THE ASSOCIATION BETWEEN DISABILITY STATUS, BULLYING AND SUICIDE IDEATION AMONG ADOLESCENTS IN DELAWARE

by

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ABSTRACT

This research aims to investigate the relationship between disability status, bullying and suicide ideation among adolescents in Delaware. Through use of secondary data, the project will explore whether adolescents with disabilities in Delaware who are bullied experience greater rates of thoughts, plans or attempts at suicide than adolescents without disabilities. This inquiry will be addressed through answering the questions: "Do adolescents with disabilities in Delaware report being bullied more frequently than those without a disability?" and "Is bullying more likely to be associated with suicide thoughts/attempts by adolescents with disabilities in Delaware than those without a disability?" The research questions will be answered through analysis of various Youth Risk Behavior Surveillance System (YRBS) questions and several statistical equations through the use of SPSS. Through the analysis, it was found that adolescents who report having a disability are more likely to be bullied and have some form of suicide ideation than those who are not bullied and those student who reported not having a disability. This is one of the first research studies to date to look at the relationship between disability status, bullying and suicide ideation among adolescents in Delaware. A report from the Centers for Disease Control and Prevention that discusses the increased suicide rates in Delaware is highlighted and suggestions for prevention are discussed.

Chapter 1

INTRODUCTION

There are many different types of disabilities. A disability is something that can affect a person's hearing, vision, movement, thinking, remembering, learning, communication, mental health and social relationships (CDC, 2012). The term disability is one that is defined using at least three different domains: communicative, mental and physical. People who experience a disability in the communicative domain may experience being blind or having difficulty seeing, deaf or have difficulty hearing or had difficulty having their speech understood. People who experience a disability in the mental domain may experience having a learning disability, an intellectual disability, developmental disability or Alzheimer's disease, senility, or dementia, or had some other mental or emotional condition that seriously interfered with their everyday activities. People who have a disability in the physical domain may experience having to use a wheelchair, cane, crutches or walker, have difficulty walking a quarter of a mile, climbing a flight of stairs, lifting something as light as a 10-pound bag of groceries, grasping objects, using the toilet or getting in or out of bed.

During the transition between childhood and adulthood, adolescents with and without disabilities experience a greater chance of engaging in dangerous and risky behaviors (Fernandes-Alcantara, 2012). During this time, adolescents make choices that can affect both their current and future health. Adolescents are at an age where they commonly are aggressors or victims of peer bullying. Bullying is a form of

aggression in which there is an imbalance of power between the bully and the victim that occurs largely in the context of the peer group (Craig & Pepler, 2007).

Involvement in bullying can adversely affect an adolescent's ability to perform well in school, develop correct psychosocial functioning as well as negatively affect their physical health (Mishna, 2003). Little research has been done on the relationship between adolescents with disabilities and bullying (Martlew & Hodson, 1991). The literature that does investigate bullying among adolescents with disabilities often still cite the Martlew & Hodson article even though it was written nearly two decades ago. The lack of current research is alarming. The limited research conducted on adolescents with disabilities and/or in special education indicates that even though these students are at a significantly greater risk for being bullied than their peers, there are few programs that target this population. Programs that solely target this population don't seem as necessary as adapting practices in schools where students with disabilities are accounted for in the creation of assistance programs. Without having an outlet to express their feelings and concerns about being bullied, they may engage in what they consider to be the only options to resolve the problem. These options can include rebellious behavior, drug use and abuse, and even suicide. Without guidance and targeted programs, some adolescents feel they are the only solution.

This literature review will focus on the relationship between disability and suicide, first by discussing the theoretical framework that if a child/adolescent is unable to develop through the psychosocial stages at the correct times, negative consequences can resonate throughout the life span. Although there is very little research conducted on the relation between disability status in relation to bullying and

suicide (Martlew & Hodson, 1991; Morrison, Furlong, & Smith, 1994; Nabuzoka & Smith, 1993), the literature review will highlight the lack of more current research and explain the need for new, fresh research to be conducted on the topic. The research will analyze adolescents with disabilities who self-report being bullied more frequently than their peers without a disability and also research if bullying is more likely to be associated with suicide thoughts/attempts by youth with disabilities than those without a disability. The analysis will take age, ethnicity and gender into consideration.

