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Factors associated with self-cutting as a method of self-harm: Findings from the Irish National Registry of Deliberate Self-Harm

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Background: Research suggests that patients presenting to hospital with self-cutting differ from those with intentional overdose in demographic and clinical characteristics. However, large-scale national studies comparing self-cutting patients with those using other self-harm methods are lacking. We aimed to compare hospital-treated self-cutting and intentional overdose, to examine the role of gender in moderating these differences, and examine the characteristics and outcomes of those patients presenting with combined self-cutting and overdose. **Methods:** Between 2003 and 2010, the Irish National Registry of Deliberate Self-Harm recorded 42,585 self-harm presentations to Irish hospital emergency departments meeting the study inclusion criteria. Data were obtained on demographic and clinical characteristics by independent data registration officers. **Results:** Compared with overdose only, involvement of self-cutting (with or without overdose) was significantly more common in males than females, with an overrepresentation of males aged <35 years. Independent of gender, involvement of self-cutting (with or without overdose) was significantly associated with younger age, city residence, repetition within 30 days and repetition within a year (females only). Factors associated with self-cutting as the sole method were no fixed abode/living in an institution, presenting outside 9 a.m. to 5 p.m., not consuming alcohol and repetition between 31 days and 1 year (males only). **Conclusion:** The demographic and clinical differences between self-harm patients underline the presence of different subgroups with implications for service provision and prevention of repeated self-harm. Given the relationship between self-cutting and subsequent repetition, service providers need to ensure that adequate follow-up arrangements and supports are in place for the patient.

Introduction

Self-harm poses a significant health problem. In addition to the high human and financial burden of self-harm itself, individuals who engage in self-harm are at increased risk of repetition of self-harm,[1–3] suicide[3–5] and all-cause mortality.[6] Much of the practice policy around self-harming behaviour classifies diverse methods under the rubric of 'self-harm'. It is unclear whether this blanket approach to self-harm patients is appropriate or whether the characteristics and needs of self-harm patients differ by self-harm method used. In Ireland,[7] as in the UK,[8] Europe[9] and the USA,[10] self-cutting is the second most common method of hospital-treated self-harm, with the most common method being intentional overdose. There is emerging evidence of significant differences between those who engage in self-cutting and those who engage in intentional overdose. Although community studies have identified self-cutting as the most common method of self-harm,[11–13] intentional overdose is the most common self-harm method in hospital presentations,[8,9,14,15] suggesting that self-cutting episodes are less likely to result in hospital presentation. There are also differences in gender distribution between self-cutting and overdose, with intentional overdose presentations involving a preponderance of females and self-cutting presentations displaying a more even gender distribution[16–20] In addition, patients presenting with self-cutting are more likely to have a history of repeated self-harm.[17,19] There is increasing evidence that individuals presenting with self-cutting are at higher risk of prospective repetition than those presenting with intentional overdose or those using more than one method of self-harm[19,21] but are less likely to be admitted to hospital or to receive a psychosocial assessment.[19,22] This is a matter of concern because long-term follow-up studies report a significantly increased risk of suicide among patients presenting to hospital due to self-cutting.[4,23] Research involving psychiatric patients indicates that self-cutting is prevalent among those diagnosed with borderline personality disorder[24] and eating disorder[25] and appears to be primarily associated with affect dysregulation and impulsivity. However, these studies mostly include women and have not compared patients who engage in self-cutting only with those using other self-harm methods.

The current study, which used data from the Irish National Registry of Deliberate Self-Harm, aims to examine (a) differences between hospital-treated self-cutting and intentional overdose, (b) the role of gender in moderating these differences and (c) characteristics and outcomes of patients presenting with combined self-cutting and overdose.

