

Adolescent self-harm in the community: an update on prevalence using a self-report survey of adolescents aged 13 to 18 in England

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Abstract

Background To establish an estimate of prevalence in a nationally representative sample of community adolescents. To examine associations between self-harm and wellbeing.

Methods An anonymous self-report survey completed by 2000 adolescents aged 13–18 years across England. Wellbeing was measured using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS).

Results In total 15.5 % (n=309) of participants reported ever having self-harmed (95 % CI 13.9–17.1). The median age of onset was 13.0 years. Females aged 13–15 years reported the highest incidence of self-harm within the past year (54.9 %). Cutting elsewhere (other than on the arms) was more prevalent amongst females (56.4 %). The mean wellbeing score for the whole sample (45.6) was lower than the WEMWBS validation score (48.8). Self-harm was associated with a significantly lower wellbeing score, with mean scores of 38.7 (ever self-harmed) and 46.8 (never self-harmed).

Conclusions Self-harm remains prevalent amongst adolescents aged 13–18 years in England. An awareness of the age of peak incidence and risks associated with preferred harming behaviours is crucial during assessment and intervention. The promotion of wellbeing is important for all young people. Further study is needed on the ways in which wellbeing may prevent, or ameliorate, the distress associated with self-harm.

Keywords epidemiology, mental health, self-harm, young people

Introduction

In recent years adolescent self-harm has been the focus of increased attention and concern, both in the UK and worldwide.¹ Young people's mental health charities have noted an increase in help sought for self-harm by children and young people.^{2,3}

It has been difficult, historically, to establish prevalence figures for self-harm as studies have made use of different methodologies and definitions which have included or excluded certain behaviours.^{1,4} Furthermore estimates of prevalence have been dominated by studies based on hospital data and clinical settings, rather than the general population or community. Over the last decade a number of key community studies associated with the multi-country Child and Adolescent Self-Harm in Europe (CASE) study have attempted to address these issues.⁵ For the purpose of generalisability the present study employs the CASE criteria in which self-harm is defined as:

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.^{5,6}

The CASE study combined national prevalence studies from England, Ireland, Australia, Belgium, Hungary, the Netherlands, and Norway.⁶⁻⁹ One of the first CASE studies to report findings, in 2002, was the much-cited study by Hawton et al.⁶ The study found a lifetime prevalence of 11.2 % for females and 3.2 % for males aged 15–16 years in England.⁶ National findings from other CASE studies have subsequently been reported, and a final combined prevalence of 13.5 % of females and 4.3 % of males from all participating countries was reported in 2008.⁵ Recently, a Northern Ireland study by O'Connor et al. reported a lifetime prevalence of 15.5 % for females and 5.1 % for males using a modified CASE questionnaire.¹⁰

No further large-scale community studies were undertaken in England until 2012 when a study using the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort reported a lifetime prevalence of 25.6 % for females and 9.1 % for males.¹¹ Possible reasons for the higher rate of prevalence reported here include: the use of a slightly older age group (16–17 years), a higher proportion of female participants, sampling differences, differences in the wording of questions, and the possibility of an actual increase in prevalence in the intervening period.^{6,11}

Given that only two large-scale community studies of adolescent self-harm have been conducted in England in over a decade, and that only a fraction of adolescents receive help for self-harming,¹¹ there is an ongoing need for community studies which can be compared meaningfully while also identifying emerging issues. Recent literature suggests that young people who cut themselves are not a homogeneous group and that cutting elsewhere on the body (other than on the arms) is more common in females and more closely associated with emotional disturbance, including a stronger likelihood of suicide.^{12,13} As such, the study aimed to differentiate between cutting on the arms and cutting elsewhere on the body. While previous studies have suggested that self-harm behaviours may start in early adolescence the bulk of prevalence data from studies to date are based on 15–16 year olds.^{14,15} Consequently the age range of our sample was extended to include 13–18 year olds. Finally, while clinical and community studies of self-harm have focused on the association between self-harm and mental illness or ill-health (e.g. self-harm as a marker for bipolar disorder, associations between self-harm and depression or anxiety) much less is known about the associations between self-harm and wellbeing⁴.

