

Repeat Self-Harm among Children and Adolescents Referred to a Specialist Service

GRAHAM PLUCK,¹ MARTIN ANDERSON,²
SARAH ARMSTRONG,² MARIE ARMSTRONG,³
AND AMULYA NADKARNI⁴

¹University of Sheffield

²University of Nottingham

³Nottinghamshire Healthcare National Health Service (NHS) Trust

⁴Lincolnshire Partnership National Health Service (NHS) Foundation Trust

Self-harming (e.g., self-cutting or self-poisoning, irrespective of suicidal intent) is common among young people. We studied 586 consecutive referrals (474 individuals) to a specialist self-harm service over five years. We found that young people who repeated self-harm, compared to those that did not, tended to have complex family and personal histories including mental illness, substance misuse, and child abuse. Although many factors are likely to interact, regression analyses revealed factors that act independently as predictors of repeat self-harm. These included being female, not having both biological parents as the main caregivers, and caregivers that appeared uncooperative. Other significant independent factors were multiple social agencies being involved, if the young person used more than one method of self-harm or abused alcohol.

Keywords overdose, suicide, teenage, self-cutting, youth

The United Kingdom's National Institute of Health and Clinical Excellence (NICE) defines self-harm as "self-poisoning or self-injury, irrespective of the apparent purpose of the act" (NICE, 2004, p. 7). This therefore includes acts that some would describe as self-cutting, self-mutilation, and self-poisoning, which may or may not be attempted suicide. Indeed many acts of self-harm have serious medical sequelae. In the United Kingdom, young people are involved in more hospital presentations for self-harm than any other age group, with females aged 15 to 19 being the most vulnerable (Nadkarni, Parkin, Dogra, Stretch, & Evans, 2000; Rodham, Hawton, & Evans, 2004). Multiple antecedent stressors in those who self-harm have been identified, but probably the most important factor is childhood trauma (Brown, Cohen, Johnson, & Smailes, 1999; Fliege, Lee, Grimm, & Klapp, 2009). In particular, childhood sexual abuse and neglect are associated with a range of later behavioral, social role, and psychiatric problems including self-harm (Mangnall & Yurkovich, 2008; Pluck et al., 2011). Self-harm is one of the most common longer-term mental health consequences of sexual abuse of children (Brown et al., 1999).

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Address correspondence to Graham Pluck, Academic Clinical Psychiatry, University of Sheffield, Longley Centre, Norwood Grange Drive, Sheffield S5 7JT, United Kingdom. E-mail: g.pluck@sheffield.ac.uk

A review of self-harm across Europe revealed high rates of self-harm in older adolescents, with the highest rates being in France and the UK (Schmidtke et al., 1996). Indeed, it has been estimated that in the UK, between 20,000 and 30,000 hospital presentations each year involve a young person who has engaged in some form of self-harm (Hawton, Rodham, & Evans, 2006). In the United States, in 2007, completed suicide was the third most common cause of death in 15 to 24 year olds, and the fourth leading cause among 10 to 14-year olds (Web-based Injury Statistics Query & Reporting System, 2010). However, statistics based on hospital admissions and actual death rates are likely to grossly underestimate the actual self-harm rate. Evidence suggests that only a minority of cases of self-harm by young people result in hospital attendance (Hawton, Rodham, Evans, & Weatherall, 2002). Those who are hospitalized are more likely to use potentially lethal methods, but are not more depressed, anxious, or lacking in self-esteem than those who do not seek medical attention (Ystgaard et al., 2009). Globally, self-harm is now recognized as an established phenomenon in youth (Greydanus & Shek, 2009).

Varying patterns of incidence are found across Western countries, but overall it is estimated that about 5 to 9% of adolescents report having self-harmed in the previous year (Skegg, 2005). The most common methods of self-harm, in order of frequency, are drug overdose, self-poisoning, self-cutting, and other forms of harming such as self-burning and hitting (Greydanus & Shek, 2009). In terms of psychological and demographic factors, those adolescents who overdose and those who self-cut tend to be quite similar, though self-cutting is associated with less premeditation and more social contagion (Hawton, Harriss, & Rodham, 2010).

A systematic review of studies on self-harm in adolescents has indicated a range of psychological symptoms related to episodes of self-harm, in particular depression and hopelessness have been identified as those factors most strongly associated with self-harm (Webb, 2002). In a large Danish study of over 1,000 children, psychological mistreatment was singled out as the factor most closely linked to suicidal tendencies (Christoffersen & DePanfilis, 2010). Clearly psychological and social factors interact in the aetiology of self-harm and there is a strong indication that depression, incongruent family situation, and education/social pressures occur together in adolescent self-harm (Hawton et al., 2002; Husain, Waheed, & Husain, 2006; Webb, 2002).