Methods

Design and setting

The Irish National Registry of Deliberate Self-Harm is a hospital-based monitoring system for deliberate self-harm operated by the National Suicide Research Foundation on an ongoing basis. The number of hospitals that contributed full calendar year data to the Registry increased from 37 hospitals for 2003 to 38 for 2004–2005 and all 40 hospitals for 2006–2010. All data are collected by Data Registration Officers (DROs), who operate independently of the hospitals and work according to standard operating procedures. The Registry's standardized methodology is described in detail elsewhere.[7] DROs visit emergency departments and review case notes to identify cases of self-harm through the standardized

application of the case definition and inclusion/exclusion criteria. DROs work closely with the Registry directors to ensure the 'caseness' of recorded episodes. Audits incorporating crosschecks among DROs showed high levels of agreement on case ascertainment, with kappa statistics exceeding 0.9.

Study population

The Registry uses the WHO/EURO Multicentre Study definition of self-harm,[26] which includes all intentionally initiated drug overdoses, poisoning or self-injurious behaviour, regardless of suicidal intent. For the purpose of the current study, presentations from the Registry were included if they were (a) the first presentation by an individual in the study period; (b) involved intentional self-cutting as the sole method, combined intentional self-cutting and intentional overdose of medication in the same presentation or intentional overdose of medication as the sole method and (c) occurred between 1 January 2003 and 31 December 2009 to allow 12 months of follow-up.

Variables

DROs use a standardized approach to extract information from case notes on the following variables: encrypted patient initials, gender, date of birth, area of residence, living circumstances (private dwelling, prison, no fixed abode/shelter, inpatient setting of any kind or other), date and hour of attendance, method(s) of self-harm (International Classification of Diseases Tenth Revision codes), drugs taken, whether alcohol is consumed (yes/no/missing) and recommended next care. Data on repeated self-harm are obtained by identifying patients whose gender, encrypted initials and date of birth are identical.

Ethical approval

Ethical approval has been granted by the National Research Ethics Committee of the Faculty of Public Health Medicine. The Registry has also received ethical approval from the relevant hospitals and Health Service Executive Committees. The National Suicide Research Foundation is registered with the Data Protection Agency and complies with the Irish Data Protection Act of 1988.

Statistical analyses

First self-harm presentations during the study period were selected on the basis of whether they involved self-cutting only, self-cutting plus intentional overdose or intentional overdose only. Prospective repetition was operationalized at three levels: the presence of another presentation of self-harm (regardless of the self-harm method used) within 30 days of the index presentation, between 31 days and 12 months after the index presentation or no repetition within 12 months of the index presentation. Pearson χ^2 tests were used to compare proportions across these groups in relation to another categorical variable. When χ^2 tests revealed a significant association, Cramer's V was calculated as a measure of the strength of association among categorical/ordinal variables, which adjusts for a large sample size.[27] Its value usually falls between 0 and 1 and is interpreted much in the same way as a correlation coefficient, indicating a very weak association if <0.1, a weak association if <0.3, a moderate association if <0.5 and a strong association if 0.5+.Univariate odds ratios (ORs) and corresponding 95% confidence intervals (CIs) were also calculated.

Multinomial regression analysis was used to identify factors associated with 'self-cutting only' and 'self-cutting plus intentional overdose' using the 'intentional overdose only' group of presentations as the reference category. Independent categorical variables were gender, age-group (reference group: 55+ years), city residence (reference group: non-city residence), living circumstances (reference group: private household), involvement of alcohol (reference group: none), presentation between 9 a.m. and 5 p.m. (reference group: presenting outside 9 a.m. to 5 p.m.), presentation on a weekend day (reference group: presenting on a weekday) and occurrence of a subsequent self-harm presentation within 1 year (reference group: none). A series of multinomial regression analyses were run to assess whether the effect of each independent variable was modified by gender. Effect modification was determined for five of the seven independent variables. Consequently, separate multivariate models were estimated for each gender. The significance level α was set at 0.05. All statistical tests were two-sided.

Results

The sample

Between 2003 and 2010, 87 085 self-harm presentations to emergency departments in the Republic of Ireland were recorded by the Registry, involving 55 228 individuals. The number of persons whose first episode occurred between 2003 and 2009 (to allow for a 1-year follow-up period for each index episode) was 48 206, of whom 26 653 (55.3%) persons were female. Of the 48 206 first self-harm episodes occurring between 2003 and 2009, 42 585 episodes involved either self-self-cutting only (n = 6398), overdose only (34 445) or a combination of self-cutting and overdose (n = 1742), of which episodes by females comprised 24 775 (58.2%) episodes.

