Who are the kids who self-harm? An Australian self-report school survey

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ABSTRACT

Objective: To determine the prevalence and types of deliberate self-harm (DSH) in adolescents, and associated factors.

Design: A cross-sectional questionnaire study.

Participants and setting: 3757 of 4097 Year 10 and Year 11 students (91.7%) from 14 high schools on the Gold Coast, Queensland, during September 2002.

Main outcome measures: DSH behaviour, including descriptions of the last act, psychological symptoms, recent stressors, coping styles, help-seeking behaviour, lifestyle choices, and self-prescribing of medications.

Results: 233 students (6.2%) met the criteria for DSH in the previous 12 months, with DSH more prevalent in females than males (OR, 7.5; 95% CI, 5.1–10.9). The main methods were self-cutting (138 respondents; 59.2%) and overdosing with medication (69 respondents; 29.6%). Factors associated with DSH included similar behaviours in friends or family, coping by self-blame, and self-prescribing of medications. Most self-harmers did not seek help before or after their most recent action, with those who did primarily consulting friends.

Conclusions: DSH is common in Australian youth, especially in females. Preventive programs should encourage young people to consult health professionals in stressful situations.

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Suicidal behaviour in adolescents is common,[1] and suicide is the leading cause of death in young Australians.[2] More startling is the number of young Australians who deliberately self-harm, with adolescent females engaging in substantially more acts of deliberate self-harm than males do.[3]

In recent years, community surveys have been conducted to assess suicidal behaviours in Australian youth.[4] This method of data collection allows for population-based comparisons between people who report self-harm and those who do not. In a Queensland study, more than 60% of university-age students reported suicidal ideation, with 6.6% stating that they had performed at least one act of self-harm.[5]

Despite advances in research into suicidal behaviours, a lack of consistent and analytically useful data has inhibited knowledge. Moreover, varying definitions have prevented useful comparisons of studies. As part of the current investigation, the Child and Adolescent Self-harm in Europe (CASE) group (www.ncb.org.uk/projects/project_detail.asp?ProjectNo=145) has developed a definition consisting of predetermined criteria as to what constitutes an act of self-harm (Box 1). The Australian Institute for Suicide Research and Prevention is the only collaborator in this multisite study outside Europe.

The aim of this study was to examine the factors associated with adolescent self-harm in an Australian population and to better understand adolescents' motivations for self-harm. Furthermore, we aimed to report on the extent to which self-harm is hidden within the community by identifying the proportion of self-reported self-harm episodes that are not presented at hospitals or mental health services. Coping strategies and help-seeking behaviour were also examined.[6]

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METHODS

Sampling

The Gold Coast, in Queensland, has a population of about 425 000.[7] All 29 coeducational schools (15 government, 14 independent) on the Gold Coast were approached to participate in the study, and 14 schools (10 government, 4 independent) agreed to take part. Reasons for non-participation included only having students up to Year 9 enrolled, schools not wanting interruptions to their curriculum, and refusal to allow material regarding suicidal behaviours to be given to students. All students enrolled in Year 10 and Year 11 from these 14 schools were invited to participate ($n = 4097$). A consent form was developed to provide an "opt out" option whereby parents who did not wish their children to participate were required to return the consent form.

Survey instrument

The 131-item instrument internationally developed for the CASE study ("Lifestyle and Coping Questionnaire") investigates sociodemography, lifestyle choices, recent stressors, suicidal thoughts and behaviours, personality items, and coping techniques. The Australian version includes a set of questions investigating self-prescribing of medication. Three standardised scales were also included: the Hospital Anxiety and Depression Scale,[8] Plutchik's Impulsivity Scale,[9] and an abridged version of the Self Concept Scale.[10] The item of interest for the current study regarding deliberate self-harm (DSH) was "Have you ever deliberately taken an overdose (e.g. of pills or other medication) or tried to harm yourself in some other way (such as cut yourself)?". Response options were "No", "Yes, once", and "Yes, more than once". Students who indicated a history of at least one DSH episode completed a series of questions about their *most recent* DSH episode. These included an open-ended description of the DSH, when the last episode took place, motives for the actions, help-seeking behaviour, and hospitalisation after the act.

