

The background features a dark blue gradient with a large, semi-transparent circular scale on the left side. The scale has numerical markings from 140 to 260 in increments of 10. Several smaller, faint circular patterns with arrows are scattered across the background, suggesting a technical or scientific theme.

AN ANALYSIS OF RISK FACTORS FOR TEEN DATING VIOLENCE

ISIB SYMPOSIUM

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OUTLINE

- Introduction
- Youth Risk Behavior Surveillance System (YRBSS)
- Explanatory/Response Variables and Analytic Goals
- Results
- Conclusions

Introduction

Dataset

Variables/Goals

Results

Conclusions

TEEN DATING VIOLENCE

- Occurs between two people in a close relationship
- Can be physical, emotional, or sexual (Injury Prevention and Control, 2016)
- Our project focuses on physical and sexual dating violence



HOW DOES DATING VIOLENCE AFFECT HEALTH?

- Dating violence can affect physical and psychological health throughout life
- Youth who experience dating violence are more likely to:
 - Experience symptoms of depression and anxiety
 - Use tobacco, drugs, and alcohol
 - Exhibit antisocial behaviors
 - Think about suicide
- Youth who experience dating violence in high school are at higher risk of victimization in college (Injury Prevention and Control, 2016)

THE YOUTH RISK BEHAVIOR SURVEILLANCE SYSTEM (YRBSS)

- Consists of national surveys conducted by the CDC every two years since 1991
- Targets 9th through 12th grade students
- Monitors social issues and priority health risk behaviors among teenagers in the United States
- We use a subset comprised of 47,720 students from the 2013 YRBSS



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OUTCOME VARIABLES

- Physical Teen Dating Violence:
 - During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose?
- Sexual Teen Dating Violence:
 - During the past 12 months, how many times did someone you were dating or going out with force you to do sexual things that you did want to do?
- Either Teen Dating Violence
- Dichotomized by presence or absence of TDV

EXPLANATORY VARIABLES (ORDINAL)

- Number of Sexual Partners in Past 3 Months
(0, 1, 2, 3, 4, 5, 6+)
- Days Missed School Due to Feeling Unsafe in Past Month
(0, 1, 2–3, 4–5, 6+)
- Alcohol Use in Past Month (Days)
(0, 1–2, 3–5, 6–9, 10–19, 20–29, All 30)
- Marijuana Use in Past Month (Times)
(0, 1–2, 3–9, 10–19, 20–39, 40+)



EXPLANATORY VARIABLES (BINARY)

- Illegal Drug Use in Lifetime
- Electronic Bullying Victimization in Past Year
- Bullying Victimization at School in Past Year



ANALYTIC GOALS

- Use univariable and multivariable logistic regression to characterize the effect of the explanatory variables on the risk of experiencing TDV
 - Examine the odds ratios attributed to each risk factor
 - Observe and rank Bayesian Information Criterion (BIC) values
- Create an R Shiny risk assessment tool encompassing our models to predict the likelihood of an individual experiencing TDV

DIFFERENCES IN BIC VALUES

Between null model and univariable model

	+ Number of Sex Partners	+ Days Missed School for Safety	+ Illegal Drug Use	+ Alcohol Use	+ Marijuana Use	+ Electronic Bullying Victim	+ Bullying Victim on School Property
Physical TDV	96,875.0 2	52,819.6 6	58,841.0 5	78,612.1 3	50,498.3 7	99,103.7 1	59,024.0 4
Sexual TDV	57,988.0 5	69,962.0 3	56,710.0 6	59,744.0 4	31,483.0 7	128,998.0 1	90,463.0 2
Either TDV	84,865.3 3	71,100.9 6	79,679.9 4	74,350.0 5	47,390.2 7	153,940.4 1	100,451.9 2

KEY:
>95,000
80,000-95,000
65,000-80,000
50,000-65,000
<50,000
Ranked by relative strength of risk factor