Demographic characteristics

Table 1 compares the demographic characteristics of presentations of self-cutting only, presentations of self-cutting plus overdose and presentations of overdose only.

Gender was significantly associated with method of self-harm ($\chi^2 = 1033.9$, $P < 0.001$; Cramer's V = 0.16), with 21.4% of male index presentations involving self-cutting only, compared with 10.4% of female index presentations (OR = 2.39, 95% CI 2.26–2.52). Similarly, males were over-represented among presentations of self-cutting plus overdose (4.5% vs. 3.8%; OR = 1.39, 95% CI 1.26–1.53). Age-group was significantly associated with method of self-harm in both males ($\chi^2 = 303.3$, $P < 0.001$; Cramer's V = 0.09) and females ($\chi^2 = 283.1$, $P < 0.001$; Cramer's V = 0.08). Area of residence was also significantly associated with method of self-harm in males ($\chi^2 = 80.9$, $P < 0.001$; Cramer's V = 0.07) and females ($\chi^2 = 131.0$, $P < 0.001$; Cramer's V = 0.07), with presentations involving self-cutting, alone and in combination with overdose, overrepresented among presentations by patients living in cities. Living circumstances were significantly associated with method of self-harm, with patients of no fixed abode/shelter, prisoners and inpatients over-represented among self-cutting presentations in both males ($\chi^2 = 218.9$, $P < 0.001$; Cramer's V = 0.08) and females ($\chi^2 = 128.1$, $P < 0.001$; Cramer's V = 0.05).

Clinical characteristics

Table 1 shows that method of self-harm was significantly associated with having consumed alcohol at the time of presentation in both males ($\chi^2 = 342.9$, $P < 0.001$; Cramer's V = 0.14) and females ($\chi^2 = 139.6$, $P < 0.001$; Cramer's V = 0.08). Absence of alcohol involvement was associated with self-cutting only, whereas presence of alcohol was associated with intentional overdose, in both males and females. For those engaging in self-cutting and overdose combined, no significant difference was found in terms of alcohol involvement. Hour of presentation was significantly associated with method of self-harm, with self-cutting only presentations less likely to occur between 9 a.m. and 5 p.m. in both males ($\chi^2 = 18.7$, $P < 0.001$; Cramer's V = 0.03) and females ($\chi^2 = 8.4$, $P = 0.01$; Cramer's V = 0.02). Similarly, presenting at the weekend was associated with method of self-harm in males ($\chi^2 = 32.1$, $P < 0.001$;

Table 1 Characteristics of presentations involving self-cutting only, presentations involving self-cutting and intentional overdose and self-harm presentations of intentional overdose only

