Journal of Affective Disorders 168 (2014) 466–471

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research report

Characteristics of deaths by suicide in Northern Ireland from 2005 to 2011 and use of health services prior to death

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ARTICLE INFO

Article history:
Received 21 April 2014
Received in revised form
16 July 2014
Accepted 18 July 2014
Available online 29 July 2014

Keywords:
Suicide
Service Use
Conflict
Mental Health

ABSTRACT

Background: Service presentation may offer an opportunity for intervention prior to suicide. The study aimed to examine the characteristics, disorders and service use profiles of those who had died by suicide in Northern Ireland (NI) from 2005 to 2011.
Methods: An analysis of a database of deaths by suicide and undetermined intent based on data in the NI Coronial files from 2005 to 2011 ($N=1667$).
Results: Males are three times as likely to die by suicide as females and suicide rates similar among those aged 20–60 years. Females have increased service use prior to suicide; males tend to disengage with services prior to death. Females are more likely to have recorded prior attempts, service use, diagnosis and referral. The most common health service used was primary care.
Limitations: Despite the inclusion of undetermined deaths (probable suicides) a proportion of deaths by suicide remain unrecorded as such. Data on marital status and mental and physical disorders were based on information recorded by police officers from relatives, other informants and medical records. The reliability of this data may therefore be questioned.
Conclusions: Primary care has an important role in suicide prevention. Gendered patterns in service use prior to death should be considered in suicide prevention programmes. It is important to strengthen clinicians' knowledge of the manifestations of suicidal ideation in males and ways of encouraging service use in males. The NI population who were exposed to the height of the violence of the conflict appear to be at increased risk of suicide as they age.

1. Introduction

Suicide and suicidal behaviour are recognised as a wide-reaching social and important public health issues with annual rates of 11.8 per 100,000 in the United Kingdom (UK). It is also a major economic concern with combined costs of £1.4 million per suicide in the UK (Knapp et al., 2011). Northern Ireland (NI) is the sole country in the UK to have demonstrated an overall increase in recorded suicides in the last decade (Snowcroft, 2013; Tomlinson, 2012; NISRA, 2014). However, disparity in coronial reporting suggest unreliability, particularly with regard to those 'narrative' verdicts which are increasingly used in England, Scotland and Wales (Gunnell et al., 2011; Carroll et al., 2012). Such verdicts tend not to be used in NI where there is now a single coroner's service thus increasing the consistency of the recording procedures.

Self-harm, suicidal ideation and mental disorders are important precipitating factors for death by suicide. Psychological autopsy studies indicate that over 90% of those who die by suicide have a psychiatric disorder (Foster et al., 1997). NI has a history of conflict, and there is evidence that those who have been exposed to the conflict have a higher risk of mental disorders (Bunting et al., 2013; Ferry et al., 2013). The mental health needs of the NI population are higher than those of other parts of the UK. It is estimated that 24% of women and 17% men in NI have a current mental health disorder, a figure 20% higher than England and Wales (Appleby et al., 2013). Results from the World Mental Health Survey initiative demonstrated that NI consistently ranked in the top three countries with respect to rates of mental disorders, and the NI prevalence of Post-Traumatic Stress Disorder was the highest of all the countries surveyed (Bunting et al., 2013). There is also evidence that people in NI who have experienced conflict related traumatic events are more likely to have suicidal ideation and plans than those with other types of traumas, even when the effects of mental disorders are controlled for (O'Neill et al., 2014). In addition, school children in NI who have reported having experienced the conflict have higher rates of self-harm (O'Connor et al., 2014).

In addition to mental disorders, people with physical disorders have an increased risk of self-harm and suicide (Singhal et al., 2014). Health service contact offers an opportunity for the delivery

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http://dx.doi.org/10.1016/j.jad.2014.07.028
0165-0327/

of suicide prevention interventions; however, the inconsistencies in the recording of suicides have resulted in few studies of the patterns of health service use prior to death by suicide. Studies of UK primary care contact prior to suicide demonstrate that certain populations, younger people and females, are more likely to present to their General Practitioner prior to death (Power et al., 1997; Stark et al., 2012). Studies of all health service use has shown that a greater proportion of individuals who die by suicide have contact with primary care providers than with mental health specialists (Luoma et al., 2002). Secondary care service users also continue to contact access primary care services in the period prior to death by suicide (Pearson, et al., 2009). The objective of the current study was to examine the characteristics and service use history of those who died by suicide in NI, as well as mental/physical diagnoses at time of death.

