


Hospital-presenting self-harm among older adults living in Ireland: a 13-year trend analysis from the National Self-Harm Registry Ireland

M. Isabela Troya,^{1,2}  Eve Griffin,^{1,2} Ella Arensman,^{1,2,3} Eugene Cassidy,⁴ Faraz Mughal,⁵ Caoimhe Ni Lonergan,⁴ James O'Mahony,⁶ Sally Lovejoy,⁷ Mark Ward,⁸ and Paul Corcoran^{1,2}

¹*School of Public Health, College of Medicine and Health, University College Cork, Cork, Ireland*

²*National Suicide Research Foundation, University College Cork, Cork, Ireland*

³*Australian Institute for Suicide Research and Prevention, WHO Collaborating Centre for Research and Training in Suicide Prevention, School of Applied Psychology, Griffith University, Brisbane, Australia*

⁴*Department of Psychiatry and Neurobehavioral Science, University College Cork, Acute Mental Health Unit, Cork University Hospital, Wilton, Ireland*

⁵*School of Medicine, Keele University, Keele, UK*

⁶*School of Nursing and Midwifery, University College Cork, Cork, Ireland*

⁷*National Clinical Programme for Self-Harm and Suicide-related Ideation, Office of the National Clinical Advisor and Group Lead, Dr. Steevens Hospital, Dublin, Ireland*

⁸*The Irish Longitudinal Study on Ageing, Trinity College Dublin, Dublin, Ireland*

ABSTRACT

Objectives: To examine trends in rates of self-harm among emergency department (ED) presenting older adults in Ireland over a 13-year period.

Design: Population-based study using data from the National Self-Harm Registry Ireland.

Setting: National hospital EDs.

Participants: Older adults aged 60 years and over presenting with self-harm to hospital EDs in Ireland between January 1, 2007 and December 31, 2019.

Measurements: ED self-harm presentations.

Results: Between 2007 and 2019, there were 6931 presentations of self-harm in older adults. The average annual self-harm rate was 57.8 per 100,000 among older adults aged 60 years and over. Female rates were 1.1 times higher compared to their male counterparts (61.4 vs 53.9 per 100,000). Throughout the study time frame, females aged 60–69 years had the highest rates (88.1 per 100,000), while females aged 80 years and over had the lowest rates (18.7 per 100,000). Intentional drug overdose was the most commonly used method (75.5%), and alcohol was involved in 30.3% of presentations. Between the austerity and recession years (2007–2012), self-harm presentations were 7% higher compared to 2013–2019 (incidence rate ratio (IRR): 1.07 95% CI 1.02–1.13, $p = 0.01$).

Conclusions: Findings indicate that self-harm in older adults remains a concern with approximately 533 presentations per year in Ireland. While in younger age groups, females report higher rates of self-harm, this gender difference was reversed in the oldest age group (80 years and over), with higher rates of self-harm among males. Austerity/recession years (2007–2012) had significantly higher rates of self-harm compared to subsequent years.

Key words: Suicide, death and dying, epidemiology, self-mutilation

Introduction

Every year, over 700,000 people die by suicide globally (World Health Organization, 2021), with a further estimated 14.6 million people affected by self-harm annually (Knipe *et al.*, 2022). Self-harm and suicide are multifactorial complex behaviors (World Health Organization, 2021). Preventing

Correspondence should be addressed to: M. Isabela Troya, Irish Research Council Government of Ireland Fellow and Postdoctoral Researcher, 4.07, School of Public Health, Western Gateway Building, University College Cork and National Suicide Research Foundation, Cork, Ireland. Email: isabela.troya@ucc.ie
Received 11 Jun 2023; revision requested 01 Aug 2023; revised version received 14 Sep 2023; accepted 22 Sep 2023. First published online 16 October 2023.

suicide is a worldwide priority, with United Nations Sustainable Development Goal 3.4.2 pledging to reduce suicide mortality rates by 2030 by one-third. Despite suicide rates having declined globally, older adults continue to have the highest suicide rates worldwide, with older men being at highest risk (De Leo, 2022).

Mental health problems, including depression and anxiety, have been identified as contributing factors to suicidal behavior in later life (Beghi *et al.*, 2021). Older adults with a psychiatric history, including depression, living alone, and comorbid physical conditions, are at increased risk of self-harm and suicidal behavior (Beghi *et al.*, 2021; Troya *et al.*, 2019). Research indicates that older adults who self-harm have higher levels of suicidal intent compared to other age groups, placing them at higher suicide risk (Morgan *et al.*, 2018; Murphy *et al.*, 2012). Depression severity and cognitive impairment have been associated with higher lethality in older adults (Barker *et al.*, 2022).

Ireland is one of the few countries globally that has a national surveillance system for emergency department (ED) hospital-presenting self-harm (Perry *et al.*, 2012). However, the most recent analyses of annual rates and methods of self-harm among older adults aged 55 years and over were conducted in 2006 (Corcoran *et al.*, 2010). This study addresses this gap in knowledge by examining trends in rates of self-harm among hospital-presenting older adults, males and females separately, in Ireland from 2007 to 2019 as well as examining factors associated with self-harm.