A significant proportion of those who self-harm will repeat self-harm. It is estimated that 20–30% of young people referred to a hospital for self-harm will have engaged in previous acts of self-harm (Hawton, Kingsbury, Steinhardt, James, & Fagg, 1999). Although usually not fatal, self-harm in general is indicative of psychological trauma and conveys a greatly increased risk of later death by completed suicide. Annually, completed suicide occurs in only about .001% of the overall population; however this is increased to about 1% for those who have previously self-harmed (Owens, Horrocks, & House, 2002). In the UK the mean rate of repetition within a year of the first episode of self-harm is around 15% (Hawton et al., 2003). Furthermore, a longitudinal study on self-harm across seven European centers found that 24% of young people who had previously attempted suicide went on to make another attempt within a year (Hulten et al., 2001).

An act of self-harm by a child or adolescent therefore should not be seen as a single incident or isolated maladaptive response to trauma or transient distress. It may represent ongoing risk of further self-harm or potentially completed suicide. Repeat self-harm is therefore of great concern to individuals who care for young people and it is crucial that this behavior is better understood. Evidence on specific factors relating to repetition of self-harm is provided in a review of 226 cases of first attempts and 180 repeated suicide attempts by adolescents (Kotila & Lonnqvist, 1987). It was found that those who repeated self-harm came from poorer social situations, had been in previous contact with psychiatric

treatment, and had poorer adaptive functioning. Further evidence comes from a study by Brown and colleagues (1999) who conducted a cohort study of 776 randomly selected children over a 17-year period between 1975 and 1992. They concluded that adolescents who had a history of childhood trauma such as sexual abuse were at a significantly greater risk of becoming depressed or suicidal during adolescence. Vajda and Steinbeck (2000) conducted a retrospective medical record review of adolescents between the ages of 13 and 20 who visited an emergency department with self-harm. They demonstrated that those who were most likely to repeat self-harm within a year presented initially with substance abuse, nonaffective psychotic disorders, chronic medical conditions, or a history of sexual abuse. Evidence also suggests that there is an increased risk of repeat self-harm where there is depression, poor family functioning, or a history of mental health problems within the family (Chitsabesan, Harrington, Harrington, & Tomenson, 2003; Hawton et al., 1999).

It is self-evident that attention be paid to the phenomena of repeat self-harm by young people. Not only does it present an ongoing physical health risk, repeated self-harm is also indicative of psychosocial trauma and ongoing and persistent psychological distress. In addition, it places significant demands on healthcare resources (Anderson, Woodward, & Armstrong, 2004). More importantly, it is a considerable risk factor for later completed suicide (Hawton et al., 1999). It is therefore important for those who work with young people at risk of self-harm to recognize the factors that imply increased risk of repeat self-harm and possible later completed suicide. However, the myriad of sociodemographic and psycho-social factors can hinder recognition of risk.

The aim of this study is to identify the most important factors associated with repeat self-harm in young people referred to a specialist self-harm team operating within the United Kingdom National Health Service (NHS) Trust's Child and Adolescent Mental Health Services (CAMHS). The study initially compares the demographic characteristics of young people who repeat self-harm with those who self-harm on a single occasion. It then explores differences in the social and psychological factors in these two groups of young people. The purpose of this is to identify those factors that operate independently as risks for repeat self-harm, and consequently are those that are most important for identification and prevention.

Method

Sample

The data reported in this study are derived from the actual case records of individuals referred to a specialist CAMHS self-harm team following an episode of self-harm such as overdose or cutting during a five-year period. The team serves a large university hospital in a metropolitan city in England. The service covers a wide catchment area including a mix of inner city deprivation and rural affluence. Data were collected on all assessments of young people referred to the self-harm team following an episode of self-harm between December 31, 2000 and January 1, 2006. This service only deals with individuals under the age of 16, unless referred from a medical ward, in which case they could be ages 16 or 17.

Procedure

During the five-year study period, a standard multipage form was completed routinely by the self-harm team in the normal course of assessment and intervention. The clinical information was gathered by clinical specialists in self-harm who had received training to ensure reliability of the clinical information collected. The form included items to garner

information on demographics, family, education, health, and specifically about circumstances related to the episode of self-harm. These variables were selected as being of clinical relevance as they have been identified in the literature as potentially significant in relation to young people who self-harm. The form was completed as part of the clinical interview with the young person who had self-harmed, and usually in the presence of their caregiver. Information recorded on the form served as the data in this study.

The data were retrieved from individual medical records and collated by a doctoral level research associate. It was then processed such that it could be subjected to statistical analysis. The Ethical approval for this extraction from medical records and analysis was granted by the Central Office for Research Ethics Committees (Nottingham) and the associated Research and Development Department based within the local mental health trust in August 2005.