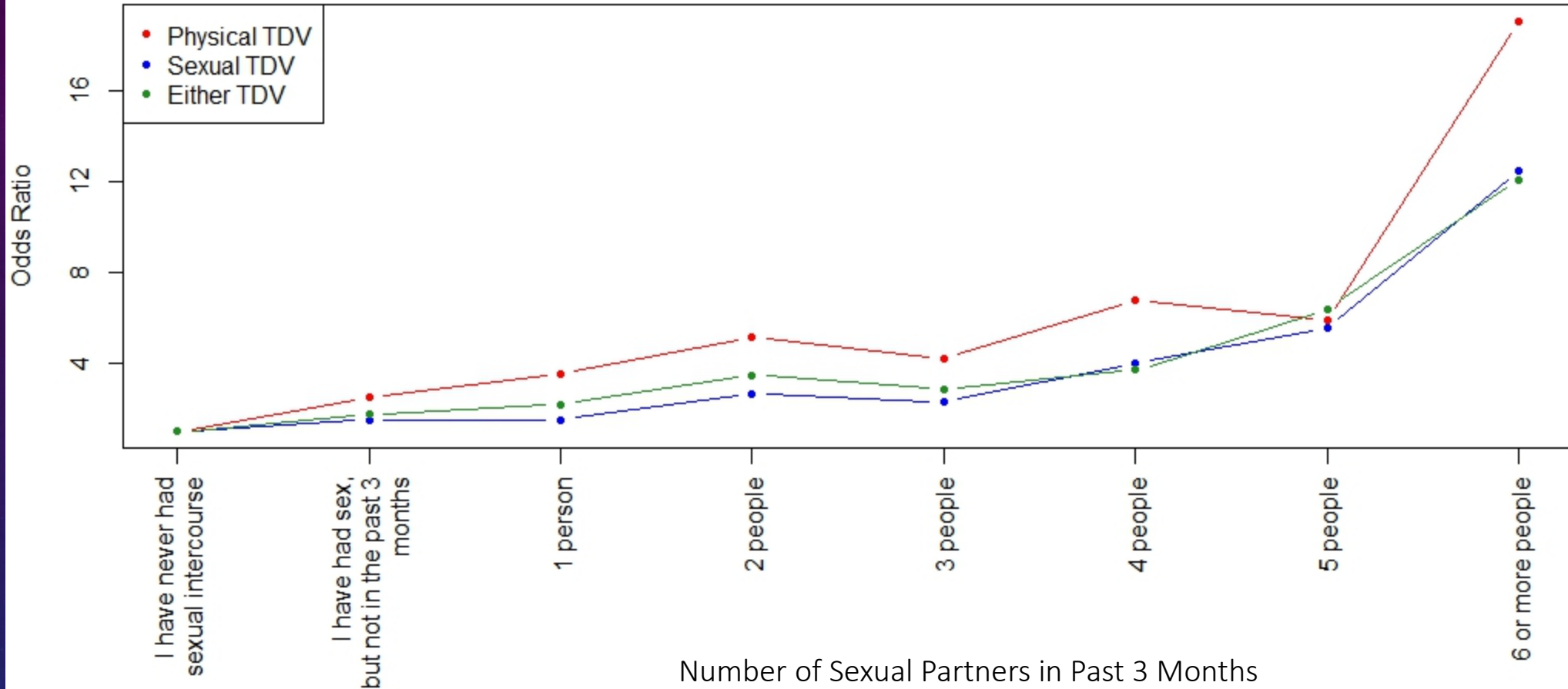
DIFFERENCES IN BIC VALUES

Between reduced model and full model

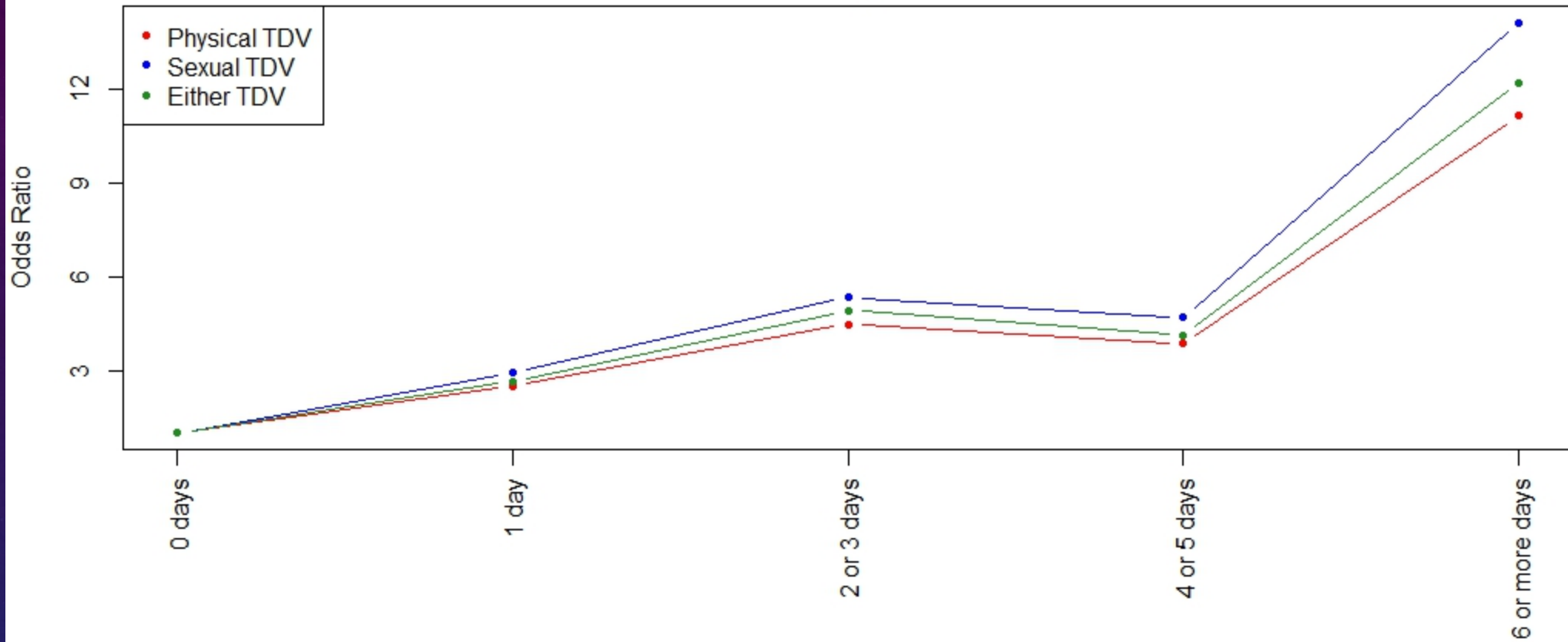
	— Number of Sex Partners	— Days Missed School for Safety	— Illegal Drug Use	— Alcohol Use	— Marijuana Use	— Electronic Bullying Victim	— Bullying Victim on School Property
Physical TDV	30,907.4 1	8,366.4 3	5,627.9 6	6,928.0 5	2,833.0 7	26,098.4 2	7,949.0 4
Sexual TDV	11,807.8 4	15,424.9 2	11,364.4 5	3,887.8 6	599.0 7	33,764.3 1	14,553.4 3
Either TDV	21,209.6 2	15,731.5 4	14,197.9 5	4,925.3 6	1,287.5 7	44,079.8 1	16,461.0 3

KEY:
>30,000
15,000-30,000
10,000-15,000
5,00-10,000
1,000-5,000
<1,000
Ranked by relative strength of risk factor