	Men			Women			Total
	S-C	S-C + OD	OD	S-C	S-C + OD	OD	
Presentations	3820 (21.4%)	807 (4.5%)	13183 (74.0%)	2578 (10.4%)	935 (3.8%)	21262 (85.8%)	42585
Patient characteristics							
Age*							
<15years	56 (25.8%)	11 (5.1%)	150 (69.1%)	113 (12.8%)	35 (4.0%)	737 (83.3%)	1102
15–24 years	1542 (26.2%)	334 (5.7%)	4015 (68.2%)	1086 (12.1%)	467 (5.2%)	7392 (82.6%)	14836
25–34 years	1136 (23.0%)	243 (4.9%)	3558 (72.1%)	653 (12.0%)	223 (4.1%)	4549 (83.9%)	10362
35–44 years	648 (18.2%)	130 (3.7%)	2773 (78.1%)	397 (8.5%)	126 (2.7%)	4129 (88.8%)	8203
45–54 years	271 (14.0%)	56 (2.9%)	1603 (83.1%)	219 (7.3%)	61 (2.0%)	2731 (90.7%)	4941
55+ years	167 (13.0%)	33 (2.6%)	1084 (84.4%)	110 (5.9%)	23 (1.2%)	1724 (92.8%)	3141
Lives in a city*							
Yes	1252 (24.8%)	293 (5.8%)	3512 (69.4%)	858 (14.2%)	255 (4.2%)	4933 (81.6%)	11103
No	2568 (20.1%)	514 (4.0%)	9671 (75.8%)	1720 (9.2%)	680 (3.6%)	16329 (87.2%)	31842
Living circumstances *							
No fixed abode	146 (31.0%)	24 (5.1%)	301 (63.9%)	44 (27.0%)	9 (5.5%)	110 (67.5%)	634
Inpatient	59 (43.1%)	3 (2.2%)	75 (54.7%)	40 (21.7%)	6 (3.3%)	138 (75.0%)	321
Prisoner	74 (63.2%)	1 (0.9%)	42 (35.9%)	6 (54.5%)	2 (18.2%)	3 (27.3%)	128
Other	229 (27.8%)	39 (4.7%)	555 (67.4%)	156 (14.2%)	42 (3.8%)	904 (82.0%)	1925
Private	3312 (20.4%)	740 (4.6%)	12210 (75.1%)	2332 (10.0%)	876 (3.8%)	20107 (86.2%)	39577
Presentation characteristics							
Presented 9 a.m. to 5 p.m.[a]*							
Yes	913 (19.2%)	215 (4.5%)	3622 (76.3%)	649 (9.5%)	247 (3.6%)	5904 (86.8%)	11550
No	2864 (22.2%)	585 (4.5%)	9446 (73.3%)	1902 (10.7%)	683 (3.9%)	15141 (85.4%)	30621
Presented at weekend*							
Yes	1310 (23.8%)	275 (5.0%)	3926 (71.2%)	869 (11.0%)	328 (4.1%)	6738 (84.9%)	13446
No	2510 (20.4%)	532 (4.3%)	9257 (75.3%)	1709 (10.1%)	607 (3.6%)	14524 (86.2%)	29139
Alcohol involvement*							
Yes	1244 (15.3%)	398 (4.9%)	6514 (79.9%)	739 (7.6%)	394 (4.0%)	8627 (88.4%)	17916
No	2576 (26.7%)	409 (4.2%)	6669 (69.1%)	1839 (12.2%)	541 (3.6%)	12635 (84.1%)	24669
12-month repetition*							
<30 days	245 (26.9%)	55 (6.0%)	611 (67.1%)	181 (18.6%)	60 (6.2%)	733 (75.3%)	1885
31 days–1 year	430 (23.3%)	92 (5.0%)	1323 (71.7%)	354 (13.7%)	132 (5.1%)	2097 (81.2%)	4428
No	3154 (20.9%)	660 (4.4%)	11249 (74.7%)	2043 (9.6%)	743 (3.5%)	18432 (86.9%)	36272

a: 414 cases missing
*$P < 0.05$ in chi-square analyses

Cramer's V = 0.04) and females ($\chi^2 = 8.5$, $P = 0.01$; Cramer's V = 0.02), such that presentations of self-cutting only and of self-cutting plus overdose were more likely than presentations of overdose only to occur at the weekend.

Repeated self-harm

Repetition in the 12 months after an index episode was significantly associated with method of self-harm, with those presenting with self-cutting only being significantly more likely to repeat particularly within 30 days (males: OR = 1.43, 95% CI: 1.23–1.67; females: OR = 2.23, 95% CI: 1.88–2.64) and also within between 31 days and 1 year (males: OR = 1.16, 95% CI: 1.04–1.31; females: OR = 1.52, 95% CI: 1.35–1.72). There was a more marked association in females ($\chi^2 = 154.9$, $P < 0.001$; Cramer's V = 0.06) than males ($\chi^2 = 32.2$, $P < 0.001$; Cramer's V = 0.03).

Factors independently associated with method of self-harm

Multinomial logistic regression analyses were conducted to identify factors independently associated with method of self-harm in males and females (table 2). Significant effect modification was identified for age-group, type of residence, city residence, presenting at the weekend and repetition.