Methods

Study design and population

Population-based study using data from the National Self-Harm Registry Ireland (NSHRI). The NSHRI has full national coverage and has been recording ED hospital presentations of self-harm in Ireland for over 15 years. Data including full national coverage are currently available from the NSHRI until 2019. All presentations made by older adults (aged 60 years and over) during the 13-year period from January 1, 2007 to December 31, 2019 were included.

The NSHRI defines self-harm as “an act with non-fatal outcome in which an individual deliberately initiates a non-habitual behavior, that without intervention from others will cause self-harm, or deliberately ingests a substance in excess of the prescribed or generally recognized therapeutic dosage, and which is aimed at realizing changes that the person desires via the actual or expected

physical consequences” (Platt *et al.*, 1992, p.99). This definition of self-harm includes the broad range of behaviors from non-suicidal self-injury to attempted suicide.

Independently trained data registration officers collect data for the NSHRI across all hospitals in Ireland following Standardised Operation Procedures. Further description of the NSHRI can be found in Perry *et al.* (2012).

Data items

Within the NSHRI dataset, the following variables, which are routinely collected, were included in our analysis: gender, age, date of presentation, method(s) of self-harm (intentional drug overdose, self-cutting, attempted hanging, attempted drowning, self-poisoning by ingestion of chemicals, noxious substances, gases and vapors, and other), type of residence (private household, hospital inpatient, prisoner, homeless, and other), alcohol involvement, urban/rural residence (Dublin city, other cities, and towns), how patients were brought to hospital (ambulance, other emergency services, and other), provision of biopsychosocial assessment (from 2013 onward), and recommendations of next care (admission yes/no).

Statistical analyses

To calculate crude incidence rates of self-harm, annual population estimates from the Central Statistics Office were used. The average annual incidence rate over the 13-year study period was based on the sum of the number of persons who presented in each calendar year and the sum of the estimated annual population aged 60 years and over. Poisson regression models were used to estimate changes in self-harm rates from 2007 to 2019 by gender and age using one presentation per person per calendar year. Incidence rate ratios (IRRs) alongside 95% confidence intervals (CIs), comparing the rate in the last year to the rate in the first year (2007), are reported. IRRs are also reported comparing 2007–2012 to 2013–2019 by gender and age groups. Pearson’s chi-square tests were used to compare available sociodemographic (age, urban/rural residence, and type of residence) and clinical data (method of self-harm, provision of psychosocial assessment, alcohol involvement in self-harm act, and who the patient was brought in by) by self-harm presentations and gender. Percentage and numbers of missing data are provided in tables as not all variables had complete data. Data collection for some variables began from 2013 onward (as indicated in tables). Data analyses were facilitated by Stata version 14.0 and IBM SPSS version 26.

Table 1. Characteristics of presentations in self-harm in older adults aged 60 years and over, 2007–2019

CHARACTERISTICS	MALE	FEMALE	ALL	P
	(N = 2975) N (42.9%)	(N = 3956) N (57.1%)	(N = 6931) N (100%)	
Age group				
60–69 years	2130 (71.6%)	2854 (72.1%)	4984 (71.9%)	0.467
70–79 years	661 (22.2%)	885 (22.4%)	1546 (22.3%)	
80 years and over	184 (6.2%)	217 (5.5%)	401 (5.8%)	
Urban/rural				
Dublin city	874 (29.4%)	1500 (37.9%)	2374 (34.3%)	<0.001
Other cities	340 (11.4%)	367 (9.3%)	707 (10.2%)	
Town	1760 (59.2%)	2089 (52.8%)	3849 (55.5%)	
Type of residence				
Private household	2757 (93.3%)	3792 (96.7%)	6549 (95.3%)	<0.001
Hospital inpatient	25 (0.8%)	32 (0.8%)	57 (0.8%)	
Prisoner	6 (0.2%)	0 (0%)	6 (0.1%)	
Homeless	94 (3.2%)	27 (0.7%)	121 (1.8%)	
Other	73 (2.5%)	69 (1.8%)	142 (2.1%)	
Psychosocial assessment (from 2013)				
Yes	1129 (67.6%)	1477 (66.9%)	2606 (67.2%)	0.213
No	438 (26.2%)	592 (26.8%)	1030 (26.5%)	
Unknown	104 (6.2%)	140 (6.3%)	244 (6.3%)	
Alcohol involvement				
Yes	1014 (34.1%)	1085 (27.4%)	2099 (30.3%)	<0.001
No	1961 (65.9%)	2871 (72.6%)	4832 (69.7%)	
Patient brought in by				
Ambulance	1777 (65.4%)	2454 (68.2%)	4231 (67.0%)	<0.001
Other emergency services	872 (32.1%)	1114 (31.0%)	1986 (31.5%)	
Other	69 (2.5%)	28 (0.8%)	97 (1.5%)	
Patient admitted				
Yes	1630 (54.8%)	2001 (50.6%)	3631 (52.4%)	<0.001
No	1345 (45.2%)	1955 (49.4%)	3300 (47.6%)	
Index act				
Yes	2196 (73.8%)	2579 (65.2%)	4775 (68.9%)	<0.001
No	779 (26.2%)	1377 (34.8%)	2156 (31.1%)	

* Missing data: urban/rural $n = 41$, type of residence $n = 56$, psychosocial assessment $n = 3173$, brought in $n = 617$.