Chapter 2

LITERATURE REVIEW

Theoretical Framework

Peer rejection and victimization can be defined as "a traumatic stressor that compromises children's long-term mental health" (Rudolph, 2011). It is often characterized by a child not being accepted by their peers due to behavior that is not accepted as the "norm". Students who are exposed to rejection among peers in elementary school usually continue to be rejected by peers throughout grade school and generally display detrimental behavior in adolescent years. The inabilities to develop strong friendships and solve common peer problems cause these students to use aggression to protect themselves mentally from others (Rudolph, 2011). Prior to this literature search, I associated peer rejection and bullying as one in the same. However, peer rejection is often a result of children who are defiant and rude to classmates. These children often have a difficult time adjusting to school and display aggressive interpersonal style, which then leads to peer rejection (Fraser, 2004). These children are often feared or resented by classmates because of their aggressive tendencies. The feeling of being ostracized from classmates due to their fear causes the already aggressive child to become more aggressive as a defense mechanism.

Research has found that creating workshops and interventions for children who are rejected and their peers were effective forms of reducing peer rejection (Sandstrom, 1999). By teaching children, both aggressors and victims, how to accept others, both parties can both begin to accept each other and decrease peer

victimization and bullying. Acceptance of others is important in creating a comfortable environment where all children can be themselves. This is not to say that a victim has to accept their aggressor, however, both parties must learn to coexist in the classroom without creating hostility.

Erikson's theory of psychosocial development establishes a typical developmental pattern. At the time the theory was proposed, it was unique in that it discussed that development does not stop after adolescence, but rather takes place during the entire lifespan. Erikson extended Sigmund Freud's theory of psychosexual development and claimed that conflict arises from a person's interaction with his or her environment (Cross, 2001). Erikson claimed that culture is an important part of any person's development, and one's relationship with culture must be defined and understood before he or she can continue onto proper development in life.

Perhaps one of the most important parts of Erikson's theory is that each stage of psychosocial development should be developed at its designated time. Adolescents who are rejected by their peers due to any perceived differences may not develop the same as others. If a stage does not develop when it supposed to, he states two possible results. He discusses how if the stage does not develop on time, it will be "doomed" from the start (Lerner, 2002). Also, the rest of healthy social development will be negatively altered. Erikson's theory provides a good basis for understanding each of his eight stages of development, but seems to give an overall idea that if one doesn't develop as he defines at a given stage, they will be unable to correctly develop at other stages. This seems to be extreme, and I argue that these stages are more of a guideline. Each person develops in their own way, loosely following each of the proceeding eight stages. Some may develop other stages more than others, which is

what makes each person unique. Lerner (2002) describes the development of the stages as:

…a different ego capacity must be developed in order for healthy ego development to proceed. Developments within each psychosocial stage are critical for the final development of a fully integrated, whole ego. Such an ego will have all the capabilities necessary to meet all the societal demands imposed on it. (Lerner Pg. 419)

The eight stages as defined by Erikson, beginning at infancy and continuing through maturity, all highlight necessities of social development that should occur before the next stage can be achieved. The eight stages include the oral-sensory stage, the anal-musculature stage, the genital-locomotor stage, the latency stage, puberty and adolescence, young adulthood, adulthood, and maturity (Lerner Pg. 419). Again, this theory highlights the need for each stage to be developed completely. A person will still develop if they don't develop a stage completely, they may just have unresolved issues. I will briefly describe each stage, thoroughly discussing those where adolescent peer rejection and bullying can cause an unfavorable social development and result in the remaining stages to be difficult to attain.

The first stage, the oral-sensory stage, is when the infant discovers new stimulation and other sense-receptor sites. In this stage, the infant must be able to utilize the newly acquired sensory stimulation effectively. The child develops a sense of trust from his/her caregiver in providing food and affection. If not developed correctly, a sense of mistrust is developed. Although this may be seen as a caregiver, not a peer issue, the ability to form a trust vs. mistrust relationship is needed to form friendships in the school years. The inability to form friendships and relationships leads to peer rejection.

