

## **Comparing Self-Harm (SH) Thoughts and Behaviours Among a Community Sample of Younger and Older Adolescents in Northern Ireland**

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## **ABSTRACT**

**Background:** Clinical data indicate that the rates of non-suicidal self-harm (SH) are rising and developing younger, causing increasing concern. However, to date, no United Kingdom (UK), Irish or European community based surveys have been able to determine the prevalence rates of not only SH ideation but also actual incidences of SH behaviours in younger adolescent groups (11–14 years). Hence the aim of the current study was to establish an estimate of how SH may be developing in children as young as 11 up to 14 years, and compare these rates with more established older adolescent age groups of 15 up to 18 years. **Method:** A cross-sectional online survey design was used, where a total of 864 adolescents (56% female,  $n = 480$ ), aged from 11 up to 18 years, were recruited from four post-primary schools in the north-west region of NI. **Results:** The rates of SH ideation in the younger adolescents (11–14 years) was reported to be 7.9%, and SH behaviours was 5.7%. When compared to the older adolescents (15–18 years), the rate of SH ideation was reported to be 18.5%, and the rate of SH behaviours was 12.5% (which are comparable to others parts of UK, Republic of Ireland and Europe). Females are more at risk of SH ideation and behaviours than males in both age groups. **Conclusion:** SH ideation and SH behaviours are developing at a much younger age than was previously considered in school-based community settings. Recommendations for future research studies include lowering the age threshold of participant samples and focusing on female adolescents in order to explore the prevalence of SH ideation and behaviours in this vulnerable group. Tentative theories have been suggested regarding the use of social media, social comparison, perfectionism and contagion as potential predictors which require further exploration in relation to adolescent SH ideation and SH behaviours.

## **KEYWORDS**

Early onset; non-suicidal self-harm; prevalence rates; younger and older adolescents

## Introduction

Non-suicidal self-harm (SH) is a known predictor of completed suicide (Windfuhr & Kapur, 2011). Recent studies indicate that this is on the rise among adolescents (Doyle, Treacy, & Sheridan, 2015; Harper, 2014; Hawton, Saunders, & O'Connor, 2012; O'Connor, Rasmussen, & Hawton, 2014). Subsequently, efforts to reduce rates of SH behaviours are an integral component of a suicide prevention strategy in adolescents, and hence is a major focus of research efforts (Wasserman et al., 2012). Therefore, on-going understanding of SH, its prevalence rates, earliest time of onset and predictors are key to supporting this effort.

Findings from earlier (Laye-Gindhu & Schonert-Reichl, 2005; Lohman & Jarvis, 2000) and more recent studies indicate that the majority of adolescents who SH do not present to hospital, meaning clinical samples only represent the “*tip of the iceberg*” of adolescent SH (Harper, 2014; Madge et al., 2008; McMahon et al., 2014). Hence, a common point made is that data on adolescent SH needs to be recruited from both hospital and community settings to gain a more accurate picture of the scale of the problem (Doyle et al., 2015; Hawton et al., 2015; O'Connor et al., 2014).

In terms of comparing the rates of SH in adolescents in the United Kingdom (UK), Scotland, Republic of Ireland (ROI) and Europe, the Child and Adolescent Self-Harm in Europe (CASE) Study questionnaire (Hawton, Rodham, Evans, & Weatherall, 2002) was utilised. This large-scale, community-based study of adolescent SH sampled older adolescents aged 15 to 18 years. The overall average lifetime prevalence of adolescent SH reported at that time in Europe was 13.5% for females and 4.3% for males (Madge et al., 2008).

The CASE methodology was replicated in the ROI, where the lifetime prevalence of SH behaviours was 12.2% (4% males; 13.9% females; Morey, Corcoran, Arensman & Perry, 2008); in England, this was 13.2% (7.0% males; 20.2% females; Hawton et al., 2002); and in Scotland, 13.8% (6.9% males; 19.9% females; O'Connor, Rasmussen, Miles, & Hawton, 2009). However, in Northern Ireland (NI), using the same CASE Study questionnaire, only 10% of adolescents (5.1% males; 15.5% females) reported lifetime prevalence of SH behaviours (O'Connor et al., 2014). This lower rate is surprising given the higher rates of suicide in NI (13.9 per 100,000 population; Windfuhr & Kapur, 2011).

