The Epidemiology of Suicide: Risk and Protective Factors

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Suicide definitions

- IOM: Fatal self-inflicted destructive act with explicit or inferred intent to die (has separate definitions for suicide attempt, ideation, communication, suicidality, and high risk groups)

- M-W dictionary: the act or an instance of taking one's own life voluntarily and intentionally especially by a person of years of discretion and of sound mind
Types of Injury

- **Unintentional:**
  - Motor vehicle crashes
  - Falls
  - Others

- **Intentional:**
  - Assault, Legal Intervention
  - *Suicide (self-injury)*
Suicide Epidemiology
Pop Quiz

• More people die from homicide than from suicide.

True or False?
Injury fatality rates, 2001

- Suicide: 10.7
- Homicide: 7.1
- Unintentional: 35.5

Centers for Disease Control and Prevention, WISQARS
Leading causes of injury by age

- Ages 10-14: unintentional injury, cancer, suicide
- Ages 15-34: unintentional injury, homicide, suicide
- Age 35-44: cancer, unintentional injury, heart disease, suicide
The Magnitude of the Problem

- Suicide deaths: 30,622 in 2001; rate 10.7/100,000

- Non-fatal injuries (self-harm) treated in EDs: conservative rate 112/100,000

- People contemplating suicide: ???
Depression

- In any 1-year period, 9.5% of the population (19 million adults) suffer from a depressive illness (twice as many women as men)

- Most people with a depressive illness do not seek treatment

- 80% of those who seek treatment experience some relief

NIMH, 2000
Pop Quiz

Suicide rates have increased steadily since 1950.

True or False?
Suicide rates over time

Suicide death rate per 100,000

1950: 13.2
1960: 12.5
1970: 13.1
1980: 12.2
1990: 12.5
2000: 10.4
Pop Quiz

The US has the highest suicide rate in the world.

True or False?
World suicide rates

Suicide rates (per 100,000 for most recent year available)

Source: World Health Organization (WHO)
Suicide death rates in the US

Suicide Death Rates
United States, 1996-1998

Centers for Disease Control and Prevention
The intermountain region

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Centers for Disease Control and Prevention, WISQARS
Pop Quiz

Hispanics and American Indians have the highest suicide rates.

True or False?
Suicide death rates by race, ethnicity

Centers for Disease Control and Prevention WISQARS, 2000 data
Suicide death rates by race, age

Age-adjusted suicide death rates per 100,000 by age group and racial/ethnic background, US, 1998

- **American Indian/Alaska Native**
  - Age 10 to 19 Years: 14.4
  - 20-64 Years: 20.4
  - 65+ Years: 7.7

- **Hispanic**
  - Age 10 to 19 Years: 3.8
  - 20-64 Years: 7.9
  - 65+ Years: 5.8

- **Non-Hispanic White**
  - Age 10 to 19 Years: 16.4
  - 20-64 Years: 18.5
  - 65+ Years: 9.9
Race and suicide

73% of all suicide decedents are white males
Pop Quiz

Suicide rates are highest among adolescents and young adults.

True or False?
Suicide death rates by age, sex

US 2001 Suicide Death Rates per 100,000, by sex and age group

Centers for Disease Control and Prevention WISQARS
Suicide death rates by age, sex

US 2001 Suicide Death Rates per 100,000, by sex and age group

- Male Rate
- Female Rate

Centers for Disease Control and Prevention WISQARS
Suicide and sex

Males are four times more likely to complete suicide than females
Suicide attempt rates

Centers for Disease Control and Prevention, WISQARS 2000
Suicide attempts

For every suicide death, there are 8-25 suicide attempts
Sum of suicide attempts & deaths

*Total* rates differ little by sex

Centers for Disease Control and Prevention WISQARS, 2000 data
Mechanism of Suicide Deaths

- Firearm: 56%
- Cut/pierce: 2%
- Fall: 2%
- Suffocation: 21%
- MVC: 1%
- Poisoning: 17%
- Fire/burn: 1%

2001 CDC Data
Timing

- Planned vs. Impulsive
- Precipitating Events
Suicide Myths
Myth #1

- People commit suicide more often during holiday periods.
Suicides by day of year

Number of Suicides

Day-of-the-Year

New Years
Veteran Day
4th of July
Thanks giving
Christ-mas

2/16
4/4
5/1
6/23
7/22
7/7
8/15

Suicide Prevention Research Center, University of Nevada Trauma Institute
Myth #2

- Suicides are seasonal, with more in the winter months.
Monthly distribution of 435 suicides for 1995

Suicide Prevention Research Center, University of Nevada Trauma Institute
Myth #3

- More people commit suicide during the weekends.
Day of week distribution of 435 suicides for 1995

Suicide Prevention Research Center, University of Nevada Trauma Institute
Myth #4

