Screening for Suicidal Thoughts and Behaviors in Older Adults in the Emergency Department

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OBJECTIVES: To estimate the prevalence of self-harm, suicidal ideation (SI), and suicide attempts (SA) in older adults in the emergency department (ED), including differences according to age, sex, and race and ethnicity.


SETTING: Eight EDs in seven states, all with protocols for nurses to screen every patient for suicide risk (universal screening).

PARTICIPANTS: Adults (≥18 years) registered in the ED.

MEASUREMENTS: Demographic characteristics; documented screening for self-harm, SI, or SA; and positive self-harm, SI, or SA in those with screening performed.

RESULTS: Of 142,534 visits, 23.3% were of individuals aged 60 and older. Documented screening for self-harm, SI, or SA declined with age, from approximately 81% in younger age groups to a low of 68% in those aged 85 and older. The prevalence of positive screens for self-harm, SI, or SA also declined with age, with peaks in young and middle-age (9.0%) and reaching the lowest point after the age of 75 (1.2%).

CONCLUSION: Documented screening for suicide risk declined with age in this large sample of individuals in the ED. Although the reason for this finding is unclear, at least part of the decline may be related to increasing rates of altered mentation or other individual-level barriers to screening in the older population. These findings support the need for more-detailed examination of the best methods for identifying—and treating—suicide risk in older adults. J Am Geriatr Soc 64:e72–e77, 2016.

Key words: suicide; emergency department; depression; screening; older adult

Suicide prevention in older adults is difficult,1 in part because subtle presentations, high medical comorbidity, and concurrent cognitive impairment can complicate accurate assessment of suicidality.2 Prior work also suggests that clinicians often underdiagnose or undertreat depression (a strong risk factor for suicide) and suicidal ideation (SI) in older adults.3,4 These findings might stem partly from difficulties in distinguishing between normal reactions to the vicissitudes of aging and suicidal thoughts triggered by hopelessness, social stressors, or physical or mental illness.5 In addition, older suicidal individuals are more likely to use advance planning and less likely to ask for help,6 with a suicide attempt (SA) to completion ratio in older adults of approximately 4–1, compared with ratios between 8–1 and 20–1 in the general population.5 Given the advance planning and high lethality of SA in older adults, primary suicide prevention (reaching those at risk before they become suicidal) is especially important in this age group.5,6

Unfortunately, depression, SI, and SA remain common in older adults, with an estimated 10% to 20% of older adults having significant depressive symptoms.7 Age-adjusted suicide rates are especially high in older men,8 and the suicide rate in the baby boom cohort appears higher than previous generations,9,10 adding to the urgency to find ways to identify and help older adults at risk.

Identification, and intervention, would ideally occur in the full spectrum of clinical settings. Emergency departments (EDs) are an important location for such efforts, because almost half of older adults have at least one ED visit a year.11 In addition, people in the ED may be a more-vulnerable population than the general population because of their higher rate of medical comorbidities, acute
injuries, illnesses, and psychosocial crises. An ED visit is often a “sentinel event” for an older adult, in that it signifies acute illness or injury that increases subsequent risk of declining functional ability, independence, and health. To compound matters, general and mental health–related ED visits by older adults are increasing.13

Whereas targeted interventions in primary care settings have been shown to improve screening and effective treatment for depression, less is known about these approaches in the ED. Older adults in the ED with mental health reasons for an ED visit are more likely to be admitted than younger individuals, but we do not know whether the general prevalence or patterns of SI and SA differ from those in younger or middle-aged adult populations. To address this knowledge gap, the objective was to estimate the prevalence of SI and SA in older adults in the ED, including differences according to age, sex, and race and ethnicity.

**METHODS**

**Study Design**

Data came from the Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) study, a quasi-experimental, eight-center study designed to test an approach to universal screening for suicide risk and postvisit telephone intervention for individuals in the ED. (A complete description is available elsewhere.17) The ED-SAFE consisted of three phases of data collection: treatment as usual (Phase 1), universal screening (Phase 2), and universal screening + intervention (Phase 3). The current study predominantly analyzed data from the screening log in Phases 2 and 3 (collected from November 2011 through December 2014) to allow for a detailed description of the patterns of self-harm, SI, or SA in older adults in EDs using universal screening. Specifically, after the introduction of universal screening, ED protocols directed nurses to screen all people, regardless of reason for visit, for suicide risk using standardized screening questions.