In younger adolescents, a recent NI hospital-based Registry of Self-Harm (Harper, 2014) highlighted that adolescents as young as 10 to 14 years were presenting to hospital following SH behaviours. Although there are currently no community-based studies reporting on this younger age group in the UK, a study conducted in the ROI focusing on adolescents aged 11 to 13 years (Coughlan et al., 2014) reported that 4.8% (n = 212) were engaging in SH behaviours. These findings indicate that SH is commencing even younger than previously reported, but we have little or no data in the UK or NI to establish an estimate of the prevalence in this younger age group (Law, Faulconbridge, & Laffan, 2015). This is important because recent recommendations are that early assessment and timely intervention of SH is crucial in preventing further mental health problems and potential suicide in adolescents (Department of Health, 2015).

Hence, the primary aim of the current study is to examine the prevalence of SH ideation and behaviours in younger (11–14 years), compared to older (15–18 years), adolescents, in addition to comparing gender variances, in school-based community samples, using online survey methods. To our knowledge, the current study is the first in the UK to explore the prevalence of SH below the age of 15 years in this setting.

### ***Design and participant sample***

A cross-sectional survey was conducted with a total of 864 adolescents (56% female, n = 480) recruited from four post-primary schools in the north-west region of NI in 2013–2014. All pupils aged 11 to 18 years (mean age = 13.65; SD = 1.76) were invited to participate (n = 4594; 11–14 years n = 583; 15–18 years n = 281).

### ***Measures***

Adolescents completed a modified version of the CASE Study questionnaire (Hawton et al., 2002). The original CASE Study questionnaire (available on request from Hawton et al., 2002) included 13 sections of information, including: (1) socio-demographic information; (2) health issues, smoking and alcohol and drug use; (3) stressful events and problems; (4) deliberate SH; (5) motives for deliberate SH; (6) help-seeking and hospital treatment; (7) thoughts of deliberate SH; (8) Hospital Anxiety and Depression Scale; (9) impulsivity; (10) the coping strategy scale and (11) self-esteem. The final two sections were excluded from the current study. The first

was voluntary agencies and the second was prevention of SH and improvement of the local environment. These sections were excluded because in a connected study conducted by the authors, adolescents were asked questions of this nature in qualitative interviews.

For the purpose of the current study, the items which measured lifetime prevalence of SH ideation and lifetime prevalence of SH behaviours were extracted.

### ***Prevalence of self-harm behaviours***

Lifetime prevalence of SH behaviour was assessed with the question: “*Have you ever deliberately taken an overdose (e.g. pills or other medication) or tried to harm yourself in some other way (such as cut yourself)?*”. Adolescents were asked to describe what they did to themselves on that occasion, so that it could be determined if this description of their SH behaviours met the criteria of SH. A definition of SH was provided, whereby the behaviour was:

*“an act with a non-fatal outcome in which an individual deliberately: initiated behaviour (for example, self-cutting, jumping from a height) which they intended to cause SH, 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 SH, ingested a non-ingestible substance or object”* (Hawton et al., 2002, p. 29).

This definition of SH behaviours was adapted by Hawton et al. (2002) from previous studies conducted in Europe with participants of all ages, for use in the CASE Study (Platt et al., 1992; Schmidtke et al., 1996). The collaborators of the CASE Study developed a manual of guidelines to aid in the categorisation of adolescents’ responses in order to determine if the criteria of SH were met (for full details, refer to Hawton et al., 2002). However, O’Connor et al. (2014) did not follow the above criteria of SH, rationalising that to do so may exclude individuals who selected not to write a description of their SH behaviours, thus resulting in an under-estimate of the prevalence. The current study followed the procedure of O’Connor et al. (2014) so that participants who responded “yes” to the SH question contributed to the count of SH behaviours.