Definitions and Data Classification

The criteria for individuals to be accepted as referrals to the self-harm team were that the person had performed an act with the aim of producing an injury, including a range of behaviors such as taking an overdose of medication or other substances, cutting, burning, and attempted hanging and strangulation, irrespective of suicidal intent. Substance or alcohol misuse, unless accompanied by the above or taken with self-harm/suicidal intent, was not considered within the remit of the self-harm team. Repetition of self-harm was predefined as the occurrence of any act of self-harm more than once by the same young person, regardless of the purpose of the acts. In operational terms for this research, if they had been referred to the self-harm team on more than one occasion during the study period, or if they had reported having self-harmed before they attended the first meeting with the self-harm team, they were included in the "repeat self-harm group." Young people who were only referred to the self-harm team on one occasion during the study period, and who did not report having made previous self-harm attempts, were included in the "self-harm group."

Standardized definitions were used by the self-harm team at the clinical interview. These included comments on the attitude of the parents/caregivers, who were classed as uncooperative if they were observed to be indifferent, obstructive, refused to attend the self-harm assessment, were aggressive and hostile, or refused to listen to advice (e.g., about safe storage of medicines). Criteria for substance/alcohol misuse by the young person were strict and scored as positive if the young person, the caregiver, or case notes indicated at least occasional intoxication by the young person. The presence of family history of mental health problems, suicide, self-harm, and substance abuse were recorded following discussion with the caregiver, or if previously documented in the case notes. Learning difficulties was recorded as positive if there was a pre-existing diagnosis revealed in the interview. Methods of self-harm used by the young person were recorded, with each separate act being considered as a method if it alone would have fulfilled the above criteria for self-harm. Social care agencies that the young person was involved with at the time of referral to the CAMHS team were recorded and past involvement was recorded if there was evidence of correspondence in the case notes. Information on areas of conflict (i.e., interpersonal relationship problems) was reported by the young person on direct questioning. The entire clinical interview took between two to three hours to complete and was conducted whilst the child/adolescent was an inpatient on a general medical ward, usually in pediatrics.

Some information from the clinical form was condensed for statistical analysis. These changes included: For ethnicity, individuals were classified simply as “White” or “non-White.” Educational background based on information from the clinical form was classified as “ordinary” or “other.” Mainstream primary and secondary schools were classed as ordinary. Other educational provision included mainstream schools with special provision, special schools, temporary or permanent exclusion, private school, pupil referral unit, college, and home tuition. Young people who did not attend a school were also included in the other category.

Statistical Analyses

Data collected from the clinical information supplied at the time of the first referral to the self-harm team were the primary data used in this study, though repeat referrals were tallied to ascertain repeat self-harm status. Statistical comparisons were made between the repeat self-harm group and the self-harm group in a quasiexperimental design, the former effectively being the study group and the latter being a control group. Initially logistic regression was used to calculate unadjusted odds ratios and 95% confidence intervals for each of the explanatory factors. A multivariable logistic regression analysis was then performed to identify independent factors associated with repeat self-harm. Age and sex were considered to be clinically important factors and were adjusted for in all of the analyses. The statistical package SPSS version 14.0.1 was used to perform the statistical analyses.

Results

Over the five-year target period there was a total of 586 referrals to the Nottingham CAMHS self-harm team. These correspond to 474 individuals, 75 of whom were referred more than once during this period (these 75 people comprised 187 separate referrals). We were able to access records and extract data from 468 of these people. Thus, we were able to perform statistical analyses on 468/474 (99%) of all the individual young people referred to the service in the period. Of the 468 unique referrals available, 195 (42%) had self-harmed on more than one occasion. Of these, 40 young people had been referred to the self-harm team at least twice during the study period, 120 stated that they had harmed themselves before and 35 said that they have harmed themselves before and were also referred to the self-harm team on more than one occasion. Of those who had been referred to the self-harm team more than once during the period of the study, the majority (54/75, 72%) had been referred twice only. The maximum number of times any young person had been referred to the self-harm team during the study period was seven times. To the knowledge of the self-harm team, none of the 474 individuals included in the study died as a result of self-harm during the study period.