Odds Ratios Based on Number of Sex Partners

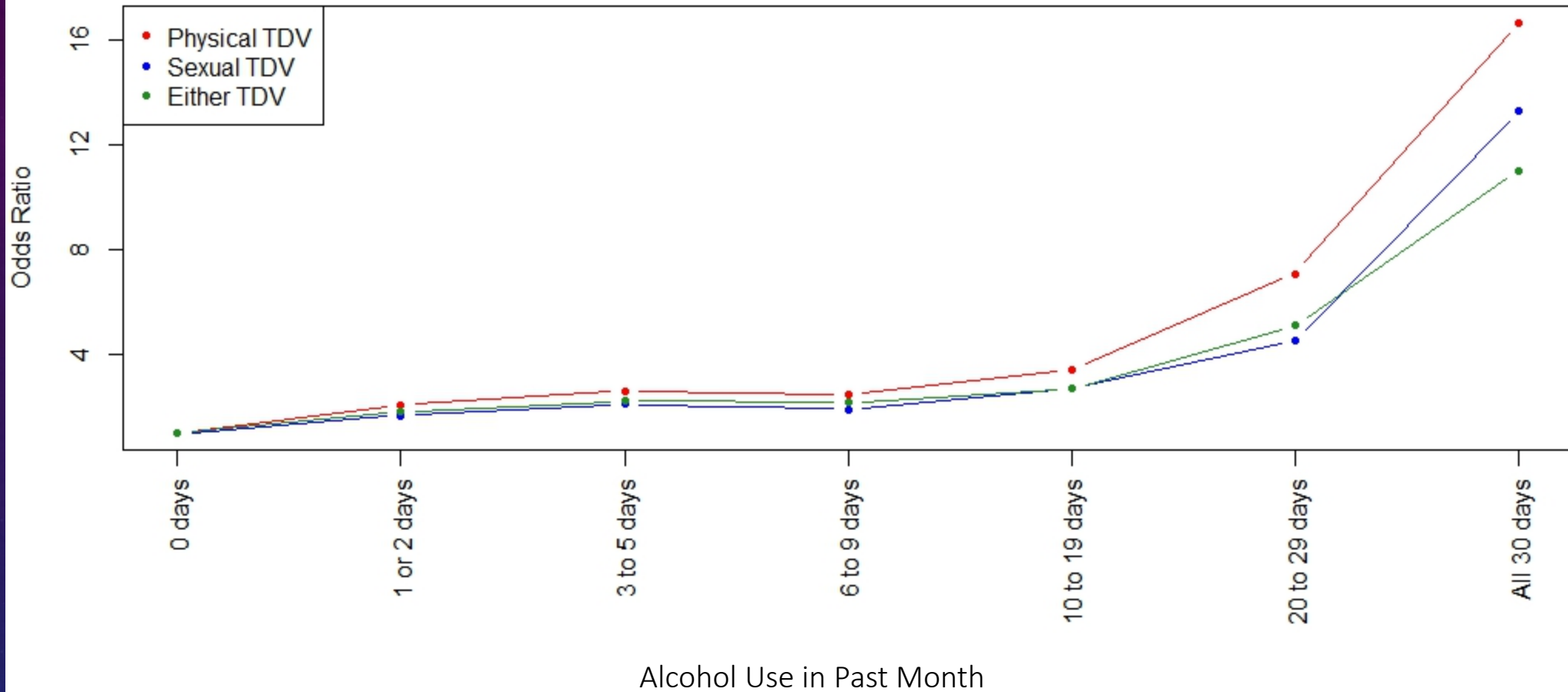


Odds Ratios Based on Safety at School

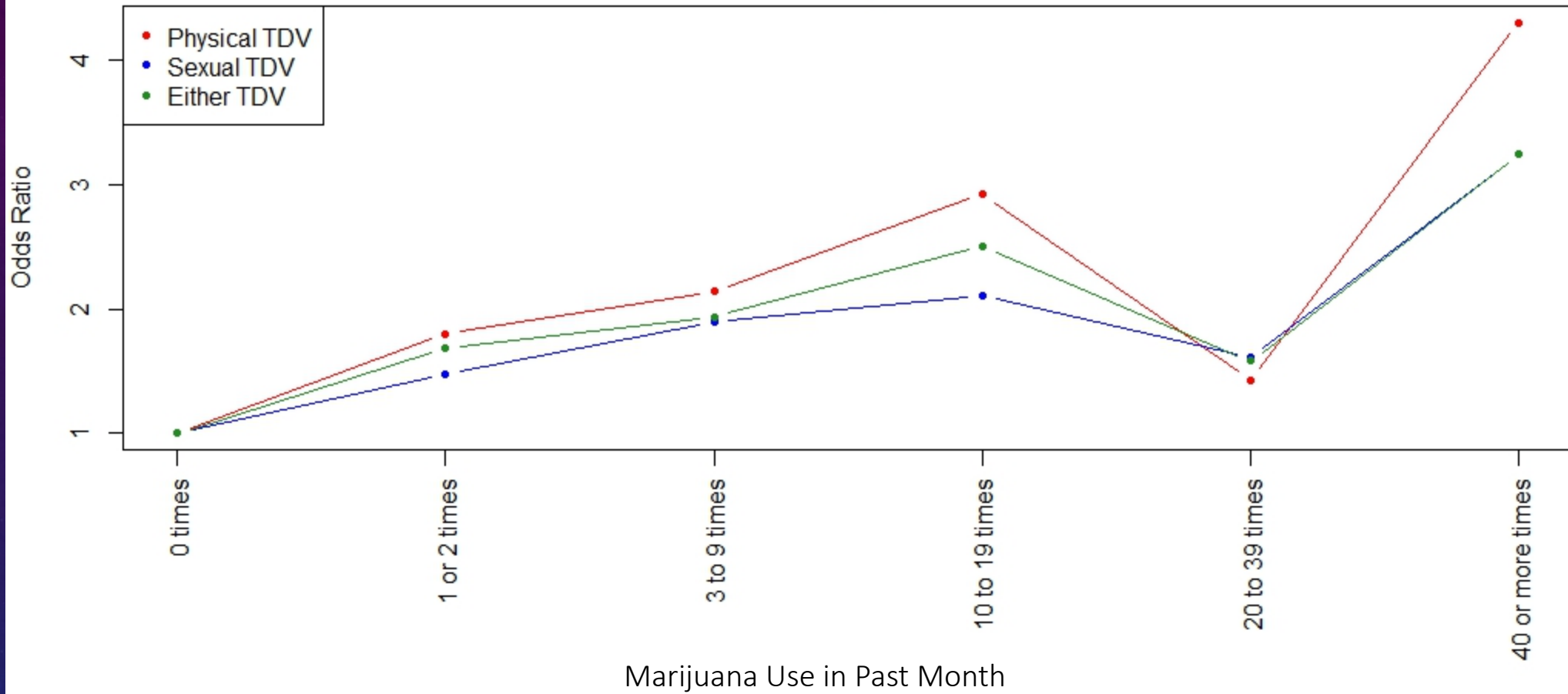


Days Missed School Due to Feeling Unsafe in Past Month

Odds Ratios Based on Alcohol Use



Odds Ratios Based on Marijuana Use



ODDS RATIOS FOR BINARY VARIABLES

	Electronically Bullied	Bullied at School	Illegal Drug Use
Physical TDV	4.695	3.199	2.972
Sexual TDV	5.511	3.998	2.823
Either TDV	5.105	3.534	2.823

EXTREME RISK PROFILES

	Minimum	Maximum
Physical TDV	2.25%	89.93%
Sexual TDV	3.66%	93.16%
Either TDV	5.21%	96.20%

LIMITATIONS

- Initial sample size: 154,673; Final sample size: 47,720
 - Unlikely that data are missing completely at random
 - Therefore inferences based on a complete case analysis could be biased