### ***Prevalence of self-harm ideation***

Participants were asked if they had: “*seriously thought about taking an overdose or trying to harm yourself but not actually done so*” at any stage throughout their lifetime. Participants responding “yes” to the above question contributed to the count of SH ideation.

### ***Procedure***

Invitation letters were sent to all 11 post-primary schools in Derry City, NI. Parental information and opt-in consent forms were sent to all parents/guardians of the pupils in the four post-primary schools who agreed to participate. Adolescents with parental consent were invited to participate in the study during their pastoral care lesson. The anonymous, self-report survey was computerised and placed on the Intranet. The survey was accessed through Survey Gizmo (Vanek, McDaniel, & Flagg, 2007) at each post-primary school site and took approximately 30 minutes to complete. It was anticipated that using online data collection methods would yield more open and honest responses, rather than paper and pen methods. There was a raffle of one Amazon Kindle 3G Touch per post-primary school as a participation incentive. Ethical approval was granted from Ulster University Research Ethics Committee (REC/12/0322).

### ***Data management and statistical analysis***

Age was categorised as follows: 11–14 age group (younger adolescents) and 15–18 age group (older adolescents). Frequency and chi-square analyses were carried out to determine prevalence rates of SH ideation and behaviours, in addition to determining whether the prevalence rates of SH differ across males and females. Data were analysed using SPSS (Version 23.0; IBM Corporation, 2015).

## **Results**

### ***Prevalence rates of self-reported self-harm ideation and self-harm behaviours, comparing the age groups: 11–14-year-olds and 15–18-year-olds***

Table 1 illustrates an observed lifetime prevalence of both SH ideation (7.9%) and SH behaviours (5.7%) in the younger adolescents (11–14 years). In the older adolescents, the prevalence of SH ideation (18.5%), and SH behaviours (12.5%)

was significantly higher (2.7 OR and 2.4 OR, respectively) when compared to the younger adolescents, with females also consistently reporting a higher odds ratio for SH ideation (2.1 OR) and SH behaviours (4.1 OR) when compared to males.

**Table 1.** Prevalence of Self-Harm Ideation and Self-Harm Behaviours by Age Groups and Gender ( $n = 864$ ).

Respondents	N (%) for SH	Odds Ratio (95% CI)
<i>Lifetime Prevalence of SH Ideation</i>		
Age Groups		
11-14 Years ( $n = 583$ )	46 (7.9)	
15-18 Years ( $n = 281$ )	52 (18.5)	2.7 (1.7-4.1)*
Gender		
Males ( $n = 384$ )	29 (7.6)	
Females ( $n = 480$ )	69 (14.4)	2.1 (1.3-3.2)*
<i>Lifetime Prevalence of SH Behaviours</i>		
Age Groups		
11-14 Years ( $n = 583$ )	33 (5.7)	
15-18 Years ( $n = 281$ )	35 (12.5)	2.4 (1.4-3.9)*
Gender		
Males ( $n = 384$ )	12 (3.1)	
Females ( $n = 480$ )	56 (11.7)	4.1 (2.2-7.8)*

Note:  $p < 0.001$ \*

### ***Self-harm ideation and gender variances in younger and older adolescents***

Results indicate that in terms of lifetime prevalence rates, younger adolescent females were 3.3 times (95% CI = 1.58–6.70), whilst older adolescent females were 1.4 times (95% CI = 0.72–2.51), more likely to experience ideation of SH, when compared to males.

### ***Self-harm behaviours and gender variances in younger and older adolescents***

Regarding lifetime prevalence of SH behaviours, significant gender variances were observed. Results indicate that younger adolescent females were 6.6 times (95% CI = 2.27–18.87), whilst older adolescent females were 2.8 times (95% CI = 1.21–6.35), more likely to engage in SH behaviours compared to males.

