

Associations between Cyberbullying and Suicidality Among Otsego County Youth: Analyzing trends from 2016 to 2023 using Youth Risk Behavior Surveillance System (YRBSS) data.

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BACKGROUND

The rise of social media and other networking platforms has led to an alarming increase in cyberbullying especially among youth growing up in low-income and rural areas (Domas et al., 2021). The impact of cyberbullying can be even more severe than traditional peer violence, as victims often find themselves with little control over the situation (Zhu et al., 2021), and has been closely linked to suicidality in adolescents. Few studies have examined the prevalence and impact of cyberbullying among rural youth in the USA.

STUDY AIMS

The primary objective of this study is to determine associations between cyberbullying and suicidality among youth respondents to the Youth Risk Behavior Surveillance System Survey (YRBSS) in rural Otsego County.

METHODS

Exposure: Cyberbullying is assessed by the following question: “During the past 12 months, have you ever been electronically bullied?” Responses were dichotomized as “Yes” or “No”.

Outcome: Suicidality is a binary combination of the following questions: “During the past 12 months, did you plan about how you would attempt suicide?” and “During the past 12 months, how many times did you actually attempt suicide?”

Covariates: Covariates and potential confounders include age (12 – 18+ years) grade (grades 9 – 12), sex (male, female), sexual orientation (heterosexual, gay, bisexual, questioning), race (White, Black, Native American, Asian, Undeclared), ethnicity (Hispanic yes/no), screen-time (hours per week), experience of sadness (yes/no), tendency to self-harm (yes/no), experience of conventional school bullying (yes/no), and BMI category.

Statistical analysis: After summarizing the study population, we performed multivariable logistic regressions to assess adjusted relationships between cyberbullying and suicidality. Model covariates were reduced by stepwise backwards reduction. We assessed effect modification by sex and orientation using stratified models. Statistical analysis was conducted in SAS and Rstudio.

RESULTS

Table 1: Results from the reduced adjusted multivariable model (N=4846); associations between **bullying modalities** and **suicidality** adjusted for Sex, Grade, Sexual Orientation, Race, and “screen-time” - time spent outside of academic work on devices.

Variable	Level	OR	95% Confidence Interval	p-value
Cyberbullied	Yes	2.54	2.02, 3.2	<0.0001
Bullied	Yes	2.24	1.79, 2.81	<0.0001
Sex (ref: Male)	Female	1.29	1.05, 1.58	0.01
Grade (ref: 12 th)	9th	0.96	0.73, 1.27	0.78
	10th	1.18	0.91, 1.55	0.22
	11th	1.03	0.75, 1.32	0.98
	Other/ungraded	2.21	0.9, 6.61	0.13
Orientation (Ref: heterosexual)	bisexual	3.85	2.8, 4.56	<0.0001
	gay/lesbian	2.96	1.98, 4.36	<0.0001
	unsure/questioning	2.21	1.57, 3.07	<0.0001
Race (ref: White)	Asian	1.61	0.88, 2.76	0.1
	Black	1.31	0.82, 2.02	0.24
	Multi-racial	1.43	0.97, 2.06	0.06
	Native American	1.46	0.76, 2.63	0.23
	Pacific Islander	3.08	0.82, 10.08	0.08
Screen Time (Ref: < 1 hour)	none	0.72	0.46, 1.12	0.15
	1 hour	0.79	0.5, 1.23	0.29
	2 hours	0.85	0.58, 1.26	0.42
	3 hours	1.1	0.76, 1.6	0.62
	4 hours	1.07	0.71, 1.61	0.76
5 or more	1.82	1.3, 2.57	<0.0001	

