

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)*

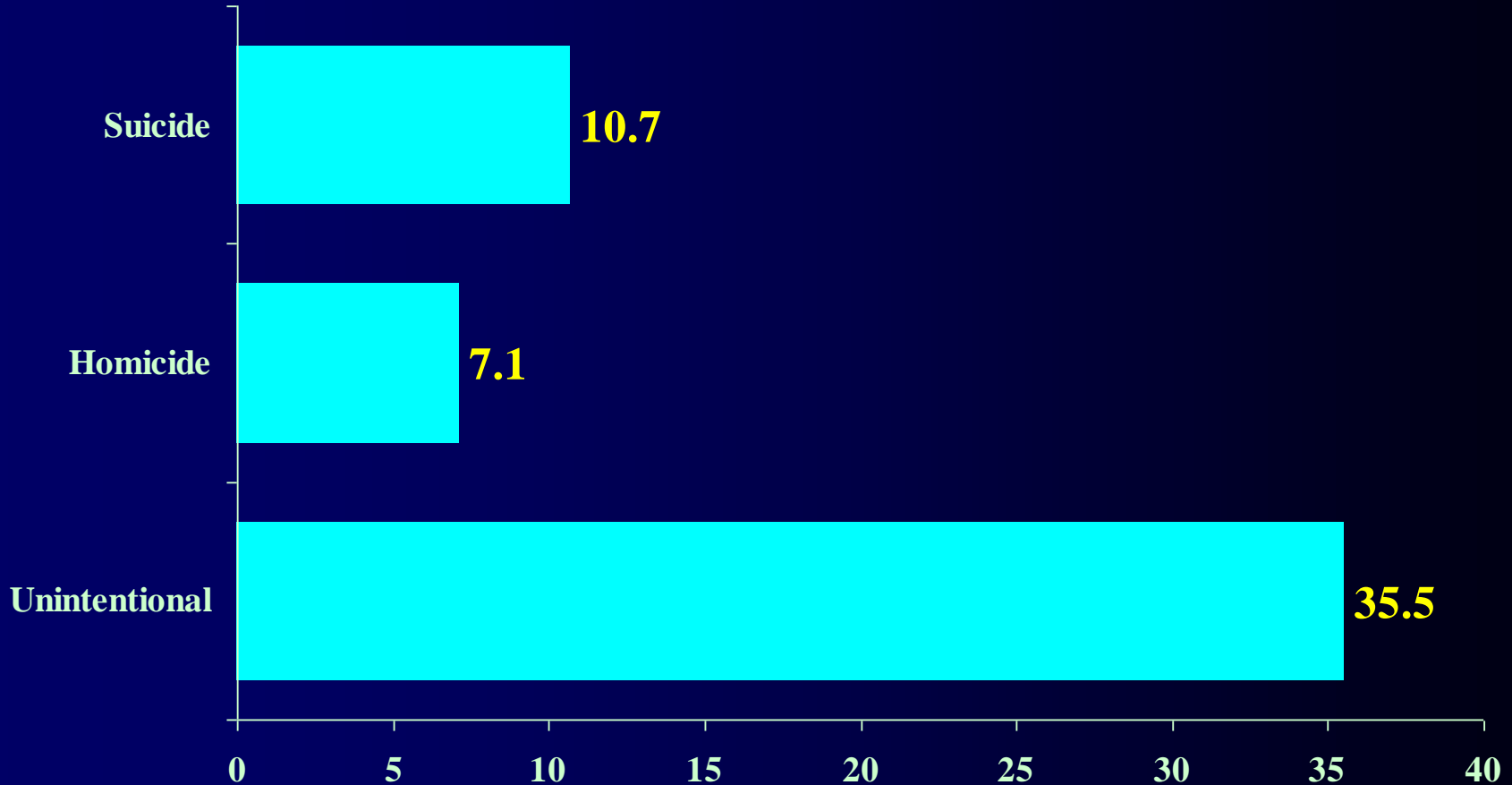
Suicide Epidemiology

Pop Quiz

- More people die from homicide than from suicide.

True or False?

Injury fatality rates, 2001



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

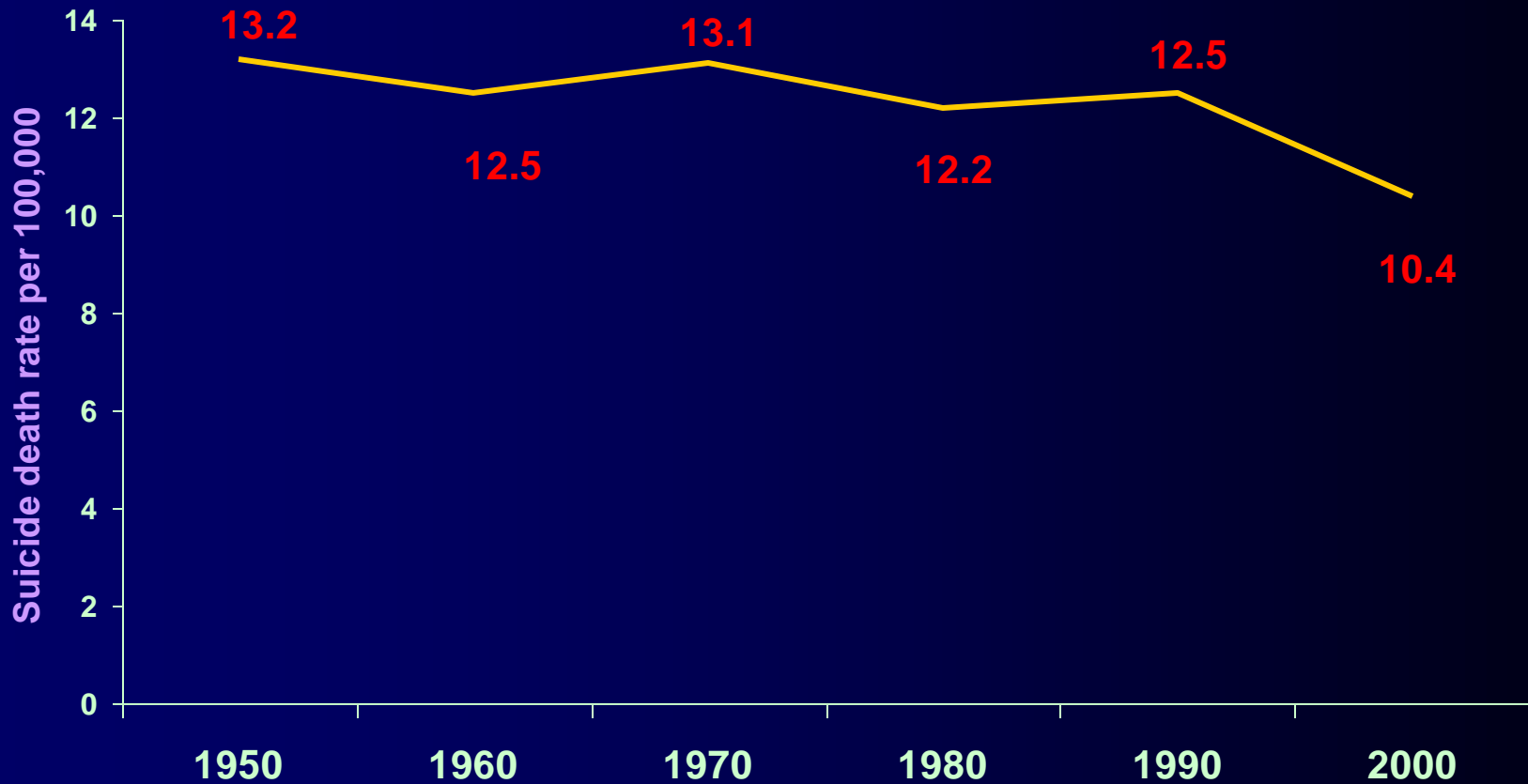
- In any 1-year period, 9.5% of the population (19 million adults) suffer from a depressive illness (twice as many women as men)
- Most people with a depressive illness do not seek treatment
- 80% of those who seek treatment experience some relief

Pop Quiz

Suicide rates have increased steadily since 1950.