Among both males and females, factors independently associated with 'self-cutting only' presentations (compared with 'intentional overdose only' presentations) were being a city resident; being of no fixed abode, residing in an inpatient setting or other health, social and custodial institutions; presenting outside 9 a.m. to 5 p.m.; presenting at the weekend; no alcohol involvement and repeating within 12 months after the index episode. In terms of significant gender differences, among males those aged <45 years and among females those aged <55 years were overrepresented among patients presenting with self-cutting only.

Being aged <35 years, being a city resident, presenting at the weekend and repeating within 30 days of the index episode were independently associated with males who engaged in self-cutting and overdose combined at the time of the index episode. Among females who engaged in self-cutting plus overdose at the time of the index episode, independent associations were found for being aged <45 years, being a city resident, alcohol involvement and repeating within 12 months after the index presentation.

Discussion

Using national data on hospital presentations, this study compared the characteristics of self-harm presentations involving self-cutting only, presentations of self-cutting and intentional overdose combined and presentations of intentional overdose only, and identified factors independently associated with method of self-harm. We found that presentations of self-cutting only and presentations of intentional overdose only differed significantly on each of the examined variables, whereas 'self-cutting plus overdose' presentations share some similarities with 'self-cutting only' presentations

Table 2 Univariate and multivariate odds ratios obtained in multinomial regression using intentional overdose only as reference category

	Self-cutting only		Self-cutting + overdose	
	Univariate OR (95% CI)	**Multivariate OR (95% CI)**	**Univariate OR (95% CI)**	**Multivariate OR (95% CI)**
Males				
Age				
<15 years	2.42 (1.71–3.43)	2.07 (1.45–2.96)	2.41 (1.19–4.87)	2.57 (1.27–5.22)
15–24 years	2.49 (2.10–2.96)	2.34 (1.96–2.79)	2.73 (1.90–3.93)	2.69 (1.87–3.88)
25–34 years	2.07 (1.74–2.47)	2.01 (1.68–2.41)	2.24 (1.55–3.25)	2.16 (1.49–3.13)
35–44 years	1.52 (1.26–1.82)	1.54 (1.28–1.86)	1.54 (1.04–2.27)	1.48 (1.00–2.18)
45–54 years	1.10 (0.89–1.35)	1.12 (0.91–1.39)	1.15 (0.74–1.78)	1.10 (0.71–1.71)
Lives in a city				
Yes	1.34 (1.24–1.45)	1.28 (1.18–1.39)	1.57 (1.35–1.82)	1.61 (1.38–1.87)
Living circumstances				
No fixed abode	1.79 (1.46–2.19)	1.64 (1.32–2.02)	1.32 (0.86–2.01)	1.08 (0.70–1.67)
Inpatient	2.90 (2.06–4.09)	2.55 (1.79–3.65)	0.66 (0.21–2.01)	0.71 (0.22–2.25)
Prisoner[a]	6.50 (4.44–9.50)	4.89 (3.32–7.20)	-	-
Other	1.52 (1.30–1.78)	1.45 (1.23–1.71)	1.16 (0.83–1.62)	1.15 (0.83–1.61)
Presented 9 a.m. to 5 p.m.[b]	0.83 (0.77–0.90)	0.79 (0.72–0.86)	0.96 (0.82–1.13)	1.02 (0.87–1.20)
Presented at weekend	1.23 (1.14–1.33)	1.27 (1.17–1.38)	1.22 (1.05–1.42)	1.19 (1.03–1.39)
Alcohol involvement	0.49 (0.46–0.53)	0.51 (0.47–0.56)	0.99 (0.86–1.15)	1.05 (0.91–1.21)
12-month repetition				
<30 days	1.43 (1.23–1.67)	1.43 (1.22–1.67)	1.53 (1.15–2.04)	1.55 (1.16–1.06)
31 days–1 year	1.16 (1.04–1.31)	1.17 (1.04–1.32)	1.19 (0.95–1.49)	1.20 (0.96–1.51)
Females				
Age				
<15 years	2.40 (1.82–3.17)	2.36 (1.78–3.13)	3.56 (2.09–6.07)	3.98 (1.33–6.80)
15–24 years	2.30 (1.88–2.82)	2.32 (1.88–1.85)	4.74 (3.11–7.22)	4.85 (3.18–7.41)
25–34 years	2.25 (1.83–2.77)	2.28 (1.84–2.82)	3.68 (2.38–5.67)	3.57 (2.31–5.51)
35–44 years	1.51 (1.21–1.86)	1.54 (1.23–1.92)	2.29 (1.46–3.58)	2.13 (1.36–3.34)
45–54 years	1.36 (0.99–1.59)	1.33 (1.05–1.69)	1.67 (2.03–2.72)	1.58 (0.97–2.57)
Lives in a city				
Yes	1.65 (1.21–1.80)	1.61 (1.47–1.76)	1.24 (1.07–1.44)	1.26 (1.09–1.47)
Living circumstances				
No fixed abode	3.45 (2.43–4.91)	2.53 (1.76–1.64)	1.88 (0.95–3.72)	1.58 (0.79–3.16)
Inpatient	2.50 (1.75–3.56)	2.05 (1.41–2.97)	1.00 (0.44–2.27)	1.09 (0.48–2.50)
Prisoner[a]	-	-	-	-
Other	1.49 (1.25–1.77)	1.38 (1.15–1.65)	1.07 (0.78–1.46)	1.04 (0.76–1.43)
Presented 9 a.m. to 5 p.m.[b]	0.88 (0.80–0.96)	0.83 (0.76–0.92)	0.93 (0.80–1.08)	1.01 (0.87–1.18)
Presented at weekend	1.10 (1.01–1.20)	1.15 (1.05–1.25)	1.17 (1.02–1.34)	1.13 (0.99–1.30)
Alcohol involvement	0.59 (0.54–0.64)	0.61 (0.56–0.67)	1.07 (0.93–1.22)	1.17 (1.02–1.34)
12-month repetition				
<30 days	2.23 (1.88–2.64)	2.24 (1.88–2.66)	2.03 (1.55–2.67)	2.16 (1.64–2.85)
31 days–1 year	1.52 (1.35–1.72)	1.55 (1.37–1.75)	1.56 (1.29–1.89)	1.68 (1.39–2.04)