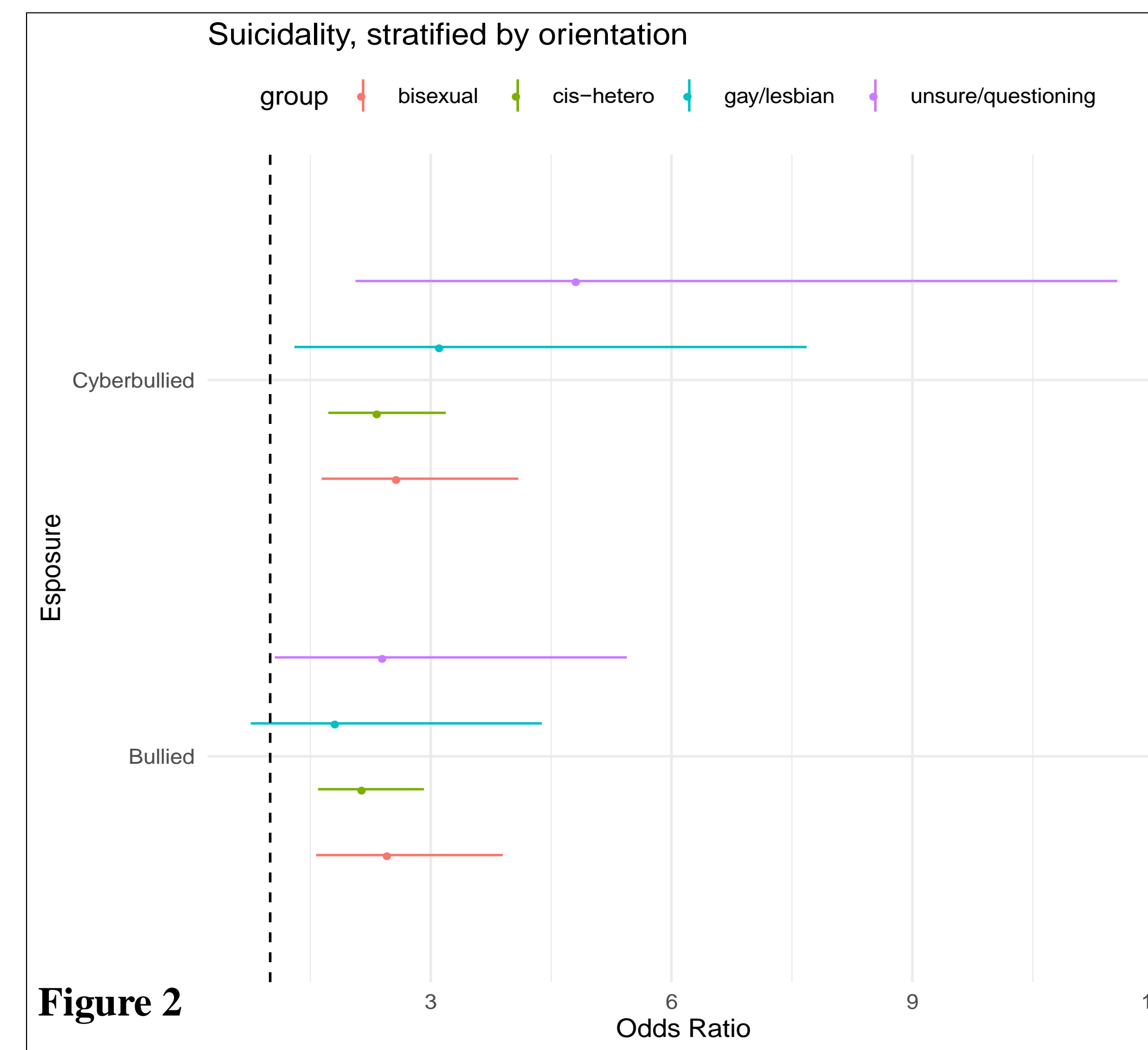
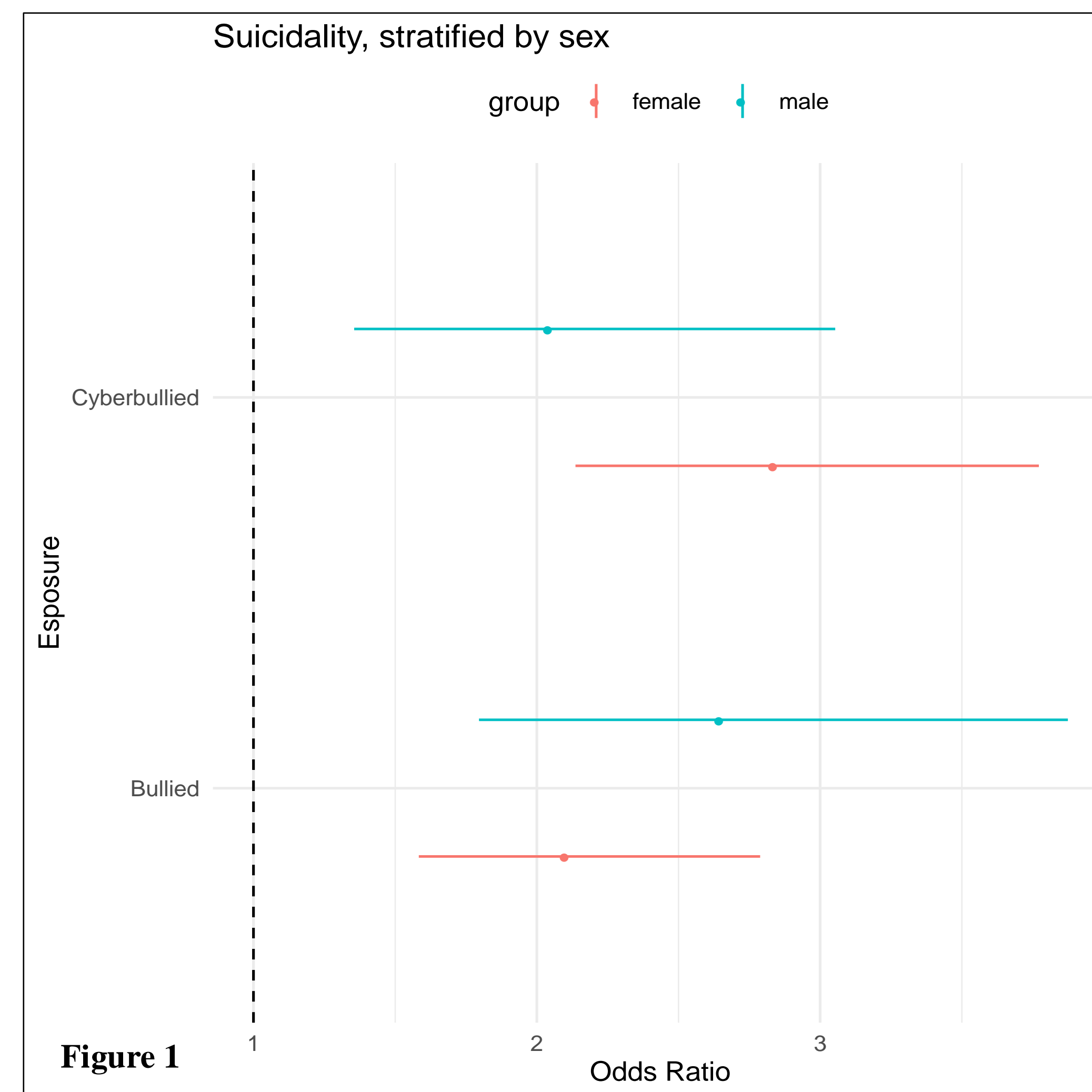
Reference level: white male 12th grader, identifies as cis-hetero, has not experienced bullying in any form, and < 1 hour of recreational screen time a day.

