

UCSF

UC San Francisco Previously Published Works

Title

Trauma Exposure and Risk of Suicidal Ideation Among Older Adults

Permalink

<https://escholarship.org/uc/item/0z94v8dn>

Journal

American Journal of Geriatric Psychiatry, 24(8)

ISSN

1064-7481

Authors

Beristianos, Matthew H
Maguen, Shira
Neylan, Thomas C
[et al.](#)

Publication Date

2016-08-01

DOI

10.1016/j.jagp.2016.02.055

Peer reviewed



Published in final edited form as:

Am J Geriatr Psychiatry. 2016 August ; 24(8): 639–643. doi:10.1016/j.jagp.2016.02.055.

Trauma Exposure and Risk of Suicidal Ideation among Older Adults

Matthew H. Beristianos, MA^{1,2,3}, Shira Maguen, PhD^{1,2}, Thomas C. Neylan, MD^{1,2}, and Amy L. Byers, PhD, MPH^{1,2}

¹Department of Psychiatry, University of California, San Francisco

²San Francisco Veterans Affairs Medical Center, San Francisco, CA

³Alliant International University, San Francisco, CA

Abstract

Objective—To determine if trauma exposure is associated with suicidal ideation in a nationally-representative sample of older adults.

Methods—This study included 3,277 participants 55 years and older involved in the Collaborate Psychiatric Epidemiology Surveys (2001-2003).

Results—Of the 84.8% older adults who were exposed to any trauma, 2.2% endorsed late-life suicidal ideation. Multivariable models fully-adjusted for sociodemographics, PTSD, MDD and substance use revealed exposure to serious accidents/illness was associated with suicidal ideation (odds ratio [OR]: 2.55, 95% confidence interval [CI]: 1.16-5.59, Wald $\chi^2=5.47$, df=1, p=0.019). Investigation of specific traumas within the category revealed that life-threatening illness was specifically associated with suicidal ideation in older adults (OR: 2.12, 95% CI: 1.34-3.36, Wald $\chi^2=10.33$, df=1, p=0.001).

Conclusions—These findings highlight the need for monitoring of suicidal ideation among older adults who have been informed of a life-threatening illness diagnosis.

Corresponding Author/Author for Reprints: Amy L. Byers, PhD, MPH, Department of Psychiatry, University of California, San Francisco, San Francisco VA Medical Center, 4150 Clement Street (116H), San Francisco, CA 94121, Phone: (415) 221-4810 x3980 Fax: (415) 379-5624 Amy.Byers@ucsf.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Previous Presentation: Portions of the manuscript were presented at the American Association for Geriatric Psychiatry (AAGP) Annual Meeting, March, 2015; New Orleans, LA.

Conflicts of Interest: Mr. Beristianos, Dr. Maguen, and Dr. Byers report no financial relationships with commercial interests. Dr. Neylan reports having served as a consultant for Genentech and has received study medication from Actelion for a study funded by the Department of Defense and study medication from Glaxo-Smith Kline for a study funded by the Department of Veterans Affairs. The authors have no competing interests, including specific financial interests or relationships or affiliations relevant to the subject of this manuscript.

Author Contributions: Mr. Beristianos had full access to all the data in the study. He conducted the data analysis, and takes responsibility for the integrity of the data and the accuracy of the statistical results.

Disclaimer: We acknowledge that the original collector of the data, sponsoring organizations, agencies, or the U.S. government bear no responsibility for use of the data or for interpretations or inferences based upon such uses. The views and opinions expressed in this report are those of the authors and should not be construed otherwise.

Keywords

trauma; suicidal ideation; suicide; epidemiology

INTRODUCTION

Little is known about the association between trauma exposure and risk of suicidal ideation in late life. With suicide in late life occurring at a high rate, i.e., 15 suicide deaths in the United States per 100,000 from 2004 to 2010,¹ investigation into the influence of trauma exposure on suicidal behavior in older adults is important to consider.