Participating sites staffed their EDs with research assistants (RAs) at least 40 hours per week during peak volume hours (12:00 p.m. to 10:00 p.m.), with at least 1 weekend day per month. All adults who entered the ED during data collection shifts were documented on a screening log. RAs at the eight ED-SAFE sites prospectively reviewed the medical charts of consecutive adult (aged ≥18) registered in the ED and recorded the presence of clinician documentation of self-harm, SI, or SA on a screening log. Institutional review boards at each site approved all study procedures and protocols; the National Institute of Mental Health Data and Safety Monitoring Board conducted overall study oversight and monitoring.

**Measures**

On the screening log, RAs recorded triage time and date and demographic characteristics (age, sex, Hispanic ethnicity, race). They also recorded whether the ED visit was for a psychiatric complaint (Phase 3 only); whether any screening for intentional self-harm, SI, or SA was documented anywhere on the person’s ED medical record (primary clinician outcome); and whether self-harm was documented as present (positive screen) or absent (negative screen). In this limited screening database, RAs did not review other chart variables (e.g., Emergency Severity Index level of visit, disposition, or past medical or psychiatric history). If an individual was unable to answer screening questions (e.g., cognitive impairment, acute alteration in mental status, critical illness) it was noted that he or she had no screening; in cases without screening, RAs did not attempt to identify or record the reason screening was not completed. The ED-SAFE study used the following definitions: self-harm, “behaviors or thoughts of harming self in past week”; SI, “thoughts of ending life in past week”; and SA, “suicide attempts in past 6 months or previously.” On the screening log, there was a single, grouped “self-harm” variable for whether there was screening for any one or all of these (self-harm, SI, SA). Response options included “no screening documented,” “no self-harm present (patient screened but denied),” and “self-harm present (current, past, or unclear timing).”

**Data Analysis**

Prevalence rates of current self-harm, SI, or SA in individuals in the ED were estimated using percentages and 95% confidence intervals (CIs). These prevalence estimates were compared according to age (by 5-year increments). Based on an observed inflection point in rates at approximately age 60 in the data, older adults aged 60 and older were further compared to determine differences in sex, race, and ethnicity.

**RESULTS**

The final screening database included 142,534 visits from the eight ED-SAFE EDs over 37 months (study Phases 2 and 3). In this group, 45.5% of visits (n = 64,854) were by men, 58.8% (n = 83,793) by whites, 43.3% (n = 61,690) by non-Hispanics, and 23.3% (n = 33) by individuals aged 60 and older. Of visits by older adults, 44.6% were by men, 70.8% by whites, and 43.6% by non-Hispanics.

In total, 113,889 individuals (79.9%) had documentation of completed screening for self-harm, SI, or SA. There were significant differences in completed screening according to age group, with a decline in rates beginning at approximately age 60 (Figure 1, Table S1). This trend was present before and after the introduction of the universal screening protocols (Table S1). Of those aged 60 and older, 75.9% had documented screening for self-harm, SI, or SA. For all age groups, screening rates did not significantly vary according to sex (data not shown).

Of all individuals with documented screening (n = 142,543), 5.5% were identified as having self-harm, SI, or SA. This rate varied greatly and significantly between age groups, with the lowest prevalence rates in adults aged 75 and older (1.2%, 95% CI = 1.0–1.4%) and the highest rates in those aged 18–24 (9.0%, 95% CI = 8.6–9.5%) and 40–49 (9.1%, 95% CI = 8.7–9.5%) (Figure 1). Observed prevalence rates in screened individuals also varied according to study site, although the overall trends were similar (Figure 2). There were also differences.
according to sex in the prevalence of self-harm, SI, or SA among those screened. Self-harm, SI, or SA was significantly more common in men than in women for those aged 45–49 (9.8%, 95% CI = 9.0–10.6% vs 8.3%, 95% CI = 7.6–9.0%), but it was less common in men than in women for those aged 25–29 (6.6%, 95% CI = 6.0–7.4% vs 8.1%, 95% CI = 7.5–8.7%). In the three older age groups (60–69, 70–79, ≥80), self-harm, SI, or SA was equally common in men and women, but it was more common in non-Hispanic whites than in other racial and ethnic groups (Table 1). Among older adults, self-harm, SI, or SA was most commonly identified in non-Hispanic white men aged 60–69 (17.0%).