The second stage, anal-musculature stage, involves the development and gratification of all muscles of the body. The control of the infant's body movement is developed in the stage, allowing the infant to hold to and let go of his/her own body muscles. By having control over his/her own body, the child will also feel control over his/her own self, thus creating autonomy. According to Erikson, if this stage is not achieved and the child is unable to control their body muscles, they will feel a sense of shame a doubt in addition to disapproval from others. These feelings of inadequacy can reveal themselves in social situations, thus also possibly resulting in peer rejection.

The third stage, the genital-locomotor stage, follows where the child begins to understand that they and their caregiver are not one in the same person. In this stage, the child is able to freely interact with his or her environment and begin to develop an independent sense of being. The child will develop a sense of initiative to move about society. If the sense of initiative is not developed, the child may feel a sense of guilt for not being independent. This guilt can then lead to unhappiness, which can then lead to feeling as though he/she must use aggression to suppress the feelings of depression and sadness to classmates.

The fourth stage is latency. At the stage, children begin to explore the tasks of being an adult through play. They may imitate the tasks of being a firefighter, police officer or chef. The child begins to develop a basic knowledge of how he or she will contribute to society. If this stage is not developed correctly, the child may experience a feeling of inferiority which may lead to not being able to contribute to society as an adult.

The fifth stage is that of puberty and adolescence. At this stage, the child has had a few years to develop a sense of self and purpose. The person begins to break away from his/her parents. They will begin to develop as a person who is socially acceptable and has an acceptable set of behavioral codes. A challenge at this stage is one of identity crisis. If a person does not have a good sense of self and purpose by this stage, they will begin to question their identity, thus possibly resulting in a crisis. If a person is still having issues from early childhood, they may enter a social setting, such as school, and not be sure as to how to act or present one's self. This could result in peer rejection, which as stated, leads to many other problems later in development.

Following the school aged years the stages of adulthood and maturity are discussed. These are important in the discussion of peer rejection in order to see the possible results of aggressors being socially underdeveloped in the earlier stages. Peer rejection at the school age can have impacts on the entire life span. Although childhood social difficulty is not always a good predictor of adult outcomes, peer rejection needs to be addressed and differences accepted among peers as early as possible to avoid any type negative of long-lasting effects.

The sixth stage is young adulthood. In this stage, a person develops a sense of relational intimacy to share with a partner. Society expects people to become involved in some form of a marriage or union to keep the society in existence. If a person is unable to "share or be-shared", they will experience a sense of isolation and not continue in a healthy development.

The seventh stage is adulthood. This is the point where the person becomes a productive and contributing member of society. They are socially accepted and do not do anything to negatively affect the society (crime).

The final stage of maturity can be summed up as:

> …if the person has not experienced these events-if, for example, he or she has felt mistrustful, ashamed, guilty, and inferior, and has felt a sense of role confusion, isolation and stagnation-then he or she will not be enthusiastic about these last years of his or her life. (Lerner 2002, Pg. 428)

In summary, Erikson's theory of psychosocial development encompasses the entire life span. Erikson explains his theory that if one of the stages is not completed correctly, those thereafter will suffer.

Using Erikson's theory of psychosocial development, the importance of addressing peer rejection as early and quickly as possible is highlighted. Children should be taught early on in schools to be accepting of all classmates, regardless of their differences. If students can begin to learn that everyone is unique, and learn to accept and embrace the unique characteristics each person has to offer, the cycle of peer victimization and bullying can be broken.

Based on the research presented below, it seems that bullies tend to target those who are more vulnerable and perceived to be less powerful than they are. The population of children and adolescents with disabilities falls in this category. Although Erikson's theory provides a lens for discussing the peer rejection and the aggressor, it also highlights the need for solutions to aid the victims and provide them with the resilience to overcome bullying.

Theoretical Limitations

Erikson's theory of psychosocial development is able to adequately discuss and highlight the effects of peer rejection in the life span of human development. On the topic of peer rejection, the theory does fail to thoroughly discuss solutions and

implications if a person does face a conflict in completing a specific stage. Instead of offering possible solutions to the various crises' that occur at each stage, Erikson merely states that if they cannot achieve the stage at the proper time, the rest of their development is doomed. Therefore, by not offering solutions to the negative outcomes of the crisis, the theory is limited on how it can be used to correct the behavior. Also, the theory seems to rely on a "norm" for development. Development among children is not at all a uniform process, but rather unique based on each child's abilities and characteristics. The theory does not take into account that all children can develop at different speeds than others.