True or False?

Suicide rates over time



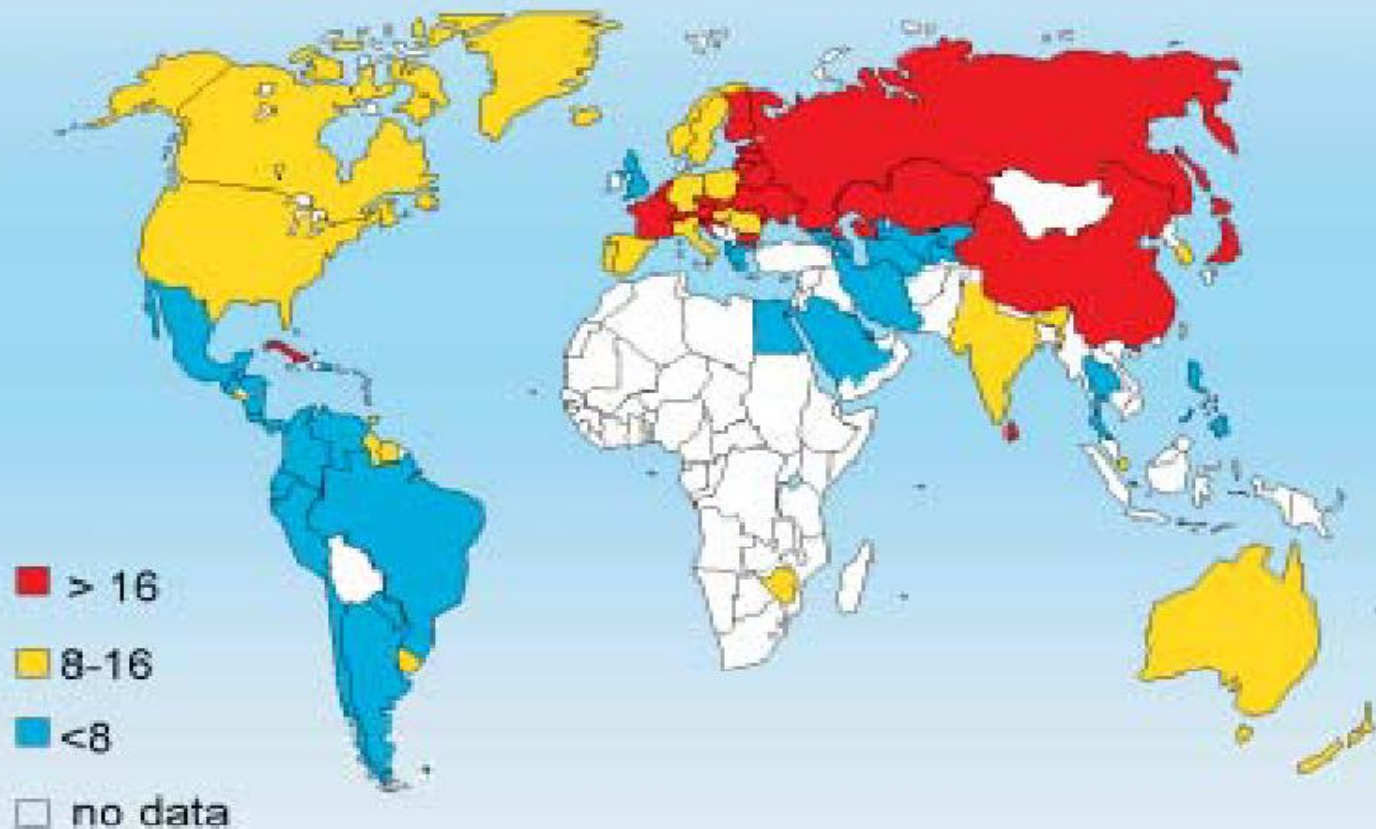
Pop Quiz

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 United States, 1996-1998

Deaths per 100,000 Population

Color	Rate Range
Red	14.08 - 22.96
Cyan	12.11 - 14.07
Gray	11.12 - 12.10
White	6.88 - 11.11

State-specific rates (from map labels):

- AK: 21.45
- HI: 10.76
- CA: 11.12
- WY: 19.57
- MT: 16.75
- ND: 19.09
- SD: 16.65
- NE: 11.72
- KS: 11.52
- MO: 12.51
- IL: 8.39
- IN: 12.25
- MI: 10.57
- WI: 11.31
- OH: 11.52
- PA: 11.43
- NY: 7.39
- VT: 12.49
- NH: 12.11
- MA: 7.93
- RI: 8.08
- CT: 8.07
- NJ: 7.14
- DE: 11.27
- MD: 9.90
- DC: 6.88
- VA: 11.92
- NC: 12.06
- GA: 11.78
- SC: 12.22
- MS: 12.20
- AL: 12.25
- LA: 12.03
- TX: 11.65
- OK: 14.53
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Centers for Disease Control and Prevention