Methods

Design and setting

The survey employed an anonymous online questionnaire that consisted of 24 items and took 15–30 minutes to complete. It included sections on leisure, lifestyle, and health and wellbeing, in addition to specific questions about self-harm. The study took place between January and August 2013 and the survey was conducted over a 2-week period in April 2013.

Recruitment

An established market research agency, ResearchBods, was used to recruit participants and to administer the survey online. The sample was recruited from the ResearchBods' youth panel (YoungBods) which consists of 37000 11–24 year olds from across the United Kingdom. ResearchBods are bound by the industry guidelines and standards for market research with children put in place by the Market Research Society (MRS) and the European Society for Opinion and Marketing Research (ESOMAR). Recruitment to the ResearchBods panel is achieved by means of within-panel stratified random sampling, thereby ensuring that samples are representative of age, gender, ethnic, socioeconomic, and regional population demographics including hard-to-reach groups (e.g. young offenders, those in care, and those not in education, employment or training)¹⁶. An invitation to participate in the study was sent to all 17035 eligible panel members (those aged 13–18 living in England). The invitation included briefing information about the project with reference to questions about self-harm. A total of 6355 (37.3 %) panel members responded to the invitation; a breakdown of the process leading to the final sample of 2000 participants is provided in Figure 1 below. The reasons for non-response by the remaining 10680 panel members are not known and no demographic information is available to compare responders with non-responders. The response rate (37.3 %) is commensurate with leading market research panels such as Ipsos Mori and YouGov who achieve response rates of 12 % – 23 % and 35 % – 50 % respectively.^{17–19}

