National Suicide Research Foundation

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University College Cork, Ireland

Briefing

Self-Harm and Suicide among Homeless People

Ella Arensman
Eimear Ni Mhuircheartaigh
Paul Corcoran

National Suicide Research Foundation
Department of Epidemiology and Public Health
University College Cork

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Introduction

The term 'homeless' refers to those individuals who lack shelter, resources and community ties.[1] A distinction is made between the visible and hidden homeless.[2] Visible homeless refers to people who are sleeping rough or in designated emergency shelters or bed and breakfasts. The hidden homeless are people who are staying with relatives or friends, or who remain in institutional care, due to the lack of alternative or affordable accommodation.[2] According to the United Nations, there are up to 100 million homeless people worldwide.[1] International and national research into homelessness and self-harm is limited. However, available studies among homeless people indicate high mortality rates from all causes,[3] and relatively high suicide rates.[4,5,6,7,8] Self-harm is known to be an important risk factor for suicide,[9,10] yet few studies have been conducted in Ireland or internationally that address the issue of homeless people engaging in self-harm.

Self-harm

Four studies examined the prevalence of self-harm among the homeless population.[6,11,12,13] The life time prevalence of self-harm ranged from 35% in a Canadian study[11] to 54% in a study conducted in Ireland.[12] However, accurate comparison between the study outcomes is difficult due to large differences in methodological aspects and sample sizes.

A large study was conducted using data from the Oxford Monitoring System for Self-Harm,[6] which examined self-harm presentations to an emergency department by homeless persons and those with a fixed abode. Of the persons who presented due to self-harm between 1988 and 2002, 3.6% were homeless. Among the homeless population, the majority (80.7%) were male. By comparison only 41% of the fixed residence population were male. Homeless male self-harm patients tended to be older compared to the fixed residence male patients. There was no significant difference in the age distribution between homeless females and fixed residence females but more than half (56%), were under the age of 25. Intentional drug overdose was the most common method of self-harm among both the homeless and those with a fixed residence. However, self-cutting and involvement of alcohol at the time of self-harm were significantly more prevalent among the homeless compared to those with a fixed residence (22.7% vs. 11.0%, 58.9% vs. 44.2% respectively).[6]

Psychiatric disorders and mental health care

International research indicates high levels of psychiatric disorders among homeless people. A recent systematic review covering studies on psychopathology in young people experiencing homelessness, identified prevalence rates of any psychiatric disorder ranging from 48% to 98%.[14] Even though the study conducted among homeless people attending a mental health service for homeless in Ireland was small (N = 54),[12] the level of psychopathology was high. Fifty per cent suffered from schizophrenia and 37% were diagnosed with a personality disorder.[12]

The Oxford study found that homeless patients presenting with self-harm were no more likely than people of fixed residence to have a psychiatric disorder.[6] However, homeless patients who had engaged in self-harm were more likely to have a personality disorder. It was also found that in spite of having a similar prevalence of psychiatric disorders, homeless patients, were significantly more

likely to have received inpatient psychiatric care within the year before self-harm (11.1% vs. 1.9%). In terms of aftercare after a self-harm act, homeless patients were no more likely than those with a fixed residence to be offered inpatient care, but they were less likely to be offered an outpatient appointment.[6]

Homeless people in Ireland

In Ireland in 2011, the CSO conducted its first comprehensive approach to assessing homelessness as part of the national census (CSO).[15] In total 3,808 persons were enumerated in accommodation for the homelessness and sleeping rough. Almost three quarters (73.0%) were represented in the 20-59 age group, 10.1% were aged 60 years and over and 16.8% were under the age of 20 years, with 12% being under the age of 15 years. Two thirds (66.6%) were males, and 62.3% were in the Dublin region at the time of the census. International and national research addressing self-harm among people who are homeless is limited and it is difficult to accurately compare study outcomes due to methodological differences. In this context, the aim of the present study was to examine demographic and clinical characteristics of homeless people presenting to hospitals in Ireland following self-harm.