Univariate Analysis

The socio-demographic characteristics of the study participants are shown in Table 1. Young people ranged in age from 11 to 16 years in the repeat self-harm group and from 8 to 16 years in the self-harm group. In both groups, the majority of young people were female, of White ethnicity, attending an ordinary school, and not cared for by both biological parents. The majority of those not cared for by both biological parents were living with a single biological parent, either with or without a partner (54.9% vs. 50.5% in the repeat

Table 1
Comparison of sociodemographic characteristics between the self-harm and repeat self-harm groups

Characteristic	Self-harm	Repeat self-harm	Unadjusted OR (95% CI)	<i>p</i> value
Age (years)				.219
15–16	113 (41%)	76 (39%)	1	
13–14	129 (47%)	104 (54%)	1.12 (0.81, 1.77)	
<13	31 (12%)	14 (7%)	0.67 (0.34, 1.35)	
Gender				.046
Female	222 (81%)	172 (88%)	1	
Male	51 (19%)	23 (12%)	0.58 (0.34, 0.99)	
Ethnicity				.647
White	232 (88%)	172 (90%)	1	
Non-White	31 (12%)	20 (10%)	0.87 (0.48, 1.58)	
Both parents main caregiver				<.001
No	160 (59%)	156 (80%)	1	
Yes	113 (41%)	39 (20%)	0.35 (0.23, 0.54)	
School type				.001
Ordinary	250 (92%)	158 (81%)	1	
Other	23 (8%)	36 (19%)	2.48 (1.42, 4.34)	
Learning difficulties				.323
No	259 (98%)	174 (96%)	1	
Yes	6 (2%)	7 (4%)	1.74 (0.57, 5.26)	
Other agencies involved at time of attempt				<.001
No	190 (70%)	78 (40%)	1	
Yes	83 (30%)	116 (60%)	3.40 (2.32, 5.01)	
Other agencies involved in the past				.001
No	158 (58%)	81 (42%)	1	
Yes	115 (42%)	112 (58%)	1.90 (1.31, 2.76)	

self-harm and self-harm groups, respectively) and only a small percentage were living with adoptive parents or extended family/other relatives (8.2% vs. 5.1% in the repeat self-harm and self-harm groups, respectively). Young people in the repeat self-harm group were more likely to live in residential care, at a private hostel, or were homeless (9.2%, 2.6%, and 0.5%, respectively) than in the self-harm group (0.4%, 0%, and 0%, respectively).

Sixty percent of the repeat self-harm group and 30% of the self-harm group had contact with other agencies at the time of the attempt. Of these, the majority had contact with only one agency (50.9% and 56.6% for repeat self-harm and self-harm groups, respectively) although the maximum number of contacts was six (this person was in the repeat self-harm group). The agencies which young people were most likely to have contact with were: social services (36.6% and 15.4% for repeat self-harm and self-harm groups, respectively), CAMHS (32.5% and 13.2% for repeat self-harm and self-harm groups, respectively), education (15.0% and 9.2% for repeat self-harm and self-harm groups, respectively), and

police (9.8% and 6.6% for repeat self harm and self-harm groups, respectively). For the remaining agencies (health, Youth Offending Teams [YOTs], voluntary and private) no more than 6.2% of young people in the repeat self-harm group had contact with these (the corresponding figure for the self-harm group is no more than 2.6%). Young people who had contact with other agencies at the time of the attempt were significantly more likely to have had contact with agencies in the past (68% and 34%, respectively; $p < .001$).

Overall, those who repeated self-harm, compared to those that did not, were significantly more likely to be: not cared for by both biological parents, not attending an ordinary school, and to have been involved with other agencies such as the police, social services, and so forth, at the time of the self-harm attempt and/or in the past.

Table 2 shows the assessment and management details obtained at the first meeting with the self-harm team. Young people who were not accompanied by their parent or did not live with a parent were significantly more likely to repeat self-harm ($OR = 1.77$ and $OR = 5.10$ respectively) as were young people with uncooperative caregivers ($OR = 3.04$). Young people who had tried more than one method of attempt ($OR = 2.94$), and those who had mental health problems at the time of the attempt were also more likely to repeat self-harm ($OR = 1.89$). The method of attempt most frequently used was drug overdose (approximately 90% in each group). There were no significant differences between the groups for how they were referred to the self-harm team, whether there was prior communication of intent to self-harm, contact with a General Practitioner (GP) in the last six months, current physical health problems, or whether or not they accepted and attended their first follow-up visit with the self-harm team.

Details of health and lifestyle factors are shown in Table 3. The precipitating factor for each episode of self-harm identified as an area of conflict by the young person was investigated. More than half of the young people in both groups reported conflict with parents (67% in repeat self-harm and 57% in self-harm groups). Young people experiencing conflict with parents, siblings, and their peer group were about 1.5 times more likely to repeat self-harm than those without, but conflict with parents was the only factor that was statistically significant.

The odds of repeat self-harm was higher in young people with a family history of self-harm, depression, alcohol/drug misuse, other mental illness, abuse, or being in care than in those without such family histories. Young people with a history of alcohol or drug misuse, emotional, sexual, or physical abuse, neglect, or mental health problems similarly had significantly increased odds of repeat self-harm.