Bullying among Adolescents with Disabilities

Despite the media coverage of bullying in recent years, research involving bullying and students with disabilities has not been included in most research (Swearer, Wang, Maag, Siebecker, Frerichs 2012) although research on bullying among adolescents with disabilities has suggested that this population is more at risk for being bullied than their peers (Rose, 2011). The lack of research is rather surprising considering that students with disabilities usually display characteristics attributed to victims of bullying. These characteristics include emotional ability, anxiety, low frustration tolerance, anger and academic unachievement (Grills & Ollendick, 2002). Van Cleave and Davis (2006) found that students with behavioral, emotional, or developmental disabilities were two times more likely to be victims of bullying.

Bullying has been one of the main reasons for suicidal thoughts and suicide attempts among adolescents (Kim & Leventhal, 2008). Media coverage has focused on the negative influence of social media sites to cyber bully teens into feeling

humiliated, alone and eventually have them contemplate or taking their own lives. Adolescents with disabilities experience higher rates of bullying than their peers, and therefore I predict can experience higher rates of suicide thoughts and attempts. Programs need to be developed to assist those adolescents with and without disabilities. Researchers and clinicians alike agree that school-based programs need to be geared towards addressing bullying and how adolescents cope with be bullied, including programs to assist those who turn to drastic measures, such as suicide. They believe that if these programs are developed and integrated into the school system correctly, the issue of teen suicide among adolescents with disabilities can be significantly reduced (Cooper, Clements & Holt, 2011).

Suicide among Adolescents with Disabilities

A literature search between 2000 and 2012 containing the search words "adolescents with disabilities" and "suicide" resulted in one article. Ludi, Ballard, Greenbaum, Pao, Bridge, Reynolds & Horowitz (2012) summarized how previous research had indicated that suicide screenings could effectively detect suicide risk and initiate clinical evaluation and management. However, there are no such measures that screen for suicide risk for individuals with disabilities. Ludi, Ballard, Greenbaum, Pao, Bridge, Reynolds & Horowitz (2012) indicated that suicide risk is prevalent in this population and youth and adolescents with disabilities have suicidal thoughts and attempts. Their final conclusion stated "Standardized suicide risk screening is challenged by the lack of measures developed for this population" (Ludi, Ballard, Greenbaum, Pao, Bridge, Reynolds & Horowitz, 2012).

Research Questions

This research aims to answer two primary research questions:

- Do adolescents with disabilities in Delaware report being bullied more frequently than those without a disability?
- Is bullying more likely to be associated with suicide thoughts/attempts by adolescents with disabilities in Delaware than those without a disability?

I hypothesize adolescents with disabilities will report being bullied more than their peers without disabilities and will as a result experience higher rates of thoughts, attempts and/or plans of suicide.

Chapter 3

PROPOSED METHODS

The research questions will be answered by analyzing data provided by the Youth Risk Behavior Surveillance System (YRBS). The YRBS is an epidemiological surveillance system created by the Centers for Disease Control and Prevention (CDC) to monitor and document risky behaviors that may negatively affect the health of youth and adolescents in the United States. The survey concentrates on health-risk behaviors that may result in mortality, morbidity, disabilities and social problems during youth and adulthood. These include, but are not limited to, behaviors such as unintentional and intentional injuries and violence, sexual behaviors that may lead to unintended pregnancies and sexually transmitted diseases, use of alcohol and other drugs, tobacco use, unhealthy dietary habits and inadequate physical activity. The YRBS also highlights the prevalence of obesity in youth and young adults. Results from the YRBS are used by the CDC to:

- Monitor how priority health-risk behaviors among high school students (grades 9-12) increase, decrease or remain the same over time
- Evaluate the impact of broad national, state and local efforts to prevent priority health-risk behaviors
- Monitor progress in achieving relevant national health objectives
- Focus school health programs and policies on the behaviors that contribute most to the leading causes of mortality and morbidity

States are allowed to add and take away questions from the core questions required by CDC. Delaware is one of five states (Massachusetts, North Carolina, North Dakota, Rhode Island and Delaware) to include questions about disability status on the YRBS. Students are considered to have a disability if they answered "Yes" to one or both of the following questions (possible answers include "Yes" and "No"):

- Do you have any physical disabilities or long-term health problems? (Long-term means 6 months or more.)
- Do you have any long-term emotional problems or learning disabilities? (Long-term means 6 months or more.)