Ethics statement

Ethical approval for the NSHRI has been granted by the National Research Ethics Committee of the Faculty of Public Health Medicine. The Registry operates a waiver of consent, granted by the Health Research Consent Declaration Committee.

Results

There were 6931 hospital presentations of self-harm among individuals aged 60 years and over between 2007 and 2019, involving 4775 individuals. Most presentations involved females (57.1%) and individuals aged 60–69 years (71.9%). Alcohol involvement was seen in 30.3% ($n = 2099$) of the presentations. Table 1 summarizes the characteristics of presentations in the study period.

Incidence of self-harm

During the 13-year study period, the average person-based rate of self-harm in older adults aged 60 years and over was 57.8 per 100,000 (95% CI 56.4–59.3) (see Table 2). Female rates were 1.1 times higher than their male counterparts (61.4 vs 53.9 per 100,000). The highest rates of self-harm were found among 60–69-year-olds, with rates of 78.7 per 100,000 (95% CI 76.3–81.1) overall, and 88.1 per 100,000 (95% CI 84.5–91.7) in females of this age group. There was a gender difference observed in this 60–69-year age group, with females having 1.3 times higher rates compared to males (88.1 vs 69.2 per 100,000). The lowest rates were found in the oldest age group of 80 years and over, with an overall rate of 21.7 per 100,000 (95% CI 19.5–23.9) and 18.7 per 100,000 (95% CI 16.2–21.4) in females of this age group. However, males aged 80 years and over had 1.4 times higher

Table 2. Person-based rates of self-harm presentations per 100,000 by age and gender: 2007–2019

13-YEAR AVERAGE PER AGE GROUPS AND GENDER: 2007–2019				
	60–69 YEARS	70–79 YEARS	80 YEARS PLUS	60 YEARS AND OVER
Male				
N	1830	614	178	2622
Population	2644024	1549837	673896	4867756
Rate (95% CI)	69.2 (66.1–72.5)	39.6 (36.6–42.9)	26.9 (22.7–30.6)	53.9 (51.8–56.0)
Female				
N	2350	808	206	3364
Population	2668806	1711577	1103596	5483978
Rate (95% CI)	88.1 (84.5–91.7)	47.2 (44.0–50.6)	18.7 (16.2–21.4)	61.4 (59.2–63.3)
All				
N	4180	1422	384	5986
Population	5313030	3261414	1777492	10351936
Rate (95% CI)	78.7 (76.3–81.1)	43.6 (41.4–45.9)	21.7 (19.5–23.9)	57.8 (56.4–59.3)

rates compared to their female counterparts (26.9 vs 18.7 per 100,000) (see Figures 1–2).

When examining self-harm throughout the 13-year period between gender and age groups, female older adults aged 60–79 years had higher rates compared to their male counterparts. Male older adults aged 80 years and over had higher rates compared to their female counterparts.

Rates of self-harm from 2007 to 2019

We examined the trends in rates of self-harm in older adults during the study period, through the different age groups and genders with few significant changes observed in the analysis (see Supplementary Table 1 for analysis of trends between age groups and gender). However, as shown in Figure 1, from 2008 to 2012, there were gradual increases in rates of self-harm among older adults aged 60 years and over with 2012 having the highest increases compared to 2007. Given that trends indicated increases from 2007 to 2012, we conducted further analysis comparing 2007–2012 versus 2013–2019, with findings indicating a 7% increase in presentations between 2007 and 2012 when compared to 2013–2019 (IRR: 1.07 95% CI 1.02–1.13, $p = 0.01$). When examining this trend further by gender, findings suggest that males (IRR: 1.12 95% CI 1.03–1.21, $p = 0.01$) accounted for this increase in presentations between 2007 and 2012, while female increases in this time period were not significant (IRR: 1.03 95% CI 0.96–1.11, $p > 0.05$). Further examination among age groups showed that in the 60–69-year age group, significant increases were observed between 2007–2012 and 2013–2019 (IRR: 1.13 95% CI 1.08–1.18, $p = 0.001$).