2. Method

Approval was obtained from the University of Ulster ethical committee to undertake the research. Cases were recorded by year of death and deaths by suicide and undetermined intent were generated by staff from the NI Coroner's Service (CSNI) which subsequently directed file selection. The requirements for a coronial verdict of suicide were stricter than those required for classification as a probable suicide and inclusion in the database. Undetermined deaths, which were probable suicides, were classified by both the senior Coroner and also, following an analysis of the file, the Research Associate. Undetermined deaths were classified as suicide where the means of death was that of a common means of suicide and it was likely that the individual took direct action that led to their death.

Case validation was undertaken with the assistance of NI Statistics and Research Agency (NISRA) personnel to ensure that the cases in the database were those included in the official NISRA statistics on deaths by suicide. For each case data was extracted from physical files stored in CSNI archives and electronically recorded in a database. Data on established risk factors including prior suicidal behaviour, diagnosed mental and physical health conditions, pharmacological profiles, demographics, substance use and prior adverse events were extracted. Health disorders and service use was assessed using the deceased person's medical notes (where available), police reports and next of kin statements. Socioeconomic indicators were identified through the same sources as well as information included in pathology reports regarding occupation and geographical position (coordinates). Information on adverse events prior to death was coded by both the Research Associate and another investigator independently. There was a high level of concordance between the two and any discrepancies were resolved prior to statistical analysis.

Operational definitions of variables are as follows: age and marital status refers to status at time of death; previous suicidal behaviour includes hospital and non-hospital treated events. In terms of service use, primary care refers to care under the General Practitioner; secondary care refers to outpatient mental health treatments; tertiary care refers to psychiatric inpatient care. Mental disorders refer to both mental and substance disorders.

Multinomial logistic regression was used to examine associations between socio-demographic indicators and the contact with services prior to death. The reference categories were males, contact with tertiary level services, last contact with services over one year and single marital status. Age was based on the mean age. 'Last point of service' considered the last time contact with services was made by the deceased, while 'level of contact' classified whether that treatment was primary, secondary or tertiary. A code of "none" in last point of service use includes those cases were no information on service use was available. Three mutually exclusive diagnostic outcomes were defined: (a) the presence of mental health disorder, (b) the presence of a physical health disorder, and (c) presence of both physical and mental health disorder. Analyses were implemented using the IBM SPSS package (16).

3. Results

Information was gathered for those cases which occurred between 2005 and 2011 ($N=1667$). Gender ratios for completed suicides were 3:1, 77% male and 23% female (Table 1). Of these, gender proportions were similar in those under 19 years (9.3% and 7.9% respectively), while males demonstrated somewhat higher rates aged between 20 and 39 years. Female suicides were highest in those aged between 40 and 69 years. These differences did not reach statistical significance.

A higher proportion of females were in contact with services in the week prior to death relative to males (25.7% and 16.5% respectively). There was a small, though statistically significant increase in the use of services by females in the two months prior to death (Table 2). A higher proportion of males last availed of services beyond this point, with a sevenfold higher rate among those who had not been in contact with health services for at least one year before death (3.6% and 0.5% respectively).

Those aged over 40 years were more likely to engage with services in the week before death (19.9%); however associations with age group failed to reach statistical significance ($\chi^2=0.08$, $p>0.05$). The highest overall service presentations were recorded in those over 70 years (27%). A similar pattern emerged for this age group with regard to help seeking in the month prior to death, while those aged between 20 and 29 years engaged in services more frequently in the two months prior to death (8.2%). The 60–69 years age group were most frequent service users in the period up to four months preceding suicide (7%), while individuals aged below 19 years were more likely to access services between six months and one year prior to death (6.6%). (Table 3)

Table 1
Gender and age.

Age group % (n)	10–19 yrs	20–29 yrs	30–39 yrs	40–49 yrs	50–59 yrs	60–69 yrs	70+ yrs	Total
Female	25.5% (35)	17% (62)	18% (60)	25.5% (96)	29% (70)	28% (36)	22% (17)	22.6% (376)
Male	74.5% (102)	83% (306)	82% (274)	74.5% (281)	71% (175)	72% (93)	73% (60)	77.4% (1291)

Table 2
Gender and last health service interaction.

Gender % (n)	Not known	1 wk	1–2 wks	2–4 wks	1–2 M	2–4 M	4–6 M	6–12 M	>1 yr
Female	47.1% (180)	25.7% (98)	5.2% (20)	7.6% (29)	6.3% (24)	3.1% (12)	2.6% (10)	1.8% (7)	0.5% (2)
Male	48.3% (623)	16.5% (213)	5% (65)	7.4% (95)	6% (78)	4.9% (63)	3.8% (49)	4.6% (59)	3.6% (46)