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AN EMPIRICAL STUDY OF THE RELATIONSHIP BETWEEN BULLYING AND SUICIDE

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ABSTRACT

Bullying is a significant issue in schools, with one in three students claiming to be affected. Bullying can take shape in a number of ways, directly, indirectly, and the newest form, through the Internet. The relationship between bullying and suicide is linked, but complex, with no known causal association. This study utilizes the Youth Risk Behavior Surveillance Survey (YRBSS) National High School Data from 2013 to examine the relationships between school safety and suicide-related behaviors. The variables analyzed reflect two separate hypotheses. Firstly, that the more a student feels unsafe, threatened, or fights in school, the more likely they will be to engage in the suicide-related behaviors of ideation and attempt. Secondly, the more a student is bullied or cyber bullied, the more likely they will be to engage in suicide-related behaviors. Results show strong positive correlations, and all tests were statistically significant. Notably, the likelihood for suicide ideation was higher with an increase in bullying, while the likelihood for suicide attempt was higher with an increase in cyberbullying. Females are more likely to engage in ideation and attempts than males, and the school age most affected in 15-16 year old students. These results were consistent with the existent research and supported the call to action for policymakers, school officials, and peers to acknowledge bullying as a significant public health issue, and design interventions accordingly.

TABLE OF CONTENTS

LIST OF TABLES	iii
ACKNOWLEDGEMENTS	iv
Chapter 1 Introduction	1
Chapter 2 Background	3
Motivation for This Study	3
Previous Research Examined	3
Hypotheses	8
Chapter 3 Methods	9
Data	9
Study Sample	9
Measures	10
Analytic Plan	13
Chapter 4 Results	14
Descriptive Statistics	14
Inferential Statistics	17
Chapter 5 Discussion	24
Explanation of Results	24
Limitations	26
Conclusion	28
Appendix A 2013 National Youth Risk Behavior Survey Questionnaire	29
Appendix B STATA Code	31
BIBLIOGRAPHY	42

LIST OF TABLES

Table 1: Descriptive Statistics	15
Table 2: Bivariate Correlations for Suicide Ideation Outcome.....	18
Table 3: Bivariate Correlations for Suicide Attempt Outcome.....	20
Table 4: Multiple Logistic Regressions for Suicide Ideation Outcome.....	22
Table 5: Multiple Logistic Regressions for Suicide Attempt Outcome.....	23

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Chapter 1

Introduction

With high school students spending an average of 1,025 hours per year in the school setting (Desilver, 2014), it is imperative for them to feel safe. However, in the past decade, stories of school bullying have become all too common. According to the National Center for Education Statistics and Bureau of Justice Statistics (2011), approximately 25 to 30 percent of middle to high school students have been victims of bullying. In addition, nearly 75 to 80 percent have felt affected by bullying in some way (Mental Health Services Oversight and Accountability Commission, 2014). Students report feeling helpless, detached, and unsafe due to the actions of their peers (Centers for Disease Control and Prevention, 2014).

While the majority of bullying activity occurs in the school setting (United States (US) Department of Health and Human Services, 2011), its ramifications go beyond those four walls. Victims of bullying face negative consequences to their mental health and overall well-being in both the short and long-term (CDC, 2014). These conditions include feeling isolated, excluded, and rejected from others (MHSAAC, 2014). In turn, this can lead to poor social function, poor school performance, lower grades and standardized test scores, and reduced school attendance (CDC, 2014). Long-term psychological effects also include a higher tendency toward depression, anxiety, substance abuse, and even suicide-related behaviors (MHSAAC, 2014).

It is evident that the consequences of bullying are truly dire. This conclusion has led researchers to examine the connection between bullying and another significant public health issue: suicide. While the relationship between bullying and suicide is complex, many of the

mental health consequences associated with bullying contribute to suicidal ideation and attempts (StopBullying.gov, 2014). Suicide is the third leading cause of death in 15-24 year olds, the sixth leading cause of death in 4-15 year olds (American Academy of Child and Adult Psychiatry, 2013), and has specifically been increasing among young people (Cash & Bridge, 2009). Due to this increase, suicide-related behaviors and their risk factors are beginning to be more closely examined through research efforts and governmental organizations. Although research indicates close ties between victims of bullying and suicide-related behavior, a recent CDC (2014) publication states that whether or not there is a direct relationship is still unknown.

Chapter 2

Background

Motivation for This Study

The school setting should be a safe haven of learning, however, bullying has plagued playgrounds, hallways, and classrooms throughout the United States, and it has grim consequences. The relationship between bullying and suicide-related behavior is complex, layered, and sometimes misunderstood. As a result, this analysis aims to provide additional clarity and identify the relationship between bullying and suicidal-behavior in the specific school setting.

Previous Research Examined

Bullying Defined. Due to the growing awareness of bullying as a public health problem, the Centers for Disease Control and Prevention (2014) and the Department of Education released the first federal definition of bullying in 2014 (Gladden et. al, 2014). The definition states that bullying is “any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involve an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated.”

Similar to CDC (2014; 2015) publications, the literature suggests that there are multiple forms of bullying. These general categories are direct-physical, direct-verbal, indirect-relational, and the newest form termed “cyber” (Brunstein, Sourander, & Gould, 2010).

In defining bullying, the first category, direct-physical, is the most common definition. Bullying is observed as aggressive behavior that can manifest itself through physical attacks or altercations. Similarly, direct-verbal bullying is an additional manifestation through person-to-person name-calling or threats (Joaquim, 2014). Social exclusion, or indirect-relational bullying, may not be as easily identifiable. Research calls these behaviors “underscores” for bullying that result in negative consequences to an individual’s well-being (Brunstein, Sourander, & Gould, 2010). Relational bullying can be perceived through isolation, ignorance, exclusion, and also take form by spreading false information or rumors (Joaquim, 2014). Lastly, cyber bullying, the newest form, has been on the rise due to the use of electronic devices and the Internet among modern adolescents. While one in three is the most commonly cited statistic for students who have been bullied in school, a closer look shows that the majority of these students, approximately half, have been bullied through all four types of mechanisms (Waasdorp & Bradshaw, 2014). Bullying may come in multiple forms, however, these forms can be combined and create access points for frequent and detrimental attacks to an individual.

Bullying in Schools. The school setting is a prime environment for bullying. While bullying can occur in the other areas of the community, the majority of occurrences are linked to the school environment (Intervention Central Organization, n.d.). This is because bullying is more likely to take place in areas with many children and where adult supervision is limited or difficult. In order of prevalence: the playground, classroom, hallway, gym, cafeteria, and

restrooms are the most frequent settings for bullying environment (Intervention Central Organization, n.d.).

