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RESEARCH ARTICLE

Older Suicide Decedents: Intent Disclosure, Mental and Physical Health, and Suicide Means

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Introduction: This study examined: (1) associations of suicide intent disclosure with depressed mood and health problems; (2) age-group differences in those associations; and (3) relationship between disclosure and suicide means among suicide decedents aged ≥50 years (N=46,857).

Methods: Data came from the National Violent Death Reporting Systems, 2005–2014. Data analysis was conducted in 2017. Chi-square tests were used to compare disclosers and nondisclosers on sociodemographic and precipitating factors and suicide means. Logistic regression analyses were used to examine the research questions.

Results: The overall disclosure rate was 23.4%. Logistic regression results showed that both depressed mood (AOR=1.57, 95% CI=1.50, 1.65, $p<0.001$) and health problems (AOR=1.56, 95% CI=1.48, 1.64, $p<0.001$) were associated with increased odds of disclosure. Compared with decedents aged 50–59 years, those aged 70–79 years and ≥80 years had greater disclosure odds. When interaction terms of age group X health problems were entered in the model, disclosure odds increased among those with health problems in the groups aged 60–69 years (ratio of AOR=1.19, 95% CI=1.06, 1.34, $p=0.003$), 70–79 years (ratio of AOR=1.29, 95% CI=1.13, 1.48, $p<0.001$), and ≥80 years (ratio of AOR=1.41, 95% CI=1.20, 1.66, $p<0.001$). Compared with other suicide means, both firearm use and hanging/suffocation were associated with lower disclosure odds.

Conclusions: The older the decedents were, the more likely they were to have disclosed suicidal intent, and health problems largely explained their higher odds of disclosure. Healthcare providers need better preparation to screen and aid those in need to prevent suicide. Social support system members should also be assisted in identifying warning signs and linking older adults to services.
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INTRODUCTION

Late-life suicide remains a significant public health problem. The U.S. National Center for Health Statistics reports that between 1999 and 2014, age-adjusted suicide rates increased 24% (from 10.5 to 13.0 per 100,000 population), with the greatest increases in the groups aged 45–64 years (63%) and 65–74 years (44%).[1] Suicide rates decreased slightly in the group aged ≥75 years; however, the suicide rates for older men, especially white men in the groups aged 75–84 years and ≥85 years (38.2 and 54.4, respectively, in 2014), remain the highest of all age groups.[1] The higher suicide rates among older adults are attributed to greater levels of intent to die, premeditation of suicidal acts, lethality of suicide means (e.g., more firearm use), social isolation that reduces chances for rescue after suicidal acts, and physical frailty that makes any suicidal act more lethal.[2–4]

There is little research on suicide intent disclosure among older adults. Two psychological autopsy studies conducted in limited geographic areas, one in the 1980s of those aged ≥60 years and one in the 1990s of those aged ≥75 years, show that older decedents were less likely than younger decedents to have disclosed their suicidal

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thoughts/intent, had warning signs, or attempted suicide prior to the fatal incident.[5,6] However, the 2008 National Violent Death Reporting Systems (NVDRS) showed that older suicide decedents are as likely or slightly more likely than younger decedents to have disclosed intent (29% of all decedents compared with 27%–28% in the groups aged 50–59 years, 60–69 years, and 70–79 years, and 33% in the group aged ≥80 years).[7] More research on disclosure is needed to prevent late-life suicides.

Psychiatric illness, most commonly depression, is a significant suicide driver for decedents of all ages.[8–11] Physical illnesses, pain, and functional impairments (referred to as health problems hereafter) are also significant late-life suicide precipitants.[5,12–15] Analysis of suicide, medical, and police notes in Germany found that those who mentioned health problems as the core suicide reason were significantly older (68.8 [SD=14.9] years) than those who mentioned mental health problems as the core reason (48.7 [SD=16.1] years).[16] Although more than half of older adult suicide decedents used firearms,[17] little research has been done on the relationship between suicide intent disclosure and suicide means. Investigation of whether intent disclosure is related to firearm use may provide further insight into intent, impulsive versus planned suicide deaths, and lethality of means in late-life suicide.