Methods

Study design

A quantitative study was conducted covering all consecutive presentations of self-harm made by homeless and fixed abode persons to emergency departments in Ireland over the period 2006-2011. The National Registry of Deliberate Self-Harm, which has been established by the National Suicide Research Foundation, is a national surveillance system for monitoring of self-harm presenting to hospital emergency departments.[16]

Sample

The following definition of self-harm is used by the Registry: '*an act with non-fatal outcome in which an individual deliberately initiates a non-habitual behaviour, that without intervention from others will cause self-harm, or ingests a substance in excess of the prescribed or generally recognised therapeutic dosage, and which is aimed at realising changes that the person desires via the actual or expected physical consequences*.'[16,17] This definition includes acts where there are varying levels of suicidal intent, and different underlying motives, such as a cry for help and self-punishment. The Registry's inclusion criteria consist of the following: Presentations involving all methods of self-harm where it was clear that the self-harm was intentionally inflicted. All individuals who were alive on admission to the emergency department following an episode of self-harm were included. The Registry's exclusion criteria consist of the following: Accidental overdoses e.g., an individual who took additional medication in the case of an illness, without any intention to self-harm, alcohol overdoses alone where the intention was not to self-harm, accidental overdoses of street drugs i.e., drugs used for recreational purposes, without the intention to self-harm, and individuals who had died on arrival at hospital.

This study focused on the homeless and fixed residence populations presenting with self-harm and as such, any individual who had their address listed as long term hospital inpatient, prison inmate or

other was excluded from the study. Presentations that lacked any information that was to be included in analysis such as gender, age, or method used, were also excluded. Homeless individuals were identified as those who had 'no fixed abode' or a homeless shelter listed as their address.

Setting and coverage

Since 2006 the Registry has had full coverage of all hospitals operating emergency departments in the Republic of Ireland. This comprised 40 hospitals over the 6 year period. Data from all hospitals has been included in this study.

Data items and coding

The Registry includes the following variables in its dataset: patient initials recorded in encrypted form, gender, date of birth, area of residence with patient addresses coded to the area of electoral division, date and hour of attendance at hospital emergency department, method of self-harm used, drugs taken, medical card status, who they were seen by, and recommended next care. The methods of self-harm used were recorded according to the 10th revision of the WHO'S International Classification of Diseases codes for intentional injury (X60-X84). Where a combination of methods was used all methods were recorded. For cases involving alcohol, the code X65 was recorded.

Data collection and quality control

The data are collected by data registration officers who follow the Registry's standardised methods of data collection and operated independently of the hospitals from which they obtained data. Since 2006 the Registry has recorded the data onto laptop computers via a customised data entry and electronic transfer system. All data registration officers receive standard training in data collection methods and procedures, and all officers attend regular meetings where case definitions and quality control issues are reviewed. The validity of the Registry findings is dependent on the standardised application of the case-definition and inclusion/exclusion criteria. The Registry has undertaken a cross-checking exercise in which pairs of data registration officers independently collected data from two hospitals for the same consecutive series of attendances to the emergency department. Results indicated that there is a very high level of agreement between the data registration officers. Furthermore, the data are continuously checked for consistency and accuracy.

Ethical approval

Ethical approval was granted by the National Research Ethics Committee of the faculty of Public Health Medicine. Approval has also been obtained from all hospitals involved and from the relevant Health Service Executive (HSE) ethics committees. The National Suicide Research Foundation is registered with the Data Protection Agency and operates in compliance with the Irish Data Protection Act of 1988 and the Irish Data Protection (Amendment) Act of 2013.

Statistical analyses

Statistical analyses were performed using SPSS version 5. Encrypted patient initials, gender, and date of birth were used to distinguish between self-harm patients and to identify repeat presentations. The total number of homeless and fixed-residence presentations from 2006-2011 were identified. Age standardised annual rates of self-harm per 100,000 population were calculated based on population data from the National Census. As the only data available for homeless individuals was from 2011, population data for fixed residence population was also derived from the 2011 Census

population data. Chi Square tests were used to compare the homeless and fixed residence population in terms of gender, age, method used, recommended aftercare, type of drug used in overdose, day of presentation, hour of presentation, and repetition.