Multivariable Analysis

The results of the multivariable analysis are given in Table 4. The final model obtained from the modeling procedure contained the following variables: age, gender, main caregiver, caregiver's attitude, history of alcohol misuse, involvement with other agencies at the time of attempt, and whether two or more methods of self-harm attempts were made. Males and young people with both parents as their main caregiver were about half as likely to repeat self-harm as females and those who did not have both parents as a main caregiver, respectively ($OR = 0.43$, 95% CI = (0.23 to 0.81); $OR = 0.45$, 95% CI = (0.28 to 0.71), respectively). Young people accompanied by an uncooperative caregiver when meeting a member of the self-harm team were 2.18 times more likely to repeat self-harm than those who were accompanied by a cooperative caregiver. Odds ratios were similar for young people with a history of alcohol misuse ($OR = 2.19$) and greater for those who were involved with other agencies at the time of attempt ($OR = 2.81$) and those who made two or more attempts ($OR = 2.57$).

Table 2
Comparison of self-harm team assessment and management details between the self-harm and repeat self-harm groups

Characteristic	Self-harm	Repeat self-harm	Unadjusted OR (95% CI)	<i>p</i> value
Referred to self-harm team by				.493
Pediatrics	268 (98%)	191 (99%)	1	
A&E ^a	5 (1.8%)	2 (1%)	0.56 (0.11, 2.92)	
Young person accompanied by parent				<.001
Yes	193 (76%)	100 (64.5%)	1	
No	60 (24%)	55 (36%)	1.77 (1.14, 2.74)	
Not applicable ^b	14 (5%)	37 (19%)	5.10 (2.63, 9.88)	
Caregiver's attitude				<.001
Cooperative	245 (92%)	143 (79%)	1	
Not cooperative	22 (8%)	39 (21%)	3.04 (1.73, 5.33)	
Method of attempt				
Drug overdose	250 (92%)	176 (90%)		
Poison	5 (2%)	3 (1.5%)		
Cutting	21 (8%)	35 (18%)		
Jumping	2 (1%)	3 (1.5%)		
Strangulation	5 (2%)	0		
Swallow object	0	3 (1.5%)		
Number of methods used				.002
1	260 (95%)	170 (87%)	1	
2+	13 (5%)	25 (13%)	2.94 (1.46, 5.91)	
Previous attempt in last 12 months				
No	273 (100%)	62 (32%)		
Yes	0	132 (68%)		
Communication of intent				.424
No	206 (76%)	140 (72%)	1	
Yes	67 (25%)	54 (28%)	1.19 (0.78, 1.80)	
Contact with GP in last 6 months				.178
Yes	162 (66%)	123 (72%)	1	
No	83 (34%)	47 (28%)	0.75 (0.49, 1.14)	
Current physical health problems				.290
No	230 (85%)	169 (88%)	1	
Yes	42 (15%)	23 (12%)	0.75 (0.43, 1.29)	
Current mental health problems				.048
No	253 (93%)	169 (88%)	1	
Yes	19 (7%)	24 (12%)	1.89 (1.01, 3.56)	
Outcome: attended first follow-up visit with self harm team				.513
Yes	118 (44%)	92 (47%)	1	
No	24 (9%)	20 (10%)	1.07 (0.56, 2.05)	
Not applicable ^c	129 (48%)	82 (42%)	0.82 (0.55, 1.20)	

^aA&E = Accident and Emergency Department. ^bThese young people did not live with a parent.

^cThese young people were not referred for follow up with the self-harm team.

Table 3
Comparison of health and lifestyle factors between the self-harm and repeat self-harm groups

Characteristic	Self-harm	Repeat self-harm	Unadjusted OR (95% CI)	<i>p</i> value
Areas of conflict:				
Parent				
No	115 (43%)	64 (34%)	1	
Yes	153 (57%)	127 (67%)	1.49 (1.01, 2.19)	.042
Siblings				
No	233 (87%)	157 (82%)	1	
Yes	35 (13%)	35 (18%)	1.48 (0.89, 2.47)	.128
Peer group				
No	182 (68%)	119 (62%)	1	
Yes	86 (32%)	72 (38%)	1.28 (0.87, 1.89)	.213
School				
No	183 (68%)	141 (74%)	1	
Yes	85 (32%)	50 (26%)	0.76 (0.51, 1.15)	.199
Girl/boyfriend				
No	234 (87%)	166 (87%)	1	
Yes	34 (13%)	24 (13%)	0.99 (0.57, 1.74)	.986
Victim of bullying				
No	206 (77%)	153 (80%)	1	
Yes	62 (23%)	38 (20%)	0.83 (0.52, 1.30)	.407
Family history of:				
Suicide				
No	259 (96%)	167 (93%)	1	
Yes	12 (4%)	12 (7%)	1.55 (0.68, 3.53)	.293
Self-harm				
No	217 (80%)	121 (68%)	1	
Yes	53 (20%)	58 (32%)	1.96 (1.27, 3.03)	.002
Depression				
No	173 (65%)	93 (53%)	1	
Yes	94 (35%)	82 (47%)	1.62 (1.1, 2.39)	.014
Alcohol/drug misuse				
No	227 (88%)	134 (79%)	1	
Yes	31 (12%)	35 (21%)	1.91 (1.13, 3.24)	.015
Other mental illness				
No	246 (94%)	149 (87%)	1	
Yes	16 (6%)	22 (13%)	2.27 (1.16, 4.46)	.015
Abuse				
No	233 (90%)	137 (81%)	1	
Yes	27 (10%)	33 (19%)	2.08 (1.20, 3.61)	.008
Being in care				
No	251 (96%)	146 (87%)	1	
Yes	10 (4%)	21 (13%)	3.61 (1.66, 7.88)	.001

