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Research paper

Self-harm among the homeless population in Ireland: A national registry-based study of incidence and associated factors

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ABSTRACT

Background: Self-harm is a strong predictor of future suicide, but little is known about self-harm among the homeless population. The study aim was to estimate the incidence of self-harm among the homeless population and to assess factors associated with self-harm.

Methods: Data on self-harm presentations to 34 hospital emergency departments in Ireland were collected by the National Self-Harm Registry Ireland (NSHRI). Index presentations between 2010 and 2014 were included for the homeless and fixed residence populations. Incidence rates of self-harm were calculated using NSHRI data and census estimates. Factors associated with self-harm and repeated self-harm were analysed by multivariable-adjusted logistic regression.

Results: The age-standardised incidence rate of self-harm was 30 times higher among the homeless (5572 presentations per 100,000) compared with those with a fixed residence (187 presentations per 100,000). Homeless people had significantly higher odds of being male (OR 1.86, 95%CI 1.56–2.23), presenting with self-cutting (vs. overdose, OR 2.15, 95%CI 1.74–2.66) and having psychiatric admission (vs. general admission, OR 2.43, 95%CI 1.66–3.57). Homeless people had higher odds of self-harm repetition within 12 months (vs. fixed residence, OR 1.46, 95%CI 1.21–1.77). The odds of repetition were significantly increased among homeless who engaged in self-cutting (vs. overdose, OR 1.76, 95%CI 1.17–2.65) and did not receive psychiatric review at index presentation (vs. reviewed, OR 1.54, 95%CI 1.05–2.26).

Limitations: The study only reflects self-harm presenting to hospital, and assumes no change in homelessness status after index presentation. Residual confounding may affect the results.

Conclusion: There is a disproportionate burden of self-harm among the homeless. Targeted preventive actions are warranted.

1. Introduction

Rates of premature mortality are typically higher among the homeless population than in the general population living at a fixed residence. In high-income countries, standardised mortality ratios are commonly two to five times higher among the homeless compared to the domiciled population (Fazel et al., 2014). Much of this difference may be attributable to higher rates of suicide and unintentional injuries among homeless people (Hwang, 2000; Feodor Nilsson et al., 2014). Self-harm is an indicator of future suicide risk (Hawton et al., 2003; Cooper et al., 2005). Few studies have quantified the burden of self-harm among the homeless, and the incidence rate of self-harm in the homeless population is unknown relative to those living at a fixed residence.

There have been increases in the prevalence of homelessness in Ireland in recent years, primarily due to supply shortages in housing. The homeless population includes rough sleepers, those sleeping in emergency accommodation such as hostels, and the "hidden homeless" who stay with relatives or friends, or remain in institutional care due to a lack of alternative housing. In Ireland, 5% of all hospital presentations of self-harm in 2015 were by residents of homeless hostels or people of no fixed abode (National Suicide Research Foundation, 2017). Although some of these are repeated presentations among the same individuals, this is disproportionately high; visibly homeless individuals comprised 0.1% of the Irish population in the 2016 census (Central Statistics Office, 2017).

The characteristics of homeless individuals who self-harm may differ from domiciled individuals, as there are inherent demographic

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differences between these two groups. Over half of all self-harm presentations in the general Irish population are among females (National Suicide Research Foundation, 2017). However, in a registry-based study in the UK, 80% of homeless self-harm patients were male. They were significantly more likely to be single and unemployed compared with those who lived at a fixed residence (Haw et al., 2006).

The risk of future suicide is particularly high among those with repeated self-harm (Zahl and Hawton, 2004; Christiansen and Jensen, 2007). In England, homeless individuals were significantly more likely to present with repeated episodes of self-harm within 12 months of an index episode compared with domiciled individuals (Haw et al., 2006). A systematic review of 129 hospital-based studies identified homelessness as an under-researched risk factor for self-harm repetition (Larkin et al., 2014a). In Ireland, approximately 15% of all self-harm patients make at least one repeat hospital presentation for self-harm in the same calendar year, but it is unknown whether this varies by housing status (National Suicide Research Foundation, 2017).

The aims of this study are to describe the crude and age-standardised incidence rates of hospital-treated self-harm among the homeless population in Ireland, and to explore factors associated with episodes of self-harm and repetition among the homeless and domiciled populations.

2. Methods

The National Self-Harm Registry Ireland (NSHRI) uses the following as its definition of self-harm: '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' (National Suicide Research Foundation, 2017; Platt et al., 1992).