In calculating the incidence of repetition, a repeat act of self-harm was defined as re-presentation to any hospital emergency department due to a further act of self-harm undertaken after leaving hospital following treatment in an emergency department for a previous act of self-harm. Repetition analysis was based on prospective analysis with a follow up period of 12 months after any individual's initial presentation (moving window). The period from 2006-2010 was selected to ensure adequate follow-up for all individuals involved. Univariate and multivariate logistical regression analyses were carried out to identify any associations between homelessness and the independent variables.

Results

Incidence of self-harm

For the period 2006-2011 the Registry recorded 69,581 presentations of self-harm to emergency departments of hospitals in Ireland. 65,700 presentations were made by domiciled and homeless people accounting for 94.4% of the total (Table 1). 1,980 (3%) of these presentations were made by homeless individuals and 63,720 (97%). The age standardised annual rate of homeless self-harm presentations was 4,165 per 100,000 population, which is in stark contrast with 184 per 100,000 by those with a fixed residence, resulting in a 1:22 ratio. In homeless males the self-harm rate per 100,000 was 4,505 versus 169 per 100,000 among fixed residence males, a ratio of 1:27. In homeless females the self-harm rate per 100,000 was 3,771 versus 204 per 100,000 among females with a fixed residence, resulting in a ration of 1:18. Between 2006 and 2011 the number of self-harm presentations by homeless people increased from 285 to 473, representing an overall increase of 66%. This was significantly higher compared to 22.6% among those with a fixed residence.

	Presentations 2006-2011	Age standardised rates per 100,000
Homeless	1,980	4,165
Fixed residence	63,720	184
Total	65,700	

Table 1 Number of self-harm presentations and age standardised rates per 100,000 population

Demographic and clinical characteristics

Among self-harm patients who were homeless, males were significantly overrepresented (68.8%), whereas among those with a fixed residence there was higher proportion of females (54.6%). One third of homeless self-harm patients were represented in the 25-34 year age group (32.7%) versus 24.8% among those with a fixed residence (Table 2). Nearly one third of the self-harm patients with a fixed residence were represented in the 15-24 year age (30.9%).

Age Group	Homeless		Fixed residence	
	N	%	*N*	%
<15yrs	7	0.4	1,259	2
15-24yrs	423	21.4	19,662	30.9
25-34yrs	648	32.7	15,834	24.8
35-44yrs	510	25.8	13,546	21.3
45-55yrs	306	15.5	8,684	13.6
55yrs+	86	4.3	4,735	7.4

Table 2 Age distribution among self-harm patients who are homeless and those with fixed residence

Intentional drug overdose was the most common method of self-harm used by those with a fixed residence and those who were homeless (66.2% vs. 47.6%), albeit that this was significantly higher among those with a fixed residence (Table 3). Among those who were homeless, self-cutting was significantly more prevalent compared to those with a fixed residence (27.7% vs. 16.1% respectively). Attempted drowning was also slightly higher among those who were homeless compared to those with a fixed residence (4.6% vs. 2.1% respectively).

Overall, a wide range of different types of drugs were used in presentations involving intentional overdose. The use of street drug was significantly more prevalent among the homeless population, involved 14.5% of self-harm presentations compared to 5.8% of those with a fixed residence. The use of benzodiazepines was similar in for both groups, accounting for 42.2% of homeless self-harm presentations and 45% for those with a fixed residence.

Method of self-harm	Homeless		Fixed residence	
	N	%	*N*	%
Drug overdose only	943	47.6	42,169	66.2
Self-cutting only	548	27.7	10,263	16.1
Overdose & self-cutting	86	4.3	2,791	4.4
Attempted hanging	71	3.6	2,110	3.3
Attempted drowning	91	4.6	1,321	2.1
Other	241	12.2	5,093	8.0

Table 3 Methods of self-harm used by homeless people and those with fixed residence

Recommended aftercare following self-harm presentations to the emergency department varied significantly across the two groups (Table 3). A significantly lower proportion of homeless self-harm patients were admitted to a general ward (14.9%) compared to 31.9% of those with a fixed residence. In addition, a significantly higher proportion of homeless patients (24.3%) left before a decision could be made, compare to 13.1% of those with a fixed residence.