Methods of self-harm

The most common method of self-harm among the observed presentations was intentional drug overdose (75.5%; $n = 5235$), with an average of 13.4 tablets per presentation (range 1–250, SD: 19.9). Minor tranquilizers (47.4%; $n = 2484$), paracetamol (23.5%; $n = 1230$), antidepressants (21.5%; $n = 1125$), opiates (9.9%; $n = 517$), and major tranquilizers (9.0%; $n = 473$) were the most common drugs used in intentional drug overdose presentations. Self-cutting (12.1%; $n = 839$), attempted hanging (4.2%; $n = 290$), attempted drowning (4.0%; $n = 276$), and self-poisoning by ingestion of chemicals, noxious substances, gases, and vapors (3.5%; $n = 241$) were other methods of self-harm used. Table 3 provides an overview of self-harm methods by presentations in males/females and age groups

There were significant variations in the method of self-harm between genders. While intentional drug overdose was the most common method of self-harm overall, this method was more common among female presentations compared to male presentations (82.6% vs 66.2%, $X^2 = 126.5$, $p < 0.001$). On the other hand, self-cutting (15.5% vs 9.6%, $X^2 = 34.4$, $p < 0.001$), attempted hanging (6.8% vs 2.2%, $X^2 = 23.6$, $p < 0.001$), attempted drowning (5.4% vs 2.9%, $X^2 = 20.8$, $p < 0.001$), self-poisoning (4.3% vs 2.9%, $X^2 = 8.5$, $p < 0.01$), and alcohol involvement (34.1% vs 27.4%, $X^2 = 27.7$, $p < 0.001$) were more common among male presentations. Of the 839 presentations involving self-cutting, 28.4% ($n = 238$) required sutures or referral to plastic surgery, indicating high levels of intent, while 27.5% ($n = 231$) required no treatment or cleaning of the wound. Male

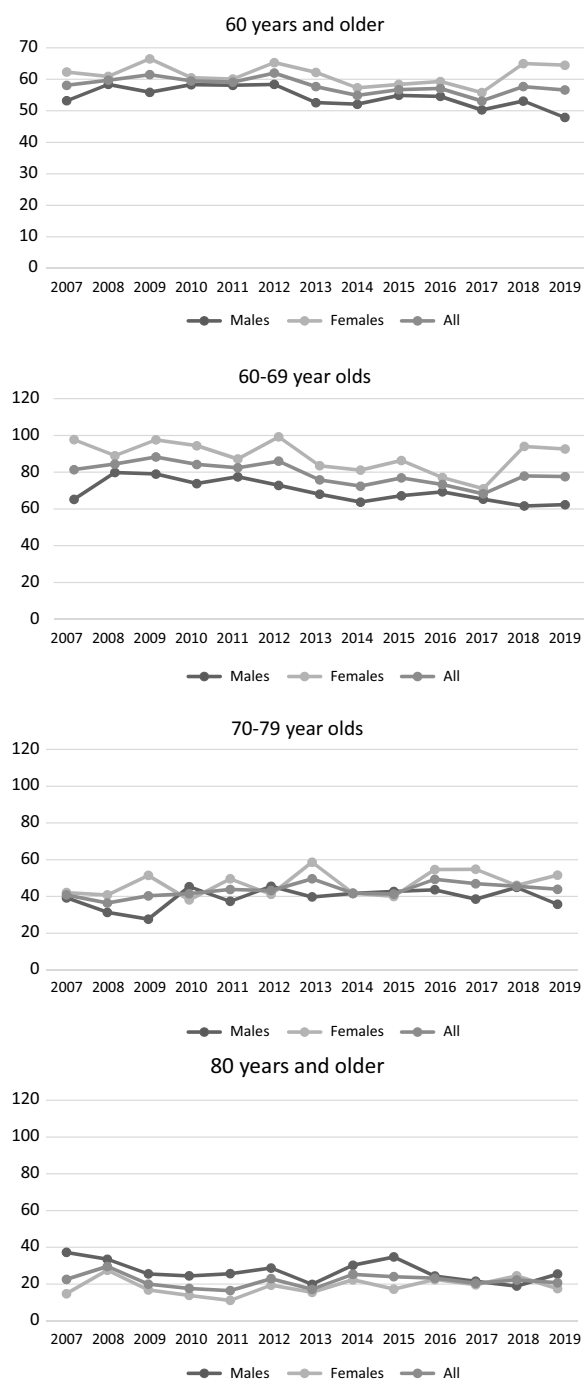


Figure 1. Trends in rates over time of hospital-presenting self-harm by gender and age group: 2007–2019.

presentations (58.6%, $n = 225$) had higher levels of suicidal intent when self-cutting was involved when compared to female presentations (41.4%, $n = 159$); however, this observation was not significant ($p > 0.05$).

Methods of self-harm also varied by age as summarized in Table 3. In both male and female presentations, intentional drug overdose was more common in the 60–69-year age group ($X^2 = 8.2$, $p < 0.01$), as well as alcohol involvement in the

self-harm act ($X^2 = 117.0$, $p < 0.001$). Self-poisoning was more common in the 80 years and above age group in both male and female presentations ($X^2 = 7.5$, $p < 0.05$). In presentations from males aged 60–69 years, alcohol involvement was significantly more common when compared to the other age groups ($X^2 = 69.3$, $p < 0.001$). In presentations from females aged 60–69 years, alcohol involvement ($X^2 = 52.8$, $p < 0.001$) was significantly more common when compared to the other age groups, while self-poisoning was significantly more common in presentations of females aged 80 years and over compared to other groups ($X^2 = 6.8$, $p < 0.05$). No significant changes were found in relation to age groups and lethality of self-cutting.