Bullying is not just a US problem; its reach is worldwide, and the focus to decrease its frequency in schools has been subject to much research over the past few decades. A United Kingdom (UK) study by Salmon, James, and Smith (1998) specifically focused on bullying in secondary schools, the equivalent of US high schools, and observed that 4 percent of students reported being bullied at least once a week, and 10 percent reported being a victim “often.” While this study specifically focused on health problems associated with school bullying, a study conducted in Finland by Salmivalli, Lappalainen, and Lagerspetz (1998), observed the effects of bullying in middle school students and its relationship with the social school environment and aggression in students. In the UK and Finland, studies reported that bullying in middle and high schools was statistically related to mental, physical, and social health problems. It is imperative for students, both in the US and internationally, to feel safe at school. However, widespread research is showing that this is not the case.

Characteristics of Bullies and Their Victims. There are several personality types and indicators associated with the victimization of individuals, relating to both the victims and the perpetrators. Individuals who are more susceptible to being bullied are typically shy, quiet, anxious, perceived as weak, insecure, or physically different from the majority of peers. For example, being overweight and significantly smaller in size may increase the chance of bullying (Meltzer, Vostanis, Ford, Bebbington, & Dennis, 2011). In contrast, perpetrators of bullying, the bullies themselves, are observed to be aggressive, destructive, and dominating. They are short-tempered, intolerant, tend to have difficulty processing or empathizing with the emotions of others, and impulsive (Smokowski & Kopaszm, 2005). Despite the differences in characteristics,

studies also suggest that bullies and their victims are both susceptible to long-term emotional consequences due to the events of bullying (CDC, 2014). It is important to understand these dynamics, and the types of bullying, before examining the potential relationship bullying has with suicide.

Consequences. A study by Meltzer et. al. (2011), concluded that victims of bullying in their childhood were more than twice as likely to attempt suicide as they transitioned into adulthood. Bullying not only have short-term effects, but can cause long-term harm to its victims. While bullying can be an indicator for suicide-related behavior (Brunstein, Sourander, & Gould, 2010), several other consequences can leave victims socially, psychologically, and emotionally damaged. Wolke et. al (2013), denotes bullying in childhood can lead to issues in adulthood. These issues are behavioral and mental, including illegal activity, drug and alcohol use, and mental health issues such as depression and anxiety. The consequences of various traumatic events in childhood have similar effects, but Meltzer et. al (2011), focuses in on youth bullying and the permanent mark it can make on an individual's well-being.

Suicide. Suicide is a public and mental health issue that is increasingly gaining attention from health professionals, researchers, and the media. There are different categories of suicide-related behavior. The CDC (2014) defines these behaviors as suicide, suicide attempt, and suicidal ideation. Suicide is the completed act, death caused by self-directed injurious behavior with any intent to die. Suicide attempt is a non-fatal self-directed potentially injurious behavior with an intent to die as a result of the behavior. Suicidal ideation is thinking about, considering, or planning for suicide. While each form has its perceived level of severity, all of these behaviors are complicated, emotional, and often overwhelming for those who are suffering. There are several factors that affect an individual's vulnerability that link or make them more susceptible to

suicide-related behaviors. These indicators include emotional distress, exposure to violence, family conflict, relationship problems, lack of connectedness and support, drug use, alcohol use, physical or learning disabilities, and lack of access to resources and support (CDC 2014). The increasing level of suicide-related behavior, specifically among young people, has increased in both developing and developed countries alike (Brunstein, Sourander, & Gould, 2010). In the United States, suicide is ranked among the top leading causes of death among youths (American Academy of Child and Adult Psychiatry, 2013).

Bullying and Suicide. The CDC (2014) is explicit in its view that suicide and bullying cannot be exclusively defined as direct, causal behaviors. However, there is a complicated interrelationship between them. Rigby and Slee (2010) conducted two studies examining the relationship of bullying, social support, and suicide ideation in secondary students in Southern Australia. Both studies concluded that bullying was significantly related to a student's degree of suicide ideation. Similarly, a study conducted by Brunstein, Sourander, Niemela, et al. (2009) observed if bullying at the age of 8 years old was associated with suicide attempts and completed suicides in participants up to age 25. The study found that frequent bullying and victimization during childhood was associated with later suicide attempted and completed suicides for boys and girls. However, once controlled for conduct and depression, girls were more likely to attempt and complete suicide as compared to boys. By examining the request and potential associations, as well as looking into bullying and suicide in isolation, it becomes apparent that the physical, emotional, and psychological issues that occur as a consequence of bullying are linked to suicide-related behaviors.

Hypotheses

This current study aims to examine the relationship between the suicide-related behaviors of suicide ideation and suicide attempts with bullying, cyber bullying, school safety, threats, and fights. The hypotheses being tested are:

H1: The more a student feels unsafe, is threatened, or is involved in school fights, the more likely they will be to engage in suicide-related behaviors (i.e., suicide ideation or suicide attempt).

H2: The more a student is bullied or cyber bullied, the more likely they will be to engage in suicide-related behaviors.

Chapter 3

Methods

Data

This study used data from the Youth Risk Behavior Surveillance Survey (YRBSS) from their 2013 National High School Survey. The YRBSS surveys are conducted biennially, with distribution during February-May of each odd-numbered year, and publication being the following even-numbered year. YRBSS National Sample used is a not an aggregation of the other states' or districts' surveys, but its own separate questionnaire (Youth Risk Behavior Surveillance Survey (YRBSS) User's Guide, 2013). A three-stage cluster sample design is employed to produce a representative and large sample of grades 9-12. The high school surveys are public and private, including Catholic and other religiously affiliated schools. A weighting factor was applied to each individual record for the students surveyed in order to accommodate for nonresponses and the oversampling of certain race and ethnicities (Youth Risk Behavior Surveillance Survey (YRBSS) User's Guide, 2013). The final, overall weights were scaled so the count of students was equal to the total sample size, and the proportions of students in grades 9-12 matched population projections for the year of the survey's distribution (Youth Risk Behavior Surveillance Survey (YRBSS) User's Guide, 2013).

