

Disparities in Treatment of Older Adults with Suicide Risk in the Emergency Department

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BACKGROUND/OBJECTIVE: We described characteristics and treatment received for older (≥ 60 years) vs younger (< 60 years) adult emergency department (ED) patients with suicide risk.

DESIGN: Retrospective chart review.

SETTING: An ED with universal screening for suicide risk.

PARTICIPANTS: Eligible charts included a random sample of adults (≥ 18 years) who screened positive for suicidal ideation (SI) in past 2 weeks and/or a suicide attempt (SA) within the past 6 months. Visit dates were from May 2014 to September 2016.

RESULTS: A total of 800 charts were reviewed, with oversampling of older adults. Of the 200 older adults sampled, fewer older adults compared to younger adults ($n = 600$) had a chief complaint involving psychiatric behavior (53% vs 70%) or self-harm behavior (26% vs 36%). Although a higher number of older adults (93%) had documentation of current SI compared to younger adults (79%), fewer older adults (17%) reported SA in the past 2 weeks compared to younger adults (23%). Of those with a positive suicide screen who were discharged home, less than half of older adults received a mental health evaluation during their visit (42%, 95% CI 34–52) compared to 66% (95% CI 61–70) of younger adults who met the same criteria. Similarly, fewer older, than younger, adult patients with current SI/SA received referral resources (34%; 95% CI 26–43; vs 60%; 95% CI 55–65).

CONCLUSIONS: Significantly fewer suicidal older adult patients who were discharged home received a mental

health evaluation when compared to similar younger adults. These findings highlight an important area for improvement in the treatment of older adults at risk for suicide. *J Am Geriatr Soc* 65:2272–2277, 2017.

Key words: suicide; emergency department; older adult; mental health evaluation; treatment

A recent report by the World Health Organization¹ found that suicide rates in men > 70 years old are higher than in any other demographic group worldwide. In 2015 in the US, there were almost 8,000 suicide deaths among adults aged ≥ 65 years, amounting to an estimated \$17 million in medical costs and \$813 million in lost work costs.² Suicide is disproportionate among older adults as they constitute about 14.5% of the US population but complete about 18% of all suicides, reflecting a greatly elevated risk in later life.³ Given the advanced planning and high lethality of suicide attempts (SA) among older adults, suicide prevention is especially important in this age group.^{4,5}

One area where the rate of mental health visits is growing exponentially is the emergency department (ED).^{6–8} However, among older adults, depression, self-harm and suicidal ideation (SI) are known to be under-recognized by healthcare providers.^{9–11} A current best practice guideline for patients presenting with high-risk features (e.g., suicidal ideation, substance use) is to provide a formal evaluation, especially if the patient will be discharged home.¹² However, findings suggest that even when clinicians recognized depressive symptoms or SI in older adults, these are erroneously attributed to normal aging and treatment is less likely to be prescribed.¹³ Although there are some ongoing studies to design ED-based interventions for suicidal patients, none focuses specifically on older adults, who are likely to present with different precipitating issues^{5,14,15} and to receive different types of treatment (e.g., lower doses of medication due to decreased renal function)¹⁶ as compared to younger patients.

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DOI: 10.1111/jgs.15011

Although EDs represent only one element of the spectrum of clinical care for older adults, almost half of suicide completers had an ED visit in the year before death.^{17–19} An improved understanding of the characteristics of suicidal older ED patients, including their treatment, has the potential to improve care for a growing and high-risk population. The current study summarizes patient characteristics and ED treatment of older ED patients with SI/SA. We hypothesized that among ED patients with SI/SA, older patients would be less likely than younger ones to be evaluated by a mental health professional in the ED, after controlling for other demographic, visit, and medical variables.