Delaware reported 19.9% (409 students) as having a disability and 80.1% (1651 students) as not having a disability based on their responses to the above questions (1872 with "Not Sure" category included into the "No" category). These numbers can be compared to North Dakota reporting 31.7% (8448 students) as having a disability and 68.3% (18170 students) as not having a disability (21106 students with "Not Sure" category included into the "No" category) and Rhode Island reporting 25.3% (9521 students) as having a disability and 74.7% (28089 students) as not having a disability (31891 with "Not Sure" category included into the "No" category). Information for Massachusetts and North Carolina were not available. Both North Dakota and Rhode Island distributed the survey to inclusion classrooms and special education classrooms, while Delaware only distributed the survey to inclusion classrooms. This explains the larger percentages of students having a disability in North Dakota and Rhode Island as compared to the smaller percentage in Delaware. This information can be found in Table 2 below.

Sample

The YRBS surveyed all regular, public, Catholic and other private school students in high school (grades 9-12) in the 50 States and the District of Columbia. Schools were selected systematically with probability proportional to enrollment in grades 9-12 using a random start. A total of one hundred and ninety-four schools were sampled. The 2011 national YRBS response rate included an 81% school response rate, an 87% student response rate for an overall response rate of 71%. This rule was calculated by dividing the numbers of schools that participated (158) by the number of schools who were asked to participate (194) to obtain an 81% school response rate. The student response rate was calculated by dividing the number of questionnaires that were usable after data editing (15,425) by the total number of questionnaires (17,672) to obtain the student response rate of 87%. The response rate was calculated with the following formula: (158/194)*(15,425/17,672) which resulted in a 71% overall response rate. This number was calculated by the Centers for Disease Control and Prevention. This study analyzes data collected in Delaware.

Measures

Disability Status

Disability status is defined by the two questions: “Do you have any physical disabilities or long-term health problems? (Long-term means 6 months or more.)” and “Do you have any long-term emotional problems or learning disabilities? (Long-term means 6 months or more.).” This is the independent variable.

Thoughts/Plan/Attempts at Suicide

The dependent variable is thoughts/attempts of suicide determined by responses of "yes" to any or all of the following questions given on the 2011 Delaware YRBS:

- During the past 12 months, did you ever seriously consider attempting suicide? ("Yes" or "No" response)
- During the past 12 months, did you make a plan about how you would attempt suicide? ("Yes" or "No" response)
- During the past 12 months, how many times did you actually attempt suicide? (Responses included: "0 times", "1 time", "2 or 3 times", "4 or 5 times", "6 or more times")

Bullying

The dependent variable of bullying is determined by youth answering the following three questions:

- 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? (Responses included: "0 times", "1 time", "2 or 3 times", "4 or 5 times", "6 or more times")
- During the past 12 months, on how many days has someone threatened or injured you with a weapon such as a gun, knife, or club on school property? (Responses included: "0 times", "1 time", "2 or 3 times", "4 or 5 times", "6 or 7 times", "8 or 9 times", "10 or 11 times", "12 or more times")

- During the past 12 months, have you ever been bullied on school property? (“Yes” or “No” response)

Procedures

The YRBS is conducted in high schools across the United States, February through May, for each odd-numbered year. State surveys, such as the one conducted in Delaware, are given by state and local education agencies or by state health departments, often with assistance given by independent survey contractors.

All students in sampled classrooms are eligible to participate. Prior to administration, each student must get parental permission to take the survey. In Delaware, the questionnaires are sent to the school, and teachers from the classrooms selected administer the survey to their classes through reading a script. Once completed, the school then sends the completed surveys back to the state agency conducting the survey. The surveys are designed to protect the students’ identities in order to give them full confidence in answering each question honestly. Students complete the self-administered questionnaire during one class period and record their responses directly in a computer-scannable booklet or answer sheet. The students’ desks are spread out throughout the classroom to limit the risk of peers seeing other classmates’ answers. Students are encouraged to cover their responses with an extra paper provided by the test administrator. The surveys are sealed by the student once completed to ensure complete anonymity.

