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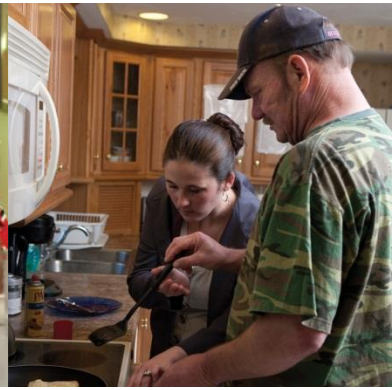

Suicide and Neurological Injury: Prevalence and Updates

NeuroRestorative Institute - 2019

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Objectives

- Participants will learn the prevalence of suicide in the United States general population and the rate within neurological injured persons.
- Participants will learn about contributing factors to suicide.
- Participants will learn about assessment techniques that can be used to assess suicidal adequately.
- Participants will learn about interventions for suicidal ideation, intent and plan.

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Rates of Suicide in the United States

CDC data - Prevalence

In 2016, nearly 45,000 Americans age 10 or older died by suicide.

Suicide is the 10th leading cause of death and is one of just three leading causes that are on the rise in the United States.

Suicide is rarely caused by a single factor.

Although suicide prevention efforts largely focus on identifying and providing treatment for people with mental health conditions, there are many additional opportunities for prevention.

CDC, 2019

CDC Prevalence

Researchers found that more than half of people who died by suicide did ***not*** have a known diagnosed mental health condition at the time of death.

Relationship problems or loss, substance misuse; physical health problems; and job, money, legal, or housing stress often contributed to risk for suicide.

Firearms were the most common method of suicide used by those with and without a known diagnosed mental health condition.

CDC, 2019

CDC National Vital Statistics System

The CDC has plotted the various rates of suicide throughout the nation. The rates overall have increased from 1999 to 2016.

The Midwest and North-Midwest have seen the highest increases. The Southeast and Southwest have seen limited increases in the rates of suicide.

United States: 25.4% total increase from 1999 to 2016

North Dakota: 57.6% increase from 1999-2016 (highest)

Nevada: 1.0% decrease from 1999-2016 (lowest)

CDC, 2019

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Top Neurologic Diagnoses & Suicide Risk

Traumatic Brain Injury – Intentional Harm

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From 2006 to 2014, age-adjusted rates of TBI-related deaths decreased by 6% (from 17.9 per 100,000 population to 16.8).

This decrease coincides with a large decrease in the age-adjusted rate of TBI-related deaths attributable to motor vehicle crashes (5.4 in 2006 to 3.3 in 2014) per 100,000.

From 2006 to 2014, age-adjusted rates of TBI-related deaths attributable to falls (increased from 3.6 - 4.4) and intentional self-harm (increased from 4.7 - 5.5) per 100,000.

Source: CDC's National Vital Statistics System. ¶Age-adjusted to the 2000 U.S. standard population. ††Includes falls of undetermined intent to maintain consistency with past data releases. ‡‡E-codes specify that the injury was unintentional but do not specify the actual mechanism of injury. §§Includes TBIs in which the intent was not determined as well as those due to legal intervention or war. Includes TBIs in which no mechanism was specified in the record. Does not include falls of undetermined intent.

Stroke – Intentional Harm

Pooled proportion of suicidal ideation: 11.8% (95% CI 7.4%-16.2%)

Factors associated with increased suicidal ideation:

- Current depression
- Past depression
- Recurrent stroke
- Higher stroke severity
- Cognitive impairment

Factors associated with decreased suicidal ideation:

- Marriage
- Employment

Higher education level:

- A trend toward increased suicidal ideation among female stroke survivors

Bartoli F, et al. (2017) Rates and correlates of suicidal ideation among stroke survivors: a meta analysis. *Jr of Neurol Neurosurg Psychiatry*.

Teasdale TW, Engberg AW. (2001) Suicide after stroke: a population study. *J Epidemiol Community Health*, 55, 863-866.

Spinal Cord Injury – Intentional Harm

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A study of 9135 persons injured between 1973 and 1984 and treated at any of 13 model regional spinal cord injury (SCI) care systems was conducted.