Recommended aftercare	Homeless		Fixed residence	
	N	%	*N*	%
Admission general ward	295	14.9	20,504	31.9
Admission psychiatry	239	12.1	6,470	10.7
Patient refused admission	20	1.0	708	1.1
Left before decision made	482	24.3	8,446	13.1
Not admitted	944	47.7	27,592	43.2

Table 3 Recommended aftercare among homeless people and those with fixed residence

Repetition of self-harm

Over the period 2006-2010, 35,968 individuals presented with self-harm. Of these, 5,487 (15.3%) engaged in one or more repeated acts of self-harm during the 12 month follow up period since the time of the index self-harm act. A significantly higher proportion of homeless people (24.8%) engaged in repeated self-harm acts compared to those with a fixed residence (15.1%).

The results of univariate and multivariate logistical regression analysis are presented in Table 4, and the outcomes of both analyses are fairly consistent. Homeless individuals had a significantly increased risk of repetition when compared to those with a fixed residence, with an odds ratio of 1.7 based on the multivariate analysis.

Independent risk factors significantly associated with repeated self-harm among the homeless population, ranked according to level of risk, were having received a psychiatric admission for previous self-harm, having engaged in overdose combined with self-cutting, self-cutting only, being aged 35-44 years, 45-54 years, 25-34 years, and leaving hospital before a recommendation for aftercare was made.

Variable	Univariate odds ratio (95%CI)	Multivariate odds ratio (95%CI)
Housing status		
Homeless	1.85***(1.54-2.23)	1.70***(1.41-2.06)
Fixed residence	1.0	1.0
Gender		
Male	1.0	1.0
Female	0.93* (0.88-0.98)	1.0 (0.94-1.06)
Age		
<15yrs	1.01 (0.85-1.26)	1.04 (0.83-1.31)
15-24yrs	1.12 (0.99-1.26)	1.1 (0.97-1.25)
25-34yrs	1.27***(1.11-1.44)	1.22** (1.08-1.39)
35-44yrs	1.47***(1.30-1.67)	1.45***(1.28-1.65)
45-54yrs	1.40***(1.22-1.61)	1.4 ***(1.22-1.61)
55yrs+	1.0	1.0
Method		
Drug overdose only	1.0	1.0
Self-cutting only	1.49***(1.38-1.61)	1.48***(1.37-1.61)
Overdose & self-cutting	1.72***(1.51-1.96)	1.71***(1.50-1.97)
Attempted hanging only	1.07 (0.90-1.26)	0.95 (0.80-1.12)
Attempted drowning only	1.05 (0.86-1.29)	0.92 (0.75-1.14)
Other	1.11* (1.00-1.25)	1.05 (0.94-1.17)
Recommended aftercare		
General admission	1.00 (0.93-1.07)	1.06 (0.99-1.13)
Psychiatric admission	1.78***(1.61-1.95)	1.76***(1.60-1.94)
Patient refused admission	1.28 (0.98-1.99)	1.29 (0.99-1.67)
Left before decision made	1.25***(1.14-1.37)	1.22*** (1.11-1.34)
Not admitted	1.0	
***P<0.05; **P<0.01; ***P<0.001**		

Table 4 Univariate and multivariate odds ratios for risk of self-harm repetition

Conclusion

In Ireland, the risk of self-harm among people who are homeless is 22 times higher compared to those with a fixed residence (4,165 vs. 186 per 100,000 population). Between 2006 and 2011 the number of self-harm presentations by homeless people in Ireland increased by 66%, which was significantly higher compared to 22.6% among those with a fixed residence, and which is likely to be associated with the economic recession. Homeless people who have engaged in self-harm are at significantly higher risk of repeated self-harm acts compared to those with a fixed residence, in particular those who have engaged in self-cutting or self-cutting combined with intentional drug overdose. Following an act of self-harm, homeless people are less often admitted to a general ward compared to those with a fixed residence, and more often they leave hospital before receiving a recommendation for next care.

Recommendations

- The study outcomes underline the need to prioritise evidence based self-harm treatment, and self-harm/suicide prevention programmes for homeless people in Ireland.

- Education and training programmes addressing awareness and skills for professionals in health and social services working with people who engage in suicidal behaviour should include specific modules on risk assessment and management of suicidal behaviour among homeless people.