Study Sample

The sample study had 13,583 respondents ($n = 13,583$). However, there was a range of missing data for each characteristic due to lack of response from participants. Of these

respondents, 51.21% ($n=6,950$) were male and 48.79% ($n=6,621$) were female. By grade distribution, 26.57% ($n=3588$) were in 9th grade, 23.34% ($n=3152$) were in 10th grade, 23.58% ($n=3184$) were in 11th grade, 26.34% ($n=3557$) were in 12th grade, and 0.17% ($n=23$) specified “ungraded or other grade.” The breakdown of age among respondents ranged from 12 years old or younger to 18 years old or older. Specifically, 0.19% ($n=26$) were 12 years old or younger, 0.13% ($n=18$) were 13 years old, 10.13% ($n=1368$) were 14 years old, 22.94% ($n=3098$) were 15 years old, 23.73% ($n=3203$) were 16 years old, 25.71% ($n=3473$) were 17 years old, and 17.8% ($n=2320$) were 18 years old or older.

Measures

This analysis assessed the relationship between school safety, specifically bullying, and suicide. The dependent variables reflecting these outcomes were suicide ideation “sidea” and suicide attempt “attempt.” The independent variables constructed included bullying “bully”, cyber bullying “cyberb”, school safety “unsafe”, school threats and injuries “threat”, and school violence “fight.” The control variables were “age” and “sex.”

Dependent Variables.

Sidea. The “sidea” variable was computed by combining the questions “During the past 12 months, did you ever seriously consider attempting suicide?” and “During the past 12 months, did you make a plan about how you would attempt suicide (YRBSS National Survey, 2013)?” Both questions were binary with Yes=1 and No=2. These were combined with No=0 and Yes=1. This variable represents whether or not a student engage in suicide ideation, meaning that they considered taking their own life.

Attempt. The “attempt” variable was based on the question “During the past 12 months, how many times did you actually attempt suicide?” The variable was recoded from its original ordinal scale of “0 times, 1 time, 2 or 3 times, 4 or 5 times, and 6 or more times” to a binary scale in which Yes=1 and No=0, meaning that unless the participant responded “0 times” they were coded as a Yes=1 (YRBSS National Survey, 2013). This variable represents whether or not a student attempted suicide.

Key Independent Variables.

Bully. This variable was computed from the question “During the past 12 months, have you ever been bullied on school property?” It was recoded from the original binary score with Yes=1 and No=2 to No=0 and Yes=1 (YRBSS National Survey, 2013). The “bully” variable reflects only bullying in the school setting, as the question specifies this as an incident occurring on school property.

Cyberb. The “cyberb” variable represents the respondents experience with cyber bullying. This variable was computed from the question “During the past 12 months, have you ever been electronically bullied?,” and asked respondents to count e-mail, chat rooms, instant messaging, websites, and texting. It was recoded from the original binary score with Yes=1 and No=2 to No=0 and Yes=1 (YRBSS National Survey, 2013). The “cyberb” variable reflects the newest form of bullying, which is not specific to the school setting, but rather representative of the ubiquitous nature of technology and the ramifications it can cause through cyber bullying.

Unsafe. The “unsafe” variable was computed from the question “During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at

school or on your way to or from school?” It was recoded from the original ordinal scale of “0 days, 1 day, 2 or 3 days, 4 or 5 days, and 6 or more days” to a binary scale in which Yes=1 and No=0, meaning that unless the participant responded “0 days” they were coded as a Yes=1 (YRBSS National Survey, 2013). This variable represents student participants feeling unsafe both on school property, as well as during their commute to or from school.

Threat. The “threat” variable was computed from the question “During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?” It was recoded from the original ordinal scale of “0 times, 1 time, 2 or 3 times, 4 or 5 times, 6 or 7 times, 8 or 9 times, 10 or 11 times, and 12 or more times” to a binary scale in which Yes=1 and No=0. This means that unless the participant responded “0 times” they were coded Yes=1 (YRBSS National Survey, 2013). This variable represents threats and injuries specifically on school property.

Fight. The “fight” variable was computed from the question “During the past 12 months, how many times were you in a physical fight on school property?” It was recoded from the original ordinal scale of “0 times, 1 time, 2 or 3 times, 4 or 5 times, 6 or 7 times, 8 or 9 times, 10 or 11 times, and 12 or more times” to a binary scale in which Yes=1 and No=0. This means that unless the participant responded “0 times” they were coded Yes=1 (YRBSS National Survey, 2013). This variable represents fights that occurred specifically on school property.

Control Variables.

Age. The “age” variable was derived from the question “How old are you?” The questionnaire gave options of “12 years old or younger, 13 years old, 14 years old, 15 years old, 16 years old, 17 years old, and 18 years old or older (YRBSS National Survey, 2013).” The

response for options “12 years old or younger” and “13 years old,” were both less than 0.2%, therefore they were omitted from the data analysis.

Sex. The “sex” variable was derived from the question “What is your sex?” The question was scored as Female=1 and Male=2 (YRBSS National Survey, 2013), however, it was recoded to Female =1 and Male=0.

Analytic Plan

In order to better understand the sample, descriptive statistics were performed to assess the mean, standard deviation, and frequency of all variables. In addition, chi-square tests for independence were conducted to examine potential bivariate correlations. These tests examined the relationship between the dependent outcome variables of suicide ideation (sidea) and attempt (attempt), to the independent variables relating to bullying and school safety (cyberb, bully, unsafe, threat, and fight), and the control variables of the study sample’s characteristics (age, grade, and sex). Lastly, multiple logistic regressions were conducted to assess the relationship between all variables.

Chapter 4

Results

Descriptive Statistics

From the data, the initial descriptive statistical analysis showed that out of all the respondents to the survey ($n = 13,583$), several missing values across the board were missing, either because respondents skipped a question or missing data. Overall, all but one of the variables in question had a response with over 13,000 students opting to answer. The lowest respondents for any variable was $n = 11,946$, relating to the suicide attempt outcome. Table 1 is a representation of the descriptive analysis and its findings. It illustrates the mean, standard deviation (SD), frequency, percentage, and sample size for each variable.

Dependent Variables. To better understand the means of the dependent variables, note that the coding is consistent with 0=no for the behavior or outcome and 1=yes. The suicide-related behavior outcome indicated that 19.81% of students had considered suicide and 8.41% had attempted to take their own life.

Independent Variables. To better understand the means of the independent variables, note that the coding is consistent with 0=no for the behavior or outcome and 1=yes. The bullying variables showed that 13.88% of students were cyber bullied and 18.52% were bullied. In addition, 7.70% felt unsafe in school, 7.26% had been threatened, and 27.03% had engaged in a fight.

