medical students experience suicidal ideation during the final year of their medical education, while various other sources attest to a higher suicide rate among medical students compared to their age-matched counterparts in the general population.<sup>1,3</sup> This may be due to a number of factors, including greater overall levels of psychological distress compared to individuals of similar age in the general population,<sup>4</sup> among other risk factors of suicidal ideation such as negative life events, anxiety and depression.<sup>5</sup> Notably, rates of help-seeking are low amongst individuals in the community experiencing suicidal behaviours.<sup>6</sup> Similar patterns of high suicidality and low help-seeking have also been reported among Australian university students.<sup>7</sup>

Mental health literacy refers to public knowledge about mental disorders,<sup>8</sup> while stigma occurs when a defined group is negatively stereotyped in ways that can lead to devaluing, exclusion and discrimination.<sup>9</sup> While both lower mental health literacy levels and stigmatising views held against people who suicide have been previously identified as factors preventing appropriate help-seeking behaviour,<sup>8,9</sup> few focused investigations have been undertaken exploring the levels of mental health literacy and attitudes toward suicide amongst the medical profession. Although physicians have traditionally been shown to be reluctant to seek help despite

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recognition of signs of distress,<sup>2</sup> a link between suicide literacy and help-seeking attitudes has never been explored amongst medical students.

This study aims to measure levels of suicide stigma and suicide literacy of medical students in postgraduate and undergraduate medical programmes and compare them to an existing survey of general university staff and students. The study also aims to further explore the impact of suicide stigma and literacy as predictors of low help-seeking behaviour amongst the younger members of the medical profession.

## Methods

### Participants and procedure

A cohort of postgraduate medical students currently enrolled in the Bachelor of Medicine, Bachelor of Surgery degree at the Australian National University (ANU) were invited to complete a cross-sectional online survey via e-mail invitation in April 2012. The medical programme is structured such that the first two years of study are spent studying medical and clinical sciences on a teaching campus, while the latter two years are spent in hospital-based clinical rotations. At the time of recruitment, approximately one-quarter of the students in fourth year would have completed a psychiatric placement, while approximately one-quarter of the students in third year and all fourth year students would have completed a general practice placement. Among the 165 students (46% of all medical students) who commenced the survey, 151 (92%) completed the literacy scale, 143 (87%) completed the stigma scale and 141 (85%) completed the full survey. Completion of the survey was required in one sitting and responses were collected anonymously. As an incentive to complete the survey, three participants were given movie passes, selected randomly from respondents who voluntarily provided an e-mail address at the end of the survey.

The undergraduate medical school sample consisted of students enrolled in the final year of the Bachelor of Medicine and Bachelor of Surgery programme at the University of Adelaide. This undergraduate six-year programme consists of two years of case-based, small-group learning with clinical practice tutorials (years 1–2), clinical skills training in teaching hospitals (year 3) and three years of core and elective clinical placements in teaching hospitals and community practice in both urban and rural locations (years 4–6). All undergraduate participants in the current study had completed placements in psychiatry and general practice. All students ( $n=55$ ) undertaking psychiatry placements between February–May 2013 were invited to complete the survey during the final session of their placement. Participants completed a pencil-and-paper version of the survey during class, with only one participant not completing the literacy scale.

The comparative general university survey is described elsewhere.<sup>10</sup> Briefly, staff (20% of the sample) and

students (80%) in the science colleges at the ANU were invited to complete an anonymous survey in response to an e-mail invitation sent in March 2010. In total, 789 (approximately 29% of all staff and students) commenced the survey, with 676 (86%) completing the stigma scale and 658 (83%) completing the literacy scale.

Upon completing the survey, all participants were supplied with information relating to help-seeking and counselling services. Ethical approval for the graduate medical research and general university data collections was obtained from the Human Research Ethics Committee of the ANU (protocols 2011/502 and 2010/491), while approval for the undergraduate medical student sample was obtained from the Human Research Ethics Committee of the University of Adelaide.