- Enhance the further development of existing specialist mental health services for homeless people to meet the complex needs of homeless people with mental health problems including those with co-morbid alcohol abuse (e.g. dual diagnosis) and suicidal behaviour.

- Enhance continuity of care for homeless people who present to hospital emergency departments following self-harm.

- Enhance inter-departmental collaboration (e.g. Health, Social protection, and Environment, Community & Local Government) and other relevant national bodies to ensure that policy is aligned with prevention of homelessness.

- Longitudinal research is required to disentangle the temporal relationship between mental health problems and homelessness.

References

1. United Nations. *National reporting of household characteristics, living arrangements and homeless households.* 2005.

2. Crawley J, Kane D, Atkinson-Plat L, Hamilton M, Dobson K, Watson J. Needs of the hidden homeless – no longer hidden: a pilot study. *Public Health. 2013 127(7),* 674-680.

3. Babidge NC, Buhrich N, Butler T. Mortality among homeless people with schizophrenia in Sydney, Australia: a 10-year follow-up. *Acta Psychiatricia Scandinavica.* 2001 103: 105-110.

4. Geddes JR, Fazel S. Extreme health inequalities: mortality in homeless people. *Lancet.* 2011 Jun 25;377(9784):2156-7.

5. Barak Y, Cohen A, Aizenberg D. Suicide among the homeless: a 9-year case-series analysis. *Crisis.* 2004;25(2):51-3.

6. Haw C, Hawton K, Casey D. Deliberate self-harm patients of no fixed abode. *Social Psychiatry and Psychiatric Epidemiology.* 2006; 41(11):918-925.

7. Roy E, Haley N, Leclerc P, Sochanski B, Boudreau JF, Boivin JF. Mortality in a cohort of street youth in Montreal. *JAMA.* 2004 Aug 4;292(5):569-74.

8. CDC. Centers for Disease Control and Prevention. Atlanta 2012; Available from: http://www.cdc.gov/violenceprevention/pub/youth_suicide.html.

9. Owens D, Horrocks J, House A. Fatal and non-fatal repetition of self-harm. Systematic review. *British Journal of Psychiatry.* 2002 Sep;181:193-199.

10. Carroll R, Metcalfe C, Gunnell D. Hospital presenting self-harm and risk of fatal and non-fatal repetition: Systematic review and meta-analysis. *PLoS ONE.* 2014 9(2): e89944.

11. Eynan R, Langley J, Tolomiczenko G, Rhodes AE, Links P, Wasylenki D, et al. The association between homelessness and suicidal ideation and behaviors: results of a cross-sectional survey. *Suicide & Life-Threatening Behavior.* 2002 Winter; 32(4):418-27

12. Dunne E, Duggan M, O'Mahony J. Mental health services for homeless: patient profile and factors associated with suicide and homicide. *Irish Medical Journal.* 2012 Mar; 105(3):71-72.

13. Desai RAL-M, W. Dausey, D. J. Rosenheck, R. A. Suicidal ideation and suicide attempts in a sample of homeless people with mental illness. *The Journal of Nervous and Mental Disease.* 2003; June; 191(6):365-71.

14. Hodgson KJ, Shelton KH, Van den Bree MBM, Los FJ. Psychopathology in young people experiencing homelessness: A systematic review. *American Journal of Public Health.* 2013 103(6), e24-e37.

15. Central Statistics Office, Office CS. *Homeless persons in Ireland: A special census report.* 2012.

16. Griffin E, Arensman E, Corcoran P, Wall A, Williamson E, Perry IJ. *2013 Annual Report of the National Registry of Deliberate Self-Harm.* National Suicide Research Foundation, Cork. 2014.

17. Schmidtke A, Bille-Brahe U, DeLeo D, Kerkhof A, Bjerke T, Crepet P, et al. Attempted suicide in Europe: rates, trends and sociodemographic characteristics of suicide attempters during the period 1989-1992. Results of the WHO/EURO Multicentre Study on Parasuicide. *Acta Psychiatrica Scandinavica.* 1996 May; 93(5):327-38.

For further information, please contact:

Prof Ella Arensman
National Suicide Research Foundation
Department of Epidemiology and Public Health
University College Cork
E-mail: earensman@ucc.ie