Procedure

Ethics approval was gained from the Griffith University Human Ethics Committee and the Gold Coast Health District Ethics Committee before data collection began. Participants completed the questionnaire in group settings between 1 and 30 September 2002. Anonymity and confidentiality were assured by test administrators. The survey took

1 The definition of deliberate self-harm used by the Child and Adolescent Self-harm in Europe group[6]

An act with a non-fatal outcome in which an individual deliberately did one or more of the following:

- Initiated behaviour (for example, self cutting, jumping from a height), which they intended to cause self-harm;
- Ingested a substance in excess of the prescribed or generally recognised therapeutic dose;
- Ingested a recreational or illicit drug that was an act that the person regarded as self-harm;
- Ingested a non-ingestible substance or object.

about 30 minutes to complete, and researchers were available to discuss any questions at all times during the survey administration. Participants were advised of available clinical services, and a clinical psychologist was present at all testing sessions. Immediately following the survey administration, students were involved in focus-group discussions regarding the content and administration of the questionnaire.

Data treatment

For students who indicated a history of DSH, a member of the research team (TSH) evaluated the open-ended description of the act to determine if the incident matched the CASE definition. Responses were coded as "Definitely DSH", "Not DSH", "Undecided", or "No DSH information given". An additional researcher independently examined cases that were deemed "Undecided", and a consensus decision was made. Ingestion of any amount of illicit drugs (in answer to general lifestyle questions) was considered to be in excess. However, this was only considered "Definitely DSH" when the respondent indicated that he or she had used illicit drugs specifically in response to questions on their DSH episode.

Statistical techniques used included descriptive statistics, cross-tabulations, χ^2 test of independence, and multiple logistic regression. For all analyses, significance was taken as $P < 0.01$, and 95% confidence intervals were calculated where necessary. Backward-selection multiple logistic regression was used to identify a list of associated factors (including recent life events, psychopathology, coping strategies, and lifestyle choices) at the $P < 0.01$ level.[11] We analysed the data with SPSS.[12]

Factors that were adjusted for in the multiple logistic regression are listed in Box 2.

RESULTS

Sample

On the day that their schools completed the questionnaire in September 2002, 3767 students were in attendance. Ten students did not participate because their parents refused consent. The 8% absenteeism rate was normal, so there appeared to be no effect on attendance levels because of the study taking place. Overall, the response rate was 91.7% (3757/4097).

Participants did not differ significantly from adolescents across Queensland or Australia in terms of sex distribution, proportion of population, or enrolments at types of educational institution, except that the Gold Coast had fewer Catholic school enrolments, and more independent school enrolments (Box 3).[13]

Given a conservative postulated prevalence of 4% for DSH (based on previous findings[14]), with a 95% confidence interval of 3.4% to 4.6%, the final sample approximated the expected sample of 4000.

Prevalence of DSH

The average age of respondents was 15.4 years (95% CI, 15.37–15.42 years). A lifetime history of DSH was reported by 464 of 3757 students (12.4%). DSH in the previous 12 months was reported by 317 students (8.4%), of whom 233 (6.2% of total) described an act that satisfied our criteria. Forty-one per cent of males (23 of 56) who reported self-harm in the previous year did not include a description of their episode, and could not be matched against the study criteria, compared with 16% (41 of 259) of females.

Among those who described DSH episodes fitting our criteria, females (200 of 1800; 11.1%) were more likely than males (33 of 1943; 1.6%) to have self-harmed in the previous year (OR, 7.5; 95% CI, 5.1–10.9). For 24 respondents (10.3%), DSH had resulted in hospital presentation.

The main methods used for the 233 DSH episodes were cutting (138; 59.2%), overdose of medication (69; 29.6%), illicit drugs (7; 3.0%), self-battery (5; 2.2%), hanging (4; 1.7%), and sniffing/inhalation (4; 1.7%). For statistical purposes, all methods other than self-cutting and overdose were aggregated to form one category of "other" methods. There was no association between the methods of DSH and frequency of hospital presentation ($\chi^2 = 0.93$, df = 2, $P = 0.629$).

Factors associated with DSH

Insufficient numbers of males meeting the DSH criteria prevented a direct comparison of potential interactions between sex and other variables. Therefore, multivariate analyses were conducted for females alone, and for total respondents, to determine the contribution of adding males to the equation.