- Data self-reported
 - Participation is voluntary and anonymous (Brener et al., 2013)

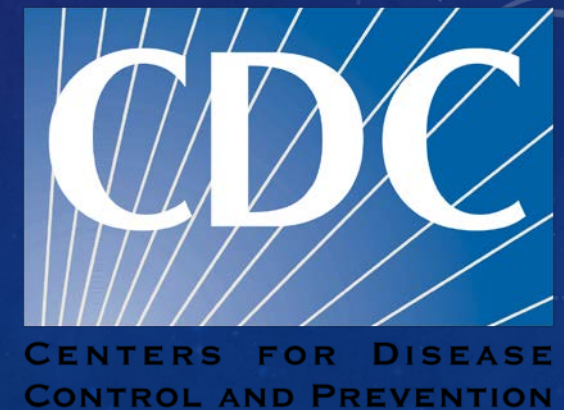
KEY POINTS

- Baseline prevalence of physical TDV is 10.2% and sexual TDV is 10.8%
- Certain risk factors, especially when expressed together, can dramatically increase risk (e.g. > 90%)
- Our risk assessment application can help assess individual risk of TDV

THANK YOU!



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REFERENCES

Brener, N.D., Kann, L., Shanklin, S., Kinchen, S., Eaton, D. K., Hawkins, J., & Flint, K. H. (2013). Methodology of the youth risk behavior surveillance system — 2013. *Morbidity and Mortality Weekly Report*, 62(01), 1-20.

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