Discussion

This study highlights that self-harm in older adults remains an urgent public health concern in Ireland, with over 600 hospital self-harm presentations in 2019, and an average of 533 presentations per year. Our findings provide evidence of self-harm presentations in older adults in Ireland from 2007 to 2019, with 6931 self-harm presentations in older adults in the 13-year study period. Incidence rates were 57.8 per 100,000, during the 13-year study period. Females aged 60–69 years had the highest rates of self-harm (88.1 per 100,000), while females aged 80 years and over had the lowest rates (18.7 per 100,000). When examining trends, findings indicated a 7% increase in presentations between 2007 and 2012 when compared to 2013–2019. The most common method of self-harm among this age group was intentional drug overdose, although this method was more common among female presentations compared to male presentations (82.6% vs 66.2%).

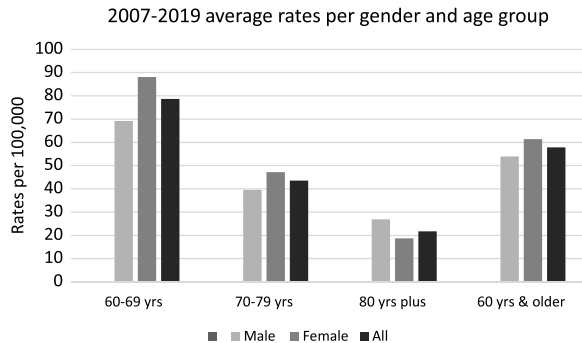
Recent international studies have shown increases in rates in older adults aged 60 years and over presenting to hospitals with self-harm (Patel *et al.*, 2023). Internationally, rates of self-harm in older adults aged 60 years and over vary from 19 to 65 per 100,000 according to a systematic review (Troya *et al.*, 2019), with the most recent evidence showing increases in England 83.8 per 100,000 (Patel *et al.*, 2023). A previous Irish study calculated presentation rates for older adults aged 55 years and over from 2006 to 2008 (Corcoran *et al.*, 2010), with presentation rates of 83.4 per 100,000 in female presentations and 67.4 per 100,000 in male presentations.

Findings from our study indicate that the economic recession (from 2007 to 2009) and subsequent austerity years (2009–2012) had an impact on rates of self-harm in older adults. We observed an overall 7% increase when

Table 3. Variation in presentations in frequently used methods of self-harm by age and gender: 2007–2019

	60–69 YEARS (%)	70–79 YEARS (%)	80 PLUS YEARS (%)	CHI-SQUARE
Male				
Intentional drug overdose	1419 (66.6%)	437 (66.1%)	113 (61.4%)	2.1 ($p = 0.4$)
Self-cutting	328 (15.4%)	100 (15.1%)	33 (17.9%)	0.9 ($p = 0.6$)
Attempted hanging	150 (7.0%)	35 (5.3%)	17 (9.2%)	4.3 ($p = 0.1$)
Attempted drowning	109 (5.1%)	43 (6.5%)	10 (5.4%)	1.9 ($p = 0.4$)
Self-poisoning	87 (4.1%)	30 (4.5%)	11 (6.0%)	1.6 ($p = 0.5$)
Alcohol	819 (38.5%)	166 (25.1%)	29 (15.8%)	69.3 ($p = 0.001$)
Other	112 (5.3%)	42 (6.4%)	9 (4.9%)	1.3 ($p = 0.5$)
Female				
Intentional drug overdose	2367 (82.9%)	733 (82.8%)	166 (76.5%)	5.9 ($p = 0.053$)
Self-cutting	274 (9.6%)	76 (8.6%)	28 (12.9%)	3.8 ($p = 0.2$)
Attempted hanging	60 (2.1%)	23 (2.6%)	5 (2.3%)	0.83 ($p = 0.7$)
Attempted drowning	89 (3.1%)	22 (2.5%)	3 (1.4%)	2.8 ($p = 0.2$)
Self-poisoning	73 (2.6%)	28 (3.2%)	12 (5.5%)	6.8 ($p = 0.03$)
Alcohol	861 (30.2%)	202 (22.8%)	22 (2.0%)	52.8 ($p = 0.001$)
Other	76 (2.7%)	30 (3.4%)	10 (4.6%)	3.5 ($p = 0.2$)
All				
Intentional drug overdose	3786 (75.5%)	1170 (75.7%)	279 (69.6%)	8.2 ($p = 0.01$)
Self-cutting	602 (12.1%)	176 (11.4%)	61 (15.2%)	4.4 ($p = 0.1$)
Attempted hanging	210 (4.2%)	58 (3.8%)	22 (5.5%)	2.4 ($p = 0.3$)
Attempted drowning	198 (4.0%)	65 (4.2%)	13 (3.2%)	0.8 ($p = 0.7$)
Self-poisoning	160 (3.2%)	58 (3.8%)	23 (5.7%)	7.5 ($p = 0.02$)
Alcohol	1680 (33.7%)	368 (23.8%)	51 (12.7%)	117.0 ($p = 0.001$)
Other	188 (3.8%)	72 (4.7%)	19 (4.7%)	2.9 ($p = 0.3$)

*Percentages do not add to 100% as multiple methods could be used.

