

Characteristics of Suicide Attempts and Deaths Among those Aged 60 Years and Older in Rhode Island

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Suicide accounts for the loss of over 42,000 American lives each year,¹ and about 10,000 of these are among adults aged 60 and older with the majority being men.^{1,2} Suicide death rates in the older adult population are high and increase with age, especially in males 75 years and older (38.8 per 100,000 in 2014).^{3,4}

One of the Healthy People (HP) 2020 objectives (set by the US Department of Health and Human Services) is “reducing suicides by 10%”.⁵ The Centers for Disease Control and Prevention’s (CDC) National Violent Death Reporting System (NVDRS) can be used to measure the progress towards achieving the HP 2020 objective.⁵ Although NVDRS has successfully provided data for suicide prevention in many states,^{2, 4-7} most studies have focused on youth suicides. However, the majority of suicides are among those aged 35–54, and as the baby boomers continue to age, the number of suicides in older adults is expected to climb.² It is, therefore, timely to investigate characteristics of suicides among older adult or elderly populations.

Using the 2013 Rhode Island emergency department (ED) visit database and hospital discharge database (HDD), and the 2004–2013 Rhode Island Violent Death Reporting System (RIVDRS), we aimed to characterize the burden of suicide among RI adults aged 60 and older.

METHODS

RI maintains electronic, centralized, and statewide databases of ED and HDD for 11 acute care hospitals and three specialty hospitals. RI hospitals use the standard uniform billing form (UB-04) as the basis for the ED and HDD. The data collected include patient’s age, sex, zip code, admission date, length of stay, total charges, principal diagnosis, and secondary diagnoses. We used the 2013 ED and HDD and only focused on suicide attempts among those aged 60 years and older from the 11 acute care hospitals. ED visits covered in this analysis were limited to those not resulting in an admission to the same hospital since most payers require a single bill for patients seen in multiple care settings/units of the same hospital during a single visit/stay.

RIVDRS was established to inform policymakers about the characteristics, magnitude, and trends of violent death and for the development of prevention strategies.² It is an active surveillance system that collects information on demographics, place of death, circumstances, toxicology

tests, weapon type, and manner and cause of death data. We limited our analysis to suicide deaths from 2004 to 2013 among adults aged 60 years and older ($n = 201$).

RIVDRS abstractors determined manner of death based on medical examiner and law enforcement reports to identify the underlying cause of deaths. Suicide injuries include diagnostic codes E950-E959 (ICD-9-CM) (E-code: external causes of injury).⁸ Using the 2013 ED and HDD, we included age group, sex, race/ethnicity, city/town of residence, insurance, and patient status. Using the 2004–2013 RIVDRS data, we included age group, sex, race/ethnicity, veteran, marital status, city/town of residence, injuries at victim home, weapon type, toxicology tests, and circumstances. Analyses were conducted with SAS version 9.4 (SAS Institute, Inc. Cary, NY).

RESULTS

In 2013, RI older adults had 30 ED visits and 91 hospitalizations due to suicide attempts (**Table 1**). Although the majority of suicide attempt hospitalizations were among those with Medicare (67%), the proportion was lower for ED visits related to suicide attempts, where 47% were among those with Medicare. One-third of those seen in the ED or hospitalized for suicide attempts were transferred to psychiatric units. A trend analysis of over ten years of data revealed that suicide deaths changed dramatically from 2004 to 2013 (**Figure 1**). During this period, a total of 201 RI older adults died of suicide and over one-third were veterans (**Table 2**). Firearm use was the most common method of suicide. **Tables 1–2** show suicide attempts and deaths among the elderly population are more likely to occur among males, whites, and those living in non-core cities.

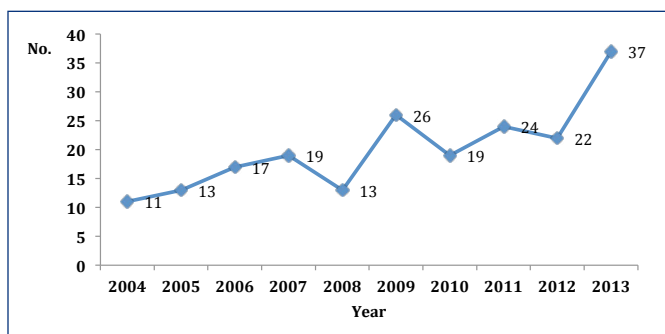
Among the 201 suicides, 97% were tested for alcohol, antidepressants, and opiates, and 19.2% tested positive for alcohol, 24% for antidepressants, and 21.4% for opiates (**Table 3**). In 101 (50.3%) cases, the decedent had a current mental health problem. Approximately 82% of older adults with a current mental health problem had a diagnosis of depression/dysthymia, with anxiety disorder (18.7%), post-traumatic stress (10%; 60% of them were veterans), and bipolar disorder (8%). Less than half of the older decedents were in current mental health treatment. Among older suicide adults, 47.8% had at least one physical health problem, 21.4% had experienced a recent crisis in the past two weeks, and 35.3% left suicide notes.

Table 1. Characteristics of Suicide Injuries Among Those Aged 60 Years and Older, 2013 RI Emergency Department (ED) and Hospital Discharge Data (HDD)

Characteristic	%	
	ED (n=30) ^a	HDD (n=91)
Age group		
60–69 years	76.7	65.9
70–79 years	20.0	25.3
80 years and over	3.3	8.8
Sex		
Male	60.0	49.5
Female	40.0	50.5
Race/Ethnicity		
Non-Hispanic white	90.0	90.0
Minority	10.0	10.0
City/Town of Residence		
Core cities ^b	23.3	26.4
Non-core cities	76.7	70.3
Out of state	0.0	3.3
Insurance		
Self-pay	6.7	2.2
Medicare	46.6	67.0
Medicaid	0.0	3.3
Private	46.7	27.5
Patient Status		
Discharged to home/self-care	50.0	42.9
Transferred to psychiatric hospital/ part unit of a hospital	33.3	36.3
Other	16.7	20.8

^a ED visits did not include subsequent admission to an inpatient or observation bed of the same hospital.