METHOD

Study Design and Setting

We completed a single site retrospective chart review of 800 ED patients seen at the highest volume ED site from the emergency department safety assessment and follow-up evaluation (ED-SAFE) study, the University of Colorado Hospital (UCH), which has mental health consultants available on-site 24/7. ED-SAFE was a quasi-experimental, eight-center study designed to test an approach to universal screening for suicide risk and post-visit telephone intervention among ED patients (see Boudreaux et al.²⁰ for complete description). The ED-SAFE consisted of three phases of data collection: (Phase 1) treatment as usual, (Phase 2) universal screening, and (Phase 3) universal screening + intervention. The current study included patients seen after the start of ED-SAFE Phase 3 (11/2012), as this phase includes the introduction of two interventions for patients with SI/SA (a “secondary screener” for physician risk stratification and a “personal safety plan” for distribution by nurses) that may change clinician behavior.

Eligible charts included those with a positive screening for SI in the past 2 weeks or a SA within the past 6 months based on responses to the ED-SAFE universal screening instrument, the patient safety screener (PSS; Figure 1). Visit dates were from 5/2014 to 9/2016. Charts were identified through the ED’s electronic medical record system (EPIC) using specific search criteria (date, age, and completed PSS checkboxes). From identified eligible charts, a randomly selected sample of charts by medical record number was generated for full review. Based on national data suggesting a rise in the suicide rate around age 60, especially in men, this was used as the cut-point for older (≥ 60 years) vs younger (18–59 years) patients.

From the lists of eligible charts in each age group, we selected a random sample for full review. All data were entered into a secure online REDCap database hosted by the Colorado Clinical & Translational Sciences Institute (Research Electronic Data Capture (REDCap), Vanderbilt, TN). We included two groups of charts: (1) 200 older patients with current SI/recent SA; and (2) 600 younger patients with current SI/recent SA (18–34 [$n = 300$]; 35–59 [$n = 300$]). To obtain sufficient sample size to yield adequate power to detect a difference in the outcome, we oversampled older adults. For the charts in each age group, trained RAs reviewed the entire electronic ED

medical record and completed a standardized chart abstraction form. To test reliability, the RAs and site investigator separately reviewed a 10% random subset of charts. Inter-rater reliability (Kappa) was then calculated between the raters. For the major predictor variables in the current study, kappa values were >0.74 , indicating a good level of agreement.

Measures

The chart abstraction form included patient demographics, ED visit details (e.g., chief complaint, disposition, and ICD-9 codes), medical encounters in previous 6 months and documentation of SI/SA screening on those visits, past medical history, medications, social history (e.g., substance abuse, living situation), mental health history (including current or past SI/SA and non-suicidal self-injury [NSSI] ideation, or behavior), and ED treatment of self-harm/SI/SA (e.g., mental health evaluation during the ED visit).

Outcome

The primary outcome was evaluation by a mental health professional during the ED visit.

Data Analysis

All analyses were conducted using STATA 14.2 (Stata-Corp). Descriptive analyses were conducted to describe older and younger ED patients with SI/SA by patient and ED visit characteristics. Chi-square tests were used to test statistical significance. Unadjusted analyses were conducted. All variables with bivariate P -values $<.25$ were included in a multivariable logistic regression to predict receipt of a mental health evaluation during a patient’s current ED visit. Odds ratios (ORs) were reported with 95% confidence intervals (CIs).

We manually and sequentially included and excluded variables in the multivariable model using assessment of individual variable significance, impact of variables on other individual variables, and global goodness-of-fit to develop a final model that maximizes simplicity while avoiding over-fitting. In the final model, $P < .05$ was considered to be statistically significant. To account for commonly recognized socio-demographic differences, age, sex, race, and ethnicity were included in the multivariable model regardless of statistical significance in initial unadjusted testing.

Results

A total of 800 medical records were reviewed for patients who screened positive on the PSS for SI within the past 2 weeks or a SA within the past 6 months. As pre-specified, 200 (25%) were for older adult patients (≥ 60 years; 7% [$n = 14$] were 80+), and 600 (75%) were for younger adult patients (<60 years old). The older adult group included 46% female, 72% white, and 90% non-Hispanic, whereas the younger adult group was comprised of 53% female, 51% white, 81% non-Hispanic (Table S1).