### Measures

The Stigma of Suicide Scale (SOSS) developed by Batterham et. al.<sup>10</sup> was used to measure levels of stigma among the respondents in this survey. The scale uses a five-point scale (strongly disagree, disagree, neutral, agree, strongly agree) to rate a number of single- or two-word item descriptors of a person who completes suicide. Previous factor analysis showed that the list of 58 positive and negative descriptors form three subscales: stigma (e.g. 'weak', 'punishing others', 'useless'); attribution of suicide to isolation or depression (e.g. 'disconnected', 'alienated'); and glorification or normalisation of suicide (e.g. 'noble', 'understandable'). In the present sample, the three subscales showed high internal consistency with Cronbach's alpha of 0.95, 0.90 and 0.88 respectively, and 0.93 overall. The three factors accounted for 46% of total variance, and all items loaded at least 0.45 on a single factor. The three subscales were scored as the mean response to items loading on each subscale.

In gauging the levels of suicide literacy amongst the respondents, a 27-item Literacy of Suicide Scale (LOSS) constructed by Calear et. al. (unpublished) was also included in the survey. This scale comprises 12 items from the Hubbard and McIntosh Revised Facts on Suicide (RFOS) Quiz,<sup>11</sup> as well as other items added to more thoroughly assess the four domains of suicide literacy as recognised by Jorm<sup>12</sup>: (a) signs and symptoms, (b) causes of the nature of suicidality, (c) risk factors, and (d) treatment and prevention. Each of the 27 items included in the LOSS (Table 1) are answered as 'True', 'False' or 'I don't know'. Correct responses are scored 1, while incorrect or 'I don't know' responses are scored 0. Literacy scores are the sum of correct items, with higher scores indicating higher suicide literacy. The LOSS has previously been validated using an item-response theory approach, as items from the scale have correct or incorrect answers. Nevertheless, the Cronbach's alpha for the scale in the present sample was 0.71.

Lastly, intentions to seek help from various sources if the respondent were to experience suicidal thoughts

**Table 1. Items in the Literacy of Suicide Scale (LOSS), with correct answers and percentage of correctly-answered responses (n=197)**

<i>Item</i>	<i>Theme<sup>a</sup></i>	<i>n correct</i>	<i>% correct</i>
If you asked someone directly 'Do you feel like killing yourself?' it will likely lead that person to make a suicide attempt (F)	C/N	182	92.4
Those who attempt suicide do so only to manipulate others and attract attention to themselves (F)	C/N	167	84.8
Very few people have thoughts about suicide (F)	C/N	163	82.7
If assessed by a psychiatrist, everyone who suicides would be diagnosed as depressed (F)	C/N	157	79.7
A suicidal person will always be suicidal and entertain thoughts of suicide (F)	C/N	156	79.2
Talking about suicide always increases the risk of suicide (F)	C/N	150	76.1
Motives and causes of suicide are readily and easily established (F)	C/N	147	74.6
Media coverage of suicide will inevitably encourage other people to attempt suicide (F)	C/N	122	61.9
Most people who attempt suicide fail to kill themselves (T)	C/N	88	44.7
A person who suicides is mentally ill (F)	C/N	87	44.2
Most people who suicide are psychotic (F)	RF	178	90.4
People with relationship problems or financial problems have a higher risk of suicide (T)	RF	165	83.8
A person who has made a past suicide attempt is more likely to attempt suicide again than someone who has never attempted (T)	RF	147	74.6
Men are more likely to suicide than women (T)	RF	123	62.8
People who are anxious or agitated have a higher risk of suicide (T)	RF	108	54.8
There is a strong relationship between alcoholism and suicide (T)	RF	104	52.8
Most people who suicide are younger than 30 (F)	RF	61	31.0
Not all people who attempt suicide plan their attempt in advance (T)	S	157	79.7
People who talk about suicide rarely commit suicide (F)	S	97	49.2
People who want to attempt suicide can change their mind quickly (T)	S	95	48.2
Most people who suicide don't make future plans (F)	S	84	42.6
Suicide rarely happens without warning (T)	S	70	35.5
A time of high suicide risk in depression is at the time when the person begins to improve (T)	S	56	28.4
Nothing can be done to stop people from making the attempt once they have made up their minds to kill themselves (F)	T/P	191	97.0
Only experts can help people who want to suicide (F)	T/P	191	97.0
People who have thoughts about suicide should not tell others about it (F)	T/P	186	94.4
Seeing a psychiatrist or psychologist can help prevent someone from suicide (T)	T/P	169	85.8

T and F denote 'True' and 'False' as the correct answer to the corresponding question, respectively.