**Figure 2.** Self-harm rates by gender and age groups: 2007–2019.

comparing 2007–2012 to 2013–2019. Other national (Corcoran *et al.*, 2015) and international studies (Chang *et al.*, 2013; Reeves *et al.*, 2012) have also found similar impacts of the economic recession on suicidal behavior of citizens. Our study is the first to highlight findings on the impact of the recession and subsequent austerity years in older adults in Ireland. With the current economy facing post-COVID-19 challenges, and effects from the Russia–Ukraine war, it is important to consider these findings to counteract the possible increase of self-harm presentations in older age groups, in particular people with preexisting mental health conditions, including self-harm due to the increased risk (Gunnell *et al.*, 2020).

Older adults have a higher degree of suicidal intent compared to younger populations (De Leo, 2022; Murphy *et al.*, 2012). Risk factors for self-harm in older adults include psychiatric history and previous self-harm (Troya *et al.*, 2019). Comprehensive assessment and management of self-harm can help reduce repeat self-harm and suicide risk (Carroll *et al.*, 2014). Management of self-harm in older adults should include tailored biopsychosocial assessments for older adults, incorporating evidence specific to common characteristics in this age group (psychiatric history, comorbid physical health problems, alcohol use, loneliness, social isolation, among others) (Patel *et al.*, 2023; Troya *et al.*, 2019). This is of particular importance considering the increased risk of comorbid physical and mental health conditions in older adults (Troya *et al.*, 2019). The latest national clinical guidance for the treatment of self-harm in the United Kingdom has emphasized the importance of obtaining collateral information and involving family members in safety planning, in particular, restricting access to means (National Institute for Health and Care Excellence, 2022). Research has shown that the conduct of clinical assessments is key for self-harm and suicide prevention and that provision of assessments is associated with reduced self-harm repetition (Bergen *et al.*, 2010; Carroll *et al.*, 2016; Steeg *et al.*, 2018). Furthermore, the provision of

psychosocial assessments for individuals with hospital-presenting self-harm has been shown to be cost-effective for national health services (McDaid *et al.*, 2022). Our study found that from 2013 to 2019, only 67.2% of older adults received a biopsychosocial assessment following their self-harm presentation. In 2019, the number of older adults receiving a biopsychosocial assessment was 69.2%. In comparison with national data from 2019, older adults have a lower percentage of receiving an assessment at ED (72% of all age groups) (Joyce *et al.*, 2020). It is therefore imperative that older patients leaving hospital following a self-harm presentation received an assessment by a clinician.

Intentional drug overdose was the most common method of self-harm throughout the study period. While this method is common among hospital self-harm presentations in all age groups nationally (Joyce *et al.*, 2020), older adults have increased access to means due to complex health conditions and access to prescribed medication (Morgan *et al.*, 2018; National Institute for Health and Care Excellence, 2022). Given that we found over two-thirds of self-harm presentations were due to intentional drug overdose, safer access to medications should be considered in an effort toward suicide prevention in this age group. This would be in line with the current national suicide prevention strategy *Connecting for Life*, 2015–2024, which has as Goal 6 to reduce access to means (Department of Health, 2020).

The gender paradox of suicidal behavior is a commonly observed phenomenon where suicide rates are highest among males and self-harm rates are highest among females (Canetto and Sakinofsky, 1998). Authors have described it as the gender paradox given that despite self-harm being one of the highest risk factors for suicide, the gender that mostly presents with self-harm (females) is not the gender with the highest suicide rates (Canetto and Sakinofsky, 1998). Limited help-seeking, impulsivity, and use of more lethal methods are some of the reasons why men more often die by suicide when compared to women (Canetto, 2017). Our study found that, unlike other age cohorts, self-harm presentations are higher in males aged 80 years and over, reflecting what is observed in national suicide figures. This finding has clinical implications, with self-harm presentations among older males aged 80 years and over needing to be taken with extra caution as they may more closely mirror suicide attempts.