The majority of ED visits occurred on weekdays (8:00 am–8:00 pm) for both the older and younger adult

Patient Safety Screener

To be administered by primary nurse during primary nursing assessment.

Introductory script: Because some topics are hard to bring up, we ask the same questions of everyone.

	Interpretation
1. Over the past 2 weeks, have you felt down, depressed, or hopeless? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Refused <input type="checkbox"/> Patient unable to complete	Depressed mood
2. Over the past 2 weeks, have you had thoughts of killing yourself? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Refused <input type="checkbox"/> Patient unable to complete	At least active ideation, general thoughts without thoughts of ways, intent, or plan
3. Have you ever attempted to kill yourself? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Refused <input type="checkbox"/> Patient unable to complete	Lifetime attempt
4. . . . If Yes to item 3, ask: when did this last happen? <input type="checkbox"/> Within the past 24 hours (including today) <input type="checkbox"/> Within the last month (but not today) <input type="checkbox"/> Between 1 and 6 months ago <input type="checkbox"/> More than a six months ago <input type="checkbox"/> Refused <input type="checkbox"/> Patient unable to complete	If within the last 6 months, considered recent attempt

Apply protocols for further suicide evaluation and management as appropriate to the clinical practice guidelines in place at the individual site.

Figure 1. Patient Safety Screener (PSS) created for universal screening in the ED setting. Adopted from the Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) study.

groups. Most patients (67%) were discharged home and had a stay in the ED that was >5 hours (58%; Table S1). The median lengths of stay were similar between older and younger patients (admitted, 6 hours vs 5 hours; discharged, 14 hours vs 16 hours). Older adult patients were more likely than younger adult patients to have documentation of current SI (93% vs 79%) and depressed mood (95% vs 78%) during the current ED visit, and were more likely to be admitted to a medical ward/observation (7% vs 4%).

For older adult patients who screened positive and were discharged home, 41% received a mental health evaluation prior to discharge, compared to 63% of younger adults who met the same criteria. A further breakdown by older adult age group indicated that 48% of 60–69 year olds and 43% of 70–79 year olds received a mental health evaluation compared to 29% of 80+ year-old patients. When we controlled for those with a positive suicide risk screening and were discharged home, the percentages of those receiving a mental health evaluation were comparable for 60–69 (42%) and 70–79 (45%) year olds; however, none of the 80+ year-old group received a mental health evaluation (albeit a small group, $n = 7$). In addition, 38% of the older adults were provided with referral resources

(e.g., national suicide hotline number, educational materials), compared to 62% of younger adults who received these same materials (Table S1).

Factors Associated With Receiving a Mental Health Evaluation For All Eligible Patients

Unadjusted analyses (Table S2) indicated that factors associated with a greater likelihood of receiving a mental health evaluation during the ED visit were: younger age (<60); female gender; having an advance directive; living alone; a chief complaint involving psychiatric behavior; an ED stay >5 hours; a positive urine toxicology screen during the ED visit; being intoxicated with alcohol (blood alcohol level >0 or other documentation of intoxication); having current SI or current NSSI behavior; or documentation of access to lethal means.

Multivariable Model

After adjustment for other variables, including ED length of stay and receipt of lethal means assessment, which are likely to be associated with receiving a mental health consult, patients who received a mental health evaluation were

Table 1. Multivariable Regression of Factors Associated with Receiving a Mental Health Evaluation