Control Variables. The mean for the “age” variable was 16.17, indicating that the average respondent was around 16 years old. The “sex” variable indicated that there were slightly more males in this study than females, but the percentage breakdown was close with 51.21% respondents as male, and 48.79% as female.

Table 1: Descriptive Statistics

Means, Standard Deviations (SD), Frequencies, and Percentages

	<u>Frequency</u>	<u>%</u>
Age (<i>n</i> = 13,462)		
Mean: 16.17		
SD: 1.25		
14 years old	1,368	10.16%
15 years old	3,098	23.01%
16 years old	3,203	23.79%
17 years old	3,473	25.80%
18 years old or older	2,320	17.23%
Sex (<i>n</i> =13,539)		
Mean: 1.51		
SD: 0.50		
Male	6,933	51.21%
Female	6,606	48.79%
Unsafe (<i>n</i> =13,510)		
Mean: 0.08		
SD: 0.27		
Felt Unsafe	1,040	7.70%
Felt Safe	12,470	92.30%
Threat (<i>n</i> =13,511)		
Mean: 0.74		
SD: 0.26		
Threatened	981	7.26%
Not Threatened	12,530	92.74%

Fight ($n=13,292$)

Mean: 0.09

SD: 0.29

Fought	3,593	27.03%
Did not Fight	9,699	72.97%

Cyberb ($n=13,459$)

Mean: 0.14

SD: 0.35

Cyberbullied	1,868	13.88%
Not Cyber Bullied	11,591	86.12%

Bully ($n=13,474$)

Mean: 0.14

SD: 0.35

Bullied	2,496	18.52%
Not Bullied	10,978	81.48%

Sidea ($n=13,539$)

Mean: .20

SD: 0.40

Ideation	2,682	19.81%
No Ideation	10,857	80.19%

Attempt ($n=11,946$)

Mean: 0.08

SD: 0.28

Attempt	1,005	8.41%
No Attempt	10,941	91.59%

Inferential Statistics

Bivariate Correlations. The initial descriptive statistics concluded that 2,682 out of the 13,539 participants in the survey considered taking their own life. After these analyses were run, the relationships between the independent variables and suicide-related behavior outcomes were analyzed through chi-square tests for independence. Table 2 represents the chi-square results. All relationships were observed to be statistically significant with $p < 0.0001$.

For the control variables, the study's findings revealed that, for the age variable, suicide ideation was highest among 16 year olds. The lowest percentage was among 14 year olds at 10.65%, followed by 18 year olds at 14.67%. In addition, this analysis showed that females are more likely to think about suicide as opposed to males.

In terms of the independent variables concerning school safety, the study's finding revealed that the more a student feels unsafe, is threatened, or is involved in school fights, the more likely they will be to engage in suicide ideation. The percent change ranged for each indicator, with around 14-15% of students who felt unsafe or threatened in school considering suicide, as opposed to the 5-6% who felt unsafe or threatened and did not consider it. The "fight" variable saw the largest increase in ideation, 39.95% versus 23.90%, based on whether or not a student fought in school.

Similarly, in relation to bullying behaviors, the more a student is bullied or cyber bullied, the more likely they will be to engage in suicide ideation. There were significant jumps in the percentage of students who considered committing suicide if they were cyberbullied or bullied, as opposed to if they were not. In fact, 30.65% of students who were cyberbullied and 38.70% of students who were bullied engaged ideation.

Table 2: Bivariate Correlations for Suicide Ideation Outcome

Control and Independent Variables by Suicide Ideation Outcomes (n=13,539)

	<u>Ideation</u> <u>(n=2,682)</u>	<u>No Ideation</u> <u>(n=10,857)</u>	<i>p</i>
Age			$p < 0.0001$
14 years old	10.65%	10.04%	
15 years old	23.44%	22.90%	
16 years old	26.67%	23.08%	
17 years old	24.57%	26.10%	
18 years old or older	14.67%	17.87%	
Sex			$p < 0.0001$
Male	37.32%	54.64%	
Female	62.68%	45.36%	
Unsafe			$p < 0.0001$
Feels Unsafe	14.72%	5.96%	
Feels Safe	85.28%	94.04%	
Threat			$p < 0.0001$
Threatened	15.72%	5.17%	
Not Threatened	84.28%	94.83%	
Fight			$p < 0.0001$
Fought	39.95%	23.90%	
Did Not Fight	60.05%	76.10%	
Cyberb			$p < 0.0001$
Cyber Bullied	30.65%	9.72%	
Not Cyber Bullied	69.35%	90.28%	
Bully			$p < 0.0001$
Bullied	38.70%	13.52%	
Not Bullied	61.30%	86.48%	
Attempt			$p < 0.0001$
Attempt	40.23%	0.54%	
No Attempt	59.77%	99.46%	

The same bivariate correlations were examined for the suicide attempt outcome variable. The initial descriptive statistics concluded that the total sample size for the “attempt” variable was $n=11,946$, with 1,005 respondents claiming to have attempted suicide. Table 3 represents the performed analyses; all relationships were statistically significant with $p < 0.0001$.

For the control variables, the study revealed that age 16 has the highest percentage of students attempting suicide. Ages 14 and 18 were the lowest, with 12.84% of students attempting suicide at age 14 and 13.74% at age 18. The study also revealed that females are more likely to attempt suicide. Both of these conclusions are consistent with the suicide ideation outcome, in which 16 was the most popular age for ideation, and in which females students were more likely to consider suicide as opposed to males.

The independent variables concerning school safety concluded that there was a significant difference in students who felt unsafe in school and their decision to attempt suicide, with 23.33% who fought and attempted versus 5.46% who fought and did not attempt. Similar percentages were observed for the “threat” variable, indicating an increase in students who attempted suicide who were threatened in the school setting. Likewise to the suicide ideation outcome variable, the largest change in percentage was for the “fight” variable, with 50.89% of students who fought and attempted suicide, versus the 23.88% who fought and did not attempt. Therefore, as with suicide ideation, the more a student feels unsafe, is threatened, or is involved in school fights, the more likely they will be to attempt suicide.

The independent variables concerning bullying and cyber bullying also concluded that the more a student is bullied or cyber bullied, the more likely they will be to attempt suicide. The “cyberb” variable showed an increase in percentages from 39.70% of students who were cyber bullied and also attempted suicide to the 11.89% who were cyber bullied and did not attempt

suicide. The study revealed that for the “bully” variable 44.60% of students who were bullied also attempted suicide and 16.77% who were bullied did not attempt suicide.

