

Risk factors for adolescent suicidal ideation in Hawaii

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Learning Objectives

1. Understand the importance of youth suicide and how survey data can capture critical information
2. Understand how to analyze "big data" (survey data) and apply the correct analytic models
3. Interpret the results of analyses and determine how to disseminate and communicate results to appropriate programs and policies

Background

- Suicide is the third most common cause of death among American youth
 - 4600 deaths/ year
- Suicidal behaviors include: suicide, attempts, ideation
- Several known risk factors
 - Family history
 - Depression
 - Acute stress
 - Alcohol / drug abuse
 - Incarceration
 - Bullying

Background

- In recent years, increased attention to the complex relationship between **bullying** and suicidal behavior
 - Bullying alone does not **cause** suicidal behavior
 - Many other factors involved in suicide
 - Other risk factors, protective factors
- Youth in Hawaii have higher rates of suicidal ideation compared to national average
 - Important demographic to study- national studies do not capture Hawaii's unique racial-ethnic groups

Study Questions

- What is the association between suicidal ideation and bullying among middle and high schoolers in Hawaii?
- What are secondary risk factors associated with suicidal ideation?
 - Compared to national average, Hawaii youth have higher rates of substance use, dating violence, sexual violence
- Are there strong protective factors that can mitigate the risk of suicidal ideation?
 - Teachers or adults to talk to about problems
 - Hawaii's unique culture centered around strong "Ohana" values

Methods

- Data from the 2011 and 2013 Hawaii YRBS combined to analyze responses from 10,145 middle schoolers and 8960 high schoolers.
- Some questions worded differently for MS and HS: many HS questions are asked “in last 12 months” vs. in MS “have you ever”
- Middle schoolers considered to have suicidal ideation if they ever thought about killing themselves
- High schoolers considered to have suicidal ideation if they seriously considered attempting suicide in the last 12 months.
- Adjusted odds ratios (AOR) calculated using SAS and SUDAAN software.
 - Middle school model adjusted for sex, lifetime depression, lifetime bullying (in school or online), lifetime alcohol consumption, forced sexual intercourse, and having an adult to talk to.
 - High school model adjusted for sex, depression in last 12 months, bullying (in school or online in past 12 months), alcohol consumption in last 30 days, forced sexual intercourse, and sexual orientation.

Results

Middle School

- A total of 24.0% (95%CI=22.3-25.7) of Hawaii middle school students ever thought about killing themselves.

High School

- A total of 16.5 % (95%CI=15.2-18.0) of Hawaii high schoolers seriously considered attempting suicide in the past 12 months.

Table 1: Characteristics of MS students with suicidal ideation

MS student characteristics	% with suicidal ideation	95% CI
Sex		
Male	19.0	16.9-21.2
Female	29.0	26.6-31.5
Bullying		
Never bullied	14.4	12.9-16.0
Bullied	35.1	32.8-37.6
Alcohol		
Never drank	21.1	19.4-22.8
Drank	46.1	41.3-51.1
Depression		
Not depressed	13.2	11.9-14.6
Depressed	53.9	51.0-56.8
Sexual violence		
No forced sexual intercourse	22.7	21.0-24.4
Forced sexual intercourse	54.0	47.5-60.4
Adult outside school		
Adult to talk to	21.9	20.2-23.8
No adult to talk to	33.2	29.2-37.4

Middle school results

Table 2: Odds of suicidal ideation among different MS student characteristics

Risk Factors	Adjusted Odds Ratio	95% CI
Bullied in last 12 months	2.23	1.86-2.68
Ever drank	2.33	1.86-2.91
Depressed	5.86	5.01-6.85
Forced Sexual Intercourse	2.37	1.77-3.17
No adult to talk to outside school	1.44	1.13-1.82