Studying associations of suicide intent disclosure with depression, health problems, and suicide means may aid in developing prevention strategies. Therefore, among suicide decedents aged ≥50 years, this study examines whether or not: (1) intent disclosure is associated with depression and health problems as suicide precipitants; (2) any such associations differ by age group; and (3) intent disclosure is related to suicide means.

METHODS

Study Sample

The NVDRS is an incident-based violent death reporting system that provides detailed data on all individual victims and suspects of suicides, homicides, deaths from legal intervention (i.e., victim killed by law enforcement acting in the line of duty), deaths of undetermined intent, and unintentional firearm deaths in participating states since 2003.[18,19] The NVDRS links death certificate data, crime lab data, toxicology reports, and coroner/medical examiner and law enforcement reports. In this study, after examining disclosure rates for all suicide decedents between 2005 and 2014 (N=111,541), subsequent analyses focused on those aged ≥50 years after excluding 65 decedents who were also suspects of multiple homicides and six decedents whose sex was unknown (N=46,857). Sixteen states (Alaska, Colorado, Georgia, Kentucky, Maryland, Massachusetts, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Virginia, and Wisconsin) provided data in 2005 through 2014; Ohio joined in 2011 and Michigan in 2014.[19] To minimize potential state by time confounds, the years 2003 and 2004 were excluded, because only seven and 13 states, respectively, participated. All data analysis was done in 2017.

Measures

In NVDRS, disclosure was defined as either (1) disclosure of suicidal thoughts/plans to another person within a month (or recently) before suicide, whether explicitly (e.g., "I plan to go to my cabin with my gun and never come back") or indirectly (e.g., "I know how to put a permanent end to this pain"), or (2) a separate suicide attempt within a month of the suicide. If the decedent disclosed intent to die by suicide only at the moment of the suicide (i.e., when there was no opportunity to intervene to stop the suicide), the NVDRS classifies this as a suicide note rather than a disclosure.[20] Nondisclosure was defined as absence of disclosure or unknown disclosure status. NVDRS has collected data on the persons to whom decedents disclosed since August 2013.[20]

Depressed mood was coded "Yes" if the decedent was reported to have had depressed mood at the time of injury. The NVDRS coding manual states that neither a clinical diagnosis nor any indication that the depression directly contributed to the death is needed.[20]

Health problems as a suicide precipitant was coded "Yes" if a physical health problem (e.g., terminal disease, debilitating condition, chronic pain) was noted as contributing to the death (e.g., despondent over recent cancer diagnosis or complained that he could not live with the pain associated with a condition).[18]

As identified from ICD-10 codes (X60–X84) for underlying cause of death and coroner/medical examiner reports, suicide means include firearms, hanging/suffocation (including helium inhalation), alcohol/drug/medicine overdose (overdose hereafter), gas (e.g., carbon monoxide, nitrogen) poisoning, laceration/sharp instruments, blunt injury from jumping from heights, contact with moving objects (train/other vehicles) and other blunt forces, drowning, and other (fire, hypothermia, electrocution, starvation, not adhering to or refusing medical care, and undetermined causes). Means other than firearms, hanging/suffocation, and overdose were combined into "other" because of small numbers.

Control variables included sociodemographic variables and other precipitating factors. Sociodemographic variables were age group (50–59 years, 60–69 years, 70–79 years, and ≥80 years), sex, race/ethnicity, education, former/current military service, and census region of injury (Northeast, Midwest, South, and West). Given the large proportion (≥40%) of missing education data in the NVDRS, the authors estimated education level (college degree versus no degree) from occupation and industry data. Other precipitating factors (1=present; 0=not present, not available, unknown) were: (1) alcohol/other substance abuse problems, (2) intimate partner/other relationship problems, (3) job/finance/housing problems, (4) criminal/other legal problems, (5) recent suicides or other deaths of family/friends, and (6) current mental health/substance abuse treatment including pharmacotherapy and counseling.

Statistical Analysis

All statistical analyses were performed using Stata/MP, version 14. Chi-square tests were used to compare disclosure rates among age groups (≤17 years, 18–49 years, and ≥50 years) followed by focus on the group aged ≥50 years with chi-square tests used to compare