- Suicide Victims tend to have a high level of education.
Suicide and Education

Suicide Prevention Research Center, University of Nevada Trauma Institute
Social, Psychosocial, environmental, and biologic factors
Biologic factors

- Extremely complicated; little known for certain; most work remains to be done (e.g., twin studies)

- Genetics—adoption studies
- Biochemistry—biochemistry studies, brain mapping

- See work by J.J. Mann et al. in late 1990s for specific neurologic underpinnings
Biologic pathways

- **Summary of confusing physiologic factors**
  - HPA (hypothalamic-pituitary-adrenal) axis dysregulation
  - Serotonergic systems

- **Genetics:**
  - Heritable mental health conditions (depression, schizophrenia, bipolar disorder)
  - Alcohol dependence

IOM, "Biological factors"
Environmental factors

- Childhood trauma
  - Increased risk for mental disorders, substance abuse, low self-esteem, poor attachments
  - Independent risk factor for suicide
  - Permanent alterations in brain physiology
Childhood Trauma

- The Childhood Adverse Experiences study lists 8 factors that, in combination, predicted 80% of child & adolescent suicide attempts in the general population.

*Journal of the American Medical Association*

*December 26, 2001*
Childhood Adverse Experiences

- Household EtOH/drug abuse
- Household mental illness
- Incarcerated household member
- Battered mother
- Parental divorce or separation
- Physical abuse
- Sexual abuse
- Emotional abuse
Other environmental factors

- Personal loss/separation
  - End of relationship
  - Death
- Suicide death of loved one
- Health problems
- Financial problems
- Access to means
- Suicide cluster
Psychiatric & Psychosocial factors

- Mental health diagnoses: schizophrenia, mania, depression, borderline
- Hopelessness
- Prior suicide attempts
- Substance abuse
- Aggression/impulsivity
- Criminal history
Causes of depression

- Heritability
- Medical illness, medication side-effects
- Change in life patterns (finances, independence, relationships)
- New baby (women)
- Substance abuse
Social/cultural factors

- Cultural proscription/prescription
- Religion
- Social support systems/isolation
- SES, unemployment
- Barriers to accessing health care
- Stigma associated with getting help
- Legislation
Eight factors critical to assessing suicide risk

- History of suicide attempts
- Medical seriousness of previous attempts
- Acute suicidal ideation
- Severe hopelessness
- Attraction to death
- Family history of suicide
- Acute alcohol abuse
- Loss/separations
Warning signs—teens

- Changes in personality, weight/eating, sleeping, personal grooming practices
- Communication difficulties
- Talk of wanting to die
- Withdrawal from people, activities
- Family disruptions
- Problems at school
- Carelessness, frequent injuries
- Restlessness, confusion, boredom
- Perfectionism
- Rebelliousness
Protective factors

- Effective clinical care
- Access to a variety of interventions
- Strong & continuous relationships with medical, mental health practitioners
- Strong family, social connections
- Learned skills in problem solving, conflict resolution
- Sense of self-worth, value to community
Suicide Prevention
Help-Seeking Behavior

**Adults:** up to 2/3 of attempters seek medical attention within in one month of attempt.

**Adolescents and young adults:** Attempters less likely to seek professional assistance than control subjects.

- 50% seek help from family or friends.
- Of those who sought attention, **41% discussed suicide** (vs. 4% of control).
- Less than 10% used Hotlines.
What is our role?
Role of everyone

- Pay attention to warning signs
- Learn what resources are available locally
- Show children that they matter, that they are important, and that you are paying attention to them
Risk Factors

- mental diagnosis, especially depression and substance abuse, or Borderline Personality Disorder which increase risk
- over 45 years old are higher risk (men try more lethal means, women try more often)
- marital status (unmarried are lowest risk, never married, divorced, widowed, recently sep are highest risk)
- recent job loss increases risk
- chronic illness is higher risk
- recent loss of loved one increases risk, as does the anniversary of the loss and fantasies of reuniting with the deceased
- hospitalized and discharged with improvement; this may seem counterintuitive, but many suicidal people feel better once they have made the decision to kill themselves, and have the energy to wrap up loose ends, see others and say goodbye...
- Caucasian - ethnic minorities have a lower suicide risk previous attempts - this is one of the best predictors
- gay/lesbian youth - may be at 3 to 5 times the risk for suicide as heterosexual
- Caucasian youth extensive and detailed plans, or plans using a highly lethal means
- history of suicide in their family
- history of impulsive or reckless behavior
Signs of Depression

- sleep, energy, weight, or appetite changes
- decreased interest in sex and other pleasurable activities
- feelings of helplessness and hopelessness
- social isolation and withdrawal from others
Thank you for your interest!

QUESTIONS?