The intermountain region

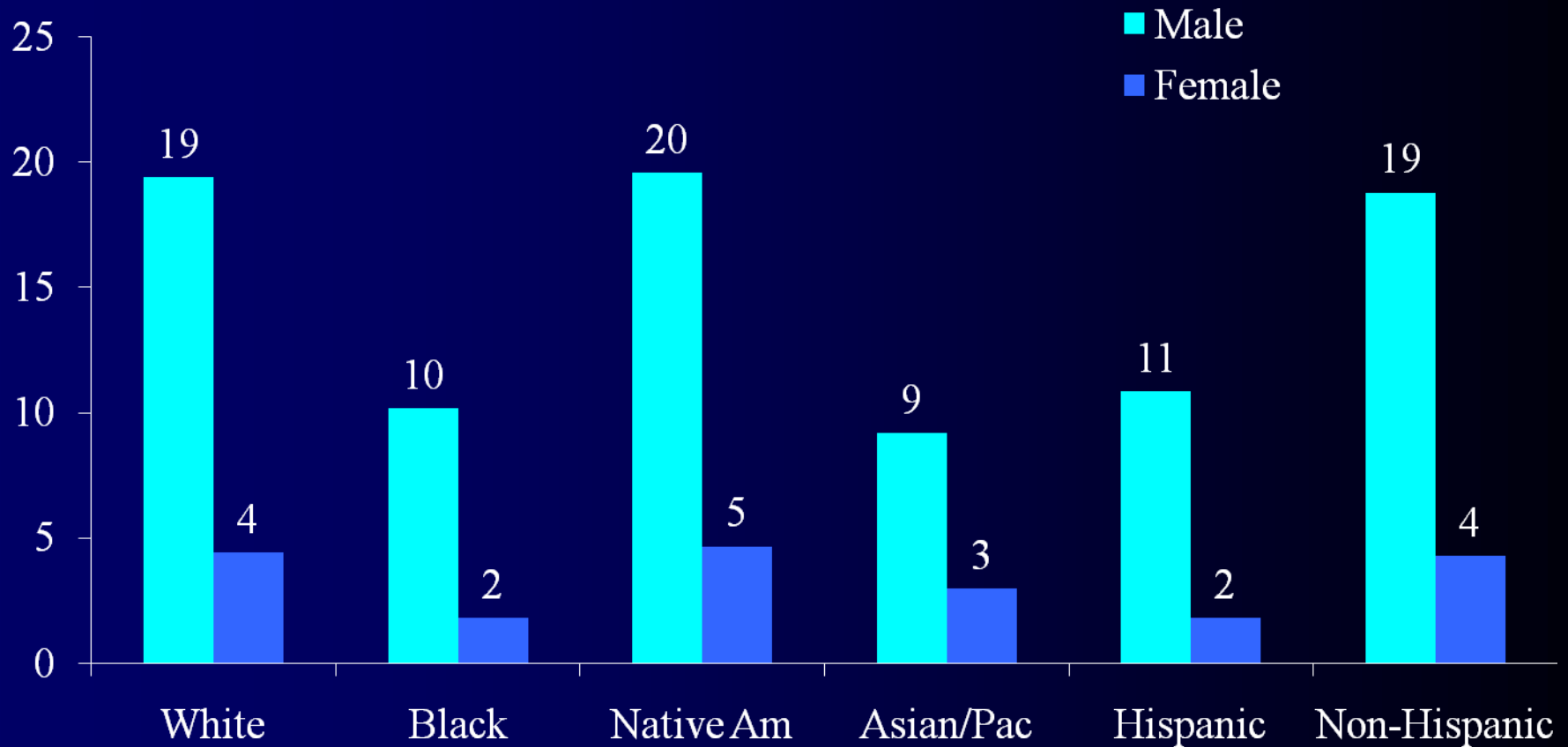
State	2000 age adj rate	2001 age adj rate	2000 rank	2001 rank
NV	21.68	18.85	1	3
AZ	16.6	14.79	6	11
WY	17.43	16.39	5	5
UT	15.44	15.51	7	8
NM	19.18	20.2	3	1
MT	17.98	19.15	4	2
CO	14.96	16.45	8	4
ID	13.54	16.24	11	6
US	10.66	10.73		

Pop Quiz

Hispanics and American Indians have the highest suicide rates.

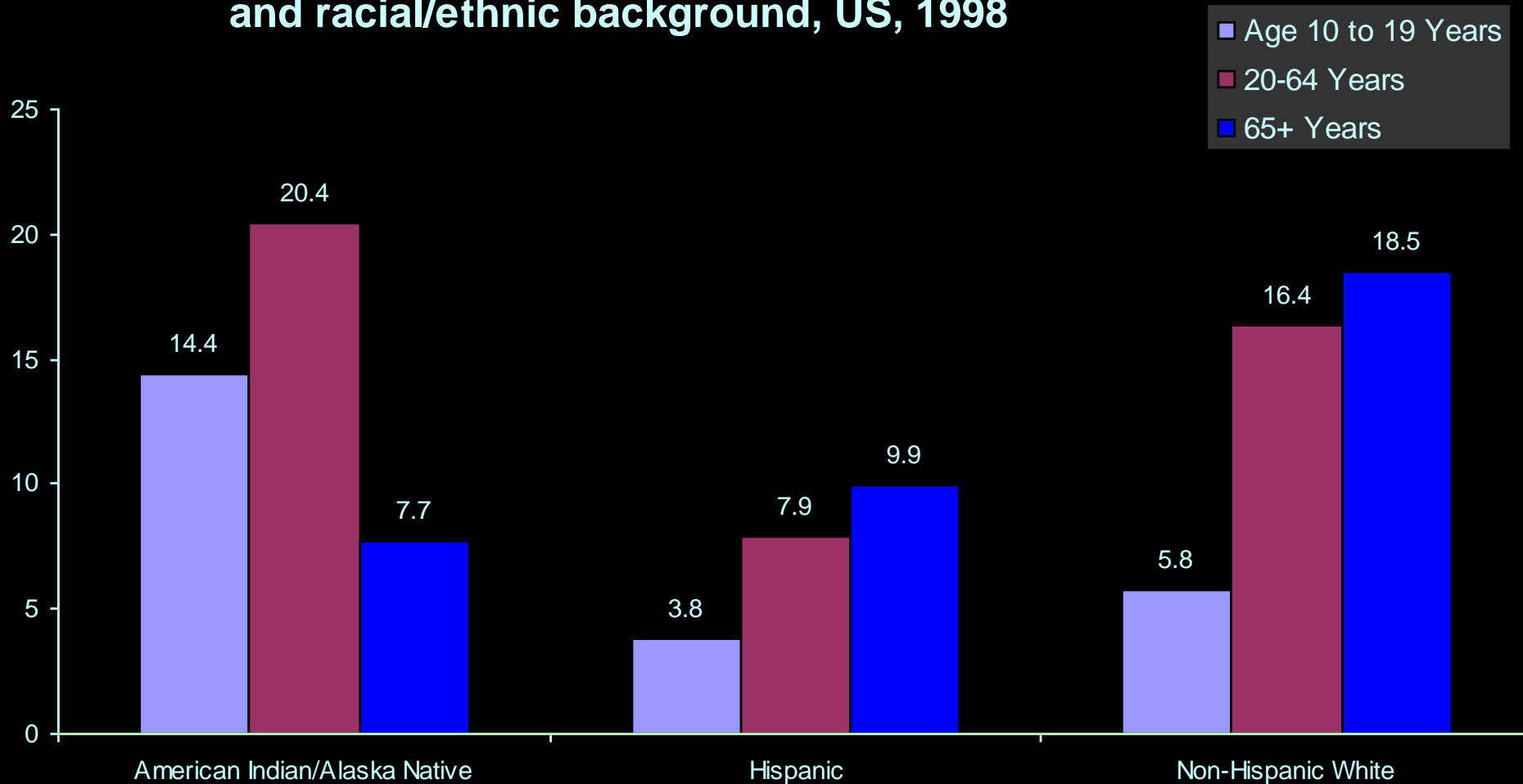
True or False?

