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Abstract:

Purpose: Sexual assault and sexual minority are known risk factors for suicidality in adolescents. This study identifies the association between sexual assault and sexual orientation in order to better predict and direct resources to teens at high-risk for suicide.

Methods: This is a cross-sectional study utilizing the Vermont Youth Risk Behavior Survey data from 2015. Logistic regression was used to correlate risk based on sexual assault and sexual orientation.

Results: 34.9% who were sexually assaulted attempted suicide compared to 4.0% of students who were not assaulted. 21.3% of LGB or unsure students attempted compared to 3.9% of straight youth. If sexually assaulted and LGB, 49.4% attempted suicide compared to 2.8% if straight and not assaulted, odds ratio 2.1 (95% CI 1.5, 2.8)

Conclusions: The study shows that sexual assault and sexual minority combined increases suicide risk. Further prevention efforts should focus on identifying victims of assault and prevention of childhood sexual assault.

(Key Words: Sexual assault, suicide, sexual minority, adolescent, YRBS, LGB, suicide prevention)

Implications and Contribution Statement: The implications of this study are that we will be more effective at preventing suicide in adolescents by identifying higher risk youth. This study contributes to understanding the impact sexual assault and sexual minority as a risk factor for adolescent suicide.

Association between Sexual Assault and Sexual Minority as Risk Factors for Suicidality among Vermont Youth

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Introduction:

Suicide is the second leading cause of death in adolescents between ages 15 and 19.(1) (2) Suicide rates for U.S. girls doubled between 2007 and 2015.(3) Globally, suicide has become the leading cause of death for adolescent girls between the ages of 15-19.(4) The rate of suicide in adolescents in the U.S. increased 300% from 1950 to 1990.(1) Nationwide an estimated 1,748 adolescents died from suicide in 2013. However, the number of youth who attempt suicide is estimated to be 50 to 100 for every death from suicide.(2) Suicide-related behavior can include any deliberate self-harm, suicidal thoughts, suicide attempts, and death by suicide.(5) Identifying the catalysts, which push someone from considering to attempting suicide, is important to public health. Additional research will help determine youth who attempt versus consider suicide.(6)

Established risk factors for suicide include sexual abuse, substance abuse, bullying, and mental health issues such as depression.(7) Gender and sexual orientation are also considered risk factors for suicide among the youth.(7) Adolescents who identify as gay are at increased risk of self-harm and suicidal ideation.(8)

Childhood sexual abuse (CSA) as a risk factor for suicide is difficult to define and measure. Sexual abuse can include harassment, touch and intercourse.(5) CSA estimated prevalence is 20% of girls and 8% of boys.(9) Sexual assault is underreported and may be a more significant predictor of suicide than realized.

Every other year since 1993, the Vermont Department of Health and the Agency of Education conduct the Vermont Youth Risk Behavior Survey (VYRBS) as a component of the CDC Youth Behavior Health Surveillance System.(10) (11) The survey collects data on multiple suicide risk factors. The survey also asks students if they have ever planned, attempted or been treated for suicide.

The goal of this analysis is to use the VYRBS to identify the significance of sexual assault and sexual minority on suicidality among Vermont youth.

Methods:

This project is a cross-sectional study utilizing the VYRBS dataset for high school students from 2015. The sample size for the VYRBS in 2015 was 21,013. The survey response rate was 77%.(11) YRBS data is de-identified thus, this secondary analysis was exempt from Institutional Review Board after review by the University of Vermont Office of Research Protections under an Instructor's Assurance process.

Sexual assault was measured by the question, "Have you ever been forced to have sexual intercourse when you did not want to?" To assess sexual minority, students responded to, "Which of the following best describes you?" with options "heterosexual (straight)," "gay or lesbian," "bisexual," and "not sure." For analysis, data was transformed into two responses: straight as one group, and lesbian, gay and unsure combined into second group.(12) Missing values for these questions were 5% and 1.3%, respectively.

Responses to suicidal questions were recoded into binary categories: made a plan/no plan; one or more attempts/no attempts; attempt required treatment/attempt

did not require treatment. Demographics include mother’s educational level, age and gender.