At present, no published study has examined a spectrum of trauma exposures and their association with late-life suicidal ideation. The few studies that have examined the association between trauma exposure and suicidal ideation found interpersonal trauma as particularly important; however, none examined late-life suicidal ideation.^{2,3} Furthermore, studies that have considered trauma and suicidal ideation have either not included an older adult sample, or did not provide age-specific results from which conclusions can be drawn about this relationship in late life.

The purpose of the present study was to examine the association between trauma exposure and late-life suicidal ideation in a nationally-representative sample of adults 55 years and older. Our objective was to determine the trauma type(s) with the greatest impact on suicidal ideation, even after adjusting for psychiatric diagnoses commonly associated with trauma exposure.

METHODS

Data and Participants

The current study sample consisted of 3,277 respondents who were 55 years and older and had data on trauma exposure and suicidal ideation from the Collaborative Psychiatric Epidemiology Surveys (CPES, 2001-2003). The CPES, combining 3 national studies (National Comorbidity Study Replication, National Survey of American Life, and National Latino and Asian American Study), are nationally representative surveys of 20,013 noninstitutionalized participants 18 years and older in the United States. The CPES sampling methodology has been described in detail elsewhere.⁴ The CPES data were obtained from the Inter-university Consortium for Political and Social Research (Ann Arbor, MI). The institutional review boards of the University of California, San Francisco, and the San Francisco Veteran Affairs Medical Center approved this study.

Measures

Trauma Exposure—Trauma exposure was determined using the World Health Organization's World Mental Health (WMH) Survey Initiative version of the Composite International Diagnostic Interview (CIDI). Respondents were asked about their exposure to 25 different types of traumas. For the purpose of the present study, the trauma types were divided into seven categories, as informed by prior research utilizing trauma categories:³ 1)

Warzone exposure (i.e., combatant, refugee, civilian, peacekeeper), 2) assaultive/interpersonal trauma (i.e., badly beaten, mugged, raped, other sexual assault, stalked, kidnapped), 3) child maltreatment (i.e., beaten by parents, witnessing fights), 4) serious accidents/illness (i.e., life threatening accidents, toxic chemical exposure, life-threatening illness), 5) disaster exposure (i.e., natural disaster, man-made disaster), 6) witnessing serious trauma (i.e., seeing someone badly injured or killed), and 7) experiencing trauma to someone close (i.e., unexpected death, life-threatening illness, extremely traumatic experience). For each trauma endorsed, respondents additionally provided age of exposure.

Suicidal Ideation—Suicidal ideation was assessed in its own section of the WMH-CIDI. Respondents were asked about their lifetime history of suicidal ideation (“Have you ever seriously thought about committing suicide?”). Subsequently, the respondent was asked to provide his/her age (in years) when suicidal ideation first occurred. Only instances of suicidal ideation in late-life (≥ 55 years) were considered for the present analyses.

Other Variables—The demographic variables included in analyses were age, sex, race, educational attainment (completed, 0-11, or ≥ 12 years), marital status (married or cohabitating; divorced, separated, or widowed; or never married), and income defined by the poverty index (i.e., the ratio of household income to poverty threshold used in the 2001 US census and adjusted for household size; categorized as low [< 1.5 times the poverty line], middle [>1.5-6.0 times], and high [>6.0 times]).⁶

The CPES psychiatric diagnoses were determined using the WMH-CIDI, which generates lifetime and 12-month diagnoses according to the International Classification of Diseases, Tenth Revision and DSM-IV criteria. In the present analyses, DSM-IV criteria were used. We evaluated Posttraumatic Stress Disorder (PTSD), Major Depressive Disorder (MDD), and substance use disorders (including alcohol and drug abuse or dependence) as our measures of trauma-related psychiatric diagnoses.