In the full model (Table 1)

- Cyberbullying and conventional bullying were significantly associated with suicidality, with females more likely to experience suicidality than the male reference (Table 1, OR:1.29, 95% CI: 1.05, 1.58).
- Race showed marginally higher associations with suicidality for Multi-racial and Pacific Islanders relative to white students (note sample sizes for minority groups are small).
- Sexual minorities showed very strong associations with suicidality, especially among students identifying as bisexual (OR: 3.85, 95% CI: 2.8, 4.5) or gay/lesbian (OR: 2.96, 95% CI: 1.98, 4.36) relative to those identifying as heterosexual.
- Students who spent more than 5 hours daily on recreational screen time also showed significantly higher levels of suicidality.

In stratified models (Figures 1 and 2), both bullying modalities were strongly associated with suicidality.

- In models stratified by sex, associations between suicidality and cyberbullying were stronger in females than in males, while in males associations between suicidality and conventional bullying were stronger (Figure 1).
- In models stratified by orientation, sexual minorities showed greater associations between cyberbullying and suicidality (Figure 2) compared to students who identify as heterosexual (straight), though confidence intervals overlap.
- Students identifying as “unsure/questioning” showed the highest associations between **cyberbullying** and suicidality while students identifying as straight show a significant association, but smallest of in effect size of all orientations (Figure 2).
- For students who identify as gay/lesbian or “unsure/questioning,” associations between **conventional bullying** and suicidality during the study period are not significant, while conventional bullying is significantly associated with suicidality for straight and bisexual students.



CONCLUSIONS

This study on adolescents in Otsego County highlights significant disparities in cyberbullying victimization and suicidality, particularly among females and sexual minority groups. Adolescents who experienced cyberbullying were significantly more likely to consider attempting suicide than those who were not cyberbullied, suggesting that cyberbullying is a strong risk factor for suicidality among adolescents. Cyberbullying was found to be more closely associated with suicidality in females than males. These findings emphasize the need for targeted interventions to support vulnerable groups and mitigate the mental health risks associated with cyberbullying.

References cited

- A full list is available upon request.
- Domas, D. M., Midgett, A., Myers, V., & Buller, M. K. (2021). Usability of a technology-based bystander bullying intervention for middle school students in rural, low-income communities: Mixed methods study. *JMIR Formative Research*, 5(10), e32382. <https://doi.org/10.2196/32382>.
 - Zhu, C., Huang, S., Evans, R., & Zhang, W. (2021). Cyberbullying among adolescents and children: A comprehensive review of the global situation, risk factors, and preventive measures. *Frontiers in Public Health*, 9, Article 634909. <https://doi.org/10.3389/fpubh.2021.634909>

STUDENT CONTRIBUTION

- Conducted literature reviews to gather relevant information.
- Analyzed data in SAS to identify factors influencing the association between cyberbullying and suicidality. Regression modeling was performed in R and SAS.
- Created summary tables, assembled poster presentation.

EXAMPLES OF HOW I APPLIED COMPETENCIES

Competency	I applied it by . . .
Appraise epidemiological literature critically in a defined problem area using advanced bibliographic and informatics resources for purposes of evaluation, summary, and translation.	Reviewing and evaluating studies to compare findings with the Youth Risk Behavior Survey (YRBS) results, summarizing key evidence, identifying research gaps, and proposing intervention strategies.
Apply appropriate epidemiologic and statistical measures to generate, calculate, and draw valid inferences from public health data.	Analyzing Youth Risk Behavior Survey (YRBS) data, including generating descriptive statistics and performing logistic regression in SAS to summarize the data and draw meaningful conclusions.