Sexual assault, sexual orientation and demographic variables were included in logistical regressions with the suicidality outcome variables. The association and interaction between each of the variables with the outcome variables was estimated by the odds ratios with 95% confidence intervals.

Results:

Of all students, 12.1% of students identified as a gay, lesbian, bisexual or unsure; 6.5% percent reported having been forced to have sex; 6.5% reported being sexually assaulted; 12.2% planned suicide, 6.0% attempted suicide and 2.0% were treated for a suicide attempt (Table 1).

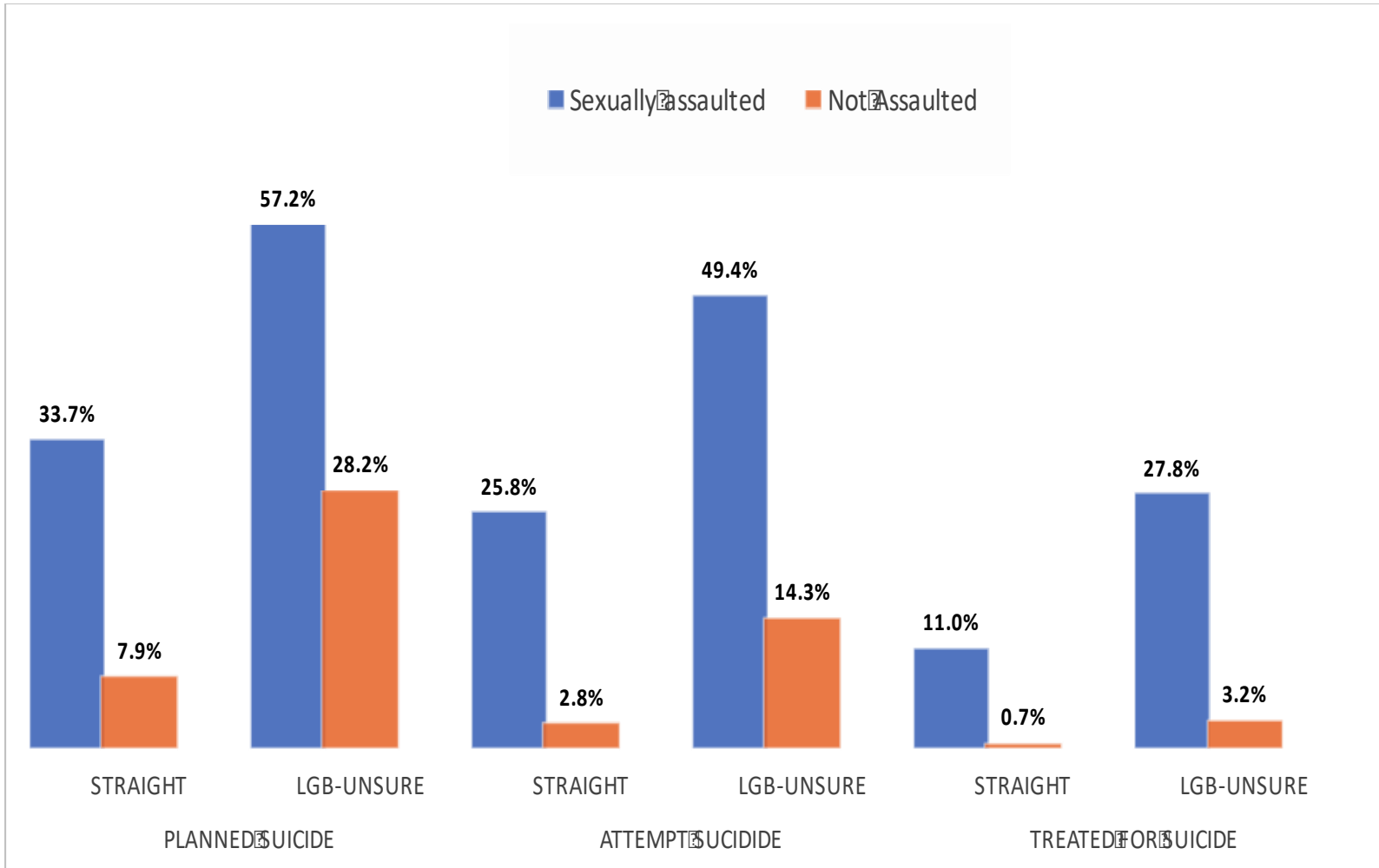
Bivariate analysis of the demographic data showed significant risk based on gender and mother’s education level but not age (Table 1). Female students were twice as likely to attempt suicide. Students whose mothers did not graduate from high-school reported 5-6 times greater risk of attempting suicide than students whose mother graduated from college. The bivariate analysis showed 21.3% of LGB-unsure youth and 34.9% of sexually assaulted youth reported attempting suicide compared to 6.0% overall.