<sup>a</sup>Items under this column are represented as follows: T/P: treatment/prevention; C/N: causes/nature; RF: risk factors; S: signs.

were assessed, based on the General Help-Seeking Questionnaire<sup>13</sup> using the question 'If you were experiencing suicidal thoughts, how likely is it that you would seek help from the following people?'. The sources were categorised as formal help (from general practitioners, anonymous phone hotlines, mental health professionals), informal help (from a partner, friend, parent, other family member, colleague) and no help sought ('none of the above'), with each item rated

on a four-point scale from 'highly unlikely' (1) to 'highly likely' (4). Intention to seek formal or informal help was assessed as the mean response to the respective items in these categories.

### Analysis

Responses of medical students to items on the SOSS and LOSS were described and compared to those obtained

**Table 2. Comparison of performance on different themes of the Literacy of Suicide Scale**

<i>Theme</i>	<i>Number of items</i>	<i>Mean % correct (SD)</i>			<i>F</i>	<i>p</i>
		<i>General university population</i>	<i>Postgraduate medical students</i>	<i>Undergraduate medical students</i>		
Signs	6	45.0 (22.6)	43.2 (17.9)	58.3 (19.6)	10.365	<0.001
Risk factors	7	55.6 (22.4)	59.5 (21.9)	77.1 (13.8)	24.735	<0.001
Causes/triggers	10	67.5 (21.7)	70.8 (17.0)	75.4 (17.3)	4.353	0.013
Treatment/prevention	4	91.0 (16.5)	92.5 (6.7)	96.3 (9.0)	3.473	0.031

SD: standard deviation.

from the general university sample using independent samples *t*-tests. Linear regression models were used to identify correlates of suicide literacy and suicide attitudes, and to identify relationships with help seeking intentions. All available data were used for each analysis, with case-wise deletion of missing observations. SPSS v20 was used for all analyses.

## Results

The age range of the ANU medical student sample was 19–42 years (mean 25.0), 55% were female and 73% spoke English as their first language. The distribution of medical school experience was fairly uniform, with 27% in first year, 32% in second year, 20% in third year and 20% in fourth year. The undergraduate sample from the University of Adelaide had age range 22–26 years (mean 24.7), 50% were female and 80% spoke English as their first language, with no significant distribution differences to the ANU medical students. Factor structures for the stigma items were identical across the samples, and endorsement of stigma and literacy items followed similar patterns between the undergraduate and postgraduate samples. Therefore, the analyses of scale performance described below used combined medical student samples, while regression analyses modelled sample as an independent variable. The comparison university sample trended older (17% aged over 35) with a higher proportion of females (67%) and a similar proportion of native English speakers (81%).

### Literacy of suicide

Table 1 presents the items in the LOSS with correct answers indicated and rates of correct responses shown. The mean number of correct responses on the LOSS scale was 17.5 (standard deviation (SD)=4.0) among the postgraduate medical students, 20.4 (SD=2.9) among the undergraduate medical students, and 17.0 (SD=4.2) in the general university survey.<sup>10</sup> The undergraduate medical students had significantly higher scores than the postgraduate ( $t=4.74$ ,  $df=194$ ,  $p<0.001$ ) and general uni-

versity ( $t=5.83$ ,  $df=710$ ,  $p<0.001$ ) samples, while there was no significant difference between the postgraduate and general university samples ( $t=1.47$ ,  $df=798$ ,  $p=0.142$ ). A further breakdown of the two populations' responses to the LOSS by question theme revealed a similar pattern of differences (Table 2). All samples performed most poorly in recognising the signs of suicidality.

Based on the regression analysis in Table 3, medical students who attributed suicidal ideation to isolation and depression had significantly better performance on the LOSS. Additionally, fourth year medical students, undergraduate (sixth year) students and native English-speaking students also had significantly better performance on the LOSS.

### Stigma and attitudes toward suicide

No significant differences were found between the postgraduate medical student and general university populations<sup>10</sup> for either of the three subscales of the SOSS, based on scores for stigmatising attitudes ( $t=0.955$ ,  $df=921$ ,  $p=0.340$ ), attribution to isolation ( $t=1.347$ ,  $df=922$ ,  $p=0.178$ ) and normalisation ( $t=1.413$ ,  $df=921$ ,  $p=0.158$ ). There were no differences between postgraduate and undergraduate samples on the stigma subscale ( $t=0.763$ ,  $df=203$ ,  $p=0.446$ ) and isolation subscale ( $t=0.177$ ,  $df=203$ ,  $p=0.860$ ), although significantly higher levels of normalisation in the postgraduate sample compared to the undergraduates ( $t=2.945$ ,  $df=203$ ,  $p=0.004$ ). While there were some variations seen in the rates at which less strongly stigmatising descriptors such as 'selfish' and 'hurtful' were used by these three samples to describe people who suicide, stronger descriptors such as 'evil', 'barbaric' and 'arrogant' remained least endorsed in all samples (Table 4).