In multiple logistic regression, factors significantly associated with increased deliberate self-harm ($P < 0.01$) in the previous year in females were exposure to self-harm in friends or family members, sexual orientation worries, smoking (fewer than 5 cigarettes per week), low self-esteem, and "other" distressing events (Box 4). For the total sample, exposure to self-harm in

2 Factors adjusted for in the multiple logistic regression

- Living situation
- Healthy food consumption
- Regularity of exercise
- Use of alcohol, cannabis, "ecstasy", heroin, amphetamines, other drugs, in the past year
- Problems keeping up with schoolwork
- Difficulty making friends
- Arguments with friends
- Serious boyfriend/girlfriend problems
- Been bullied at school
- History of physical or sexual abuse
- Trouble with police
- Parents separated/divorced
- Serious arguments with parents
- Fights between parents
- Self, family member or close friend suffered serious illness
- Death of immediate family member or close others
- Suicide of family member or friend
- DSH by family member or friend
- Worries about sexual orientation
- Other distressing events not specified
- Psychological factors (impulsivity, self-esteem, depression, anxiety)
- Coping style (talking to someone, blaming self, getting angry, staying in room, thinking how similar situations were dealt with, drinking alcohol, not thinking about what is worrying them, trying to sort things out)
- Self-prescribing medication

3 Characteristics of Gold Coast population (14–18-year-olds) compared with Queensland and Australia

	Gold Coast	Queensland	Australia
Proportion of total population	*n* = 396 588	*n* = 3 655 139	*n* = 18 972 350
Male	6.30%	7.29%	7.26%
Female	5.66%	6.80%	6.74%
Total	5.97%	7.04%	7.00%
Sex distribution among 14–18-year-olds	*n* = 23 679	*n* = 257 438	*n* = 1 327 253
Male	51.31%	51.18%	51.21%
Female	48.69%	48.82%	48.79%
Proportion of students at types of secondary schools			
Government	59.89%	62.94%	62.71%
Catholic	11.03%	18.86%	21.37%
Other	29.08%	18.20%	15.92%

friends or family members, smoking (fewer than 5 cigarettes per week), boyfriend/girlfriend problems, amphetamine use, self-prescribing medication, coping by blaming self for getting in distressing situations, and "other" distressing events were significantly associated with DSH (Box 4). Living with one parent was associated with lower rates of DSH for females and for the total sample.

Time to engage in DSH

More than a third of respondents (36.1%; 84 of 233) engaged in self-harm less than an hour after first thinking of doing so, and an additional 30 respondents (12.9%) thought about harming themselves for between 1 and 24 hours before taking action. Conversely, 20.6% (48 of 233) had thought about harming themselves for more than 1 month before acting. The method of DSH did not vary according to the length of time that self-harmers thought about their actions ($P = 0.402$).

Help-seeking behaviours

Help-seeking behaviours of self-harmers were very similar before and after the most recent instance of DSH, with friends the preferred source of help (Box 5). There was no sex difference among respondents who sought help before DSH (89 females, 15 males; $P = 0.802$); however, there was a non-significant trend for females to seek help from telephone helplines (8/89 [9.0%] females, 0 males; $P = 0.227$) and teachers (6/89 [6.7%] females, 0 males; $P = 0.300$). Friends (61.4%) and mother (18.5%) were most likely to know that the respondent had self-harmed, and few GPs (2.6%) or mental health workers (7.3%) were made aware of these actions.

DISCUSSION

In this study, prevalence rates (6.2% of total sample; 11.1% of females) were consistent with those of a recent English study using the same criteria for DSH.[6] As only 10.3% of the self-harmers in our study presented for hospital treatment, it appears that investigations of DSH based on monitoring studies of adolescents severely under-report the extent of the problem. Self-cutting and overdose were the most common methods of self-harm, consistent with previous community-based investigations.[15,16]

The factors that had the strongest association with DSH were exposure to self-harm in family and in friends. The Gold Coast Health District Ethics Committee did not permit the coding of individual schools, because schools felt their anonymity may be compromised. Therefore, it was not possible to determine if there was a school-based clustering of DSH. "Copycat" DSH has been shown to increase suicide[17] and self-harm[18,19] in adolescent populations; however, despite the lack of specific assessment in the current study, it is reasonable to assume that this was not the case because of the similarly weighted prevalence of DSH by family members, which would not have the same type of contagion effects.

Most students who had self-harmed did not seek help for the problems that preceded their act. However, those who did seek help (before and after the act) consulted their friends and family in preference to medical and mental health services. Telephone counsellors were used by a very small proportion of self-harmers, despite the attention and funding given to this service as a component of Australia's National Youth Suicide Prevention Strategy since 1995.[20] Given the lack of evidence of any effect on suicide rates for these services,[21] perhaps a comprehensive evaluation of their accessibility and efficacy should be performed. Primary prevention of suicidal behaviours among adolescents should include educating young people in the use of professional services to deal with their problems.

Although absenteeism was not greater than normal at the schools when the study took place, those absent may be at increased risk of self-harming behaviour. Truancy is reported by more adolescent female self-harmers than non-self-harmers.[22] Furthermore, those absent from school have elevated levels of psychopathology[23] and engage in more frequent high-risk behaviours.[24] Therefore, our results may underestimate the problems of DSH among adolescents.