Suicide death rates by race, ethnicity



Suicide death rates by race, age

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



Race and suicide

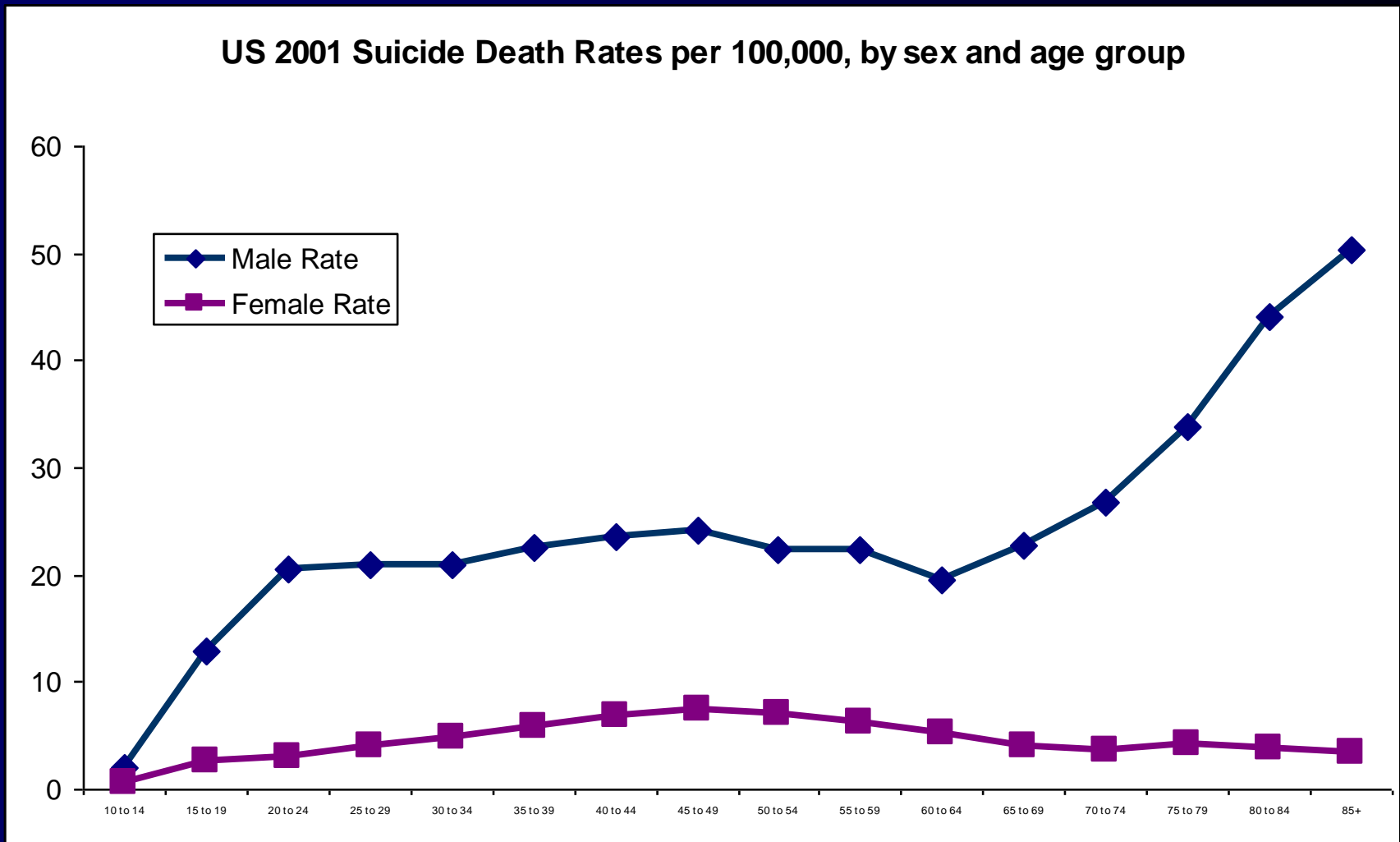
73% of all suicide
decedents are
white males

Pop Quiz

Suicide rates are highest among adolescents and young adults.

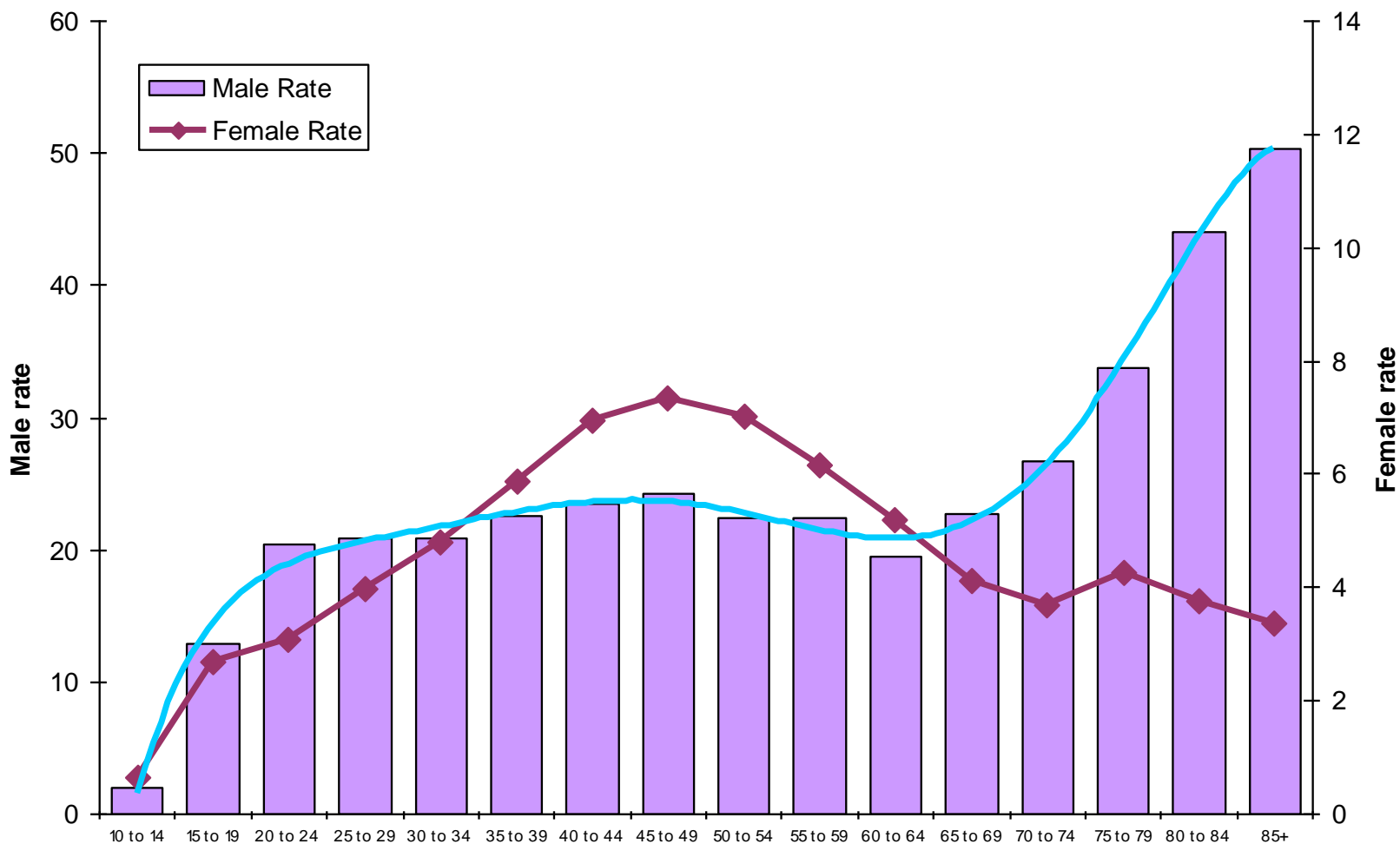
True or False?