Based on a linear regression model (Table 5), respondents who had prior exposure to suicide had less stigma toward people who suicide. However, respondents who did not speak English as a first language were found to have more stigmatising attitudes. While medical students who scored higher on the LOSS more strongly attributed suicidal

**Table 3. Associations between characteristics of medical students and performance on the Literacy of Suicide Scale (LOSS) (*n*=194)**

<i>Factor</i>	<i>Estimate</i>	<i>SE</i>	<i>t</i>	<i>p</i>
(Constant)	15.01	3.11		
SOSS stigma score	-0.27	0.42	-0.63	0.527
SOSS isolation/depression score	1.40	0.51	2.75	<b>0.007</b>
SOSS normalisation/glorification score	0.18	0.44	0.41	0.683
Marital status: single vs partnered	-0.39	0.48	-0.82	0.414
Marital status: divorced vs partnered	-1.20	2.48	-0.48	0.630
Year of medicine: 2 vs 1	0.71	0.72	0.99	0.323
Year of medicine: 3 vs 1	1.16	0.78	1.48	0.140
Year of medicine: 4 vs 1	4.86	0.82	5.91	<b>&lt;0.001</b>
Year of medicine: 6 (undergrad sample) vs 1	4.19	0.69	6.09	<b>&lt;0.001</b>
Exposure to suicide	0.16	0.12	1.32	0.187
Gender: male vs female	0.55	0.48	1.14	0.255
Age	-0.12	0.06	-1.91	0.058
English not only language (vs only English-speaking)	-2.11	0.58	-3.65	<b>&lt;0.001</b>

SOSS: Stigma of Suicide Scale.

behaviour to isolation and depression, students in later years of medical school, particularly those in the undergraduate sample, were less likely to associate suicide with these traits.

### Intentions to seek help

None of the measured characteristics of the medical student samples (Table 6) was significantly associated with intention to seek formal help when experiencing suicidal ideation. There was however an association between previous exposure to suicide and a lesser likelihood of informal help-seeking. A strong association was also observed between individuals who normalise or glorify suicide and having a greater propensity to not seek any help when experiencing suicidal ideation.

### Discussion

Significant differences in suicide literacy were found only between medical students toward the end of their degree programme and the general university population. Based on the present findings, Australian medical students only appear to develop in their levels of suicide literacy after they have been exposed to patients through clinical placements. Medical students, particularly those in the postgraduate programme, appeared to have difficulty in recognising signs of distress and risk factors associated with suicidal behaviour. In line with the literature on mental health literacy<sup>14</sup> poor recognition of warning signs and understanding of suicide risk factors may lead to a lower likelihood of early detection and

help-seeking. These unremarkable suicide literacy scores in medical students may reflect the lack of emphasis on mental health and psychological concepts during the early, unspecialised stages of medical training, or may suggest that preliminary knowledge of psychological disorders does not necessarily increase mental health literacy levels relative to an untrained population. Thus there may be a need for psychoeducation for medical students, targeted to earlier sections of the course and supplementary to the academic curriculum.

In addition to better suicide literacy, lower levels of stigma were also evident amongst respondents with previous exposure to people who had experienced suicidal behaviours. Personal contact with individuals with mental disorders may generate more empathy and allow for greater understanding of the condition in light of patients' circumstances, which may in turn lead to less judgemental attitudes compared to students who have merely read about it.<sup>15</sup> Medical students with higher suicide literacy scores tended to attribute suicide to depression and isolation, an attribution widely held to be accurate.<sup>16,17</sup> Interestingly however, later year medical students, particularly those in the undergraduate programme, were less likely to associate suicidal behaviour with isolation and depression. All undergraduate students had completed placements in psychiatry and general practice, while a proportion of final year postgraduate students had completed similar placements. The shift in attitudes may therefore reflect an emotional desensitisation following observation or interaction with repeat suicidal patients on the wards, particularly among students who have completed a psychiatry placement. This is in contrast to a