### **Discussion**

To our knowledge, this is the first study to report the rates of SH ideation and behaviours in a community sample of adolescents aged younger than 15 years in the UK. The main findings of this study can be summarised succinctly in three main points. Firstly, the findings indicate that approximately 5.7% (or one in 18) of the younger adolescents (aged 11–14 years) self-reported SH behaviours. Secondly, the rate of SH behaviours was considerably higher at 12.5% (or one in eight) in the older adolescents (15–18 years). Thirdly, this indicates a worrying trend, consistent with the community-based sample findings reported by Coughlan et al. (2014) that younger adolescents in a school sample are engaging in SH behaviours at a much younger age.

In terms of SH ideation, the current study reports another significant and important finding that a significant proportion of adolescents have contemplated SH, but not acted on it. Females are more at risk of SH than males, and this concurs strongly with O'Connor et al. (2014) and other European CASE studies (Hawton et al., 2002; Morey et al., 2008; O'Connor et al., 2009) cited previously. In the current study, the proportion of younger adolescents who reported SH behaviours (5.7%) is somewhat higher than Coughlan et al.'s (2014) comparable study conducted in the ROI which reported that 4.8% of adolescents aged 11 to 13 years reported SH behaviours. However, Coughlan et al. (2014) carried out a clinical interview assessment, thus it is not surprising that somewhat higher estimates of SH would have been reported in the current study due to the self-report method employed.

The proportion of older adolescents who reported SH behaviours in the current study (12.5%) is comparable to other UK studies (Hawton et al., 2002; O'Connor et al., 2009) and ROI and European CASE studies (Madge et al., 2008; Morey et al., 2008), where these CASE studies exclusively assessed the rates of SH in 15–17-year-olds. Indeed, the rate reported by the current study of 12.5% was higher than the rate of 10% reported by O'Connor et al. (2014), which was the only



other NI school-based survey reporting rates of SH behaviours for this age group. Despite a smaller sample size (an acknowledged limitation discussed below), it is suggested that the more comparable rate of 12.5% was found with the support of using online survey methodology, rather than paper and pen survey methods. This suggestion was made by O'Connor et al. (2014), that online methods of data collection in adolescents may give more honest responses, encouraging open disclosure of SH, hence allowing the current study to reflect more accurate rates of SH in NI.

Given the limited data on younger adolescents, only tentative suggestions can be made with regard to predictors of SH at this stage. Researchers suggest that bullying victimisation has been significantly and positively associated with adolescent SH and suicidal ideation (Hay & Meldrum, 2010). Furthermore, O'Connor et al. (2014) recommended that researchers explore the impact of social media and cyberbullying on rates of SH, as almost 20% of adolescents explicitly stated that the Internet or social media influenced their decision to SH. O'Connor et al. (2014) concluded that adolescents' use of social media will continue to grow, and it has been reported that children first start using the Internet and social media from the age of seven years in the UK (Mascheroni & Ólafsson, 2014). Hence, further research is required to explore whether negative experiences via social media could act as a moderator for SH ideation in children as young as age 11. The mechanisms which influence SH ideation may relate to social media's ability to increase self-consciousness via peer comparison, which is known to influence negative self-image, potentially lowering self-concepts and self-esteem (Mann, Hosman, Schaalma, & de Vries, 2004). It is these intrinsic mechanisms, in addition to other extrinsic stressors, such as peer and family issues, adversity and bullying (Chapman, Gratz, & Brown, 2006; Klonsky, Glenn, Styer, Olino, & Washburn, 2015; McMahon et al., 2013; Stanford, Jones & Hudson, 2017), which may potentially initiate SH ideation and SH behaviours in this younger, and quite vulnerable age group.

Other related concepts such as social contagion (Jarvi, Jackson, Swenson, & Crawford, 2013) and social perfectionism (Hewitt, Flett, Sherry, & Caelian, 2006; O'Connor, 2007) are suggested to play a role in increasing the risk for SH and suicidal behaviours, where social perfectionism is more relevant for younger adolescents (Claes, Soenens, Vansteenkiste, & Vandereycken, 2012; Roxborough et al., 2012). These maladaptive social learning mechanisms may be occurring via

social media and, more importantly, developing at an earlier age; hence there is a need for further examination, along with the implementation of learning effective coping mechanisms for future health and well-being (McMahon et al., 2014).