(Continued)

Table 3
(Continued)

Characteristic	Self-harm	Repeat self-harm	Unadjusted OR (95% CI)	<i>p</i> value
History of:				
Alcohol misuse				
No	231 (85%)	127 (67%)	1	
Yes	40 (15%)	63 (33%)	2.87 (1.82, 4.50)	<.001
Drug misuse				
No	235 (87%)	142 (75%)	1	
Yes	36 (13%)	48 (25%)	2.21 (1.37, 3.57)	.001
Emotional abuse				
No	236 (88%)	144 (78%)	1	
Yes	33 (12%)	41 (22%)	2.04 (1.23, 3.37)	.005
Sexual abuse				
No	242 (90%)	146 (78%)	1	
Yes	27 (10%)	41 (22%)	2.52 (1.49, 4.27)	.001
Physical abuse				
No	244 (91%)	144 (78%)	1	
Yes	25 (9%)	40 (22%)	2.71 (1.58, 4.66)	<.001
Neglect				
No	262 (97%)	170 (92%)	1	
Yes	7 (3%)	15 (8%)	3.30 (1.32, 8.27)	.011
Physical health problems				
No	234 (86%)	165 (86%)	1	
Yes	38 (14%)	27 (14%)	1.01 (0.59, 1.72)	.978
Mental health problems				
No	253 (93%)	167 (87%)	1	
Yes	19 (7%)	26 (14%)	2.07 (1.11, 3.87)	.022

Discussion

The current findings are consistent with evidence presented in previous research on the characteristics of young people who engage in self-harm. The demographic factors such as the predominance of self-harm being carried out by females and use of overdose as a form of self-harm are affirmed in other studies and reports (Hawton & Harriss, 2008; Nadkarni et al., 2000). The young persons' social situation at home is also known to be an important factor in relation to self-harm (Vajani, Annett, Crosby, Alexander, & Millet, 2007; Vajda & Steinbeck, 2000). In our sample the majority of both groups (self-harm and repeat self-harm) did not live with both biological parents, and the repeat self-harm group were significantly less likely to do so than the self-harm group. The percentage of young people living with a single parent (with or without a partner) was slightly greater in the repeat self-harm group, but the number living with adoptive parents or extended family/other relatives was similar in the two groups. However, a much higher percentage of young people in the repeat self-harm group lived in residential care, at a private hostel, or were homeless than in the self-harm group. Arguably these young people may feel more

Table 4
Results of the multivariable analyses showing independent risk factors for repeat self-harm

Characteristic	Adjusted OR 95% CI)	<i>p</i> value
Age years		.690
15–16	1	
13–14	0.89 (0.42, 1.91)	
<13	1.17 (0.74, 1.83)	
Gender		.009
Female	1	
Male	0.43 (0.23, 0.81)	
Main caregiver: Both parents		.001
No	1	
Yes	0.45 (0.28, 0.71)	
Caregiver's attitude: Cooperative		.015
Yes	1	
No	2.18 (1.16, 4.08)	
History of alcohol misuse		.003
No	1	
Yes	2.19 (1.32, 3.66)	
Other agencies involved at time of attempt		<.001
No	1	
Yes	2.81 (1.82, 4.33)	
Two or more methods of attempt		.021
No	1	
Yes	2.57 (1.15, 5.74)	

isolated and less supported with a lack of secure attachments possibly resulting in reduced ability to resolve problems as they are encountered. Being in care or being homeless could also be considered as an indication of family relationship difficulties.