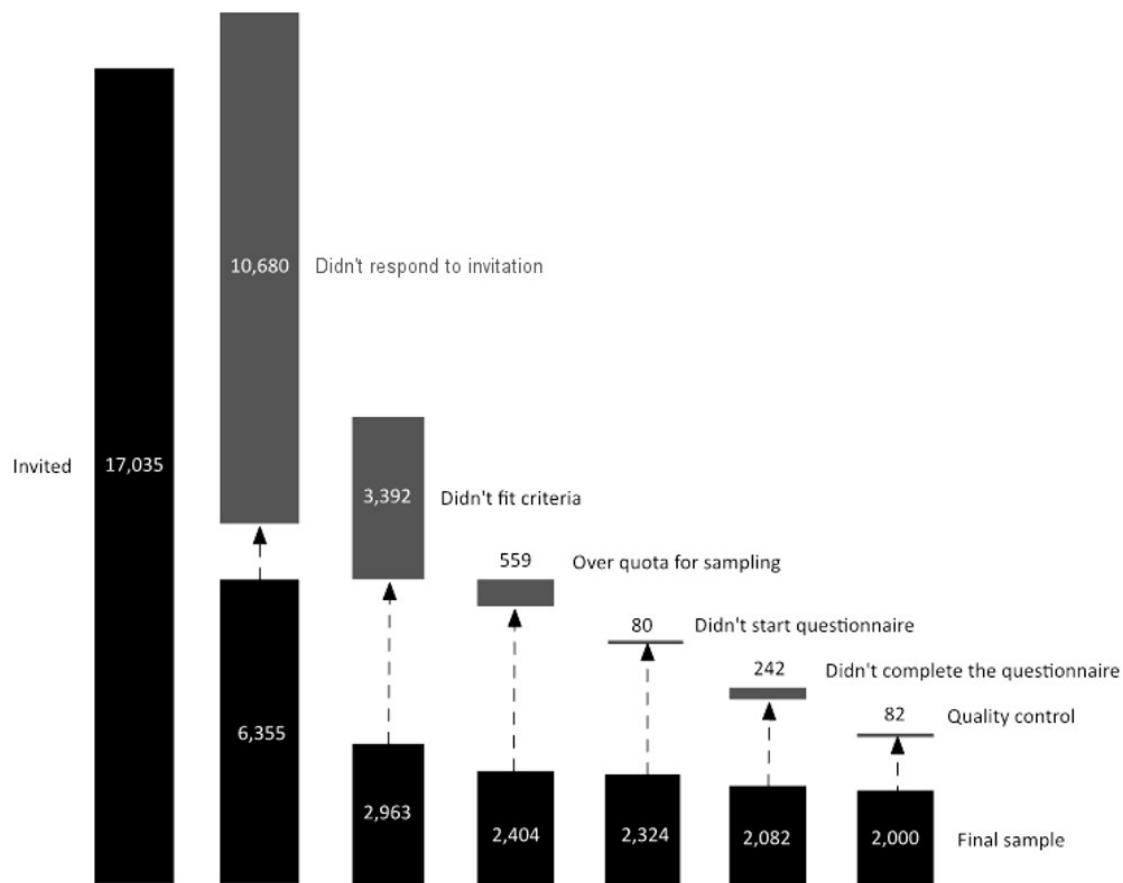


Figure. 1 Procedure for the selection of the sample

Sample size

An overall sample size for the survey was calculated using Open Source Epidemiologic Statistics for Public Health (OpenEpi) tool for calculating the frequency of events within a population for a random sample.²⁰ Using an expected self-harm prevalence of 14 %, based on existing studies, the recommended sample size required for this study to provide an estimate with a 95 % confidence level was 2055 participants.

Outcome measures

The primary outcome measure was the prevalence of a lifetime history of self-harm. This was assessed by the use of a single-item question in which participants were asked to respond 'yes' or 'no' to the following question, "Have you ever hurt yourself on purpose (e.g. by cutting yourself or taking an overdose of pills)"? Those who responded 'yes' were subsequently asked about the types of self-harm they engaged in (cut yourself on your arms; cut yourself somewhere else; hit yourself with or against something; burnt yourself –

e.g. with fire or a cigarette; swallowed pills or something poisonous; something else, please say what); as well as the incidence of self-harm behaviours (in the last week; in the last year; and more than a year ago). Participants were also asked at what age they first hurt themselves on purpose; a dropdown menu of ages spanning 7–18 years of age was provided for this response. Behaviour was classified as self-harm if it met with the CASE criteria described above. Verbatim descriptions provided by those selecting ‘something else, please say what’ for the type of self-harm were independently coded by Y.M. and D.M. and categorised using the open-coding responses in Hawton, Rodham and Evans.²¹ Consensus on discrepant cases was reached through discussion with J.V. and A.T.

Wellbeing was measured using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS).²² WEMWBS is a 14 item positively worded scale that measures both hedonic (subjective) and eudaimonic (positive functioning) dimensions of wellbeing for populations or groups. It is validated for use by adults and adolescents aged 13 years and upwards. Items are scored using a 1 to 5 Likert Scale and responses are summed to produce a total. The minimum scale score is 14 and the maximum is 70. Mean scores were calculated for the overall sample and sub-groups within the sample. Mean scores by year of age were compared with published validation scores where available.²³

Data analysis

SPSS version 20, Microsoft Excel, and Minitab were used to clean, code, and analyse the data. Estimates for lifetime prevalence, as well as prevalence by age, sex, and type of self-harm were calculated. 95 % confidence intervals (CI) were obtained in Minitab using the Clopper-Pearson method. Age-sex prevalence and age-sex incidence ratios were calculated. Analysis of prevalence by social deprivation was measured using the 2010 Index of Multiple Deprivation (IMD) at lower super output area (LSOA).

Ethics

The research proposal was reviewed and approved by the University of the West of England Faculty of Business and Law Research Ethics Committee in April 2013. Additional ethical measures required by the panel provider included satisfying concerns about the risk of iatrogenic harm (no evidence was found to suggest that asking young people about self-

harm would increase the risk of future self-harm), and obtaining opt-out consent from parents of participants under 16 years of age.