**DISCUSSION**

In this review of more than 140,000 visits to eight EDs across the United States, rates of screening for self-harm, SI, or SA—although quite high overall because of the sites’ protocols for universal screening—decreased significantly with age, as did the prevalence of positive screens among those asked. Although the explanation for these findings is unclear, it was hypothesized that at least part of the decline was related to greater prevalence of conditions precluding questioning (e.g., dementia, severe confusion) in older adults. Nevertheless, the findings are striking enough that it is likely that there are true age-related differences in

Figure 1. Screening rates and prevalence of self-harm, suicidal ideation, or suicide attempt in individuals in the emergency department according to age (n = 142,543). Bars represent 95% confidence intervals. Baseline data from Phase 1 (n = 94,257).

Figure 2. Observed prevalence of self-harm, suicidal ideation, and suicide attempt in individuals in the emergency department who were screened according to age group and site (n = 142,543). Bars represent 95% confidence intervals.
screening practices between individuals able to answer. The low rate of positive self-harm, SI, or SA in older adults is interesting, given high suicide rates in older adults\(^1\) and prior work demonstrating high risk of SI and SA after ED or hospital contact and in individuals with physical impairments or declining health (both common in older adults in the ED).\(^{18,20}\) Thus, the current study findings suggest the need for improved provider awareness about risk of suicide in older adults (and the need to screen for it) and enhanced identification systems (e.g., possible adjustment of the screening questions used for older adults).

The findings of an age-related decline in suicide screening by providers is consistent with prior work demonstrating that healthcare providers are more prone to underrecognize and undertreat depression, self-harm, and self-injury in older than younger individuals.\(^{3,4,21}\) The National Strategy for Suicide Prevention specifically includes “improve the screening and treatment for depression of the elderly,”\(^{22}\) and the Joint Commission’s National Patient Safety Goal encourages screening individuals of all ages who are being treated for emotional or behavioral disorders in general hospitals (including EDs) for suicide risk.\(^{23}\) Although not widely in practice, ED-based universal screening for suicide risk (questioning all individuals, regardless of reason for visit) does appear to be feasible when well implemented.\(^{21,24,25}\) In settings without universal screening, individuals with known psychiatric problems or substance abuse appear most likely to be questioned about suicide risk;\(^{21,26}\) although these groups are at high risk of suicide, they are not the only people at risk.\(^{27}\) An advantage of universal screening is that it is aimed at enhancing detection in individuals with more-hidden risk factors,\(^{28,29}\) for whom providers may have a low clinical suspicion of suicide risk and therefore a lower likelihood of screening.

The low observed prevalence of positive self-harm, SI, or SA in older adults raises questions about the best suicide screening domains or questions for this population—including whether universal screening is the best approach for older adults. To the knowledge of the authors of the current study, the differential accuracy of typical screening questions (e.g., “Have you had thoughts of killing yourself?”) according to age group is unknown; the brief Patient Safety Screener used at the eight ED-SAFE EDs was validated in adults aged 18 and older.\(^{30}\) The highest observed prevalence of self-harm, SI, or SA in older adults in the current study was in white men aged 60–69, a demographic group with a particularly high suicide death rate.\(^{31}\) This suggests that at least some older men were responding to the screening questions, although it is unknown how many men at risk were missed. Older adults face different (and often more severe) social stressors than younger adults; particular stressors associated with suicide risk include social isolation, thwarted belongingness, perceived sense of being a burden on others (often related to physical impairments and need for assistance with activities of daily living), bereavement after loss of a spouse, multiple physical diseases, and declining health.\(^{18,31}\) Thus, use of additional or alternative screening tools—such as the Geriatric Suicide Ideation Scale, Geriatric Depression Scale, or Interpersonal Needs Questionnaire—\(^{32}\)—may yield better results in older adults. Screening for upstream stressors (e.g., isolation) may also allow for linkage of vulnerable older adults with community resources to mitigate these stressors and thereby reduce the risk of suicide.\(^{31}\) This approach has been suggested in primary care and community settings but might also be useful in ED settings. Such approaches might be integrated with other efforts to improve and standardize evidence-based care for older adults in the ED.\(^{35}\) These important issues merit further investigation.