Strengths and limitations

The NSHRI is one of the few national surveillance systems worldwide that provide national self-harm

data. This unique dataset allowed us to examine national self-harm rates among older adults living in Ireland over the 13-year study period. The NSHRI includes important variables such as provision of a psychosocial assessment, and alcohol involvement, among others. These can aid in informing clinical practice and suicide prevention strategies. However, the NSHRI does not include important data for understanding suicidal behavior such as ethnicity, motivation for self-harm, and suicidal intent, among others. Due to the availability of data, we were only able to analyze trends until 2019, given that this is the most recent year with complete national data in the NSHRI; therefore, we do not know if these findings are still applicable during and after the COVID-19 period which impacted older adults. Our study used estimates provided by the Central Statistics Office to calculate self-harm rates (with the exception of 2011 and 2016 where census data were utilized). Furthermore, our study captured only a proportion of all occurring self-harm, as it was focused on ED-presenting self-harm. Future research is needed to examine self-harm in older adults in community settings, where it is estimated that most self-harm occurs but is hidden from clinical services (Geulayov *et al.*, 2018). Lastly, our study did not aim to contrast the trend analyses between sexes; therefore, we were unable to examine this further.

Conclusion

Self-harm in older adults remains a public health concern in Ireland. Observation in trends over the 13-year study period indicates that older adults are more vulnerable to self-harm when facing economic recession and subsequent austerity years. With the current economic global market, governments should consider the impact of social welfare cuts on its older citizens. There is a need for improvement in the provision of psychosocial assessments offered to older adults, with over a third leaving the hospital without having received one. Medication safety should be highlighted to older adults and clinicians prescribing for older adults due to the high rates of intentional drug overdoses and the presence of comorbid health conditions in this age group. Alcohol use at the time of the self-harm presentation was high in this age group; therefore, policies relating to access to alcohol should be considered.

Conflict of interest

None.

Source of funding

M. Isabela Troya, is funded by the Irish Research Council under grant number GOIPD/2021/3. The National Self-Harm Registry Ireland is funded by the Irish Health Service Executive's National Office for Suicide Prevention. Faraz Mughal, Doctoral Fellowship, NIHR300957, is funded by the National Institute for Health and Care Research. The views expressed in this article are those of the authors and not necessarily those of NHS, NIHR, or the Department for Health and Social Care.

Description of author(s)' roles

MIT, EA, PC, and EG were involved in conceptualizing the study. MIT, PC, and EG were involved in data analysis for the study. MIT wrote the first draft of the manuscript, with input from all authors; all authors read and approved the final manuscript.

Acknowledgments

We would like to acknowledge the work of the Data Registration Officers in compiling data for the National Self-Harm Registry Ireland and Dr Mary Joyce, Manager of the National Suicide Research Foundation Ireland.

Supplementary material

To view supplementary material for this paper, please visit <https://doi.org/10.1017/S1041610223000856>.

Data sharing statement

The data are not publicly available due to the sensitive nature of the research and data agreement made with the data provider.

References

- Barker, J., Oakes-Rogers, S. and Leddy, A.** (2022). What distinguishes high and low-lethality suicide attempts in older adults? A systematic review and meta-analysis. *Journal of Psychiatric Research*, 154, 91–101. <https://doi.org/10.1016/j.jpsychires.2022.07.048>.
- Beghi, M. et al.** (2021). Suicidal behaviour in older age: a systematic review of risk factors associated to suicide attempts and completed suicides. *Neuroscience & Biobehavioral Reviews*, 127, 193–211. <https://doi.org/10.1016/j.neubiorev.2021.04.011>.