Results

In total 2000 adolescents aged 13–18 and living in England participated in the study. A comparison of the mean time from invitation to response for those that reported self-harm behaviour and those that did not showed no significant difference between the two groups. This suggested that a response bias linked to the quota sampling technique used in the study was unlikely: self-harming participants were no more or less likely to have been included in the final sample based on the time taken to complete the questionnaire. A comparative analysis of the sample demographics with population demographics taken from the 2011 census suggested that it was representative in terms of age, gender, socioeconomic status, and geographic distribution as shown in Table 1. The sample included slightly higher proportions for the principal black and minority ethnic groups.

Table 1 A comparative analysis of the sample demographics with population demographics from the 2011 census.

	2011 Census			Final sample		
	All	Male	Female	All	Male	Female
Age by single year						
13	16.1%	16.1%	16.1%	13.2%	13.0%	13.3%
14	16.4%	16.4%	16.4%	16.0%	14.6%	17.3%
15	16.6%	16.7%	16.6%	18.6%	18.1%	19.1%
16	16.6%	16.6%	16.6%	18.5%	18.3%	18.7%
17	17.0%	17.1%	17.0%	19.1%	21.2%	17.2%
18	17.3%	17.2%	17.4%	14.7%	14.8%	14.5%
Age group						
13-15	49.1%	49.2%	49.1%	47.8%	45.8%	54.2%
16-18	50.9%	50.8%	50.9%	52.3%	49.8%	50.2%
Socioeconomic status by NRS category						
ABC1	56.0%			59.9%		
C2DE	44.0%			40.2%		
Ethnicity						
White	86.0%			81.6%		
Mixed/Multiple	2.2%			4.7%		
Asian/Asian British	7.5%			7.4%		
Black/African/Caribbean/B						
lack British	3.3%			4.2%		
Other	1.0%			0.7%		

	2011 Census			Final sample		
	All	Male	Female	All	Male	Female
Prefer not to say	N/A			1.4%		
Region						
East Midlands	8.6%			8.7%		
East of England	11.0%			11.0%		
London	15.3%			13.7%		
North East	4.9%			3.6%		
North West	13.3%			12.9%		
South East	16.3%			17.8%		
South West	10.0%			12.0%		
West Midlands	10.6%			9.4%		
Yorkshire	10.0%			11.0%		

Prevalence

Overall 15.5 % (n=309) of all participants reported a history of self-harm in their lifetime (95 % CI 13.9–17.1). The prevalence for females (23.1 %, 95 % CI 20.6–25.8) was much higher than it was for males (7.1 %, 95 % CI 5.6–8.9). Looking across single age groups, the highest prevalence was found for 16 year olds (18.6 %, 95 % CI 14.8–22.9) and 17 year olds (20.2 %, 95 % CI 16.2–24.5), with the lowest prevalence found for 13 year olds (6.8 %, 95 % CI 4.1–10.6). Grouped by age-sex ratio the highest lifetime prevalence was found for females aged 16–18 years (29.0 %, 95 % CI 25.1–33). The highest incidence (self-harm within the last year) was reported by females aged 13–15 years (54.9 %, 95 % CI 44.2–65.4). Full findings for prevalence, incidence and type of behaviour are shown in Table 2.

Table 2 Prevalence of self-harm reported by lifetime history, sex, age, age-sex ratios, age-sex incidence and type of behaviour.