Middle school results

Adjusted Odds Ratios of Suicidal Ideation

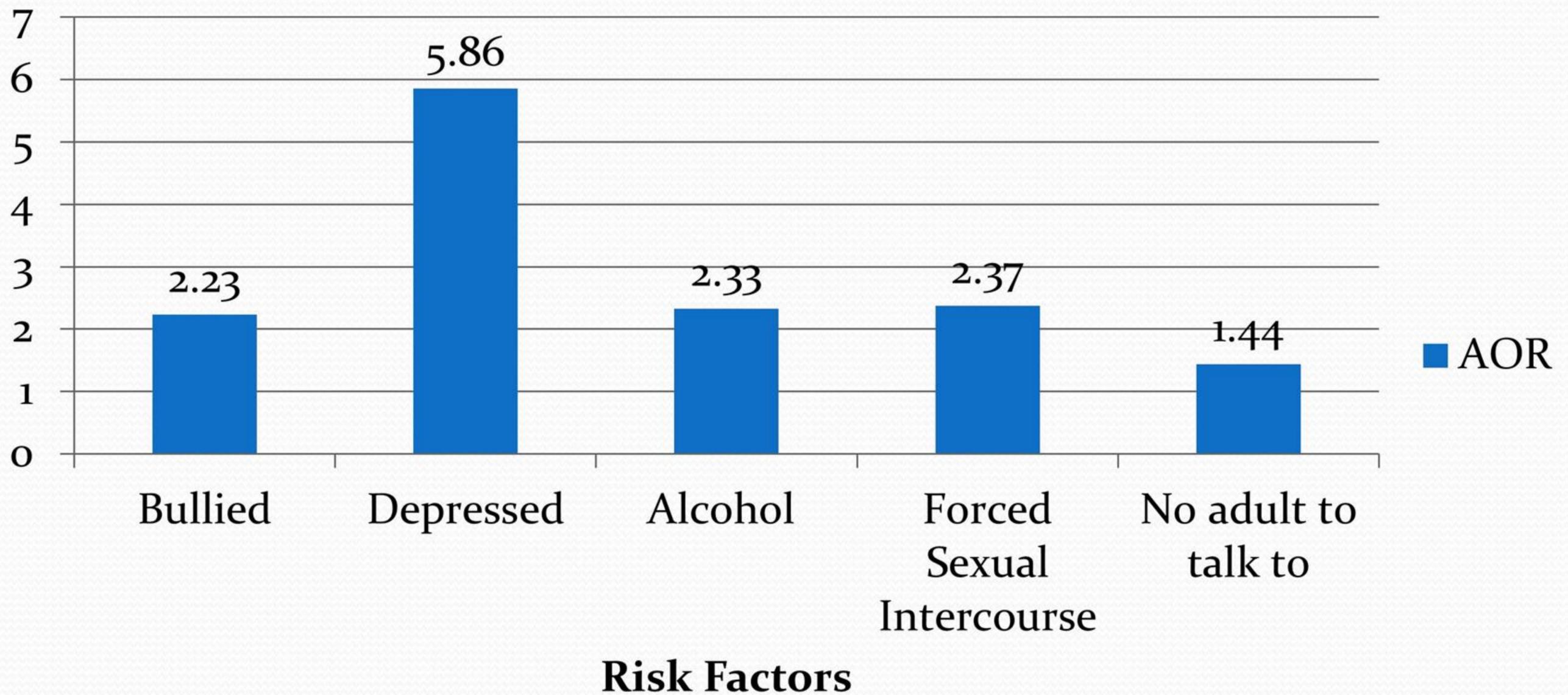


Table 3: Characteristics of HS students with suicidal ideation

HS student characteristics	% with suicidal ideation	95% CI
Sex		
Male	12.5	10.8-14.4
Female	20.3	18.8-22.0
Bullying in last 12 months		
Not bullied	11.1	9.9-12.5
Bullied	31.0	28.3-33.7
Alcohol in last 30 days		
Did not drink	11.7	10.3-13.2
Drank	26.3	23.5-29.2
Depression in last 12 months		
Not depressed	6.8	5.7-8.0
Depressed	38.6	35.8-41.5
Sexual violence		
No forced sexual intercourse	13.9	12.5-15.3
Forced sexual intercourse	47.2	42.1-52.3
Sexual orientation		
Straight	14.5	13.3-15.8
Gay, lesbian or unsure	32.8	27.5-38.5