Table 1: Characteristics of Student Population								
	Total Sample		Planned Suicide		Attempted Suicide		Treated for Suicide	
Overall	21,013	100.0%	2,558	12.2%	1,177	6.0%	393	2.0%
LGB-unsure	2,508	12.1%	849	33.8%	486	21.3%	180	7.9%
Straight	18,237	87.9%	1,661	9.1%	665	3.9%	198	1.2%
Sexually Assaulted	1,291	6.5%	547	42.4%	408	34.9%	205	17.7%

Not Assaulted	18,659	93.5%	1,883	10.1%	699	4.0%	167	1.0%
AGE 13,14,15	8,316	39.9%	1,070	12.9%	976	4.7%	157	2.0%
AGE ≥16	12,524	60.1%	1,470	11.7%	1,450	7.0%	230	2.0%
Male	10,476	49.9%	834	8.0%	354	3.6%	121	1.3%
Female	10,243	48.7%	1,671	16.3%	793	8.1%	259	2.7%
Mother's Ed-No diploma	1,541	7.3%	293	19.0%	196	14.6%	83	6.3%
High school grad	6,700	31.9%	915	13.7%	449	7.1%	143	2.3%
College degree	10,730	51.1%	1,305	10.1%	390	3.8%	114	1.1%
Not sure	1,866	8.9%	227	13.3%	128	8.0%	46	2.9%

Logistical regression, controlling for demographics and for interaction between sexual orientation and sexual assault, showed 49.4% of students who identified as a sexual minority with a history of sexual assault, attempted suicide OR 2.1 (1.5, 2.8). In comparison, only 2.8% of students who identified as straight with no history of sexual assault attempted suicide. (Figure 2)

FIGURE 2: Suicidality Rates Based on History of Sexual Assault and Sexual Orientation



Discussion:

This study supports previous data that sexual assault and identifying as a sexual minority increase the risk of suicidality. A higher proportion of students with a history of sexual assault attempted suicide compared to those never assaulted. Similarly, a higher proportion of sexual minority students attempted suicide compared to straight students. The combination of sexual assault and sexual minority showed 2.1 times greater odds of suicide attempt. This endorses the association between sexual assault

and sexual orientation as key factors in suicide behavior and supports the need for further resources for prevention of sexual assault.

The variation between 1% and 5% in missing responses could indicate bias. Missed answers may be due to stigma associated with the topic of suicide and sexual assault. Also, including “unsure” with the LGB responses may include some misclassification because of students’ understanding of the question.¹²

VYRBS does not include questions about public disclosure of sexual orientation (“out of the closet”) or treatment for mental health. Further research is needed to determine suicide trends in adolescents who are open versus secretive about their sexual orientation. Future studies should examine correlation and possible interactions with sexual minority and sexual assault with other known risk factors such as bullying and substance abuse. VYRBS does include the question, do you matter to your community, and this may be an interesting addition. The 2017 VYRBS will include a question about transgender identity, which would be important to include in future studies.

This project reinforces strong correlation between sexual orientation and sexual assault with risk for suicide.⁽¹³⁾ Development of effective evidence-based interventions to prevent, screen and treat childhood sexual assault may be a key factor in suicide prevention. Safe and supportive environments for LGB youth may also decrease suicidality. Decreasing sexual violence at the local and national level will be a key component to reducing suicide rates.

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