Suicide death rates by age, sex



Suicide death rates by age, sex

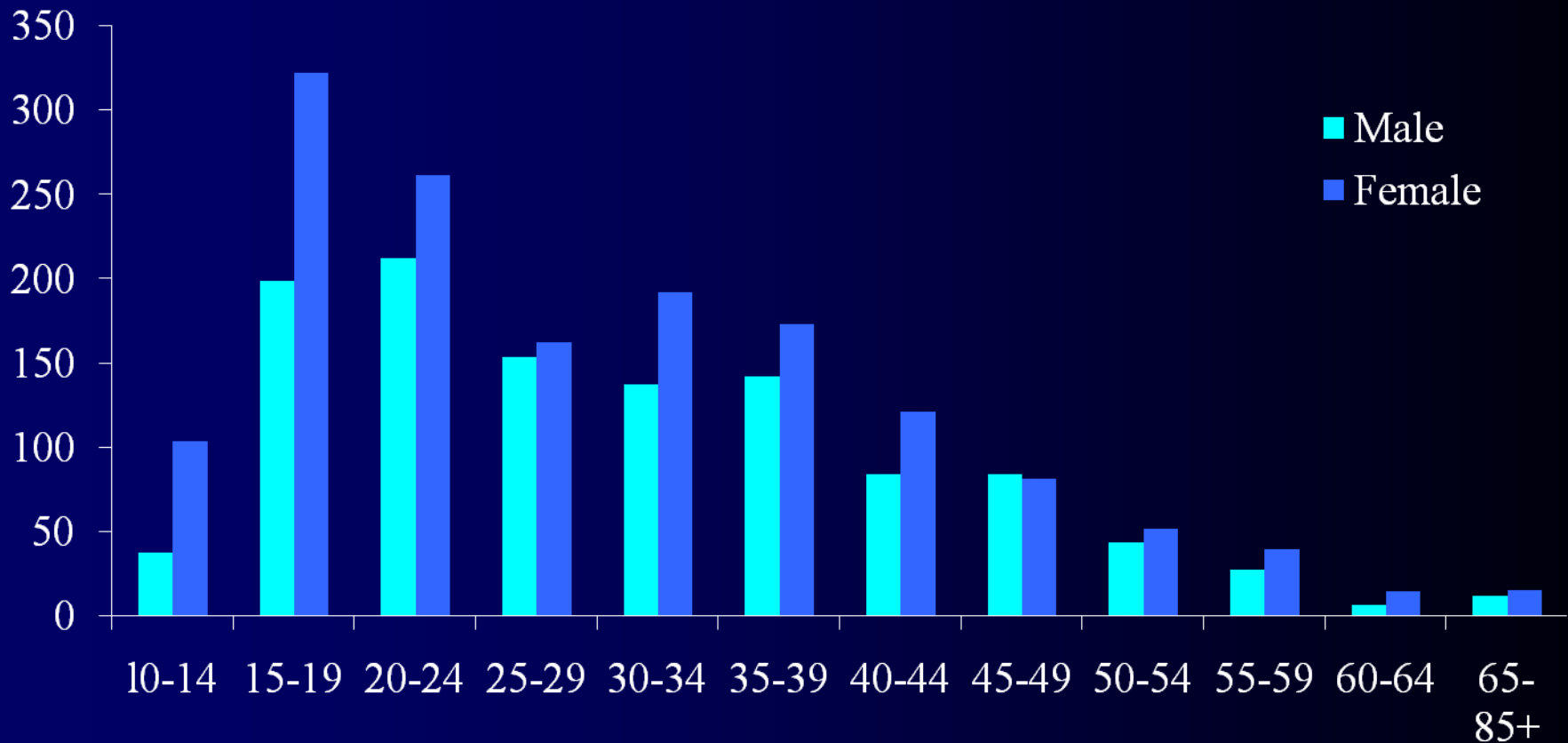
US 2001 Suicide Death Rates per 100,000, by sex and age group