Statistical Analyses

Clustering and weighting techniques that reduce systematic bias and imprecision in a complex sampling design were implemented to produce nationally representative estimates that are generalizable to community-dwelling older adults in the U.S.⁴ Percentages represent weighted proportions, with statistical differences estimated based on the Rao-Scott χ^2 , which corrects for the complex design.⁵

We examined the associations between history of trauma exposure (i.e., trauma exposure at any time prior to suicidal ideation) and the likelihood of late-life suicidal ideation using weighted logistic regression analyses. All seven trauma categories were entered into the final multivariable model, adjusting for demographics and psychiatric disorders (PTSD, MDD, and substance use). Odds ratios and 95% confidence intervals were estimated, along with design-corrected likelihood ratio statistics and Wald χ^2 tests.

Statistical significance was defined as $p < 0.05$. All analyses were performed using SAS Survey Procedures, version 9.3 (SAS Institute, Inc), and, unless otherwise specified, all results presented are based on weighted analyses.

RESULTS

In unweighted analyses, the mean age of the 3,277 older adults was 66.2 (SD 8.6) years, 59.8% female, 33.7% non-Hispanic white, 35.7% non-Hispanic black, 17.8% Hispanic, 11.7% Asian, and 1.1% American Indian/Pacific Islander. In weighted analyses, 84.8% of the respondents endorsed exposure to trauma in their lifetime and 1.9% endorsed late-life suicidal ideation. Of those who were exposed to any trauma, 2.2% endorsed late-life suicidal ideation. Weighted analysis indicated that compared to older adults who were not exposed to trauma, those exposed to trauma were more likely to be married (61.5% versus 57.7%, Rao-Scott $\chi^2=7.5$, $df=2$, $p=0.023$), more likely to be male (46.6% versus 27.6%, Rao-Scott $\chi^2=14.5$, $df=1$, $p < 0.001$), and had a significantly higher prevalence of MDD, PTSD, and substance use (MDD: 12.4% versus 4.9%, Rao-Scott $\chi^2=21.8$, $df=1$, $p < 0.001$; PTSD: 4.3% versus 0.2%, Rao-Scott $\chi^2=40.4$, $df=1$, $p < 0.001$; and substance use: 8.3% versus 1.2%, Rao-Scott $\chi^2=40.2$, $df=1$, $p < 0.001$).

Odds of Late-Life Suicidal Ideation

Odds ratios (OR) based on weighted logistic regression models showed significant increase in the occurrence of late-life suicidal ideation after trauma, predominantly for older individuals exposed to serious accidents/illnesses (Table 1). The unadjusted model revealed that older adults have approximately a 3-fold increased odds of suicidal ideation following exposure to serious accidents/illnesses (Wald $\chi^2=9.94$, $df=1$, $p=0.002$). The remaining trauma categories were not shown to be significantly associated with suicidal ideation. Fully-adjusted models accounting for demographics, PTSD, MDD, and substance use, and including all trauma categories in the model revealed similar findings. Although slightly attenuated, exposure to serious accidents/illnesses remained associated with a 2.5-fold increased odds of suicidal ideation (Wald $\chi^2=5.47$, $df=1$, $p=0.019$). As with the unadjusted findings, there were no remaining trauma categories found to be significantly associated with late-life suicidal ideation.

Further examination of the serious accident/illness category, which included life-threatening automobile accident, toxic chemical exposure, other life-threatening accident, and life-threatening illness, showed that only life-threatening illness was associated with nearly a 3-fold increased odds of late-life suicidal ideation (OR: 3.24, 95% confidence interval [CI]: 2.04-5.15, Wald $\chi^2=24.77$, $df=1$, $p < 0.001$). Moreover, this association remained in the adjusted model, with the other traumas in this category not significantly associated with late-life suicidal ideation (OR: 2.12, 95% CI: 1.34-3.36, Wald $\chi^2=10.33$, $df=1$, $p=0.001$).