**Table 4. Percentage of endorsement (agree/strongly) and mean ratings for each item in the Stigma of Suicide Scale (SOSS) in the medical student samples ( $n=205$ )**

<i>Item</i>	<i>Agreement %</i>	<i>Mean (SD)</i>	<i>Item</i>	<i>Agreement %</i>	<i>Mean (SD)</i>
<b><i>Stigma items</i></b>			<b><i>Isolation/depression items</i></b>		
Selfish	36.5	3.03 (1.03)	Unhappy	95.5	4.42 (0.58)
Reckless	30.5	2.94 (0.95)	Depressed	94.6	4.47 (0.61)
Hurtful	26.8	2.82 (1.05)	Sad	93.0	4.20 (0.60)
Irresponsible	23.9	2.77 (1.02)	In Pain	89.8	4.28 (0.72)
Punishing Others	21.5	2.67 (1.00)	Lonely	87.3	4.07 (0.68)
Cowardly	21.5	2.64 (1.08)	Isolated	85.4	4.09 (0.69)
Weak	20.1	2.67 (0.94)	Hurt	84.9	4.06 (0.62)
Senseless	17.5	2.69 (0.90)	Disconnected	84.4	4.09 (0.69)
A burden	16.6	2.34 (1.07)	Lost	83.4	4.04 (0.73)
Attention-seeking	16.6	2.56 (0.91)	Miserable	83.4	4.16 (0.76)
Unjustifiable	14.6	2.55 (0.96)	Trapped	81.4	3.95 (0.78)
Unfair	14.6	2.64 (0.87)	Alienated	75.1	3.85 (0.77)
Cruel	13.7	2.38 (0.97)	Withdrawn	74.9	3.86 (0.74)
Ignorant	12.2	2.55 (0.90)	Broken	74.6	3.86 (0.91)
Stupid	12.1	2.25 (0.97)	Cut-off	68.8	3.73 (0.82)
Shameful	10.0	2.21 (0.95)	Disturbed	58.5	3.56 (0.90)
Unnatural	9.5	2.27 (0.95)			
Failures	7.8	2.00 (0.99)	<b><i>Glorification/normalisation items</i></b>		
Strange	7.0	2.26 (0.88)	Understandable	20.6	2.80 (0.95)
Shallow	6.5	2.26 (0.83)	Committed	12.7	2.63 (0.89)
Vengeful	5.5	2.22 (0.85)	Brave	10.7	2.23 (0.96)
An embarrassment	5.4	1.89 (0.91)	Motivated	9.5	2.42 (0.87)
Useless	4.5	1.98 (0.86)	Dedicated	5.9	2.45 (0.81)
Unforgivable	4.5	2.03 (0.89)	Realistic	3.5	2.13 (0.80)
Pathetic	4.5	2.09 (0.81)	Rational	3.5	2.04 (0.83)
Violent	3.0	2.22 (0.80)	Fearless	3.4	2.03 (0.85)
Lazy	2.9	2.06 (0.78)	Strong	2.0	2.12 (0.82)
Immoral	2.0	1.94 (0.84)	Powerful	1.5	1.99 (0.73)
Arrogant	1.0	2.00 (0.72)	Noble	0.5	1.98 (0.74)
Evil	1.0	1.49 (0.73)			
Barbaric	0.5	1.86 (0.75)			

SD: standard deviation.

previous study of final year Swedish medical students, who attributed suicide as being less an individual's responsibility and more an expression of psychiatric illness.<sup>18</sup>

Students who did not speak English as a first language at home were also found to be more stigmatising towards people who die by suicide, consistent with previous findings amongst the general university population.<sup>10</sup> This finding may reflect lower acceptability of suicide in some cultures and may indicate a need for culturally-sensitive suicide intervention programmes.<sup>19</sup>

Students with previous exposure to suicide were found to be less likely to seek informal help from colleagues, friends or family. This reluctance may stem from a belief that informal advice from relatively inexperienced sources is unhelpful, or a reluctance to reach out to colleagues when these personal experiences may be deemed to compromise their competence in medical practice. Respondents who tended to normalise or glorify suicide were significantly more likely to not seek help at all, suggesting that respondents who view people who die by suicide as 'brave' or 'strong' may believe that

**Table 5. Associations between sample characteristics with performance on the Stigma of Suicide Scale (SOSS) subscales among medical students ( $n=194$ )**