Suicide and sex

Males are four times
more likely to
complete suicide than
females

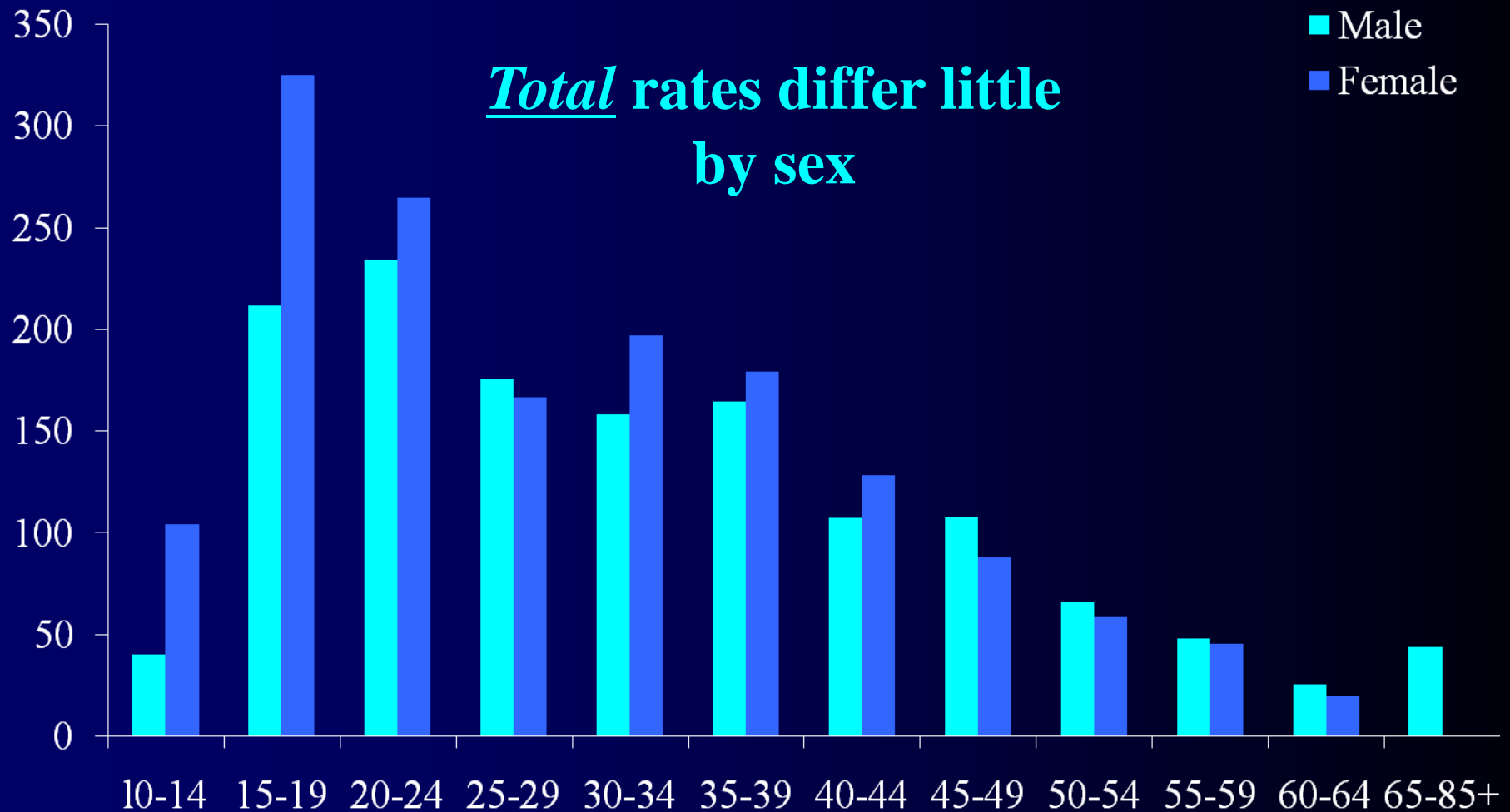
Suicide attempt rates



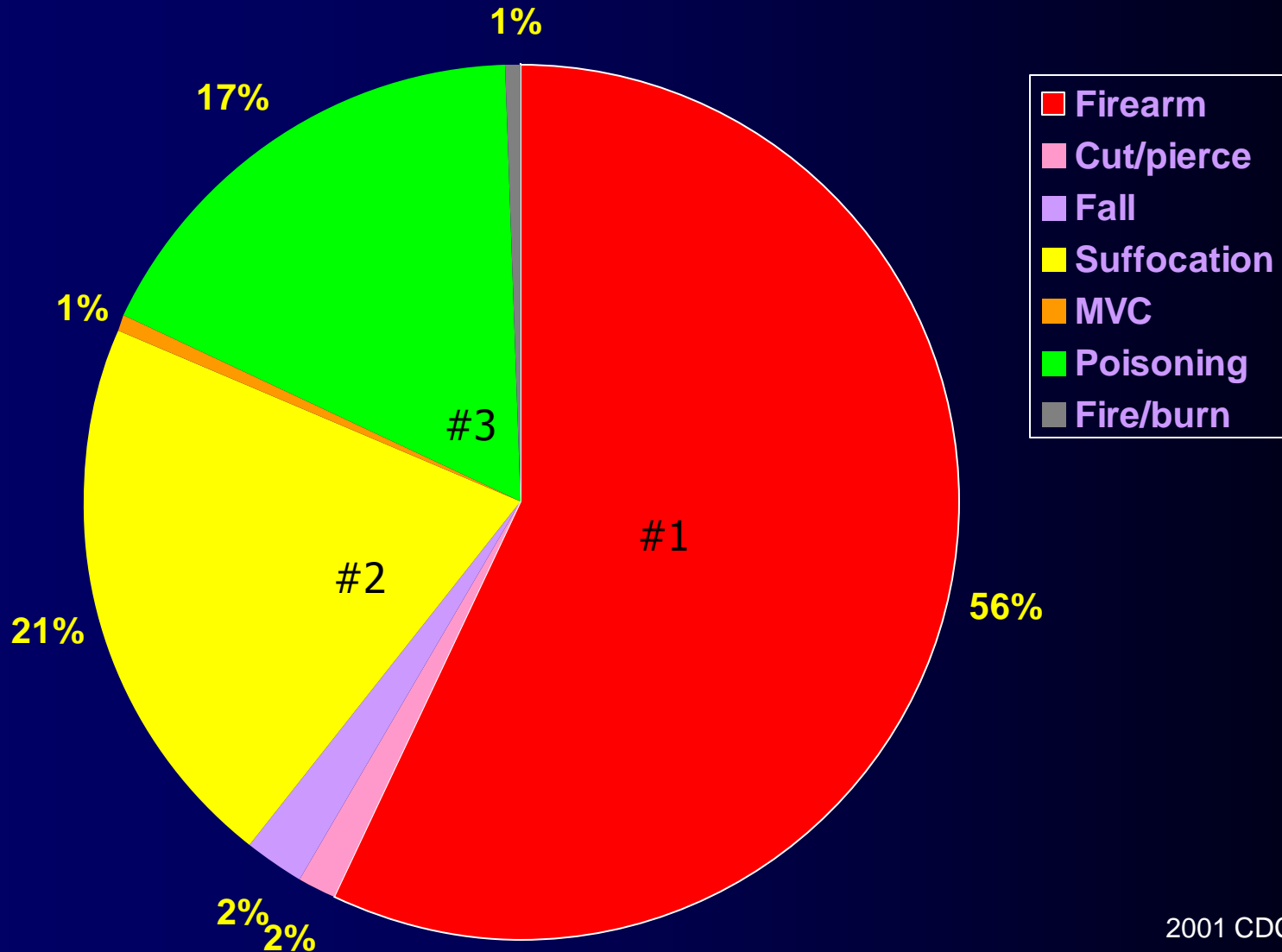
Suicide attempts

For every suicide death,
there are 8-25 suicide
attempts

Sum of suicide attempts & deaths



Mechanism of Suicide Deaths



