

## Sleep Disturbance and Suicide Risk in the Elderly

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### Letter to the Editor

The elderly, especially those with debilitating illness, have become a significantly vulnerable population for suicide. A recent study has identified elderly sleep disturbance as a significant risk factor to suicide. Understanding the connection between sleep and suicide is an emerging field of study and thereby becomes an important topic of discussion.

Every 40 seconds someone in the world dies by suicide. Nearly 1 million lives are lost annually, making suicide, a leading cause of death world-wide [1]. Data from the United States (US) Centers for Disease Control and Prevention (CDC) lists suicide as the 10th leading cause of death [2]. More than 39,000 Americans commit suicide and another 487,000 people are seen in emergency departments for self-inflicted wounds annually [2]. Suicide is preventable. Unfortunately, awareness and prevention programs across the globe have not been helpful in reducing suicide rates over the past several decades. Rates have actually increased in US middle-aged adults.

Family history of suicide, stressful life events or loss, ease of access to lethal methods, and exposure to the suicidal behaviors of others are considered risk factors [2]. Groups that have been identified by the US Surgeon General and the National Action Alliance for Suicide Prevention to have a higher risk for suicidal behaviors compared to the general public include [3]:

- American Indians/Alaska Natives
- Bereaved by suicide
- Justice system and child welfare settings
- Engaged in non-suicidal self-injury
- Previous suicide attempt
- Chronic medical conditions
- Mental and/or substance use disorders
- Lesbian, gay, bisexual, and transgender populations
- Members of the Armed Forces and veterans
- Men in midlife
- Older men

Sleep difficulties have been identified as a risk factor for suicide. Sleep disturbances are quite common in today's society and often coincide with several psychiatric and medical conditions that are strongly associated with suicide [4-6]. Insomnia is commonly a precursor or risk factor to depressive symptoms signifying its role in the development of depression and suicide ideation [7-9]. Insomnia symptoms (e.g. difficulty falling asleep, maintain sleep, early morning awakening and poor sleep quality), as well as the frequency and

duration of nightmares have been significantly linked to suicide risk even after controlling for comorbid depression, anxiety disorders, and PTSD [10-19].

Fifty-seven percent of older adults experiencing clinical significant changes in sleep architecture including decreased ability to maintain sleep, increased fragmentation, and reduced time in deep restorative sleep [20,21]. Moreover, the elderly experience disproportionately elevated rates of sleep disturbances and death by suicide. It has been found that 45% of elderly patients visit their health care provider within the final weeks and 73% within a month prior to committing suicide. Finally, increased suicide rates in late life result from increased frailty and the use of high lethality methods, primarily firearms and hanging, compared to other age groups [22-24].

Research investigating sleep quality and suicide in the elderly is emerging. A recently published and novel study by Bernert and colleagues examined, how sleep disruptions were independent risk factors for elderly suicide [15]. This population-based epidemiologic study was conducted at several sites throughout the US and followed 14,456 community elders ages 66 to 90 over a period of 10 years. There were 20 deaths by suicide matched with 400 controls. Measurements utilized in this study included the Center for Epidemiological Studies – Depression Scale (CES-D), Sleep Quality Index (SQI), Short Portable Mental Status Questionnaire, Katz Activities for Daily Living Scale, and vital statistics interview. Nearly all (95%) of suicide completers were male with firearms was the most common (65%) lethal method used. Higher total SQI scores, representing poor sleep quality, significantly ( $p < 0.05$ ) predicted risk to commit suicide as did non-restorative sleep even after controlling for comorbid depression. Those with poorer sleep quality were 1.4 times more likely to commit suicide overall and 1.2 times more likely after controlling for depression. Greater amounts of sleep disturbances in concert with depressive mood predicted the largest risk of death by suicide. Within this study, deaths by suicide arose after about 2 years suggesting that disturbed sleep may increase risk within a short time frame.

Enhanced suicide risk detection may best be achieved through targeting sleep disturbance as an important early warning sign. Improvements in sleep quality have been shown to significantly reduce anxiety, depression, and suicidal ideation [25-28]. In 2013, the US Veterans Affairs Department of Defense included sleep disturbances in their practice guidelines for those at risk of suicide [29]. More research is needed using objective sleep-EEG variables to identify possible biomarkers that are associated with suicide risk in the elderly population.

Based on the emerging evidence, if society is to make any progress in reducing the incidence of suicide, especially in the elderly population, the presence and type of sleep disturbance should play a significant role in all evidenced-based suicide prevention strategies. Expanded communication to policy makers and public education are

necessary to promote a better understanding of the potential impact of sleep disorders on mental health, as well as early detection of suicide risk. More research targeting high risk populations such as the elderly is needed to identify new and effective policies and programs to help reduce the number of suicides and suicidal behavior.

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