Although these suggestions above are tentative and require further study, and even though the results of the current study indicate that the older adolescents were more likely to experience SH ideation and behaviours, it is nevertheless considered important to offer early intervention as a preventative mental health strategy, to younger female adolescents in particular. Studies have demonstrated that early intervention can prevent more enduring and complex developments of psychopathology and may reduce SH ideation and behaviours when adolescents get older (Kidger et al., 2015; McMahon et al., 2013).

### ***Limitations***

A core requirement of ethical approval was to have opt-in parental consent, resulting in a 19% response rate, which is typical when required to use parental opt-in consent/sampling methods (Doumas, Esp, & Hausheer, 2015). This compares to O'Connor et al.'s (2014) study which used opt-out parental consent strategies, allowing for a larger (n = 3596, which represented approximately 80% of the target population) and arguably a more representative sample.

A possible limitation is the use of two close-ended questions in order to determine the prevalence of SH ideation and SH behaviours. Although these two questions have been used extensively in research of adolescent SH ideation and behaviours (Hawton et al., 2002; Madge et al., 2008; McMahon et al., 2013; Morey et al., 2008; O'Connor et al., 2009, 2014), it is possible that these may have resulted in an under-estimation of the prevalence of SH ideation and behaviours in the sample populations. An alternative measure which future studies may consider is the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001). The DSHI (Gratz, 2001) is composed of 17 items and was employed recently with an adolescent participant sample (n = 211) in the United States (Howe-Martin, Murrell, & Guarnaccia, 2012), which reported a prevalence rate of SH behaviours of 35%. It is possible that using the close-ended questions from the CASE Study questionnaire (Hawton et al., 2002) may have resulted in adolescents not considering the different methodologies of SH behaviours, and that suggesting different methodologies of SH behaviours through the use of the DSHI (Gratz, 2001) may lead to adolescents more accurately reporting

their SH behaviours. However, to allow comparability of prevalence rates from the current study with other UK (Hawton et al., 2002; O'Connor et al., 2009), NI (O'Connor et al., 2014) and ROI (Morey et al., 2008) CASE Studies, it was considered a strength of the current study to use the same CASE Study questionnaire.

In conclusion, the current study indicates that there is an observed prevalence of SH ideation and behaviours in younger adolescents (11–14 years) within NI school-based settings. When comparing the older adolescents (15–18 years), the rate of SH behaviour was 12.5%, which is comparable to other parts of the UK, NI, ROI and Europe. Overall, these findings suggest that future studies should lower the age threshold for exploring the incidence, onset, prevalence and, perhaps more importantly, the predictors of SH (including social media effects on social contagion, social perfectionism, and learning negative coping styles), in younger as well as older adolescents, focusing on females due to the higher prevalence rates reported.

#### **Disclosure statement**

No potential conflict of interest was reported by the authors.

#### **Notes on contributors**

**Dr Allison M. C. Gillen** (PhD, MSc, BSc, CPsychol, AFHEA) is a Lecturer in Psychology at the University of Suffolk and is a Chartered Psychologist with the British Psychological Society. Dr Gillen completed her BSc in Psychology at the University of Stirling. Dr Gillen was awarded a Distinction in her Applied Psychology Mental Health at Ulster University. During this time at Ulster University, Dr Gillen also achieved her Level A Certificate of Competence in Occupational Testing (accredited by the British Psychological Society). Dr Gillen was awarded a full Vice Chancellor's Research Scholarship from Ulster University to conduct her PhD which focused on the prevalence and mediating intrinsic and extrinsic predictors of self-harm in Northern Irish adolescents. During this time, Dr Gillen was awarded Associate Fellowship of the Higher Education Academy and the Level 5 Award in Leadership and Management by the Institute of Leadership and Management. Dr Gillen's research interests focus on the areas of child and adolescent mental health and wellbeing. Dr Gillen is particularly interested in adolescent self-harm, coping mechanisms, impulsivity, bullying and cyberbullying, personality and psychological

vulnerability. Due to Dr Gillen's mixed methods PhD approach, she has extensive skills both of a quantitative and qualitative nature, and has expertise in utilising data manipulation and analyses packages such as Mplus, SPSS and Nvivo.