Follow-up (1985) demonstrated 50 persons had committed suicide (6.3% of deaths). Based on age-sex-race-specific rates for the general population, 10.2 suicides were expected to occur. Therefore, the standardized mortality ratio (SMR) for suicide was 4.9. The highest SMR occurred 1 to 5 years after injury. The SMR was also elevated for the first post-injury year, but was not significantly elevated after the fifth year.

Age group risk: 25 to 54 years, but was also elevated for persons aged less than 25 years.

Suicide was the leading cause of death for persons with complete paraplegia and the second leading cause of death for persons with incomplete paraplegia.

The most common means of committing suicide was by gunshot.

DeVivo MJ, Black KJ, Richards JS & Stover SL (1991). Suicide following spinal cord injury. Paraplegia, 29, 620-627.

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Contributing Factors to Suicide

Non-psychiatric vs. Psychiatric

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No known mental health conditions.

Sex Differences
Female 16%
Male 84%

Method of Suicide
Other 8%
Poisoning 10%
Suffocation 27%
Firearm 55%

Known mental health conditions

Sex Differences
Female 31%
Male 69%

Method of Suicide
Other 8%
Poisoning 20%
Suffocation 31%
Firearm 41%

Contributing data

Many factors contribute to suicide among those with and without mental health conditions…

Relationship problem (42%)
Problematic substance use (28%)
Crisis in the past or upcoming two weeks (29%)
Criminal legal problem (9%)
Physical health problem (22%)
Loss of housing (4%)
Job/Financial problem (16%)

Note: Persons who died by suicide may have had multiple circumstances. Data on mental health conditions and other factors are from coroner/ medical examiner and law enforcement reports. It is possible that mental health conditions or other circumstances could have been present and not diagnosed, known, or reported.

CDC, 2019

Pain / Chronic Pain

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More than 25 million adults in the United States have chronic pain. Chronic pain has been associated with suicidality, but previous studies primarily examined nonfatal suicidal behaviors rather than suicide deaths associated with chronic pain or the characteristics of such deaths.

Suicide decedents with and without chronic pain who died during 1 January 2003 to 31 December 2014 were studied.

Of 123,181 suicide decedents included in the study 10,789 (8.8%) had evidence of chronic pain, and the percentage increased from 7.4% in 2003 to 10.2% in 2014. More than half (53.6%) of suicide decedents with chronic pain died of firearm-related injuries and 16.2% by opioid overdose.

Chronic pain may be an important contributor to suicide.

Petrosky E, Harpaz R, Fowler KA, Bohm MK, Helmick CG, Yuan K, and Betz CJ. (2018). Chronic Pain Among Suicide Decedents, 2003 to 2014: Findings From the National Violent Death Reporting System. *Annals of Internal Medicine, 169 (7), 448-461.*

Psychiatric conditions

Post-traumatic Stress Disorder

Bipolar Disorder

Major Depression

Schizophrenia

Medical conditions with concomitant depression

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Assessing Suicide Risk

Assessment

50% of those who experience suicidal ideation DO NOT tell others. Helping people to feel able to indicate these feelings is a key to helping to reduce the risk of completion.

Psychological measures that can help:

- Beck Depression Inventory II (BDI-II)
- Beck Hopelessness Scale (BHS)
- Beck Scale for Suicide Ideation (BSS)
- BDI-Fast Screen for Medical Patients (BDI-MP)
- Adult Suicidal Ideation Questionnaire (ASIQ)
- Firestone Assessment of Suicide Intent (FASI)
- Personality Assessment Inventory (PAI)

Assessment

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Diagnostic Interview to assess the following:

Psychosocial resources – married, divorced, single, education level,
Stresses – education, occupation, family, health
Substance Use/Abuse – type, frequency, duration

Past Medical History
Past Psychiatric History
Past Neurological History
Past Surgical History

Pain Assessment

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Interventions for suicide – prevention and treatment

Multimodality Treatment

- Education regarding prevalence of suicidal ideation and completion
- Education regarding risk factors (medical, psychological)
- Education regarding cultural differences
- Education regarding religious affiliation and faith

Multimodality Treatment

- Psychological interventions – individual therapy, couples counseling, family intervention
- Psychological intervention – cognitive/behavioral therapy to learn adaptation and coping strategies
- Provide resilience training to improve adaptability and flexibility to changing life conditions
- Medical/psychiatric – use of medications to alleviate obsessive thinking, reduction of depressed mood, improved energy