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INTENTIONAL VIOLENCE (S BONNE AND M CRANDALL, SECTION EDITORS)

Increased Suicide Risk Among Older White Males

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Abstract

Purpose of Review As one of the leading causes of death worldwide, suicide has become an important public health concern. Several studies have evaluated key demographic factors such as age, gender, and race as increased risk factors for suicide. The goal of this review is to highlight elderly white males as a unique population at risk, as well as help shape future preventive efforts.

Recent Findings Extensive literature review shows that many risk factors contribute to increased suicide rates in older white males. These may include the presence of mental illness, multiple medical conditions, family history, and occupation. In addition, there has been more evidence to suggest that social isolation and access to firearms as increasingly important suicide risk factors to consider, especially among older white males.

Summary Increasing awareness of older white males as an at-risk group and focusing on minimizing social isolation and access to firearms may play significant roles in helping shape future preventative efforts relating to suicide.

Keywords Suicide · Suicidal ideation · Firearm · Social isolation · Elderly · White male

Introduction

Suicide is defined as the act of intentionally causing one's own demise [1]. Suicide is a growing public health concern and has become one of the leading causes of death worldwide. Recent global health estimates show that more than 700,000 people die by suicide every year, accounting for 1.3% of deaths in 2019 [2]. In the USA, suicide has become the 10th leading cause of death across all age groups, contributing to more than 47,500 deaths in 2019 [3].

Certain demographic factors contribute to an increased risk of suicide. There is substantial evidence suggesting that sex, age, and ethnicity all play significant roles. In 2015, a systematic review examining cause-specific mortality reported age-standardized mortality rates specific to self-harm injuries were higher in males compared to females globally [4]. Suicidal ideation, as well as plans and attempts to commit suicide, was shown to be highest among younger adults aged 18 to 25 [5]. However, global suicide rates were highest in individuals over the age of 70 [6]. Among all race and ethnicity groups in the USA in 2017, age-adjusted suicide rates per 100,000 population were highest among men and women who identified as non-Hispanic American Indian/Alaskan Native (AIAN) (33.8 and 11.0, respectively) and non-Hispanic white (28.2 and 7.9) [7••]. Among age groups with available data from all race and ethnicity groups, suicide rates in people aged 15–24 and 25–44 were highest in AIAN men (53.7 and 58.1, respectively) and AIAN women (20.5 and 20.7). For people aged 45–65, suicide rates were highest in non-Hispanic white men (38.2) and women (12.8) [7••].

Given the higher rates of suicide among older white males, in this review, we will explore some of the underlying risk factors that may contribute to these disparities. Individuals within this group likely have additional factors that may further increase their risks for suicide. These may include psychiatric disorders, general medical illness, chronic pain, neurological disorders, family history, marital status, military service, and occupation. Two additional

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considerations will also be discussed: firearms and social isolation. The purpose of this review is to help providers identify discrete risk factors among older white males that might increase the risk of suicide, as well as discuss suicide prevention strategies.

Contributing Risk Factors for Suicide in Older White Males

The following risk factors have most likely contributed to an increased suicide rate in older white males. The scope of this review will likely be limited to the individual discussion of each contributing factor as an independent and isolated determinant of suicide risk. There is no evidence to suggest the presence of all these factors in all individuals within this group. However, it is possible to predict a cumulative effect in older white males who do possess any combination of these factors.

Mental Illness

Mental illness is often a significant factor in suicide risk among all individuals. Psychiatric disorders are considered strong predictors of suicide [8]. In fact, more than 95% of people who successfully commit suicide have a psychiatric diagnosis [9]. Psychiatric disorders that are most associated with suicide include depression, bipolar disorder, alcoholism, other substance abuse disorders, schizophrenia, personality disorders, anxiety, posttraumatic stress disorder, and delirium [10, 11].

Multiple Medical Conditions

In addition to psychiatric disorders, multiple medical conditions have also been shown to increase suicide rates. Various conditions are especially common in the aging population. Chronic obstructive pulmonary disease, cancer, spine disorders, asthma, and stroke were shown to be significant risk factors in both men and women; diabetes and ischemic heart disease were also modest risk factors in men [12].

Chronic pain is also quite prevalent in the aging population and is another suicide risk factor. The most common types of chronic pain were back pain, pain related to cancer, and/or arthritis. Interestingly, chronic pain itself was the main determining risk factor and pain type, duration, or severity did not contribute to suicide risk [13]. Retrospective analysis has shown chronic pain to be present in approximately 9% of suicide decedents [14]. Risk of death by suicide is at least doubled in chronic pain patients, with an exceptionally high lifetime suicide rate of 5–15% [15].