	Number	Sample	Proportion of self-harmers	95% CI
Lifetime prevalence (adj.)*	309	2000	15.5%	(13.9 - 17.1)
Sex				
Male	68	957	7.1%	(5.6 - 8.9)
Female	241	1043	23.1%	(20.6 - 25.8)
Age prevalence (all)				
13	18	263	6.8%	(4.1 - 10.6)
14	51	320	15.9%	(12.1 - 20.4)
15	47	372	12.6%	(9.4 - 16.4)
16	69	370	18.6%	(14.8 - 22.9)
17	77	382	20.2%	(16.2 - 24.5)

18	52	293	17.7%	(13.5 - 22.6)
Age-sex prevalence (male and female)				
Male 13–15	24	437	5.5%	(3.6 - 8.1)
Female 13–15	89	518	17.2%	(14 - 20.7)
Male 16–18	44	520	8.5%	(6.2 - 11.2)
Female 16–18	152	525	29.0%	(25.1 - 33)
Age-sex incidence (self-harm within the past year)				
Male 13–15	10	25	40.0%	(21.1 - 61.3)
Female 13–15	50	91	54.9%	(44.2 - 65.4)
Male 16–18	16	44	36.4%	(22.4 - 52.2)
Female 16–18	67	154	43.5%	(35.5 - 51.7)
Type of self-harm behaviour				
Cut on arms	232	309	75.1%	(69.9 - 79.8)
Cut elsewhere	167	309	54.0%	(48.3 - 59.7)
Self-battery	159	309	51.5%	(45.7 - 57.2)
Pills or overdose	88	309	28.5%	(23.5 - 33.9)
Burnt	66	309	21.4%	(16.9 - 26.4)

*Total adjusted from 314 to 309 as 5 participants did not meet the study criteria for self-harm

While prevalence estimates varied between ethnic groups, the only statistically significant difference for the reporting of a lifetime history of self-harm was between participants with a White background (16.3 %) and those with an Asian background (6.8 %). Analysis of prevalence by social deprivation showed little variation and there were no statistically significant differences between quintiles of deprivation.

Age of onset

Based on the self-report data for the question “At what age did you first hurt yourself on purpose?” the median age of onset was calculated as 13.0 years and there was no statistically significant difference in mean age of onset between males (13.5) and females (13.0). The most common (modal) age of onset was 14 years (24 %), with nearly half of those that self-harmed starting between 13 and 15 years of age.

Type of self-harm

Cutting was the most commonly reported behaviour for those that had ever self-harmed. Cutting on the arms was most commonly reported (75.1 %, 95 % CI 69.9–79.8), followed by cutting elsewhere (54.0 %, 95 % CI 48.3–59.7), self-battery (51.5 %, 95 % CI 45.7–57.2), taking pills or an overdose (28.5 %, 95 % CI 23.5–33.9), and burning (21.4 %, 95 % CI 16.9–26.4). After cutting on the arms, cutting elsewhere was the most commonly reported self-harm behaviour for females (56.4 %, 95 % CI 49.9–62.8), while self-battery was the second

most common behaviour for males (60.3 %, 95 % CI 47.7–72.0). Taking pills or an overdose was reported by more male (39.7 %, 95 % CI 28.0–52.3) than female (25.3 %, 95 % CI 19.9–31.3) participants.

Wellbeing

The mean wellbeing score for the whole sample (45.6) was significantly lower than the WEMWBS validation score (48.8). The lowest scores for single age groups across the whole sample were found for 16 (43.5) and 18 year olds (43.8). Grouped by age-sex ratio the lowest wellbeing score was found for females aged 16–18 years (42.5). Self-harm was associated with a significantly lower wellbeing score, with mean scores of 38.7 (ever self-harmed) and 46.8 (never self-harmed). There was little variation in wellbeing scores when measured against different types of self-harm, the lowest mean score for the type of self-harm behaviour was observed in the pills/overdose subgroup (36.7). Full wellbeing scores are shown in Table 3 below.

Table 3 Overall self-reported wellbeing and validation score, age specific wellbeing, age-sex ratios, wellbeing scores for a lifetime history of self-harm and type of self-harm behaviour.