Table 3: Bivariate Correlations for Suicide Attempt Outcome

Study Sample Characteristics and Dependent Variables by Suicide Attempt (n=11,946)

	<u>Attempt</u> <u>(n=1,005)</u>	<u>No Attempt</u> <u>(n=10,941)</u>	<i>p</i>
Age			$p < 0.0001$
14 years old	12.84%	9.98%	
15 years old	23.97%	23.30%	
16 years old	27.68%	23.45%	
17 years old	21.77%	26.34%	
18 years old or older	13.74%	16.93%	
Sex			$p < 0.0001$
Male	33.73%	52.41%	
Female	66.27%	47.59%	
Unsafe			$p < 0.0001$
Feels Unsafe	23.33%	5.46%	
Feels Safe	76.67%	94.54%	
Threat			$p < 0.0001$
Threatened	24.43%	5.24%	
Not Threatened	75.57%	94.76%	
Fight			$p < 0.0001$
Fought	50.89%	23.88%	
Did Not Fight	49.11%	76.12%	
Cyberb			$p < 0.0001$
Cyber Bullied	39.70%	11.89%	
Not Cyber Bullied	60.30%	88.11%	
Bully			$p < 0.0001$
Bullied	44.60%	16.77%	
Not Bullied	55.40%	83.23%	
Attempt			$p < 0.0001$
Attempt	94.83%	12.94%	
No Attempt	5.17%	87.06%	

Multiple Logistic Regressions. Table 4 summarizes the multiple regression analyses for the suicide ideation outcome. The independent control variables (age and sex) were excluded from the table. The study revealed that there was not statistical significance in regards to age, but there was significance for sex. All key independent variables (unsafe, threat, fight, cyberb, and bully) were found to be statistically significant with the suicide ideation outcome of either $p < 0.001$ or $p < 0.0001$.

The analyses revealed that there was an increase in the odds of suicide ideation among students who felt unsafe, were threatened, or fought in school. Specifically, compared to students who felt safe in school, the students who felt unsafe had a 1.311 unit increase in the odds of suicide ideation. Compared to students who were not threatened in school, the students who were subject to threats had a 1.790 unit increase in the odds of suicide ideation. The “fight” variable had the largest unit increase in the odds of suicide ideation, showing that compared to students who did not fight in school, the students who fought had a 2.004 unit increase in the odds of suicide ideation.

In terms of the bullying variables, the study also illustrated an increase in the odds of suicide ideation among students who were cyber bullied or bullied. Specifically, compared to students who were not cyber bullied, students who were subject to cyber bullying had a 2.018 unit increase in the odds of suicide ideation. In addition, compared to students who were not bullied, students who were victimized through bullying had a 2.484 unit increase in the odds of suicide ideation. The “bully” variable had the highest unit increase of all the key independent variables analyzed.

Table 4: Multiple Logistic Regressions for Suicide Ideation Outcome

Odds Ratio from Multiple Logistic Regressions, Modeling the Probability of Suicide Ideation

	<u>B (CI)</u>	<u>OR (CI)</u>	<u>p</u>
H1: Unsafe (ref=felt safe)	0.271 (0.112, 0.430)	1.311 (1.119, 1.537)	$p < 0.001$
H1: Threat (ref=no threat)	0.582 (0.419, 0.746)	1.790 (1.520, 2.11)	$p < 0.0001$
H1: Fight (ref=no fight)	0.695 (0.594, 0.746)	2.004 (1.810, 2.217)	$p < 0.0001$
H2: Cyberb (ref=not cyberb)	0.702 (0.577, 0.827)	2.018 (1.781, 2.287)	$p < 0.0001$
H2: Bully (ref=not bullied)	0.910 (0.795, 1.024)	2.484 (2.214, 2.786)	$p < 0.0001$

The same analysis was performed for the suicide attempt outcome. Table 5 summarizes the multiple regression analyses. The independent control variables (age and sex) were excluded from the table. As with the ideation outcome, the study revealed that there was not statistical significance in regards to age, but there was significance for sex. All key independent variables (unsafe, threat, fight, cyberb, and bully) were found to be statistically significant with the suicide attempt outcome with $p < 0.0001$.

The analyses concluded that there was an increase in the odds of suicide attempt among students who felt unsafe, were threatened, or fought in school. Specifically, compared to students who felt safe in school, the students who felt unsafe had a 2.219 unit increase in the odds of suicide attempt. Compared to students who were not threatened in school, the students who were subject to threats had a 2.338 unit increase in the odds of suicide attempt. The “fight” variable had the largest unit increase in the odds of suicide attempt for any key independent variable,

showing that compared to students who did not fight in school, the students who fought had a 2.776 unit increase in the odds of suicide attempt. All of these increases were greater than those found in the analyses for the suicide ideation outcome.

In terms of the bullying variables, the study also showed an increase in the odds of suicide attempt among students who were cyber bullied or bullied. Specifically, compared to students who were not cyber bullied, students who were subject to cyber bullying had a 2.315 unit increase in the odds of suicide attempt. In addition, compared to students who were not bullied, students who were victimized through bullying had a 1.851 unit increase in the odds of suicide attempt.

Table 5: Multiple Logistic Regressions for Suicide Attempt Outcome

Odds Ratio from Multiple Logistic Regressions, Modeling the Probability of Suicide Attempt

	<u>B (CI)</u>	<u>OR (CI)</u>	<u>p</u>
H1: Unsafe (ref=felt safe)	0.798 (0.595, 0.999)	2.219 (1.812, 2.718)	$p < 0.0001$
H1: Threat (ref=no threat)	0.849 (0.640, 1.059)	2.338 (1.896, 2.883)	$p < 0.0001$
H1: Fight (ref=no fight)	1.0211 (0.870, 1.172)	2.776 (2.388, 3.229)	$p < 0.0001$
H2: Cyberb (ref=not cyberb)	0.839 (0.664, 1.015)	2.315 (1.942, 2.760)	$p < 0.0001$
H2: Bully (ref=not bullied)	0.615 (0.444, 0.787)	1.851 (1.559, 2.197)	$p < 0.0001$

Chapter 5

Discussion

Explanation of Results

The growing concern for bullying, specifically in the school setting, calls for close examination of the relationship between school safety, school bullying, and suicide-related behaviors among high school students. Overall, the results supported existing research that there is a link between school safety and bullying with the suicide-related behaviors of ideation and attempt.