Other medical conditions are more likely to be complex or terminal and may provide additional risk factors. People with the diagnosis of cancer are known to have higher rates of psychiatric disorders. The prevalence of psychiatric comorbidities may be as high as 85% in individuals suffering from cancer; unfortunately, it is estimated that less than 50% are identified or referred for help [16]. In light of this, several national organizations including the American Society of Clinical Oncology, National Comprehensive Cancer Network, the American College of Surgeons, and the Institute of Medicine have recommended that all patients be screened for distress with services in place at the time of diagnosis and periodically after [17].

Family History

Positive family history of certain medical conditions likely would increase the risk of developing those conditions within an individual. Likewise, a positive family of suicide has been shown to be another risk factor. There has been an abundance of evidence to suggest genetic and environmental components to suicide [18]. One case–control study showed that a family history of suicide and psychiatric disorders significantly and independently increases suicide risk [19]. In another study exploring possible inheritability of suicide and affective disorders, extended family pedigrees showed clustering of suicides that also followed distributions of affective disorders within these kinship lines [20]. Interestingly, it has been shown that if one sibling has died by suicide, risk for the remaining sibling is significantly increased (OR 3 for women and OR 2 for men) [19]. A systemic review of twin studies has also shown that concordance for completed suicide is significantly more frequent among monozygotic than dizygotic twins and estimates a 30–55% heritability of additive genetic factors [21].

Occupation

Occupation may also be another risk factor for suicide. Several studies suggest higher suicide rates among lower skilled workers. A meta-analysis of 34 studies showed a stepwise gradient in risk across multiple occupational skill-level groups; compared to the working age population, individuals with the lowest skilled occupations had the highest suicide risk (RR 1.8, 95% CI 1.5–2.3) and individuals with the highest skilled occupations had the lowest suicide risk (RR 0.7, 95% CI 0.5–0.9) [22]. Another study revealed suicide rates were overall highest in those who work in farming, fishing, and forestry (84.5 suicides per 100,000 persons) and among males [23]. Unemployment and economic strain may also be associated with increased risk. This is evident by increases in suicide rates following the global economic crisis in 2008, particularly among men [24].

After review of each of these additional risk factors, it is important to note that several of the previously referenced

studies also do mention in varying degrees the role of either sex or age as additional modifying factors. In retrospect, demographic identifiers such as sex, age, and race can easily be used as parameters of discussion. However, existing studies and limited data have made it difficult to consistently and accurately draw significant conclusions regarding suicide rates in older white males specifically.

Social Isolation

Additional consideration should be made towards social determinants of suicide risk and their relevance among older white males. Social isolation has especially developed into a significant factor in suicide risk. Suicidal outcomes have been found to be strongly associated with social constructs of objective isolation and subjective feelings of loneliness [25•]. Furthermore, multiple studies have consistently suggested loneliness and isolation to be significant covariants for suicidal thoughts and attempts in the elderly [26]. One study examining social isolation in the elderly showed that older adults in severe social isolation were more likely to be male (OR 4.14, 95% CI 3.09–5.55). Furthermore, black (OR 0.57, 95% CI 0.41–0.79) and Hispanic (OR 0.46, 95% CI 0.23–0.95) older adults were less likely than white to experience severe social isolation [27••].

Objective social isolation may be due to various deficiencies in relationships. There is evidence to suggest increased suicide risk in individuals who are lacking certain structural connections with others. For instance, suicide has been shown to occur two times more in the unmarried population, compared to married individuals (OR 1.9, 95% CI 1.2–2.1) [28]. Additionally, subgroup analysis has shown comparable risks for single (OR 2), divorced (OR 3), and widowed (OR 2) individuals. Among elderly people specifically, individuals who have lost a spouse were five times more likely to attempt suicide compared to those who were still married or those whose spouse was still living [29]. In general, suicide rates in widowed individuals have been shown to be highest in the first week of bereavement and then decrease afterwards. However, suicide risk among older widows specifically remains elevated through the first year following the loss of a loved one [30]. There is additional evidence of interactions between bereavement and sex in elderly suicide risk. While the risk of suicide for widowed men in the elderly population was noted to be 3.3 times as high as married men; there was no noted increase of suicide for widowed women compared to married women [31].

Discordant social relationships also increase likelihood of suicidal ideation in elderly individuals [32]. Interestingly, it was found that functional measures of social relationships were even more predictive of suicidal ideation, when compared to structural measures [32]. Elderly mistreatment, perceived loneliness, and poorly perceived social support were among the strongest predictors overall. Additional research consistently highlights the feeling of loneliness among the elderly and its association with a higher degree of suicidal ideation [33]. In contrast, evidence of factors such as good social support and religious involvement has contributed to reduced suicide risk [34].

The feeling of loneliness is likely easier to develop among elderly people, as a component of gained life perspectives. One study aimed to gather detailed descriptions from elderly individuals concerning a unique and previously unexplored phenomenon, "life is completed and no longer worth living" [35]. Contributions from participants resulted in the following constituents: a sense of aching loneliness, the pain of not matter, the inability to express oneself, multidimensional tiredness, and a sense of aversion towards feared dependence. Further exploration of these findings may likely inspire additional end-of-life considerations unique to elderly individuals.