a: Prisoner category excluded where n was low
b: 414 cases missing

and some similarities with 'intentional overdose only'. Male and female presentations were largely similar within 'self-cutting only' presentations, but varied on a number of factors within the group 'self-cutting plus overdose'.

Overall, the results suggest that patients presenting with self-cutting as the sole method of self-harm are not identical to the largest subgroup of self-harm patients (i.e., those presenting with intentional overdose only). It is likely that patients presenting with self-cutting may require less medical observation and may be in a position to receive a psychosocial assessment sooner after presentation than overdose patients. However, the increased risk of repetition among patients presenting with self-cutting only[1–3] suggests a need for more intense psychosocial intervention, particularly in the few weeks after the index episode. The need to provide a psychosocial assessment to patients engaging in self-cutting as a matter of routine is also supported by findings from studies in the UK.[4,19,23]

The differences between 'intentional overdose only' and 'self-cutting plus overdose' presentations were less striking than the differences between 'intentional overdose only' and 'self-cutting only' presentations, suggesting that it may be the methods of self-harm themselves that are clinically significant, rather than the number of methods used. There was one exception to this pattern in the multinomial regression: in females, alcohol consumption was significantly associated with presentations of 'self-cutting plus overdose', whereas there was a significant inverse association with 'self-cutting only'.

Presentations of self-cutting only were proportionally more likely to occur out-of-hours. Earlier studies have found that self-harm patients presenting out-of-hours are less likely to receive a psychosocial or psychiatric assessment compared with those presenting during office hours,[14] and that patients engaging in self-cutting are the least likely to receive a psychosocial assessment.[14,28] It appears that crisis services may be at their lowest at the times when the demand for them is greatest and that this paradox is even more striking for self-cutting patients, who are yet more likely to present out-of-hours. It seems ill-advised, therefore, to limit crisis services to traditional office hours.