A similar pattern was identified within the area of conflict identified by the young person. In both groups the majority cited conflict with parents, but the repeat self-harm group was significantly more likely to cite this reason than the self-harm group. Previous studies have shown that young people who self-harm experience higher levels of family dysfunction (Hawton & Harriss, 2008; Tulloch, Blizzard, & Pinkus, 1997; Vajda & Steinbeck, 2000). For example, Vajda & Steinbeck (2000) found that 76% of young people in their study had engaged in repeat self-harm in the context of a relationship dispute or breakdown. A recent international study of adolescent self-harm found that those cases that came to the attention of medical services and cases where adolescents were also more likely to use potentially lethal methods and express a wish to die were associated with parents who were separated or divorced (Ystgaard et al., 2009). Family intactness and cohesion have also been shown to be protective against self-harm in young people (Rubenstein, Halton, Kasten, Rubin, & Stechler, 1998). The present study suggests that not living with both biological parents influences young people in their actions of repeat self-harm, leaving them further removed from the opportunity of “family cohesion.”

Our findings also revealed that young people who had experienced a family history of self-harm, depression, alcohol/drug misuse, other mental illness, or abuse were more likely to repeat self-harm than those without these family histories. These are recorded as significant factors in previous research focusing on repeat self-harm in young people (Hawton et al., 1999; Vajda & Steinbeck, 2000). Parental mental health, in particular, has been shown to be one of the strongest predictors of repeat self-harm in children (Chitsabesan et al., 2003). The suggestion might be that poor parental mental health may lead directly to problems in the young person and further episodes of self-harm to occur. Alternatively, poor mental health in parents may be linked indirectly to suicidal ideation in the young person (e.g., via family relationship problems or lack of support). In this study, individuals with a history of alcohol or drug misuse, emotional, sexual or physical abuse, neglect, or mental health problems were more likely to repeat self-harm than those who did not. Again, these are significant factors in other studies (Chitsabesan et al., 2003; Cyr, McDuff, Wright, Thériault, & Cinq-Mars, 2005).

It is evident, therefore, that young people self-harm as a result of a complex combination of experiences. In the present study we used “contact with other agencies” as an indicator of wide-ranging social problems. It was found that, compared to the self-harm group, the repeat self-harm group were more likely to have multiple agencies involved at the time of the index self-harm act. This could well indicate that the acts that brought the young person to the attention of the self-harm team are parts of a larger picture of trauma and social distress. For example, a recent study of teenage pregnancy among drug users in the United Kingdom revealed high levels of other criminal, social, and mental health problems including the observation that 90% also had histories of self-harm (Barnes, Ismail, & Chrome, 2010).

Alternatively, it might also highlight that the person is expressing their distress in multiple ways, for example involvement in crime or antisocial behavior. It is commonly thought that self-harm acts as a “cry for help,” and research supports this view. A large survey of self-harm amongst over 30,000 adolescents in seven European countries revealed two main underlying reasons for self-harm; a “cry of pain” motive and a “cry for help” motive (Scoliers et al, 2009). We have reported that substance misuse is linked to self-harm in young people, and others have reported links to antisocial behavior (Patton et al., 1997). In some cases, it is possible that maladaptive responses such as substance misuse and antisocial behavior also act as cries for help. This is an alternative possible explanation for why repeat self-harm is linked to multiple agency involvement. Sometimes the self-harm is a small part of a bigger picture and sometimes a big part of a smaller picture. Again, it demonstrates an important set of social factors which require much more attention.

Having an uncooperative caregiver at the time of assessment is another factor identified as being associated with repeat self-harm in the present research, although this has not been explored in previous studies. One explanation for this could be linked to the relationship problems the repeat self-harm and nonrepeat self-harm groups appeared to have been experiencing. Previous research has implied the importance of caregiver attitudes and cooperation in self-harm by young people. Yip, Ngan, and Lam (2003), in a qualitative study of Hong Kong adolescents who self-cut, suggested that inappropriate parental response can sometimes provoke further self-harm. Furthermore, the crucial role of parental communication has been demonstrated in a sample of adolescents in the United States who visited emergency departments for self-harm. Compared to a group of hospitalized control adolescents, the self-harm group had much poorer communication with their parents (Tulloch et al., 1997). Parental attitude is also likely to influence engagement with treatment

services aimed at reducing self-harm. An Australian study of young people who attended an emergency department following self-harm found that negative attitudes of the parents to counseling was a major influence of the young persons' nonattendance with follow-up appointments (Clarke et al., 2004). It can easily be seen how such attitudes would impede the efficacy of services aimed at preventing repetition of self-harm. This finding also suggests that interventions targeted at the family are more likely to result in positive future outcome in the form of reduced rates of self-harm repetition rather than interventions directed at the young person alone.