	Odds Ratio	95% CI	P
Demographics			
Age (<60)	2.08	1.29–3.38	.003
Female	1.79	1.14–2.79	.01
White	0.77	0.49–1.20	.24
Hispanic	0.80	0.54–1.19	.28
Visit Characteristics			
Chief complaint involved psychiatric behavior (Yes)	11.13	6.85–18.09	<.001
Chief complaint involved self-harm behavior (Yes)	1.54	0.90–2.63	.12
Discharged to home	0.84	0.53–1.33	.45
Healthcare Utilization			
One or more ED visits in the previous 6 months	0.86	0.56–1.32	.49
One or more primary care provider visits in the previous 6 months	1.61	0.71–3.68	.26
One or more primary care provider visits with medical record documentation of any screening for depression, suicidal ideation or recent suicide attempt	0.41	0.14–1.19	.10
One or more inpatient medical/surgical hospitalizations in the past 6 months	1.09	0.40–2.99	.87
Substance Use			
Tobacco use (current)	0.91	0.57–1.45	.68
Intentional illegal or prescription drug use (current)	0.98	0.60–1.60	.93
Alcohol intoxication during ED visit	0.35	0.19–0.64	.001
Urine test positive for alcohol or drugs	3.28	1.92–5.58	<.001
Suicide-Related			
Suicidal ideation (current)	3.40	1.83–6.32	<.001
Suicide attempt (current)	1.44	0.79–2.63	.24
Non-suicidal intentional self-harm ideation	2.56	1.28–5.10	.008
Non-suicidal intentional self-harm behavior	2.72	1.06–7.03	.04
Depressed mood	1.84	1.00–3.37	.05
Treatment Received			
Referral resources provided	1.03	0.91–1.17	.64

ED = emergency department.

more likely to be younger than 60 years old, female, intoxicated with alcohol during the ED visit, have a chief complaint involving psychiatric behavior, have a positive urine toxicology screen, report current SI, or have current NSSI ideation or behavior (Table 1). Additional analyses controlling for a chief complaint involving self-harm behavior did not attenuate differences associated with age and receipt of a mental health evaluation. Hosmer-Lemeshow's goodness-of-fit test revealed that the multivariable model fit moderately well with our data ($P = .54$). No values had variance inflation factors greater than 10 indicating low collinearity between the variables. The overall model accounted for 41% of the variance in the outcome.

Discussion

Screening, education, and intervention efforts like those implemented through the ED-SAFE²⁰ study have resulted in overall improved identification of suicidal patients in healthcare settings like the ED.²¹ Yet, in a prior study, older adults had proportionately lower screening rates compared to other age groups.²² The findings from the current study demonstrate that these disparities extend beyond screening to the treatment given to older vs younger adults with suicide risk in the ED. Our findings support our hypothesis that older adults who screen positive for SI/SA during their ED visit are less likely to receive an evaluation by a mental health professional when compared to younger adults who screen positive for SI/SA. Even when controlling for hospitalization vs discharge

home, fewer older adults received mental health evaluations when compared to younger adults presenting with active SI/SA.

Existing research shows that older adults with evidence of mental disorders are less likely than younger adults to receive mental health services.²³ Older adults may be more likely to deny problems associated with mental health-related issues.²⁴ As previously mentioned, it also is possible that even when clinicians recognize SI in older adults, clinicians may be less likely to prescribe treatment because they may incorrectly attribute comments about death to normal aging or to a rational wish to end pain or suffering.^{5,25} This is particularly concerning as many older adults seek healthcare in close proximity to a death by suicide; 20 percent see a doctor the day they die, 40 percent the week they die, and 70 percent the month they die.²⁶

In addition to age, we examined a range of factors available in the patient medical record that may be associated with receipt of a mental health evaluation. Our final model was able to account for a large percentage of the variance (41%) in receipt of a mental health evaluation during the current ED visit; factors like health insurance coverage and having a primary care provider did not have a significant impact on the association with receiving a mental health evaluation. We did not observe any racial differences in receiving a mental health evaluation, although women were more likely to receive a mental health evaluation than men. This is of particular concern given that non-Hispanic white males have a suicide rate that is four times the rate for women of any racial or

ethnic group, and twice the rate when compared to Black, Asian, or Hispanic men.²⁷