	Number	Mean WEMWBS Score	95% CI	Validation Score
<i>Overall self-reported wellbeing</i>	2000	45.6	(45.2 - 46.0)	48.8
<i>Age specific self-reported wellbeing</i>				
13	263	48.8	(47.6 - 49.9)	48.7
14	320	47.0	(45.8 - 48.1)	48.6
15	372	46.7	(45.7 - 47.7)	50.1
16	370	43.5	(42.4 - 44.5)	49.8
17	382	44.4	(43.4 - 45.4)	
18	293	43.8	(42.7 - 44.9)	
<i>Age-sex specific self-reported wellbeing</i>				
Male 13-15	437	48.8	(47.9 - 49.7)	N/A
Female 13-15	518	46.1	(45.3 - 46.9)	N/A
Male 16-18	520	45.3	(44.4 - 46.2)	N/A
Female 16-18	525	42.5	(41.7 - 43.3)	N/A
<i>Self-reported self-harm</i>				
Any	309	38.7	(37.6 - 39.9)	N/A

	Number	Mean WEMWBS Score	95% CI	Validation Score
None	1691	46.8	(46.3 - 47.3)	N/A
<i>Self-reported self-harm by type</i>				
Cut on arms	235	37.9	(36.6 - 39.2)	N/A
Cut elsewhere	170	37.4	(35.9 - 38.9)	N/A
Self-battery	163	38.1	(36.5 - 39.6)	N/A
Burnt	68	37.0	(34.4 - 39.7)	N/A
Pills or overdose	89	36.7	(34.3 - 39.0)	N/A
Something else	24	38.8	(34.7 - 43.0)	N/A
None	1691	46.8	(46.3 - 47.3)	N/A

Discussion

Main finding of this study

Self-harm is prevalent amongst adolescents aged 13–18 in years England. The prevalence estimate of 15.5 % is largely commensurate with existing prevalence estimates. Prevalence rates were higher for older participants (20 % of 17 year olds across the whole sample, and 29.0 % of females aged 16–18 years), however the median age of onset (13.0 years) and peak incidence rates for females aged 13–15 years point to the importance of considering lifetime prevalence alongside age of onset and incidence in order to arrive at a fuller understanding of adolescent self-harm.

What is already known on this topic

The findings confirm that self-harm is more prevalent amongst females and that cutting is the most common type of self-harm in community samples. Our findings lend support to recent suggestions that females are more likely to cut themselves elsewhere.^{12,13} Given the heightened risks associated with this, this finding highlights the importance of differentiating cutting behaviour in studies of self-harm. This differentiation is also crucial for the assessment of young women who cut elsewhere.

What this study adds

This study contributes to, and updates, the body of evidence on adolescent self-harm in the community in England, and provides evidence for a wider age range (13–18) than is usual.

The use of a nationally representative sample and the same set of criteria for defining self-harm means that the findings are generalisable and can be meaningfully compared with significant studies in the area.^{6,11}

To our knowledge this the first large-scale community study to examine associations between self-harm and wellbeing. A lifetime history of self-harm was associated with a significant reduction in wellbeing. Additionally, lower mean scores for wellbeing were recorded for the whole sample, with the lowest scores recorded for females aged 16–18 years. Correspondingly, the highest estimate of prevalence (29.0 %) was observed for this subgroup. Given the complex and multiple determinants of self-harm the promotion and bolstering of wellbeing in *all young people* may ameliorate the need for adverse coping strategies and foster the resilience needed to cope with emotional distress.

In addition to the attainment of a nationally representative sample of adolescents, the use of a market research panel ensured a speedier and more cost-effective data collection process than might normally have been the case. Panel-based surveys minimise some of the risks, such as under-reporting and absenteeism, associated with school-based sampling.

Limitations of this study

As the study is cross-sectional it only provides a snapshot of prevalence and points to correlation rather than causation. The findings are largely descriptive and based on univariate analysis, however the study has produced a large body of data for secondary analysis.

While the response rate is commensurate with response rates for leading market research panels we acknowledge that adolescents experiencing severe emotional distress associated with self-harm or other mental health problems might not have been able to participate in or complete a survey.

The survey was completed prior to the GCSE and A Level examinations and it is possible that lower wellbeing scores for 16 and 18 year olds reflected this.

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Fig. 2 Procedure for selection of sample