	<i>Stigma</i>		<i>Isolation/ depression</i>		<i>Normalisation/ glorification</i>	
	<i>Estimate</i>	<i>p</i>	<i>Estimate</i>	<i>p</i>	<i>Estimate</i>	<i>p</i>
(Constant)	2.057		3.495		1.847	
LOSS score	-0.006	0.619	0.028	<b>0.007</b>	0.001	0.939
Marital status: single vs partnered	0.005	0.950	-0.062	0.367	0.089	0.273
Marital status: divorced vs partnered	-0.828	0.058	0.122	0.727	-0.814	0.051
Year of medicine: 2 vs 1	0.140	0.269	-0.189	0.064	0.213	0.079
Year of medicine: 3 vs 1	0.053	0.704	-0.154	0.172	-0.044	0.740
Year of medicine: 4 vs 1	-0.063	0.691	-0.225	0.080	0.006	0.970
Year of medicine: 6 (undergrad) vs 1	0.014	0.917	-0.234	<b>0.029</b>	-0.179	0.158
Exposure to suicide	-0.050	<b>0.019</b>	-0.002	0.915	0.002	0.938
Gender: male vs female	0.134	0.116	-0.043	0.530	-0.032	0.697
Age	0.006	0.627	0.006	0.498	0.015	0.162
English not only language (vs only English-speaking)	0.222	<b>0.035</b>	0.113	0.181	0.016	0.876

LOSS: Literacy of Suicide Scale.

**Table 6. Associations between Stigma of Suicide Scale (SOSS)/Literacy of Suicide Scale (LOSS) scores and individual characteristics with help-seeking intentions among medical students ( $n=194$ )**

	<i>Formal help</i>		<i>Informal help</i>		<i>No help</i>	
	<i>Estimate</i>	<i>p</i>	<i>Estimate</i>	<i>p</i>	<i>Estimate</i>	<i>p</i>
(Constant)	3.023		2.634		-0.255	
SOSS: stigma	-0.137	0.170	-0.002	0.982	0.044	0.673
SOSS: isolation/depression	-0.049	0.689	-0.017	0.858	0.121	0.339
SOSS: normalisation/glorification	0.006	0.955	-0.056	0.489	0.431	<b>&lt;0.001</b>
Suicide literacy score	0.029	0.099	0.025	0.071	-0.012	0.517
Marital status: single vs partnered	0.066	0.559	-0.005	0.957	0.022	0.848
Marital status: divorced vs partnered	-0.082	0.889	-0.347	0.446	-0.508	0.401
Year of medicine: 2 vs 1	0.187	0.271	-0.037	0.779	0.012	0.945
Year of medicine: 3 vs 1	0.059	0.749	-0.072	0.618	0.118	0.539
Year of medicine: 4 vs 1	0.155	0.466	-0.158	0.339	0.252	0.251
Year of medicine: 6 (undergrad) vs 1	0.199	0.266	0.047	0.733	-0.013	0.942
Exposure to suicide	-0.006	0.834	-0.050	<b>0.023</b>	0.007	0.804
Gender: male vs female	-0.016	0.885	-0.045	0.610	0.142	0.228
Age	-0.013	0.400	0.006	0.621	0.009	0.571
English not first language at home (vs English speaking)	-0.161	0.255	-0.223	0.043	0.036	0.805

help-seeking is a sign of weakness. Further research should examine whether modifying the normalisation of suicide leads to greater intentions to seek help.

The present study is limited by the response rates for the ANU cohorts, which may also limit the generalisability of the findings to other university and medical student

samples, such that selection bias may be associated with inaccurate estimates of literacy and stigma in the post-graduate and general university samples. In addition, as age, ethnicity and educational accomplishments are shown to affect levels of depression stigma,<sup>20</sup> the reliability of results would benefit from a broader distribution of these attributes. Expansion of this research to students from additional medical schools, students from other disciplines and additional comparison groups may further inform the present findings.

## Conclusion

The findings indicate that exposure to suicidal people may improve knowledge about suicide but may lead to more negative attitudes to informal help-seeking. The suicide prevention curriculum should focus on psychoeducational interventions targeted at medical students early in their careers, thus raising mental health literacy levels, reducing stigmatising attitudes and limiting the normalisation/glorification of suicide. Such interventions may lead to better care for people with suicidality and may curtail rates of medical student suicide.

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