The results of this study can only be generalised to coeducational school students. Future research should include students from all school types.

The definition of DSH did not differentiate between self-cutting and habitual self-mutilation. Self-mutilation is not considered a suicidal act,[25] but respondents' reporting of this behaviour could contribute to an over-representation of DSH, as self-cutting was the most common method of self-harm reported.

With many factors potentially related (eg, problems in making friends and depression), there is a risk of collinearity. However, multiple variables were retained because associated factors are invariably interrelated in studies of suicidality.

A further limitation is the low number of males who met the criteria for DSH, preventing multivariate analyses by sex. In addition, a large proportion of males who reported DSH did not describe their episode, and so had to be excluded from analyses because the CASE criteria could not be applied. The reluctance of male participants to complete this item should be addressed for future studies.

CONCLUSION

A stringent definition of DSH can improve research into such behaviours and enable comparisons across different settings and countries. Future studies should pay attention to better identifying motivation or intention behind such behaviour for the

4 Factors associated with deliberate self-harm on multivariate logistic regression

	Females (200/1800)			Total sample (233/3757)		
	OR (95% CI)		*P*	OR (95% CI)		*P*
Self-harm by friends						
No	1			1		
Yes	2.68	(1.69–4.26)	< 0.001	4.07	(2.64–6.26)	< 0.001
Self-harm by family						
No	1			1		
Yes	3.25	(2.11–5.01)	< 0.001	3.22	(2.17–4.78)	< 0.001
Self-esteem						
High	1				—	
Moderate	0.95	(0.45–1.99)	0.883		—	
Low	2.58	(1.25–5.31)	0.010		—	
Sexual orientation worries						
No	1				—	
Yes	2.22	(1.22–4.03)	0.009		—	
Boyfriend/girlfriend problems						
No		—		1		
Yes		—		1.74	(1.16–2.61)	0.008
History of amphetamine use						
No		—		1		
Yes		—		2.47	(1.32–4.65)	0.005
Living situation						
Both parents	1			1		
One parent	0.44	(0.25–0.75)	0.003	0.47	(0.28–0.77)	0.003
One parent + step-parent	0.74	(0.42–1.29)	0.244	0.85	(0.52–1.39)	0.514
Other family member/s	1.34	(0.38–4.75)	0.655	1.23	(0.40–3.74)	0.718
Other	0.33	(0.10–1.20)	0.092	0.28	(0.09–0.84)	0.023
Cigarettes (per week)						
Never	1			1		
Given up	1.52	(0.88–2.64)	0.134	1.48	(0.90–2.46)	0.125
Less than 5	3.35	(1.56–7.19)	0.002	3.13	(1.62–6.06)	< 0.001
6–20	0.99	(0.46–2.11)	0.977	1.06	(0.53–2.11)	0.876
21–50	1.74	(0.79–3.85)	0.168	1.95	(0.98–3.87)	0.058
More than 50	1.16	(0.35–3.86)	0.811	0.89	(0.34–2.35)	0.810
Blame self (coping)						
Never		—		1		
Sometimes		—		1.33	(0.68–2.63)	0.404
Often		—		2.98	(1.51–5.87)	0.002
Self-prescribing of medication						
Never		—		1		
Rarely		—		1.67	(0.83–2.24)	0.218
Sometimes		—		1.73	(1.07–2.80)	0.025
Often		—		2.41	(1.29–4.51)	0.006
Other distressing events						
No	1			1		
Yes	2.45	(1.62–3.70)	< 0.001	2.56	(1.73–3.79)	< 0.001

— These factors were not significant in the particular group.

5 Sources of help before and after deliberate self-harm

Source	Before ($n = 105$)*	After ($n = 99$)†
Friend	85 (81.0%)	80 (80.8%)
Family member	14 (13.3%)	23 (23.2%)
Psychologist/ psychiatrist	10 (9.5%)	6 (6.1%)
Telephone helpline	8 (7.6%)	1 (1.0%)
Teacher	6 (5.7%)	5 (5.1%)
Social worker	6 (5.7%)	6 (6.1%)
General practitioner	2 (1.9%)	4 (4.0%)
Drop-in centre	2 (1.9%)	1 (1.0%)
Other	17 (16.2%)	7 (7.1%)

* 28 respondents (26.7%) sought help from more than one source. † 25 respondents (25.3%) sought help from more than one source.

most accurate representation of "true" DSH. Risk factors for DSH are many and varied and prevention programs should address these simultaneously, as well as educating young people on the use of mental health services.

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COMPETING INTERESTS

None identified.

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