School Safety. The first hypothesis of this study stated that the more a student feels unsafe, is threatened, or is involved in school fights, the more likely they will be to engage in suicide-related behaviors. The bivariate results showed that there were strong positive correlations between the individual variables of “unsafe,” “threat,” and “fight” and both suicide outcome variables of suicide ideation and attempt. The multiple logistic regression analysis also demonstrated statistical significance, indicating that there was a relationship between each school safety variable and both the suicide variables. Thus, the odds of suicide ideation and attempt among high school students increased with the occurrence of feeling unsafe.

The findings revealed the importance of the school environment for high school students who are considering suicide. While research has shown the majority of bullying occurs in schools (The US Department of Health and Human Services, 2011), there was little information about the relationship between the overall safety of the school environment and suicide-related

behaviors. Still, there is existent research that examines the school environment and the overall well-being of high school students.

A study conducted by Marin and Brown (2008) analyzed the relationship of school environment and its influence on students beyond academics. The research revealed that there are significant links between school safety and the academic environment with outcomes like obesity, drug and alcohol use, sexual health, and emotional health. The study concluded that school is not just a place of academic learning, but that it is increasingly related to adolescents' social and mental development. Whether it be the outcomes of obesity, drug use, or emotional health, Marin and Brown's (2008) findings are consistent with the current study's analysis that safer the school environment can become, the better off students' lives will be.

Bullying. The second hypothesis stated that the more a student is bullied or cyber bullied, the more likely they will be to engage in suicide-related behaviors. The bivariate results showed that there were strong positive correlations between the "cyberb" and "bully" variables and the suicide outcome variables of suicide attempt and ideation. The multiple logistic regression analysis also revealed statistical significance, indicating that there was a relationship between each bullying variable and both suicide variables. These outcomes concluded that the odds of suicide ideation and attempt among high school students increased with the occurrence of being a victim of bullying and cyberbullying.

Generally, the study's outcomes were consistent with previous research on the relationship with bullying and suicide. The National Center for Education and Bureau of Justice Statistics (2011) reported that approximately 25-30% of middle and high school students are victims of bullying. This study exclusively examined high school students, and found that about

14% were cyber bullied and 19% were bullied. While this is slightly lower than reported, the relationship between bullying and suicide is consistent with the literature.

Bullying has a significant negative impact on students. Being a victim or even merely witnessing bullying behaviors can lead to feelings of helplessness, isolation, and rejection (CDC, 2014). Additionally, psychological effects can continue beyond adolescence, transitioning into adult mental health issues and a higher likelihood of substance abuse, depression, anxiety, and suicide (MHSOAC, 2014). The current study observed that there was a positive link to bullying, both on the internet and in general, with suicide-related behaviors. In comparing the odds ratio analyses, the likelihood for suicide ideation was higher with an increase in bullying, while the likelihood for suicide attempt was higher with an increase in cyberbullying. This conclusion illustrates the importance of understanding the newest form of bullying - cyber bullying, and how it differs from bullying in traditional settings. While there were slight differences in the odds ratio increase, both tests were highly significant. The results concluded that bullying, both cyber and in the school setting, are closely linked to high school students' suicide-related behaviors.

Limitations

This analysis does contain shortcomings that are a result of a number of factors. YRBSS is subject to limitations through its study design. Firstly, the data from the survey is self-reported, therefore, there is likely self-report recall bias, and the magnitude of the under or over reporting of behaviors is unknown (Brener et. al, 2013). Students may not report their feelings of suicide-related behavior due to embarrassment, depression, or distress. This occurrence would therefore

bias the results against both hypotheses that there is an existent link between school safety, bullying, and suicide outcomes. Future research would benefit from a more comprehensive and dedicated questionnaire about not only the outcomes of suicide ideation and attempt, but also the underlying factors that may contribute to them. For example, surveying for mental health issues and depressive disorders would perhaps help eliminate this limitation. While YRBSS (2013) reports on behaviors relating to mortality and morbidity, future research and interventions should not only focus on the behavioral outcomes, but their determinants as well.

Additional limitations include the fact that YRBSS does not survey home schooled students, or students who dropped out of high school. In addition, the missing data varied throughout the variables, and the analysis removed the age variables of 12 and under and 13 years old. Again, this relates to the quality of the questionnaire as it relates to the hypotheses, because YRBSS asks respondents a multitude of behavioral questions that range from school safety and suicide to healthy eating and exercise activity. There is the aspect of fatigue in a long survey, and the range of missing data may have affected the results. However, it is notable that all but one variable had over 13,000 responses; this may not be representative of the national high school population.

Lastly, due to the fact that YRSS is a cross-sectional survey, no truly casual inferences can be made. The correlations and regressions did show significance, but causation cannot be determined. Additionally, several factors other than school safety and bullying relate to suicide. As previously stated, a closer look at a student's mental health may dive even deeper into the relationship between the independent and outcome variables.

Conclusion

In conclusion, high school students who were unsafe and bullied in the school setting reported higher rates of suicide ideation and attempts. Controlling for age and sex, the gender differences between male and female students were significant, with females more likely to attempt to take their own lives. All independent variables, both relating to the safety of the school environment and bullying behaviors, were correlated with a student's suicide-related behaviors. The tests proved statistical significance, and therefore add to the existent research and call to action against bullying as a national public health issue.

For future studies, it is recommended that researchers create a focused questionnaire of the underlying determinants of suicide to include bullying behaviors and school safety. Once results become more specific, public policymakers can design intervention programs that educate school administrators and staff to create a positive atmosphere in schools. There will likely be several interventions necessary, as the results related to school safety, threats, violence, bullying, and cyber bullying. Additionally, students should be educated on the prevalence of these issues among their peers, perhaps making them feel less alone and providing them with resources to get help. It is evident that bullying and suicide have a complex, interrelated linkage, and the consequences are truly dire. With the collaborative and dedicated efforts of scholars, policymakers, school officials, and fellow students, a positive change can result. For now, it is important to communicate the importance of student safety in schools in order to spread awareness and potentially influence suicide-related behaviors.

Appendix A

2013 National Youth Risk Behavior Survey Questionnaire

Questions Utilized.

How old are you?

- A. 12 years old or younger
- B. 13 years old
- C. 14 years old
- D. 15 years old
- E. 16 years old
- F. 17 years old
- G. 18 years old or older

What is your sex?

- A. Female
- B. Male

In what grade are you?

- A. 9th grade
- B. 10th grade
- C. 11th grade
- D. 12th grade
- E. Ungraded or other grade

During the past 30 days, on how many days did you **not** go to school because you felt you would be unsafe at school or on your way to or from school?