^b Core-cities: Central Falls, Pawtucket, Providence, and Woonsocket.

Figure 1. Suicide Deaths Among Those Aged 60 Years and Older, 2004–2013 RIVDRS**Table 2.** Characteristics of Suicide Deaths Among Those Aged 60 Years and Older, 2004–2013 RIVDRS (N=201)

Characteristic	n	%
Age group		
Average age, 70.7 years		
60–69 years	111	55.2
70–79 years	47	23.4
80 years and over	43	21.4
Sex		
Male	155	77.1
Female	46	22.9
Race/Ethnicity		
Non-Hispanic white	194	98.0
Minority	< 5 ^a	
Veteran		
Yes	79	39.7
No	120	60.3
Marital Status		
Married/Civil union/Domestic partnership	84	42.0
Widowed	46	23.0
Divorced	43	21.5
Never Married/Single, not otherwise specified	27	13.5
City/Town of Residence		
Core cities ^b	34	17.0
Non-core cities	155	77.5
Out of state	11	5.5
Injured at Victim Home		
Yes	149	76.0
No	47	24.0
Weapon Type		
Firearm	77	38.5
Hanging, strangulation, suffocation	50	25.0
Poisoning	44	22.0
Other	29	14.5

^a Cell contained less than five cases.

^b Core-cities: Central Falls, Pawtucket, Providence and Woonsocket.

Table 3. Toxicology Tests and Circumstances of Suicide Deaths Among Those Aged 60 Years and Older, 2004–2013 RIVDRS (N=201)^a

Toxicology Test and Circumstance	n	%
Tested	192	97.0
Toxicology test positive		
Alcohol	37	19.2
Antidepressants	46	24.0
Opiates	41	21.4
Mental health/substance abuse circumstance		
Current depressed mood	100	50.0
Current mental health problem ^b	101	50.3
Depression/Dysthymia	83	
Anxiety disorder	18	
Post-traumatic stress	10	
Bipolar disorder	8	
Other	14	
Current mental health treatment	90	44.8
Alcohol problem	22	11.0
Interpersonal circumstance		
Intimate partner problem	27	13.4
Other death of family member/friend past 5 years	18	9.0
Family relationship	16	8.0
Life stressor circumstance		
Physical health problem	96	47.8
Crisis in past or impending two weeks	43	21.4
Financial problem	25	12.4
Job problem	14	7.0
Suicide event circumstance		
Left a suicide note	71	35.3
Disclosed intent to commit suicide	40	19.9
History of suicide attempt(s)	37	18.4

^a Percentages might exceed 100% because multiple circumstances might have been coded.

^b One victim can have two or three current mental health diagnoses.

DISCUSSION

Our study shows that the 30 ED visits for suicide attempts resulted in charges of almost \$135,000 dollars and the average charge per suicide attempt ED visit was approximately \$4,500. The total charges for the 91 hospitalizations for suicide attempts was nearly 2.6 million dollars; the length of stay was 513 days and the cost was over \$800,000 (data not shown).

Our findings are consistent with previous reports.^{2,4} Public

health professionals, community advocates, and healthcare providers should coordinate to facilitate early recognition and preventive interventions.⁴

Healthcare providers have opportunities to improve suicide prevention efforts.⁶ Older adults who attempt or commit suicide often have mental and physical health problems that can worsen with age.² Mental health problems are a major risk factor for suicides and better mental health care can help prevent suicides among older populations.⁶ Studies have shown that those who received mental health treatment often had more severe symptoms and treatment helped reduce suicidal behavior.⁶ Over half of the older adults who committed suicide were reported to have mental health problems, but less than half were receiving mental health treatment. However, a majority of older adult suicide victims visited their primary care physician before they died.⁴ Oregon integrates older adult suicide prevention efforts into primary care practice, and helps primary care and mental health providers collaborate to identify and treat suicidal behavior among the elderly population. As a result of these efforts, suicide decreased 8% among older adults in Oregon.⁵

Instead of focusing on why people take their lives, suicide prevention efforts should focus on the means they use.⁹ Men have higher suicide rates than women and are more likely to die through firearms or hanging, whereas females are more likely to use poisonings (drugs) than males.¹⁰ Access to firearms is a risk factor for suicide; many suicide attempts occur during a short-term crisis and without a plan. Restricting access to firearms has been shown to reduce suicide deaths.^{4,9,11} Primary care providers should be encouraged to ask patients about guns as screening.

Limitations: (1) Some hospitalizations were transferred from other hospitals; however, we cannot account for transfers. There will be a small proportion of double-counting. In the future, we will use data from HealthFacts RI, Rhode Island's All Payer Claims Database (APCD), to validate these data. (2) Mental health status could be underestimated. The mental health status of the victims can be determined via medical records, or the presence of certain prescription drugs, but not all persons with a mental illness seek treatment. (3) Social isolation, depression, and functional impairment are common risk factors among long-term care residents, and these facilities are important locations for preventing suicide among older adults.⁷ Our data showed that only one older adult suicide occurred in a supervised residential setting.

CONCLUSION

Routine screening of the elderly population for mental illness and suicidal ideation, and limiting access to lethal means, may help to prevent older-adult suicide.⁴ ED, HDD, and RIVDRS can be used for the evaluation of efforts to prevent suicide among the elderly population.

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Disclosure

The authors have no financial interests to disclose.

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