Beyond socio-demographic factors, individuals who received a mental health evaluation were more likely to have documentation of NSSI ideation and behavior and to have received a lethal means assessment. This is not unexpected as these questions may be included in a comprehensive mental health evaluation. Regardless, asking these questions as part of standard care for patients screening positive for active suicidal ideation or behavior may help reduce future suicide risk. Specifically, NSSI is recognized as a robust risk factor for future suicidal behavior in both adolescents and adults²⁸ and reducing access to lethal means is a suicide prevention approach with strong empirical support.^{29,30} The rising rate of mental health patients seeking care in the ED further emphasizes the importance of ensuring that appropriate steps, such as a mental health evaluation, are taken for patients identified with suicide risk.⁷

Limitations

Our findings from a single urban ED at a university hospital may not generalize to other geographic settings. However, the site we used has an annual ED census of approximately 100,000 patient visits. In a pilot study of suicide screening that included over 2,200 patients at UCH and five other EDs, the UCH patients had similar rates of depression and SI but more had prior suicide attempts or lacked health insurance,¹⁶ which is consistent with trends in Colorado. In addition, the use of a chart review design has its own limitations (e.g., accuracy of author of the records, the interpretation of the reader); however, we tried to mitigate these limitations by designing a detailed protocol for data collection and analysis, implementing standardized abstractor training, and using REDCap for data capture. REDCap improves data quality by using required fields, branching logic, and validation loops. Although the type of data available was limited by the medical record (i.e., no information on PCP referral post-discharge, limited information on caregiver availability, or reports of dementia), the current study provides empirical data on a suicidal patient population that can be used for developing future studies. Further examination of variables associated with the discrepancy in receiving a mental health evaluation (e.g., knowledge, attitudes, and practice of clinical staff regarding evaluation of suicidal older patients), as well as collecting follow-up data on future treatment, mental health status, and suicide outcomes may be beneficial for guiding future work.

CONCLUSION

Improved suicide screening in the ED has led to improved detection of suicide risk,^{20,21} but there appear to be meaningful disparities in the use of best practice approaches, like mental health evaluations, for older, at-risk patients for suicide. This is particularly concerning as suicide rates peak among older men. Future research directed at examining suicide risk factors associated with the older adult population, in addition to provider attitudes toward older adult patients with mental health issues is a critical step for improving responses to suicide risk detection, in

addition to improvements in suicide interventions directed at reducing morbidity and mortality.

ACKNOWLEDGMENTS

Conflict of interest: None of the authors has any conflicts of interest to report.

Author contributions: SAA and MEB conceived, designed, and obtained funding for the analysis reported in this manuscript, with input and support from DS, CAC, IM, EDB. MEB supervised data collection at the one participating site (UCH). SAA and MEB designed the statistical analysis and SAA analyzed the data. SAA drafted the manuscript, and all authors contributed substantially to its revision. SAA and MEB take responsibility for the paper as a whole.

Sponsor's role: No sponsor had any direct involvement in data analysis or manuscript preparation.

Funding Sources: This work was supported by Award R03MH107551 from the National Institute of Mental Health, Colorado Clinical and Translational Sciences Institute (CCTSI) with the Development and Informatics Service Center (DISC) grant support (NIH/NCRR Colorado CTSI Grant Number UL1 RR025780), and by the Paul Beeson Career Development Award Program (The National Institute on Aging; AFAR; The John A. Hartford Foundation; and The Atlantic Philanthropies; K23AG043123).

Presentations: Arias SA, Segal DL, Boudreaux ED, Camargo CA Jr., Miller I, Betz ME (May 2017). Patient and visit characteristics for older adults with suicidal ideation or behavior in the emergency department. Paper presentation at the 2017 Society for Academic Emergency Medicine Meeting in Orlando, Florida.

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SUPPORTING INFORMATION

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

Table S1. Descriptive statistics for patient and visit characteristics, by older and younger adult groups.

Table S2. Unadjusted analysis of factors associated with receiving a mental health evaluation.

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