- A. 0 days
- B. 1 day
- C. 2 or 3 days
- D. 4 or 5 days
- E. 6 or more days

During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

During the past 12 months, how many times were you in a physical fight on school property?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

During the past 12 months, have you ever been bullied on school property?

- A. Yes
- B. No

During the past 12 months, have you ever been electronically bullied? (Count being bullied through e-mail, chat rooms, instant messaging, websites, or texting.)

- A. Yes
- B. No

During the past 12 months, did you ever seriously consider attempting suicide?

- A. Yes
- B. No

During the past 12 months, did you make a plan about how you would attempt suicide?

- A. Yes
- B. No

During the past 12 months, how many times did you actually attempt suicide?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?

- A. I did not attempt suicide during the past 12 months
- B. Yes
- C. No

Appendix B

STATA Code

Table 1:

```
. tab1 age sex unsafe threat fight bully cyberb sidea attempt
```

```
-> tabulation of age
```

age	Freq.	Percent	Cum.
3	1,368	10.16	10.16
4	3,098	23.01	33.17
5	3,203	23.79	56.97
6	3,473	25.80	82.77
7	2,320	17.23	100.00
Total	13,462	100.00	

```
-> tabulation of sex
```

sex	Freq.	Percent	Cum.
0	6,933	51.21	51.21
1	6,606	48.79	100.00
Total	13,539	100.00	

```
-> tabulation of unsafe
```

unsafe	Freq.	Percent	Cum.
-----+-----			

0	12,470	92.30	92.30
1	1,040	7.70	100.00
-----+			
Total	13,510	100.00	

-> tabulation of threat

threat	Freq.	Percent	Cum.
0	12,530	92.74	92.74
1	981	7.26	100.00
-----+			
Total	13,511	100.00	

-> tabulation of fight

fight	Freq.	Percent	Cum.
0	9,699	72.97	72.97
1	3,593	27.03	100.00
-----+			
Total	13,292	100.00	

-> tabulation of bully

bully	Freq.	Percent	Cum.
0	10,978	81.48	81.48
1	2,496	18.52	100.00
-----+			
Total	13,474	100.00	

-> tabulation of cyberb

cyberb	Freq.	Percent	Cum.
0	11,591	86.12	86.12
1	1,868	13.88	100.00
Total	13,459	100.00	

-> tabulation of sidea

sidea	Freq.	Percent	Cum.
0	10,857	80.19	80.19
1	2,682	19.81	100.00
Total	13,539	100.00	

-> tabulation of attempt

attempt	Freq.	Percent	Cum.
0	10,941	91.59	91.59
1	1,005	8.41	100.00
Total	11,946	100.00	

Table 2:

. tabulate sidea age, chi2

| age

sidea	3	4	5	6	7	Total
0	1,084	2,473	2,492	2,818	1,929	10,796
1	284	625	711	655	391	2,666
Total	1,368	3,098	3,203	3,473	2,320	13,462

Pearson chi2(4) = 27.2798 Pr = 0.000

. tabulate sidea sex, chi2

sidea	sex		Total
	0	1	
0	5,932	4,925	10,857
1	1,001	1,681	2,682
Total	6,933	6,606	13,539

Pearson chi2(1) = 258.0618 Pr = 0.000

. tabulate sidea unsafe, chi2

sidea	unsafe		Total
	0	1	
0	10,187	646	10,833
1	2,283	394	2,677
Total	12,470	1,040	13,510

Pearson chi2(1) = 231.5453 Pr = 0.000

. tabulate sidea threat, chi2

sidea	threat		Total
	0	1	
0	10,273	560	10,833
1	2,257	421	2,678
Total	12,530	981	13,511

Pearson chi2(1) = 355.0083 Pr = 0.000

. tabulate sidea fight, chi2

sidea	fight		Total
	0	1	
0			
1			
Total			

0	8,142	2,557	10,699
1	1,557	1,036	2,593
Total	9,699	3,593	13,292

Pearson chi2(1) = 272.7308 Pr = 0.000

. tabulate sidea bully, chi2

sidea	bully		Total
	0	1	
0	9,337	1,460	10,797
1	1,641	1,036	2,677
Total	10,978	2,496	13,474

Pearson chi2(1) = 900.9786 Pr = 0.000

. tabulate sidea cyberb, chi2

sidea	cyberb		Total
	0	1	
0	9,736	1,048	10,784
1	1,855	820	2,675
Total	11,591	1,868	13,459

Pearson chi2(1) = 785.9781 Pr = 0.000

. tabulate sidea attempt, chi2

sidea	attempt		Total
	0	1	
0	9,525	52	9,577
1	1,416	953	2,369
Total	10,941	1,005	11,946

Pearson chi2(1) = 3.9e+03 Pr = 0.000

Table 3:

. tabulate attempt age, chi2

attempt	age					Total
	3	4	5	6	7	

0	1,086	2,536	2,553	2,867	1,843	10,885
1	128	239	276	217	137	997
-----+						
Total	1,214	2,775	2,829	3,084	1,980	11,882

Pearson chi2(4) = 27.2968 Pr = 0.000

. tabulate attempt sex, chi2

		sex		
attempt	0	1	Total	
0	5,734	5,207	10,941	
1	339	666	1,005	
-----+				
Total	6,073	5,873	11,946	

Pearson chi2(1) = 128.4689 Pr = 0.000

. tabulate attempt unsafe, chi2

		unsafe		
attempt	0	1	Total	
0	10,330	597	10,927	
1	769	234	1,003	
-----+				
Total	11,099	831	11,930	

Pearson chi2(1) = 452.5175 Pr = 0.000

. tabulate attempt threat, chi2

		threat		
attempt	0	1	Total	
0	10,354	572	10,926	
1	758	245	1,003	
-----+				
Total	11,112	817	11,929	

Pearson chi2(1) = 530.3588 Pr = 0.000

. tabulate attempt fight, chi2

		fight		
attempt	0	1	Total	
0	8,232	2,582	10,814	
1	470	487	957	

```
-----+-----+-----
Total |      8,702      3,069 |    11,771
```

Pearson chi2(1) = 332.8133 Pr = 0.000

```
. tabulate attempt bully, chi2
```

```
|      bully
attempt |      0      1 |    Total
-----+-----+-----
    0 |    9,094    1,832 |    10,926
    1 |     554     446 |     1,000
-----+-----+-----
Total |    9,648    2,278 |    11,926
```