CONCLUSIONS

In this study, we found that older adults who were exposed to serious accidents/illnesses were three times more likely to endorse late-life suicidal ideation compared with older adults who were not exposed to similar trauma, independent of sociodemographics, PTSD, MDD substance use disorders, and other traumas. Of the specific traumas in the serious accidents/illness category, only knowledge of having a life-threatening illness was associated with increased odds of endorsing late-life ideation.

The present study is the first to consider a breadth of trauma exposures and their association with suicidal ideation in late life. To limited degrees, life-threatening illnesses such as cancer⁷ and stroke⁸ have been shown to be associated with an increased suicide risk. Furthermore, chronic medical conditions have been found to be associated with thoughts of death and a desire to die in older primary care patients.⁹ However, most studies examining this relationship have been limited by small sample size, low generalizability, or did not specifically examine serious thoughts of committing suicide as an outcome.

The non-significant associations between assaultive/interpersonal trauma and child maltreatment with suicidal ideation are a potential area of inquiry. There is an established literature indicating a link in these types of trauma exposures with suicidal ideation in a variety of samples;^{2,3} yet, the present study did not find such a relationship. It is possible that this is due to a recall issue in our older adult sample, however traumas of this nature and suicidal ideation have both been shown to be durable when it comes to retrospective reporting and minimally affected by recall bias.¹⁰ Also, our study was limited in statistical power to thoroughly test these associations. Another possibility is that suicide ideation in older adults is most strongly related to the category of exposure most proximal in time to the assessment; however, sensitivity analyses considering timing of exposure suggests otherwise. Another possible explanation is that suicidal ideation, as an indicator of extreme emotional and mental distress, is brought on by the continued challenges over time of dealing with an unresolved trauma, such as a serious illness. Considering suicidal ideation assessed in this study described serious thoughts about committing suicide instead of lesser levels, this outcome would define such extreme distress. Additionally, our study lacked follow-up questioning to assess specific diagnoses that refer to the life-threatening disorders, limiting the ability to draw conclusions about the relationship with specific diagnoses and suicidal ideation.

The present study's findings highlight the need for monitoring of suicidality by clinicians of older adults following disclosure of a life-threatening illness, and the need for investigation into the behavioral health mechanisms by which suicidality is considered by the patient diagnosed with a life-threatening illness.

ACKNOWLEDGMENTS

This research used the Collaborative Psychiatric Epidemiology Surveys (CPES) data, 2001-2003. The Inter-university Consortium for Political and Social Research (Ann Arbor, Michigan) is responsible for the preparation, organization, and access of the public use of this data [<http://www.icpsr.umich.edu/CPES>]. We thank the CPES researchers who participated in collecting the data that made this project possible.

Study Funding: This study was supported by a National Institutes of Health, National Institute on Minority Health and Health Disparities, R01 Award MD007019 (PI: Dr. Amy L. Byers), administered by the Northern California Institute for Research and Education and with resources from the San Francisco Veterans Affairs Medical Center. This study was additionally supported by an administrative research supplement to the above listed NIH R01 to promote diversity in health-related research (awardee: Mr. Beristianos). The National Comorbidity Survey Replication (NCS-R) was supported by the National Institute of Mental Health (U01-MH60220), with supplemental support from the National Institute of Drug Abuse (R01-DA12058-05), the Substance Abuse and Mental Health Services Administration, the Robert Wood Johnson Foundation (044708), and the John W. Alden Trust. The National Survey of American Life (NSAL) was supported by the National Institute of Mental Health (U01-MH57716), with supplemental support from the Office of Behavioral and Social Sciences Research at the National Institute of Health, and the University of Michigan. The National Latino and Asian American Study (NLAAS) was supported by the National Institute of Mental Health (U01-MH062209 and U01-MH62207), with supplemental support from the Office of Behavioral and Social Sciences Research at the National Institutes of Health, the

Substance Abuse and Mental Health Services Agency, and the Latino Research Program Project (P01-MH059876). The sponsors had no role in the design or conduct of the study; collection, management, analysis, or interpretation of the data; or the preparation, review, or approval of this manuscript.