**Dr Karen Kirby** (PhD, C.Psychol, AfBPS, SFHEA) has been employed by Ulster University, School of Psychology as a Lecturer of Counselling Psychology since 2004. Prior to this, she worked as a Counselling and Health Psychologist, and practised in the Child and Adolescent Mental Health Services (CAMHS) with some additional consultancy work in Paediatric Psychology and Clinical Health Psychology departments within the Western Trust. Dr Kirby's current role as a Lecturer involves teaching at undergraduate and post graduate levels, of which two of her teaching disciplines are 'Child, Adolescent and Family Mental Health' and 'Cognitive Behaviour Therapy' at MSc level. Dr Kirby is a full member of the Psychology Research Institute, and has a number of ongoing projects and peer-review publications in the area of child and adolescent mental health research, and various evaluations of psychological interventions. For example, one of the largest and ongoing studies has examined the local prevalence rates of common mental health issues facing young people today, such as self-harm, anxiety, depression and cyberbullying, whilst also determining the various psychosocial predictors of these growing issues. Dr Kirby also engages in piloting and evaluating preventative mental health approaches (coping, resilience and cyberbullying) within the school curriculum, supporting the development of positive mental health and coping skills in young people. Another research area relates to evaluating the effectiveness of Low Intensity CBT, delivered by Psychological Wellbeing Practitioners (PWP's). Dr Kirby remains registered with the Health and Care Professions Council (HCPC), and also a fully chartered member of the British Psychological Society.

**Dr Orla McBride** is a Lecturer in Psychology (Mental Health) and is a Chartered Psychologist with the British Psychological Society. Dr McBride is an experienced quantitative researcher, with considerable expertise in using survey data to investigate the psychological consequences of problematic alcohol use. Dr McBride has held research posts in Australia (University of New South Wales), the USA (Michigan State University), and the Republic of Ireland (Royal College of Surgeons). Dr McBride has published over 30 research papers in international peer-reviewed

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**Miss Emily McGlinchey** (MSc, BSc) is currently completing her PhD in the area of adolescent mental health, and is based at Ulster University, Derry, Northern Ireland. Prior to this, Miss McGlinchey completed her BSc degree in Psychology and MSc degree in applied mental health and psychological therapies also at Ulster University. Miss McGlinchey is also a BPS-accredited and certified low-intensity cognitive behavioural therapist, having completed her certification at Ulster University during her MSc degree. Miss McGlinchey's main area of research centres on child, adolescent and family mental health. Specifically, with regard to the internalizing effects of childhood adversities (e.g. bullying/cyberbullying, and the role of these and other factors (such as self/body image, self-esteem, emotional resilience) play with regard to self-harming behaviours and suicidal ideation. Miss McGlinchey's current research involves developing and piloting preventive strategies aimed at enhancing young people's emotional resilience and use of positive coping strategies for schools (pre/post primary).

**Dr Teresa Rushe** is a Senior Lecturer in Psychology at Queen's University Belfast. Dr Rushe's research falls within the area of developmental psychopathology, with particular expertise in developmental neuropsychology. Since completing her PhD at the Institute of Psychiatry in London, under the supervision of Sir Robin Murray, Dr Rushe has published widely in the area of psychosis, with a particular focus on understanding the neurodevelopmental origins. Dr Rushe was the Principal Investigator on the Northern Ireland First Episode Psychosis study. Dr Rushe has held research posts at the Institute of Psychiatry (London), and has conducted research at the University of Manchester. More recent projects include the North West Adolescence Study which was set up with colleagues at Ulster University to explore the incidence and antecedents of self-harm and other risk behaviours in adolescents. Dr Rushe is currently exploring the impact of childhood adversity on adult outcomes. Dr Rushe is a Co-Investigator on the Care Pathways and Outcomes Study investigating the psychological and neuropsychological outcomes in young

people who were in care in early childhood, as well as the mediators and moderators of outcome.

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