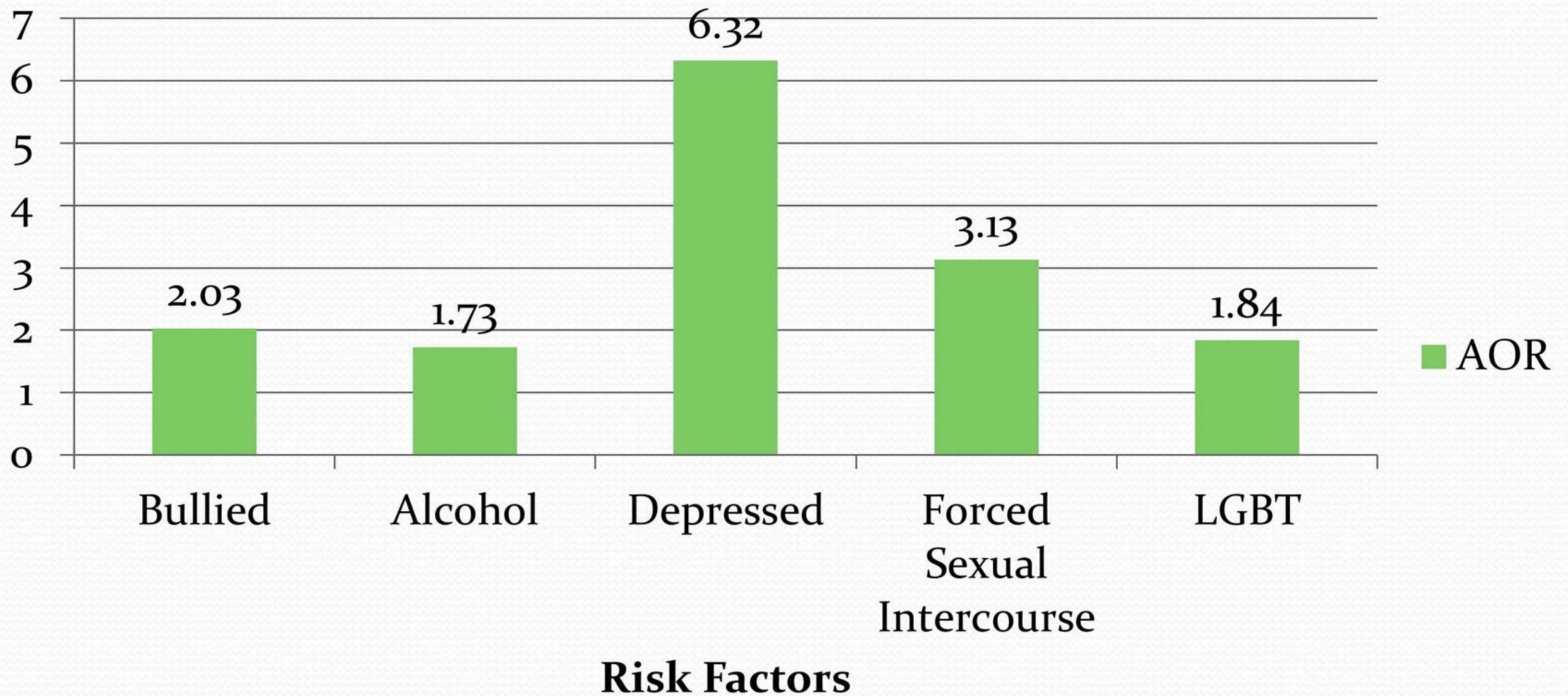
High school results

Table 4: Odds of suicidal ideation among different student characteristics

Risk Factors	Adjusted Odds Ratio	95% CI
Bullied in last 12 months	2.03	1.67-2.47
Drank in last 30 days	1.73	2.30-4.30
Depressed	6.32	5.02-7.94
Forced Sexual Intercourse	3.03	2.30-4.25
LGBT	1.84	1.30-2.60

High school results

Adjusted Odds Ratios of Suicidal Ideation



Results

- Among middle and high schoolers depression, bullying, alcohol consumption, and forced sexual intercourse were **risk factors** for suicidal ideation
- Non-heterosexual orientation additional risk factor among high schoolers
 - LGBT questions not asked in middle school survey
- Having an adult to talk to was a **protective** factor among middle schoolers but not high schoolers

Limitations

- Wording for certain questions differs between middle and high schoolers
 - Have you ever vs. last 12 months / 30 days etc.
 - Consequently, cannot directly compare middle and high school experiences

Public Health Implications

- Preventing youth suicide requires a holistic approach
 - Involves environmental and social factors as well behavioral factors
- Identifying suicide risk factors can help orient prevention programs around student behaviors and characteristics
- Important to also promote protective factors
 - Programs can match students with adult mentors
 - In middle school, having adult to talk to was a protective factor, but it was no longer protective in high school, suggesting early prevention is critical

Questions?

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