It should however be noted that negative attitudes of the families have been identified as a general barrier to treatment in child and adolescent mental health services. It has been argued previously that caregivers can negatively influence treatment of children's mental health problems via three main routes: through their influence on help seeking, engagement, and outcome (Morrissey-Kane & Prinz, 1999). The influence on outcome is relevant to our finding that the uncooperativeness of caregivers is linked to repetition of self-harm. It has been argued that when caregivers are uncooperative they often believe that the child's problems are internal and dispositional (Watson, 1986). It is of interest then that parents of young people who self-harm often attribute it to personality factors (Oldershaw, Richards, Simic, & Schmidt, 2008).

In summary then, the univariate analyses revealed a myriad of differences between those young people who self-harm on only one occasion and those who repeat self-harm. The latter, compared to the former were less likely to live with both biological parents, be accompanied by a parent or have a cooperative parent at the initial meeting with the self-harm team. They were more likely to be female, not attending ordinary school, and have multiple social care agencies involved in their care. In addition, they were more likely to have family histories of substance use and mental health issues and also to have similar personal histories.

Clearly many of these factors are interlinked, for example, caregivers with their own mental health or drug problems may be more likely to be separated from the other parent, and this may also impinge on attendance at and engagement with the self-harm service. In order to disentangle these multiple, interacting factors, multivariable analysis was used. This statistically identified those influences on repetition of self-harm that act independently. Thus, it was revealed that being female was a significant independent risk factor; males were less than half as likely to repeat self-harm. Similarly, those living with both parents were less than half as likely to repeat self-harm as those that were not. The caregiver's attitude at the self-harm interview was also independently linked to repetition of self-harm, those with an uncooperative caregiver were more than twice as likely to repeat self-harm than those with a cooperative caregiver. If the young person had either a history of alcohol abuse or used more than one method of self-harm, this also conveyed a more than doubling of risk for repetition of self-harm, compared to those without the features. However, of all the independent factors linked to repetition of self-harm, the most striking association was having other social care agencies involved at the time of self-harm. Those that did compared to those that didn't, were nearly three times more likely to repeat self-harm. This clearly indicates that the wider picture of discord in the young person's life is indicative of risk for further self-harming behavior.

The current research reports on the systematic and continuous assessment of virtually all individuals referred to a self-harm service over a five-year period. A strength of this research is the high capture rate; only 1% of the cases referred in the period were not available for the statistical analyses. Related to this though, one limitation of the study is that the sample described are not representative of the overall population of young people who

self-harm, which would include a large proportion who never come to medical attention. For example, it is estimated that only about 13% of cases of youth self-harm result in hospital admittance (Hawton et al., 2002). Despite our sample not being representative of all youth self-harm, it is conversely highly representative of the population who are referred to specialist self-harm services following presentation for medical treatment. Indeed, those who work directly in clinical and other therapeutic contexts often cite the need for research that is directly relevant to real-life practice and the populations that are actually encountered (Robson, 2002; Roy-Byrne et al., 2003). Our study also compared those with a single episode of self-harm with those who repeat, this is precisely the comparison of interest to those faced with young people who have self-harmed and wish to assess their likelihood of self-harming again in the future. Our findings therefore have a form of ecological validity in that they are directly relevant to the clinical and therapeutic practice of those who work with self-harming children and adolescents.

Further research is required on specific factors identified in the current research, such as the higher rate of repeat self-harm cases not being cared for by both biological parents. This is an issue not drawn out or investigated fully in previous research. It constitutes an important social factor linked to young people who repeat self-harm and can be seen as a key influence on a decision to repeat self-harm. Of equal importance is the suggestion that being further removed from the opportunity of “family cohesion” is more likely to lead to recurring episodes of self-harm. Again, this requires further attention in the context of focusing on possible underlying causes leading to continued self-harm. The fact that such a large proportion of the repeat self-harm group had had contact with other agencies at the time of the attempt is another factor worthy of closer examination. Further, larger comparative cohort studies are required to explore the identified range of characteristics of this vulnerable group of young people.

A further limitation of our work is that we were not able to include validated scales of depression, hopelessness, and impulsivity; all of which have been closely linked to self-harm in previous research. The omission occurs because the data comprises an opportunistic set taken from actual medical cases, and such research scales were not routinely used clinically. However, we have been able to investigate features not easily amenable to survey-based research, such as direct observation of the cooperation of the children’s caregivers. Furthermore, features such as depression, hopelessness, and impulsivity have already been widely reported in survey-based research.

In conclusion then, in a representative sample of young people referred to a self-harm specialist service, we have confirmed several known correlates of repeat self-harm. These include the link to being female and the association with alcohol use. However, we have also illuminated the role of the caregivers. Our findings suggest that family cohesion and caregivers’ attitudes to engagement with mental health services are important influences on the repetition of self-harm. Further research is needed on these and other aspects in the hope that one day society can avoid the antecedents that lead to self-harm and repetition of self-harm in our young people.

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