2001 CDC Data

Timing

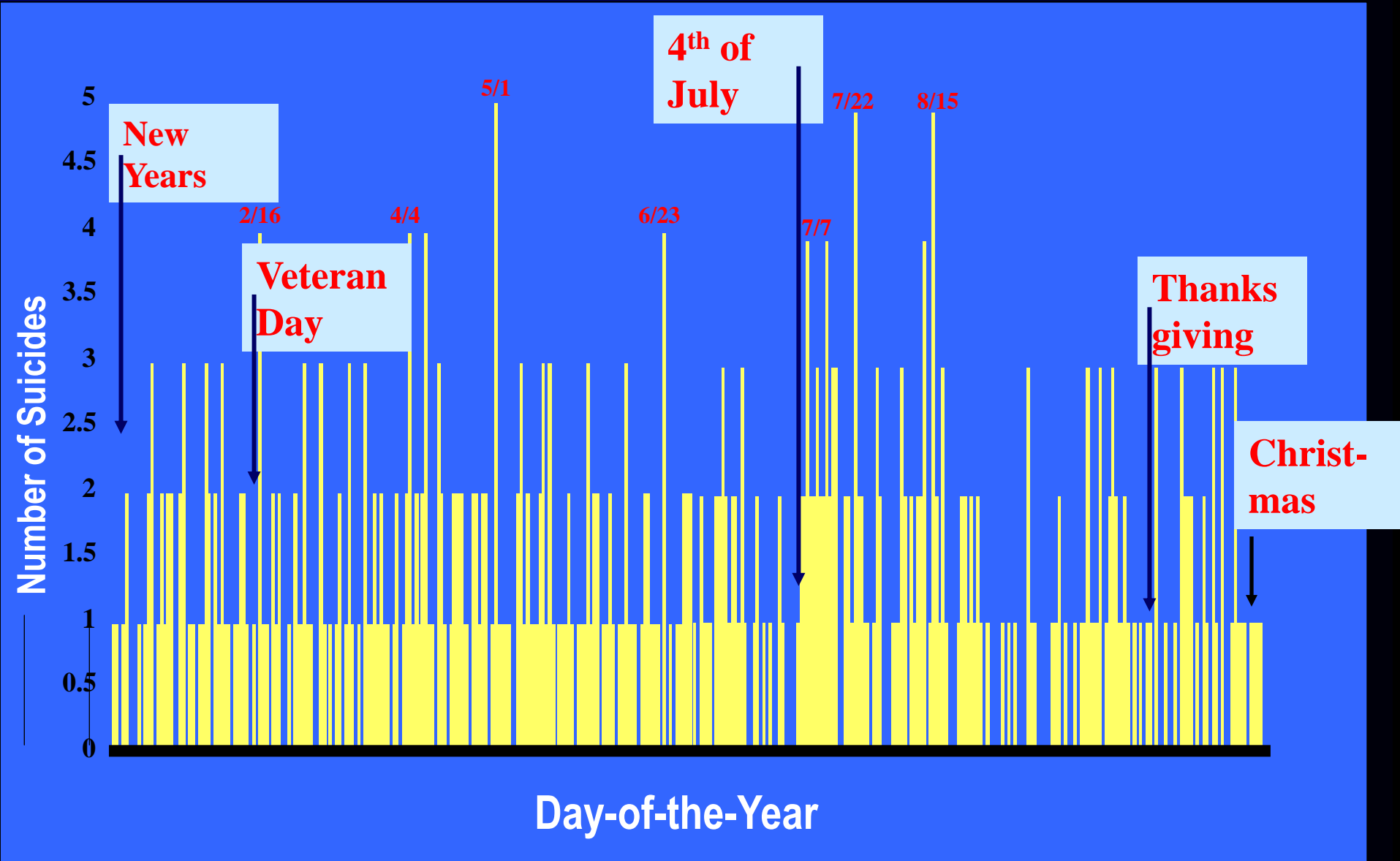
- Planned vs. Impulsive
- Precipitating Events

Suicide Myths

Myth #1

- People commit suicide more often during holiday periods.

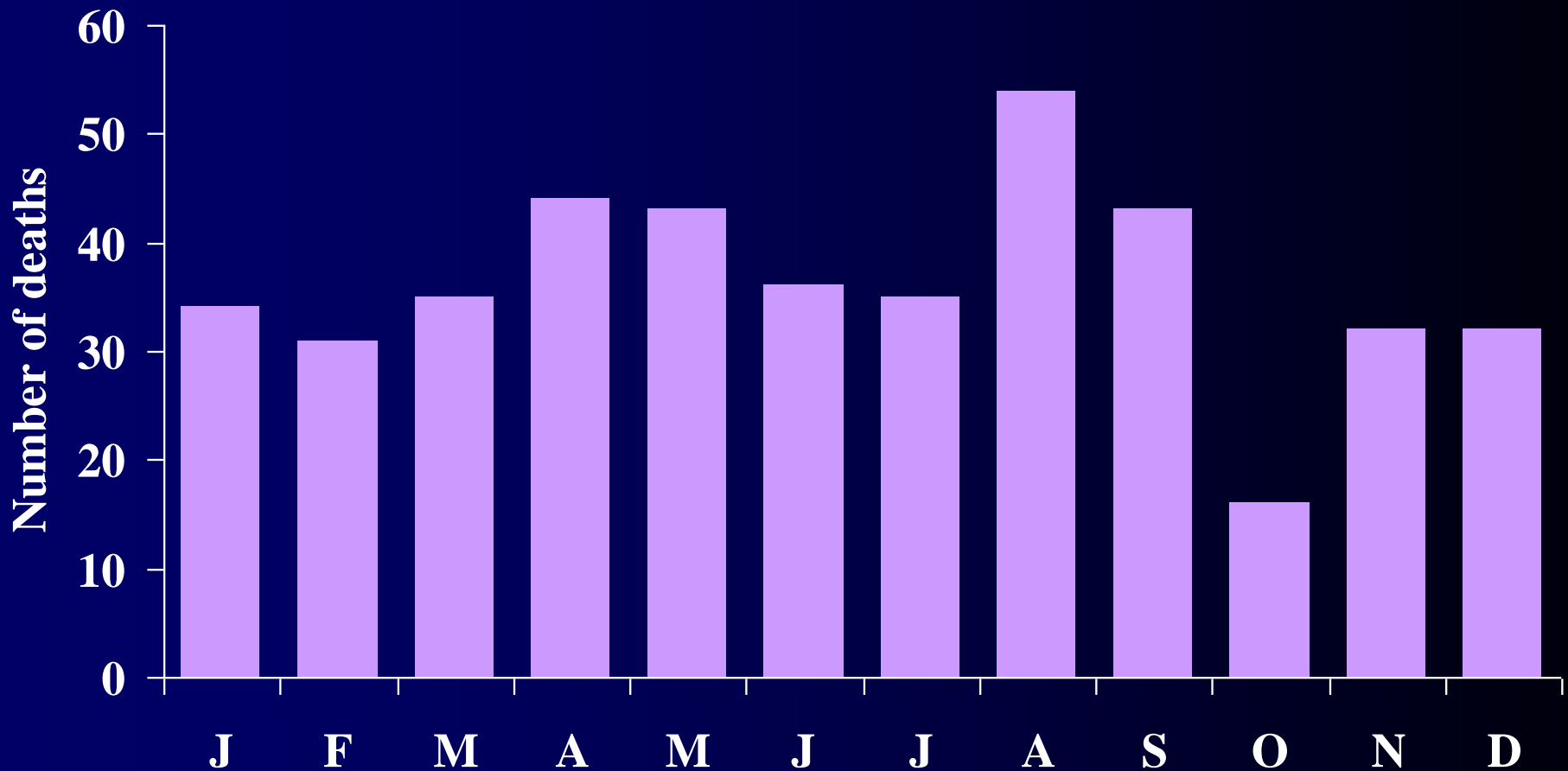
Suicides by day of year



Myth #2

- Suicides are seasonal, with more in the winter months.

