Brief Communication

Factors Associated With Not Seeking Professional Help or Disclosing Intent Prior to Suicide: A Study of Medical Examiners' Records in Nova Scotia

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Objective: Individual-level data from clinical settings lack information on people who did not seek professional help prior to suicide. We used records of the Nova Scotia Medical Examiner Service (NSMES) to compare people who had contact with a health professional prior to suicide with those who did not.

Method: We linked data from the NSMES to routine administrative data of the province.

Results: The NSMES recorded 108 suicides in Nova Scotia from January 1, 2006, to December 31, 2006; there were 90 male and 18 female suicide deaths. Mean and median age at death were 44.73 (SD 13.33) and 44 years, respectively. Patients aged 40 to 49 years made up one-third of the cases (n = 35) and this was the decade of life with the highest number of suicides. This was also the group least likely to have suicidal intent recorded in the NSMES files (χ^2 = 3.86, df = 1, P = 0.05). Otherwise, there were no significant differences between people who sought help, or disclosed intent, prior to suicide and people who did not. The samples in all cases were predominately male and single.

Conclusions: People aged 40 to 49 years were the age group with the highest absolute number of suicides, but were the least likely to have suicidal intent recorded in the NSMES files. This finding merits further investigation. Medical examiner or coroner data may provide additional information not obtained elsewhere for the surveillance of suicide.

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Clinical Implications

- Patients aged 40 to 49 years have the highest number of suicides but were least likely to have suicidal intent recorded in the files. This merits further research to establish whether this a true finding or reflects reporting bias.
- Although reluctance to seek help is one suggestion for higher suicide rates in men, three-quarters of male decedents had health service contact in the year prior to their death.
- Medical examiner and coroner data may provide additional information not obtained elsewhere for the surveillance of suicide. Their use for research or surveillance would be enhanced if medical examiners and coroners collected the information in a more systematic way.

Limitations

- We cannot exclude the possibility of type II error given the small number of subjects.
- Information collected by medical examiners in the course of an investigation is meant to meet the operational requirements of that investigation. Data are thus not systematically collected and may also lack details important to researchers but of little practical importance to an investigative agency.
- Administrative data are subject to recording bias and lack indicators of disease severity or psychosocial functioning.

Key Words: *health outcomes, mental health services, suicide*

Suicide is the 11th leading cause of death for all ages in Canada, accounting for 1.7% of all deaths.[1] There are about 88 deaths due to suicide in Nova Scotia each year and an age-specific mortality rate of 9.6 per 100 000 population.[2] Because suicide often occurs in working life, the potential years of life lost are significant, coming third after cancer and heart disease in men.[3] Mental illness, particularly depression, is the strongest individual risk factor.[4–6] Most studies report a higher risk of suicide among males, often through reluctance to seek help, or the use of more lethal methods.[3,5,7,8] Other risk factors include stressful life events,[5] increasing age,[8] previous suicide attempts,[5] sexual orientation,[9] rural residence,[4] firearm ownership,[10] social isolation,[3] low socioeconomic status,[4,8] chronic pain, terminal illnesses or disabilities,[11] or being the victim or perpetrator of domestic violence. Hotels are a location for suicide, particularly among local residents.[12]

Most information on suicide comes either from population data, or individual-level data from clinical settings.[13] There is less individual-level information on people who did not seek help prior to suicide and who thus may not appear in clinical data. This is an important group as only 20% of people contact a health professional in the week before suicide and only 40% within the month.[14] We used records in the Nova Scotia Medical Examiner Service (NSMES) to assess the potential for comparing sociodemographic characteristics of people who sought help, or disclosed intent, prior to suicide with people who did not.

Method

In Nova Scotia, the NSMES is responsible for the investigation of all deaths that are violent or unexplained. Records are centralized in Halifax.[15] We extracted one year of data from January 1, 2006, to December 31, 2006, using a standardized data abstraction form.[15] The records include data such as demographics, cause of death, prior contacts with health professionals, previous suicide attempts, psychiatric diagnoses, medical comorbidities, precipitants, date and time of death, and health card number (for linkage with administrative data). We did not include undetermined deaths as the NSME reserves this for cases with insufficient data to classify the death to a reasonable degree of medical certainty or, alternatively, several possible causes of death. These include deaths that may have been natural or accidental, accidental or homicidal, or any other combination where suicide is often not suspected (for example, infants with traumatic head injuries).

We linked these data to the provincial administrative databases to determine health service use in the final year of life. We used the following datasets held by the Population Health Research Unit at Dalhousie University: fee-for-service claims by physicians including date of service, and patient demographics; the Canadian Institute for Health Information Discharge Abstract Database of admission and separation times; and mental health outpatient data of care episodes.

Income levels were classified about the quartiles of the 2001 Census average household income for the Nova Scotia population by the postal code of the subjects' place of residence at the time of the census.