There are a number of evidence-based interventions to reduce repetition of self-harm, including dialectical behavioural therapy and problem-solving therapy[29] and as well as cognitive-behavioural therapy[30] and mindfulness-based cognitive therapy.[31] Given the emerging evidence of differences in motives for self-harm,[32] psychosocial difficulties[17,19] and suicidal intent[16] between self-cutting and other self-harm patients, there may a need to take account of

self-harm method used by participants when evaluating interventions for self-harm. Related to the issue of suicidal intent, it is likely that some individuals who presented with self-cutting in the current study would meet the criteria of 'non-suicidal self-injury' as proposed by the forthcoming Diagnostic and Statistical Manual of Mental Disorders. More research is required to examine the utility of this diagnosis in terms of predicting further non-fatal and fatal suicidal behaviour. If individuals diagnosed with non-suicidal self-injury are at similarly increased risk of repetition and suicide as those presenting with self-cutting generally, it could be that 'non-suicidal' is a misleading classification with potential risk for patients' safety.

The current study indicated a higher absolute number of male than female presentations among 'self-cutting only' patients, which runs contrary to the concept of self-cutting as a 'female problem'.[33] This study joins an emerging body of research revealing similar proportions of self-cutting within self-harm presentations among men and women.[16–20] The over-representation of males in self-cutting in the current study could be attributed to a tendency of men to inflict more severe damage when self-cutting, increasing the likelihood that they will present to hospital. This hypothesis is supported by a small clinical study showing a tendency towards deeper self-cutting among males.[34]

The study outcomes also revealed an association between self-cutting and age, whereby univariate and multivariate analyses showed that young to middle adulthood was particularly associated with self-cutting, echoing findings from a multicentre study in England.[19] The 'suicidal process' model suggests that in the absence of intervention, individuals progress to more lethal self-harm over time.[35,36] Future research is required to examine the trajectories of self-harm methods and lethality over time within persons.

Our finding that those who presented with self-cutting were more likely to repeat self-harm replicates extant large-scale studies,[1,19,37] and raises questions about the mechanisms of the association between self-cutting and repetition. Further longitudinal research is required to examine whether the association is attributable to the effects of the method itself or to underlying psychological vulnerabilities of those using the method.

Being of no fixed abode, residing in a shelter or an inpatient setting was associated with 'self-cutting only' in both males and females. These findings underline the need for initiatives aimed at restricting access to means of self-harm in such settings as well as implementing interventions for individuals with emotional regulation difficulties.

The current study has several limitations. The analyses were restricted to the first presentation by an individual in the study period, and hence the characteristics of repeated episodes were not examined. This was done to prevent double-counting of demographic variables, but future studies could examine the trajectories of patients across repeated episodes. The large-scale and ongoing nature of the Registry enabled the comparison between subgroups of self-harm patients and prospective follow-up, but its large scale precludes the collection of more detailed psychological data that could shed further light on the distinction between self-cutting and intentional overdose patients. Moreover, the nature of the registry precluded us from detecting non-hospital-treated repetition, which may underestimate repetition, especially in those who self-cut.[38] It has been well established that risk of suicide is high after self-harm, but there is currently no systematic linkage between the Registry and national data on completed suicide. Therefore, it was not possible in the current study to examine fatal repetition of self-harm.

The current study is the first to use a national registry to demonstrate important differences between subgroups of self-harm patients, with significant implications for the epidemiology and management of self-harm.

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Conflicts of interest: None declared.

Key points

- Patients presenting with self-cutting only are more likely to be male and older.
- Presentations involving self-cutting are more likely than presentations of overdose only to be followed by a subsequent self-harm episode within 12 months.
- The differential risk of repetition is particularly pronounced in the first 30 days after an index presentation.
- Self-cutting involvement should be considered as a risk factor for repetition during risk assessments of self-harm patients.

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