2.1. Setting and sample

Since 2006, the NSHRI has complete coverage of all self-harm presentations presenting to hospital emergency departments in Ireland. The Registry includes all presentations of self-harm where the self-harm was intentionally inflicted and the patient was alive on arrival at hospital. This includes acts of varying levels of suicidal intent and different underlying motives. The NSHRI excludes accidental overdoses, alcohol overdoses alone where the intention was not to self-harm, accidental overdoses of street drugs used for recreational purposes, and patients who died on arrival at hospital.

The Registry records most individuals as living at a household residence (hereafter fixed residence). Individuals who are described in the hospital notes as being of no fixed abode, or whose address is recognised as a homeless hostel or some other form of accommodation for the homeless, are recorded as being homeless persons. Individuals are not recorded as having a fixed residence, or being homeless, if they are hospital inpatients, prison inmates, living in a nursing home, temporarily visiting the country, or residents in accommodation provided for asylum seekers or for persons with physical or intellectual disability.

2.2. Dataset

A customised data entry and electronic transfer system was used to record all NSHRI data onto laptop computers. Data registration officers (DROs) received standardised training in data collection and procedures, and worked independently of the hospitals. NSHRI data are continuously checked for consistency and accuracy, and the results of cross-checking exercises for the NSHRI indicate that there is a high level of agreement on case ascertainment between DROs across sites with kappa statistics exceeding 0.9 (Perry et al., 2012).

All presentations of self-harm to emergency departments in Ireland made by individuals who were homeless or lived at a fixed residence during the period 1 January 2007 to 31 December 2015 were included in the initial dataset. Any presentations with missing information relating to sex, age, method of self-harm, or type of residence (i.e. homeless vs. fixed residence) were excluded. Encrypted patient initials, date of birth and sex were used to create unique identifiers which could identify repeat episodes of self-harm within the dataset. Repeat presentations were identified where individuals with the same unique identifier re-presented to the same hospital or to another hospital during the follow-up period.

The study starting point was considered to be 1 January 2010, and the endpoint was considered to be 31 December 2014. This study period allowed a minimum 12-month follow-up period for all index acts of self-harm between 2010 and 2014. The dataset was restricted to those individuals who did not have any recorded self-harm presentation in the years 2007–2009 according to their unique identifier in order to maximise the number of true index presentations.

2.3. Ethical considerations

All records within this dataset were anonymised. Records relating to name, date of birth, area of residence, and other identifiable information were removed by the National Suicide Research Foundation (NSRF) prior to data analysis. Ethical approval was granted by the Research Ethics Committee of the Faculty of Public Health Medicine Ireland to NSRF to undertake analysis of data from the NSHRI. The NSHRI has received ethical approval from all relevant hospitals and Health Service Executive Committees. The NSRF is registered with the Data Protection Agency and complies with the Data Protection Act of 1988, and the Data Protection (Amendment) Act of 2003.

2.4. Incidence rates of self-harm

The crude incidence rate of self-harm was calculated for the homeless population, and for those living at a fixed residence, based on index presentations of self-harm within each calendar year from 2010 to 2014 inclusive.

Population estimates were only available for the homeless population from the 2011 census at the time of analysis. These estimates were therefore applied as the denominator homeless population for each year from 2010 to 2014 inclusive. The number of index presentations each year was divided by the estimated population in the following age groups as per the 2011 Census: < 15 years, 15–24 years, 25–34 years, 35–44 years, 45–54 years, 55+ years. The result was then multiplied by 100,000 to get the crude incidence rate of self-harm per 100,000 homeless population for each age group. The total crude incidence rate was calculated by dividing the total number of self-harm presentations in any calendar year by the denominator homeless population, and by multiplying the result by 100,000. For the general population, estimates were available from the Central Statistics Office (CSO) for those living at a fixed residence for each year from 2010 to 2014 inclusive. The number of index presentations each year was divided by the corresponding estimated population in each age group. The result was multiplied by 100,000 to get the crude incidence rate of self-harm per 100,000 fixed residence population per age group. The total crude incidence rate was calculated by dividing the total number of presentations each year by the overall estimated population for those living at a fixed residence, and by multiplying the result by 100,000.

The crude incidence rate of self-harm among the homeless was divided by the corresponding crude incidence rate among the fixed residence population to get the incidence rate ratio for each year.

For each age group, the crude incidence rate of self-harm was multiplied by the estimated total population using the 2013 European Standard Population. The overall age-standardised incidence rate was then calculated by summing together these estimates for the homeless population and for those living at a fixed residence respectively for each