References

1. Web-based Injury Statistics Query and Reporting System (WISQARS). [July 13, 2015] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. www.cdc.gov/injury. Updated July 13, 2015
2. Belik SL, Cox BJ, Stein MB, et al. Traumatic events and suicidal behavior: Results from a national mental health survey. *J Nerv Ment Dis.* 2007; 195:342–349. [PubMed: 17435485]
3. Stein DJ, Chiu WT, Hwang I, et al. Cross-national analysis of the associations between traumatic events and suicidal behavior: findings from the WHO World Mental Health Surveys. *PLoS one.* 2010; 5:e10574. [PubMed: 20485530]
4. Heeringa SG, Wagner J, Torres M, et al. Sample designs and sampling methods for the Collaborative Psychiatric Epidemiology Studies (CPES). *Int J Methods Psychiatr Res.* 2004; 13:221–240. [PubMed: 15719530]
5. Rao JNK, Scott AJ. The analysis of categorical data from complex sample surveys: chi-squared tests for goodness of fit and independence in two-way tables. *J Am Stat Assoc.* 1981; 76(374):221–230.
6. Proctor, BD.; Dalaker, J. Poverty in the United States: 2001. US Government Printing Office; Washington, DC: 2002. Current population reports..
7. Miller M, Mogun H, Azrael D, et al. Cancer and the risk of suicide in older Americans. *J Clin Oncol.* 2008; 26:4720–4724. [PubMed: 18695256]
8. Pompili M, Venturini P, Campi S, et al. Do stroke patients have an increased risk of developing suicidal ideation or dying by suicide? An overview of the current literature. *CNS Neurosci Ther.* 2012; 18:711–721. [PubMed: 22943140]
9. Kim YA, Bogner HR, Brown GK, et al. Chronic medical conditions and wishes to die among older primary care patients. *Int J Psychiatry Med.* 2006; 36:183–198. [PubMed: 17154148]
10. Wells JE, Horwood L. How accurate is recall of key symptoms of depression? A comparison of recall and longitudinal reports. *Psychol Med.* 2004; 34:1001–1011. [PubMed: 15554571]

Table 1

Models of Association between Trauma Exposure and Late-Life Suicidal Ideation among Older Americans (N=3,277)

Trauma Categories	N (Unweighted)	Weighted % (SE)	Odds Ratio (95% CI)	
			Unadjusted ^a	Adjusted ^b
Warzone Exposure	670	15.6 (1.4)	0.24 (0.05-1.20)	0.30 (0.07-1.30)
Assaultive/Interpersonal Trauma	1067	28.0 (1.4)	1.18 (0.63-2.23)	0.77 (0.35-1.67)
Child Maltreatment	473	13.6 (1.5)	1.00 (0.38-2.60)	0.86 (0.34-2.19)
Serious Accidents/Illness	1334	45.5 (1.6)	3.43* (1.59-7.38)	2.55* (1.16-5.59)
Disaster Exposure	786	23.7 (1.5)	1.02 (0.47-2.22)	0.90 (0.42-1.93)
Witnessed Serious Trauma	877	28.9 (1.4)	1.75 (0.70-4.36)	1.64 (0.68-3.98)
Trauma to Someone Close	1614	51.7 (1.8)	1.16 (0.51-2.62)	1.15 (0.53-2.52)

* $P < 0.05$

^aUnadjusted odds ratios of trauma exposures with 95% confidence interval (CI) and p values obtained from weighted logistic regression model with Wald χ^2 test (df = 7).

^bAdjusted odds ratios with 95% confidence interval (CI) and p values obtained from weighted logistic regression model with Wald χ^2 test (df = 16). Model adjusted for demographics (age, sex, education, race, marital status, and income), substance use disorders (alcohol abuse/dependence, drug abuse/dependence), major depression, posttraumatic stress disorder, and other traumas.