We compared people who did, and did not, have contact with a health professional before their death. Prior contact with health professionals was defined as visiting a doctor for mental health or nonmental health reasons, being hospitalized for mental health or nonmental health reasons, or visiting a mental health outpatient clinic to see a doctor or allied health professional. We also compared people who had, and had not, disclosed suicidal intent, as recorded in the NSMES files. Disclosed intent was defined as written reference to suicide (for example, journals, letters, or electronic notes), verbally expressing suicidal ideation, or exhibiting behaviour that led family and friends to expect suicide. Our study was approved by the Dalhousie University Research Ethics Board and the provincial Department of Justice.

Results

The NSMES recorded 108 suicides from January 1, 2006, to December 31, 2006; there were 90 male deaths and 18 female deaths, giving a male to female ratio of 5:1. Mean and median age at death were 44.7 (SD 13.3) and 44 years, respectively. Patients aged 40 to 49 years represented one-third of cases (n = 35). Numbers for other decades of life were as follows: 29 years and younger (n = 15), 30 to 39 years (n = 23), 50 to 59 years (n = 21), 60 to 69 years (n = 8), and 70 to 79 years (n = 6).

Sixty percent of decedents were reported as having depression (n = 64) and nearly one-third reported excessive alcohol use (n = 34). Medical comorbidity in the form of chronic pain was recorded in 16 subjects and terminal illness in 4.

Overall, hanging (38.9%), self-poisoning (24.1%), and firearm injury (19.4%) were the most common methods of suicide. Hanging (40%) was the most common method used by males; self-poisoning (38.9%) was most commonly used by females. All 21 of the deaths by firearm were male.

The most common place of death was at home, either inside or outside the house (n = 61). Other places included public locations (n = 30), the property of family or friends (n = 6), and miscellaneous locations such as hotel rooms (n = 5).

We were able to link NSMES data with administrative data for 101 cases. Table 1 compares subjects who had contact with health professionals in the year prior to suicide (n = 76) with those who did not (n = 25). Both groups were predominately male and single with no record of employment at the time of death in the NSMES files. There was no difference in income level between the 2 groups. People without previous suicide attempts were less likely

Table 1 Visits to health professionals

Variable	No contact (n = 25) n (%)	Contact (n = 76) n (%)	χ^2	df	P
Male	23 (92.0)	61 (80.3)	1.85	1	0.23
Aged 40 to 49, years	11 (44.0)	21 (27.6)	2.33	1	0.13
Single status	16 (64.0)	43 (56.5)	0.94	1	0.66
Employed[a]	9 (36.0)	24 (31.5)	0.17	1	0.92
Income, $[b]					
0–36 383[c]	—	—	—	—	
36 384–42 572[c]	10 (40.0)	37 (53.6)	2.15	2	0.34
42 573–53 049	6 (24.0)	17 (24.6)			
≥53 050	9 (36.0)	15 (21.7)			
Rural residence	15 (60.0)	38 (50.0)	0.75	1	0.38
Violent means	19 (76.0)	56 (73.7)	0.18	1	0.67
No previous suicide attempts	21 (84.0)	48 (63.2)	3.78	1	0.05

[a] n = 57 as data missing on 44 subjects
[b] n = 94 as data missing on 7 subjects
[c] Combined because cell size was <5

Table 2 Disclosure of suicidal intent

Variable	No (n = 55) n (%)	Yes (n = 46) n (%)	χ^2	df	P
Male	48 (87.3)	36 (78.3)	1.45	1	0.23
Aged 40 to 49, years	22 (40.0)	10 (21.7)	3.86	1	0.05
Single status	35 (63.6)	24 (52.1)	1.36	1	0.65
Employed[a]	19 (34.5)	14 (30.4)	0.20	1	0.91
Income, $[b]					
0–36 383	14 (25.9)	9 (22.5)	0.91	3	0.82
36 384–42 572	12 (22.2)	12 (30.0)			
42 573–53 049	13 (24.1)	10 (25.0)			
≥53 050	15 (27.8)	9 (22.5)			
Rural residence	31 (56.3)	22 (47.8)	0.73	1	0.39
Violent means	38 (69.1)	37 (80.4)	1.69	1	0.19
Previous suicide attempts	20 (36.4)	12 (26.1)	1.22	1	0.27
Health visits					
0	17 (30.9)	8 (17.4)	2.43	1	0.12
≥1	38 (69.1)	38 (82.6)			

[a] n = 57 as data missing on 44 subjects
[b] n = 94 as data missing on 7 subjects

to have had prior contact, this finding reaching statistical significance despite the small numbers (Table 1).

Nearly one-half (47%) of the sample were recorded as having disclosed suicidal intent (Table 2). Decedents aged 40 to 49 years were significantly less likely to have suicidal intent recorded in the files than other age groups. There were no other significant differences between people who did and did not disclose intent recorded in the NSMES files.