- Bergen, H., Hawton, K., Waters, K., Cooper, J. and Kapur, N.** (2010). Psychosocial assessment and repetition of self-harm: the significance of single and multiple repeat episode analyses. *Journal of Affective Disorders*, 127, 257–265. <https://doi.org/10.1016/j.jad.2010.05.001>.
- Canetto, S. S. and Sakinofsky, I.** (1998). The gender paradox in suicide. *Suicide and Life-Threatening Behavior*, 28, 1–23. <https://doi.org/10.1111/j.1943-278X.1998.tb00622.x>.
- Canetto, S. S.** (2017). Suicide: why are older men so vulnerable? *Men and Masculinities*, 20, 49–70. <https://doi.org/10.1177/1097184X15613832>.
- Carroll, R., Metcalfe, C. and Gunnell, D.** (2014). Hospital presenting self-harm and risk of fatal and non-fatal repetition: systematic review and meta-analysis. *PLoS One*, 9, e89944. <https://doi.org/10.1371/journal.pone.0089944>.
- Carroll, R. et al.** (2016). Psychosocial assessment of self-harm patients and risk of repeat presentation: an instrumental variable analysis using time of hospital presentation. *PLoS One*, 11, e0149713. <https://doi.org/10.1371/journal.pone.0149713>.
- Chang, S. S., Stuckler, D., Yip, P. and Gunnell, D.** (2013). Impact of 2008 global economic crisis on suicide: time trend study in 54 countries. *BMJ*, 347, f5239–f5239. <https://doi.org/10.1136/bmj.f5239>.
- Corcoran, P., Reulbach, U., Perry, I. J. and Arensman, E.** (2010). Suicide and deliberate self harm in older Irish adults. *International Psychogeriatrics*, 22, 1327–1336. <https://doi.org/10.1017/S1041610210001377>.
- Corcoran, P., Griffin, E., Arensman, E., Fitzgerald, A. P. and Perry, I. J.** (2015). Impact of the economic recession and subsequent austerity on suicide and self-harm in Ireland: an interrupted time series analysis. *International Journal of Epidemiology*, 44, 969–977. <https://doi.org/10.1093/ije/dyv058>.
- De Leo, D.** (2022). Late-life suicide in an aging world. *Nature Aging*, 2, 7–12. <https://doi.org/10.1038/s43587-021-00160-1>.
- Department of Health.** (2020). *Connecting for life: Ireland's national strategy to reduce suicide 2015-2024*. Available at: <https://www.gov.ie/en/publication/7dfe4c-connecting-for-life-irelands-national-strategy-to-reduce-suicide-201/>.
- Geulayov, G. et al.** (2018). Incidence of suicide, hospital-presenting non-fatal self-harm, and community-occurring non-fatal self-harm in adolescents in England (the iceberg model of self-harm): a retrospective study. *The Lancet Psychiatry*, 5, 167–174. [https://doi.org/10.1016/S2215-0366\(17\)30478-9](https://doi.org/10.1016/S2215-0366(17)30478-9).
- Gunnell, D. et al.** (2020). Suicide risk and prevention during the COVID-19 pandemic. *The Lancet Psychiatry*, 7, 468–471. [https://doi.org/10.1016/S2215-0366\(20\)30171-1](https://doi.org/10.1016/S2215-0366(20)30171-1).
- Joyce, M., et al.** (2022). *National self-harm registry Ireland annual report 2020*, <https://www.nsrif.ie/wp-content/uploads/2022/11/NSRF-National-Self-Harm-Registry-Ireland-annual-report-2020-Final-for-website.pdf>.
- Knipe, D., Padmanathan, P., Newton-Howes, G., Chan, L. F. and Kapur, N.** (2022). Suicide and self-harm. *The Lancet*, 399, 1903–1916. [https://doi.org/10.1016/S0140-6736\(22\)00173-8](https://doi.org/10.1016/S0140-6736(22)00173-8).
- McDaid, D. et al.** (2022). Cost-effectiveness of psychosocial assessment for individuals who present to hospital following self-harm in England: a model-based retrospective

- analysis. *European Psychiatry*, 65, e16. <https://doi.org/10.1192/j.eurpsy.2022.5>.
- Morgan, C. *et al.*** (2018). Self-harm in a primary care cohort of older people: incidence, clinical management, and risk of suicide and other causes of death. *The Lancet Psychiatry*, 5, 905–912. [https://doi.org/10.1016/S2215-0366\(18\)30348-1](https://doi.org/10.1016/S2215-0366(18)30348-1).
- Murphy, E. *et al.*** (2012). Risk factors for repetition and suicide following self-harm in older adults: multicentre cohort study. *The British Journal of Psychiatry*, 200, 399–404. <https://doi.org/10.1192/bjp.bp.111.094177>.
- National Institute for Health and Care Excellence.** (2022). *Self-harm: assessment, management and preventing recurrence*. Available at: <https://www.nice.org.uk/guidance/ng225>.
- Patel, A. *et al.*** (2023). The characteristics, life problems and clinical management of older adults who self-harm: findings from the multicentre study of self-harm in England. *International Journal of Geriatric Psychiatry*, 38, e5895. <https://doi.org/10.1002/gps.5895>.
- Perry, I. J., Corcoran, P., Fitzgerald, A. P., Keeley, H. S., Reulbach, U. and Arensman, E.** (2012). The incidence and repetition of hospital-treated deliberate self harm: findings from the world’s first national registry. *PLoS One*, 7, e31663. <https://doi.org/10.1371/journal.pone.0031663>.
- Platt, S. *et al.*** (1992). Parasicide in Europe: the WHO/EURO multicentre study on parasuicide. I. Introduction and preliminary analysis for 1989. *Acta Psychiatrica Scandinavica*, 85, 97–104. <https://doi.org/10.1111/j.1600-0447.1992.tb01451.x>.
- Reeves, A., Stuckler, D., McKee, M., Gunnell, D., Chang, S. S. and Basu, S.** (2012). Increase in state suicide rates in the USA during economic recession. *The Lancet*, 380, 1813–1814. [https://doi.org/10.1016/S0140-6736\(12\)61910-2](https://doi.org/10.1016/S0140-6736(12)61910-2).
- Stegg, S., Emsley, R., Carr, M., Cooper, J. and Kapur, N.** (2018). Routine hospital management of self-harm and risk of further self-harm: propensity score analysis using record-based cohort data. *Psychological Medicine*, 48, 315–326. <https://doi.org/10.1017/S0033291717001702>.
- Troya, M. I. *et al.*** (2019). Self-harm in older adults: systematic review. *The British Journal of Psychiatry*, 214, 186–200. <https://doi.org/10.1192/bjp.2019.11>.
- World Health Organization.** (2021). *Suicide worldwide in 2019: global health estimates*. Available at: <https://www.who.int/publications/i/item/9789240026643>.