Pearson chi2(1) = 459.2766 Pr = 0.000

```
. tabulate attempt cyberb, chi2
```

```
|      cyberb
attempt |      0      1 |    Total
-----+-----+-----
    0 |    9,622    1,298 |    10,920
    1 |     603     397 |     1,000
-----+-----+-----
Total |   10,225    1,695 |    11,920
```

Pearson chi2(1) = 581.0036 Pr = 0.000

```
. tabulate attempt sidea, chi2
```

```
|      sidea
attempt |      0      1 |    Total
-----+-----+-----
    0 |    9,525    1,416 |    10,941
    1 |      52     953 |     1,005
-----+-----+-----
Total |    9,577    2,369 |    11,946
```

Pearson chi2(1) = 3.9e+03 Pr = 0.000

Table 4:

```
. logit sidea unsafe threat fight cyberb bully ageg2-ageg5 sex
```

Iteration 0: log likelihood = -6496.5744

Iteration 1: log likelihood = -5836.3013

Iteration 2: log likelihood = -5783.6255

Iteration 3: log likelihood = -5783.5177

Iteration 4: log likelihood = -5783.5177

```

Logistic regression                                Number of obs   =    13132
                                                    LR chi2(10)    =    1426.11
                                                    Prob > chi2    =    0.0000
Log likelihood = -5783.5177                       Pseudo R2      =    0.1098

```

```

-----
      sidea |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
      unsafe |   .2708279   .081059     3.34   0.001   .1119552   .4297005
      threat |   .5822224   .0834209    6.98   0.000   .4187204   .7457243
      fight  |   .6949372   .0517078   13.44   0.000   .5935918   .7962827
      cyberb |   .7021162   .0638267   11.00   0.000   .5770182   .8272142
      bully  |   .9097319   .0585408   15.54   0.000   .794994    1.02447
      ageg2  |   .0477614   .0879169    0.54   0.587   -.1245526   .2200754
      ageg3  |   .2701732   .0867992    3.11   0.002    .10005    .4402965
      ageg4  |   .1069361   .0873218    1.22   0.221   -.0642115   .2780836
      ageg5  |   .0282517   .0954002    0.30   0.767   -.1587293   .2152327
      sex    |   .6993339   .0495644   14.11   0.000   .6021894   .7964784
      _cons  |  -2.544594   .0851495  -29.88   0.000  -2.711484  -2.377704
-----

```

```
. logistic sidea unsafe threat fight cyberb bully ageg2-ageg5 sex
```

```

Logistic regression                                Number of obs   =    13132
                                                    LR chi2(10)    =    1426.11
                                                    Prob > chi2    =    0.0000
Log likelihood = -5783.5177                       Pseudo R2      =    0.1098

```

sidea	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
unsafe	1.311049	.1062723	3.34	0.001	1.118463	1.536797
threat	1.790012	.1493244	6.98	0.000	1.520015	2.107968
fight	2.003583	.1036009	13.44	0.000	1.81048	2.217283
cyberb	2.018019	.1288034	11.00	0.000	1.780721	2.286939
bully	2.483656	.1453952	15.54	0.000	2.214428	2.785618
ageg2	1.04892	.0922178	0.54	0.587	.8828919	1.246171
ageg3	1.310191	.1137235	3.11	0.002	1.105226	1.553168
ageg4	1.112863	.0971772	1.22	0.221	.9378066	1.320597
ageg5	1.028655	.0981339	0.30	0.767	.8532273	1.24015
sex	2.012412	.099744	14.11	0.000	1.826113	2.217717
_cons	.0785049	.0066847	-29.88	0.000	.0664382	.0927633

Table 5:

```
. logit attempt unsafe threat fight cyberb bully ageg2-ageg5 sex
```

```
Iteration 0: log likelihood = -3278.4075
```

```
Iteration 1: log likelihood = -3036.7428
```

```
Iteration 2: log likelihood = -2768.6373
```

```
Iteration 3: log likelihood = -2763.0141
```

```
Iteration 4: log likelihood = -2763.002
```

```
Iteration 5: log likelihood = -2763.002
```

```
Logistic regression
```

```
Number of obs = 11668
```

```
LR chi2(10) = 1030.81
```

```
Prob > chi2 = 0.0000
```

```
Log likelihood = -2763.002
```

```
Pseudo R2 = 0.1572
```

```

-----
      attempt |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
      unsafe |    .797242   .1034052    7.71   0.000    .5945714   .9999125
      threat |    .8492604  .1068839    7.95   0.000    .6397718   1.058749
      fight  |    1.021138  .0770171   13.26  0.000    .8701871   1.172089
      cyberb |    .839434   .0896929    9.36   0.000    .6636392   1.015229
      bully  |    .6154654  .0875317    7.03   0.000    .4439065   .7870243
      ageg2  |   -.1680177  .1278673   -1.31  0.189   -.4186331   .0825977
      ageg3  |    .0773678  .1254738    0.62  0.537   -.1685562   .3232918
      ageg4  |   -.2749277  .1299452   -2.12  0.034   -.5296155  -.0202399
      ageg5  |   -.2112489  .1446341   -1.46  0.144   -.4947265   .0722287
      sex    |    .8628504  .0800834   10.77  0.000    .7058898   1.019811
      _cons  |   -3.749721  .1292611  -29.01  0.000   -4.003069  -3.496374
-----

```

```

. logistic attempt unsafe threat fight cyberb bully ageg2-ageg5 sex

```

```

Logistic regression                                Number of obs   =    11668
                                                    LR chi2(10)    =    1030.81
                                                    Prob > chi2    =    0.0000
Log likelihood = -2763.002                        Pseudo R2      =    0.1572

```

```

-----
      attempt | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
      unsafe |    2.219411   .2294988    7.71   0.000    1.812254   2.718044
      threat |    2.337917   .2498857    7.95   0.000    1.896048   2.882762
      fight  |    2.776352   .2138267   13.26  0.000    2.387358   3.22873
      cyberb |    2.315056   .2076441    9.36   0.000    1.941846   2.759995
      bully  |    1.850518   .1619789    7.03   0.000    1.558785   2.196849
      ageg2  |    .8453388  .1080912   -1.31  0.189    .6579455   1.086105
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ageg3	1.080439	.1355668	0.62	0.537	.8448838	1.381669
ageg4	.759627	.0987099	-2.12	0.034	.5888313	.9799636
ageg5	.8095725	.1170918	-1.46	0.144	.6097376	1.074901
sex	2.369906	.1897902	10.77	0.000	2.025648	2.772671
_cons	.0235243	.0030408	-29.01	0.000	.0182595	.0303071

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