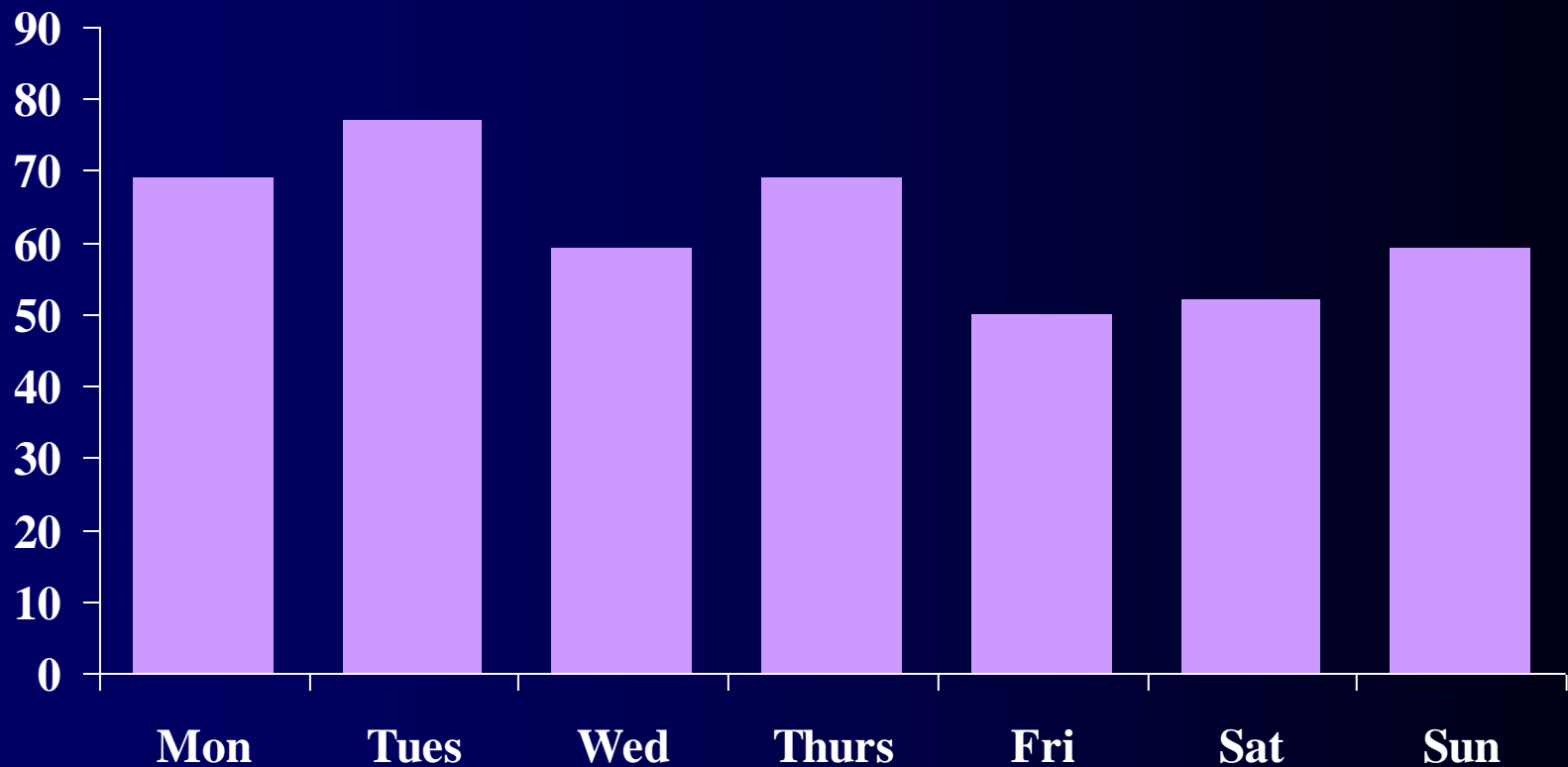
Monthly distribution of 435 suicides for 1995



Myth #3

- More people commit suicide during the weekends.

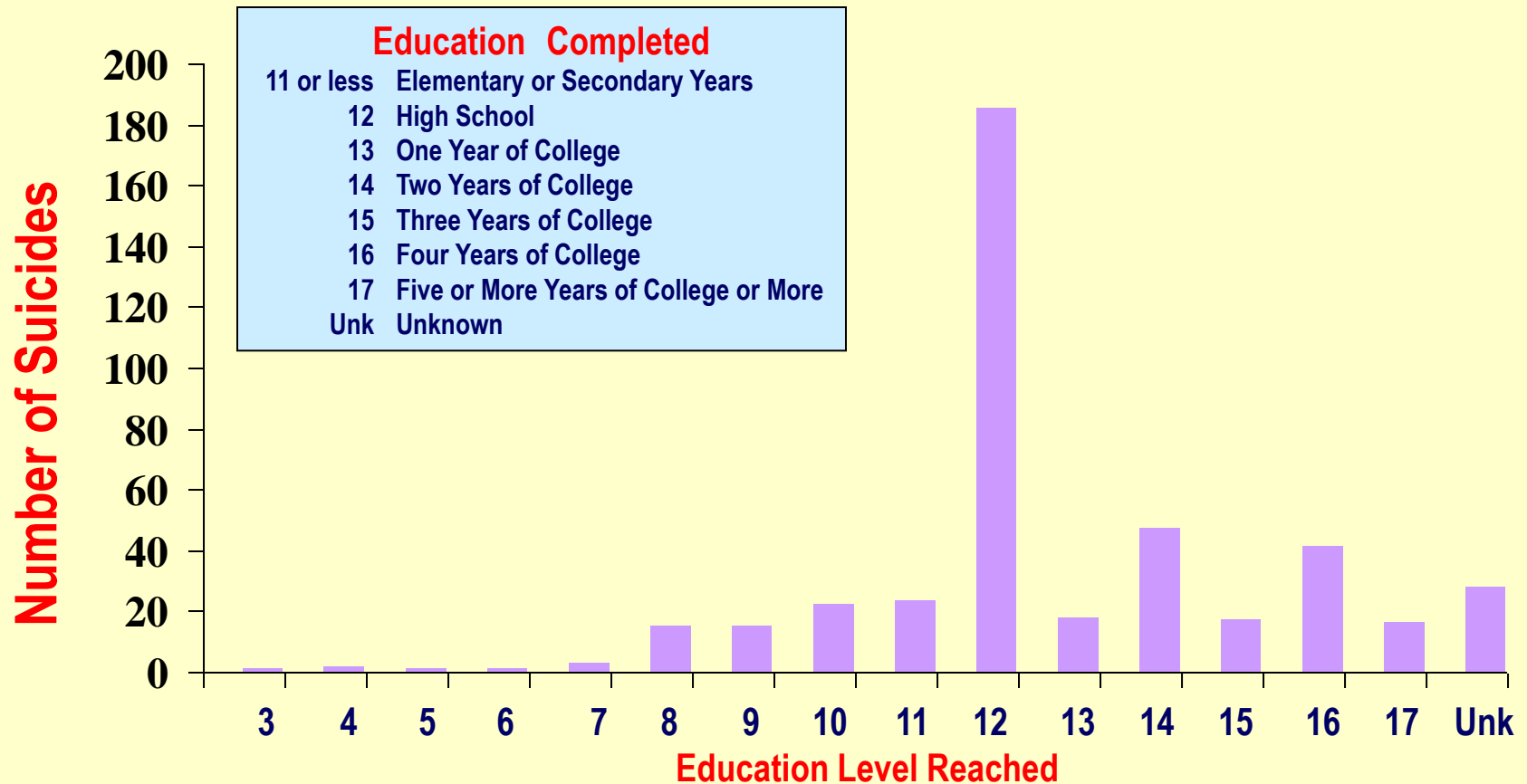
Day of week distribution of 435 suicides for 1995



Myth #4

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

Suicide and Education



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

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 sex (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?