Limitations of this study include that the reason screening was not performed was not known, so individuals who were unable to answer questions could not be differentiated from those who could have answered but were not asked. For example, individuals with altered mentation (from chronic conditions such as dementia or from acute illnesses) would not have had screening completed, and altered mentation may be more common in older populations. Therefore the differences in rates of observed prevalence may reflect differences in screening completion or in true prevalence. In follow-up work, it is planned to complete a more-detailed retrospective chart review to better

### Table 1. Characteristics of Older Adults in the Emergency Department Who Screened Positive for Self-Harm, Suicidal Ideation, or Suicide Attempt Overall and According to Age (N = 7,584)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total n (%)</th>
<th>60–64 n (%)</th>
<th>65–74 n (%)</th>
<th>75–85 n (%)</th>
<th>≥85 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex (P = .11)</strong></td>
<td></td>
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<tr>
<td>Male</td>
<td>3,577 (4.9)</td>
<td>93 (2.6)</td>
<td>37 (1.0)</td>
<td>14 (0.4)</td>
<td>0.2–0.7</td>
</tr>
<tr>
<td>Female</td>
<td>4,274 (3.6)</td>
<td>108 (2.5)</td>
<td>39 (0.9)</td>
<td>26 (0.6)</td>
<td>0.4–0.9</td>
</tr>
<tr>
<td>Race (P = .004)</td>
<td></td>
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<tr>
<td>Nonwhite</td>
<td>1,543 (3.3)</td>
<td>21 (1.4)</td>
<td>5 (0.3)</td>
<td>1 (0.1)</td>
<td>0.0–0.4</td>
</tr>
<tr>
<td>White</td>
<td>5,556 (4.5)</td>
<td>175 (3.1)</td>
<td>64 (1.2)</td>
<td>35 (0.6)</td>
<td>0.4–0.9</td>
</tr>
<tr>
<td>Not documented</td>
<td>755 (3.8)</td>
<td>5 (0.7)</td>
<td>5 (0.7)</td>
<td>4 (0.5)</td>
<td>0.2–1.4</td>
</tr>
<tr>
<td><strong>Ethnicity (P = .21)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Non-Hispanic</td>
<td>3,818 (4.6)</td>
<td>100 (2.6)</td>
<td>44 (1.2)</td>
<td>26 (0.7)</td>
<td>0.5–1.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>593 (3.0)</td>
<td>5 (0.8)</td>
<td>2 (0.3)</td>
<td>2 (0.3)</td>
<td>0.0–1.2</td>
</tr>
<tr>
<td>Not documented</td>
<td>3,443 (4.0)</td>
<td>96 (2.8)</td>
<td>28 (0.8)</td>
<td>12 (0.3)</td>
<td>0.2–0.6</td>
</tr>
</tbody>
</table>

*P*-values from chi-square test.  
CI = confidence interval.
distinguish these groups. The ED-SAFE screening database had a small number of variables and was de-identified to address privacy concerns; as a result, it was not possible to review individual’s charts for more details. The database also did not separate self-harm from SI from SA, so individuals could not be characterized or compared across these three groups, but all three of these groups are at risk for future suicide and are therefore deserving of identification by providers. The eight ED-SAFE sites varied in size and availability of mental health consultants,21 but all of them implemented universal screening and used identical methodology for collection of ED-SAFE screening data. Because these eight sites are not representative of all EDs (especially smaller or rural EDs), these results may not generalize outside teaching hospital EDs.

In summary, early recognition and treatment of depression and better management of chronic health conditions, functional limitations, and social stressors can make a difference in older adults by improving quality of life and reducing morbidity and mortality. ED clinicians could play a critical role in diagnosing depression and self-harm, SI, or SA and in guiding subsequent treatment, but rates of screening and prevalence of self-harm, SI, and SA in individuals in the ED declined with age. These results suggest the need for enhanced screening protocols (with provider training) and possibly modified screening questions for use with older adults. With persistently high rates of suicide among older adults and a growing older adult population, there is an urgent need to improve the identification of suicide risk in older adults in EDs, as well as in outpatient and nonclinical settings.

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REFERENCES


SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Table S1. Screening Rates and Prevalence of Self-Harm, Suicidal Ideation, or Suicide Attempt in Individuals in the Emergency Department According to Age and Study Phase (n = 236,791)

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