Discussion

Use of medical examiner's records provides accessible information and a fairly representative sample for research on suicide deaths. The NSMES identified 108 suicides; this compares with an annual average of 88 recorded in the vital statistics database for Nova Scotia in the same decade.[2] Data from Newfoundland and Labrador also indicate that medical examiner data can identify additional cases not recorded in vital statistics.[16] This is because

the medical examiner's final conclusions may not be available until after the submission deadline to Statistics Canada.[15] Coroners' and medical examiners' records have proven useful for such research and surveillance in other jurisdictions in Canada and abroad.[4–7,10,12,15–25] In Ontario, Juurlink et al[25] linked data from the chief coroner's records with prescription, physician billing, and hospitalization data to explore the relation between selective serotonin reuptake inhibitor antidepressants and suicide in older Ontarians. A 10-year retrospective analysis of medical examiner records of suicides in Kentucky provided information regarding epidemiologic trends,[7] toxicology findings,[21] association with schizophrenia,[24] and prevalence among youth.[10] Similarly, in England, coroners' data on gunshot suicides helped to evaluate the effect of firearm restrictions.[18]

It is important to investigate suicide using multiple sampling frames, including population data, and individual-level data from clinical and nonclinical settings. This is because there are differences in risk factors in terms of low income, employment, education, and marital status according to the sampling frame selected.[26] By using NSMES data, we were able to investigate individual-level factors associated with not presenting for treatment, or not disclosing intent, prior to suicide. In this case, we were unable to show significant differences between people who had been in contact with health services and those who had not, although we cannot exclude the possibility of type II error given the small number of subjects.

As in other work, people aged 40 to 49 years had the highest absolute number of suicides.[27] We also showed that this is the age group least likely to have suicidal intent recorded in the NSMES files. This is consistent with the findings that people in their middle years are the least likely to seek treatment for depression and that it merits further investigation.[28]

Although reluctance to seek help is one suggestion for higher suicide rates in men, three-quarters of male decedents had health service contact in the year prior to their death, while 48% were reported as having expressed suicidal intent.

There are several limitations to our study in addition to size. NSMES and administrative data are subject to recording bias. Employment status was only recorded in 44% of files, and was often inconsistent. Further, some NSMES data are based on the perception of family or friends. For instance, it is possible that family members of decedents aged 40 to 49 years who might have the highest burden of financial obligations, may be less likely to report suicidal intent for fear of financial repercussions. There may also be underreporting of previous suicide attempts owing to stigma. Records are not standardized and so the scope of investigations, and resulting records, varies widely. These data may therefore lack detail on diagnosis, illness severity, or predisposing factors.

Despite these shortcomings, NSMES data may provide information not obtained elsewhere for the surveillance of suicide. Greater standardization of records and training of medical examiner staff could improve data quality.

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Résumé : Facteurs associés à ne pas chercher d'aide professionnelle ou à la divulgation d'intention avant le suicide : une étude des dossiers des médecins légistes de la Nouvelle-Écosse

Objectif : Les données de niveau individuel des milieux cliniques manquent d'information sur les personnes qui n'ont pas cherché d'aide professionnelle avant le suicide. Nous avons utilisé les dossiers du service du médecin légiste de la Nouvelle-Écosse (SMLNÉ) pour comparer les personnes qui ont eu un contact avec un professionnel de la santé avant le suicide avec celles qui n'en ont pas eu.

Méthode : Nous avons lié les données du SMLNÉ aux données administratives régulières de la province.

Résultats : Le SMLNÉ a enregistré 108 suicides en Nouvelle-Écosse, du 1er janvier 2006 au 31 décembre 2006; il y a eu 90 hommes et 18 femmes décédés par suicide. L'âge moyen et l'âge médian au décès étaient 44,73 ans (ET 13,33) et 44 ans, respectivement. Les patients âgés de 40 à 49 ans représentaient un tiers des cas (n = 35) et c'était la décennie de vie où le nombre de suicides était le plus élevé. C'était également le groupe d'âge le moins susceptible d'avoir des intentions suicidaires consignées dans les dossiers du SMLNÉ (χ^2 = 3,86, *dl* = 1, P = 0,05). Par ailleurs, il n'y avait pas de différences significatives entre les personnes qui ont cherché de l'aide, ou divulgué leur intention, avant le suicide et celles qui ne l'ont pas fait. Les échantillons dans tous les cas étaient principalement masculins et célibataires.

Conclusions : Les personnes âgées de 40 à 49 ans constituaient le groupe d'âge qui avait le nombre absolu de suicides le plus élevé, mais qui était le moins susceptible d'avoir des intentions suicidaires consignées dans les dossiers du SMLNÉ. Ce résultat mérite plus de recherche. Les données du médecin légiste ou du coroner peuvent fournir des renseignements additionnels qu'on n'obtient pas ailleurs pour la surveillance du suicide.