Firearms

Like the previously mentioned determinants of suicide risk in older white males, firearms have also played a significant role. The most common methods for suicide worldwide include pesticide ingestion, hanging, and firearms [6]. In the USA, firearms were considered to be the most used mechanism for suicide across all urbanization levels from 2001 to 2015 [36]. Rates of suicide via firearms in nonmetropolitan/rural counties were close to two times the rate of those in metropolitan counties [36]. Previous studies have attributed high rates of firearm-related suicides in rural areas to the wide ownership of guns in the farming [37]. One systematic review has shown that firearms are more commonly present in homes of individuals who are white [38]. More recent estimates suggest that 42% of American adults live in a household with a gun, with 66% of owners reporting possession of more than one gun [38]. Specifically, gun ownership is most common in white men (48%), with the highest reports of guns in the household from adults who were men, white, and aged 50 and older [39••]. Further highlighting older white males as an at-risk group, suicide rates were also found to be highest among men, among those aged 35 to 64, and among non-Hispanic white and AIAN individuals [36].

Past interviews with suicide attempt survivors have shed light on the impulsivity of suicide, with subsequent improved mental states contributing to the importance of timing [40]. Consequently, availability of a lethal method such as firearm ownership has become a significant risk factor for suicide attempts. The ease of obtaining a firearm likely contributes to its use as a method of suicide. Studies have suggested a significant relationship between firearm access and suicide

risk. State-level firearm ownership is strongly correlated with firearm-related suicide rates (R^2 0.71 for men and 0.49 for women) [41]. Furthermore, suicide risk was found to be three times greater among individuals with access to firearms compared to individuals without access [42].

Limiting firearm access would likely lower firearm suicide rates. One study examining geographic and temporal variations in firearm ownership and firearm suicide rates has shown an association between increased firearm availability and increased firearm suicide rates [43]. In the USA, stronger firearm state laws have also been associated with lower firearm suicide rates, as well as lower suicide rates overall [44]. Lower suicide rates overall suggest no increase in rates of alternative methods.

Prevention Efforts

Efforts towards suicide prevention in elderly white males should involve a multi-faceted approach. Among the evidence-based interventions recommended by the World Health Organization to prevent suicide globally, early identification, assessment, management, and follow-up of individuals with suicidal behaviors as well as limiting access to means of suicide are the most appropriate approaches to target the key demographic of this review [45].

Early identification, assessment, management, and follow-up of individuals at risk would be the initial step of suicide prevention in elderly white males. Increasing awareness of increased suicide rates within this group will likely contribute to earlier opportunities to address the needs of these individuals. Similarly, familiarity with the risk factors and considerations extensively covered in this review will also contribute to a higher sensitivity in identification of these individuals. Elderly white males may benefit from regular patient examinations that include assessments of suicide risk factors or ideations. Individuals who do not regularly encounter a primary care provider may also benefit from additional means of screening. In the USA, the adult population has a 4% rate of suicidal ideation [5]. Unfortunately, more than half of these individuals never receive mental health services. The USPSTF concludes that there is currently insufficient evidence to determine the balance of benefits and harms of screening for suicide risk [46]. Further research is needed regarding the impact of regular screening and prophylactic mental health services on suicide rates in elderly white males specifically.

Another significant approach worth refining is the limiting of firearm access in the USA. Associations between stricter gun access and lower rates of suicide were already reviewed as an important consideration for risk. A systematic review of studies evaluating the effects of certain laws on firearm-related injury rate has shown a significant association between restrictive licensing and reductions in injuries (ranging 7–40%), but no consistent effects related to concealed carrying laws [47•]. Local regulation in the USA implementing laws with greater firearm restrictions has been associated with lower rates for both suicide and homicide [44]. The second amendment has posed a significant limitation in broadly implementing laws and regulations against firearms access at the federal level, thus shifting focus of restricting access towards those at risk of harming themselves or others [43]. Targeted initiatives to limit access to firearms in older white males with increased suicide ideations will be most challenging, especially since white males are most likely to be owners of firearms. Perhaps more research should be formatted to target specific factors relating to the intrinsic and extrinsic motivations of gun ownership.

Conclusion

Implementation of these preventative approaches to decrease suicide risk in elderly white males will need increased motivation from multiple sectors, especially those relating to health and government. We have addressed the need to increase awareness regarding this at-risk group, with greater emphasis required to address their additive risk factors. Formation of improved prevention programs should be guided by evidence demonstrating the significance in reducing firearm availability and social isolation. Fostering comfort in these discussions as well as increasing funding for much-needed research will heavily contribute towards reducing suicide risks among elderly white males.

Compliance with Ethical Standards

Conflict of Interest The authors of this article report no conflicts of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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