Chapter 4

ANALYTIC PLAN

Independent Variables

Disability status will be measured through the use of two questions on the YRBS. Each question will be scored as a yes/no, dichotomous variable. Three separate disability statuses will be computed: physical disabilities, emotional disabilities and a combined disability status looking at both physical and emotional disabilities as one variable. The proportion of individuals with and without a disability will be computed.

Dependent Variables

Bullying will be measured through the use of three questions on the YRBS. Each of these three questions will be scored as dichotomous: not bullied or bullied. The distribution of responses will be computed.

Suicide will be measured through the use of three questions on the YRBS addressing the consideration of suicide, the plan of suicide and the attempt of suicide. Each of these questions are scored as dichotomous. The frequency of individuals responding positively will be reported.

Co-variates

The descriptive statistics will be computed to examine the distribution of demographic characteristics such as age, race/ethnicity, grade and gender. Frequencies

and proportions will be computed for categorical variables (gender and race) and continuous variables will be described using means and standard deviation (age).

Proposed Analyses

To test the first research question, I will examine the association between disability status and bullying. A chi-square statistic will be computed to test the statistical significance between the association of bullying and disability status. Chi-square will be used since both variables are categorical.

A chi-square test will also be used to examine the association and statistical significance between disability and each of the three suicide measures: thoughts, plans and attempts.

To test the second research question, I will examine the association between bullying and each of the three suicide measures. Models will be run separately for those with and without disability. Chi-square tests will be used to examine the significance for each of these models.

For all analysis, statistical significance will be determined by a p-value less than .05. SPSS, version 20, will be as the statistical analysis software.

Missing Data

Missing data will be handled as a separate category and will be coded as "Missing", along with any responses of "Not Sure".

Chapter 5

RESULTS

Independent Variables: Disability Status

Prior to running the analysis for the two proposed research questions, the frequency of adolescents with each type of disability (physical and emotional) and a combined disability status were computed (Table 1). The first disability question, "Do you have any physical or long term health problems?" had a total of 2106 respondents (91.6%, 8.4% did not answer). Of those who answered this question, 200 (8.7%) responded "Yes" and 1906 (82.9%) responded "No". The second disability question, "Do you have any long-term emotional problems or learning disabilities?" had a total of 2110 respondents (91.8%, 8.2% did not answer). Of those who answered the question, 268 (11.7%) responded "Yes" and 1842 (80.1%) responded "No". A combined disability status was computed by looking at those respondents who said "Yes" to either or both questions above. A total of 2060 participants (89.6%, 10.4% did not answer) responded to both questions with 409 (17.8%) reporting they had some type of disability and 1651 (71.8%) reporting they did not have any type of disability. Those with missing data were eliminated from these figures.

Covariates

Descriptive statistics were computed to examine the distribution of the demographic characteristics of age, race/ethnicity, grade and gender. The original options for age were "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". Due to small sample sizes, "12 years old or younger" and "13 years" were totaled into a new variable of "14 years old or younger". The rest of the categories remained the same, totaling five possible age categories. The original options for race/ethnicity were "American Indian/Alaska Native", "Asian", "Black or African American", "Native Hawaiian/other", "White", "Hispanic/Latino", "Multiple-Hispanic", "Multiple-Non-Hispanic". Due to small sample sizes, race/ethnicity was combined into four new categories: White, Black, Hispanic and Other.

There was a statistically significant association between both gender and race/ethnicity and overall disability status. Females were more likely to report either a physical or emotional disability when compared to males (58.8% vs. 41.2%, respectively). Also, those who responded their race/ethnicity as "White" were more likely to report a disability when compared to Black, Hispanic or Other race/ethnic groups ($p < 0.05$) (see Table 3). These patterns were similar when individual disability types were examined. There was a statistically significant association between gender and race/ethnicity and physical disabilities with more females (60.5%) than males (39.5%) reporting having a physical a disability. In addition, those who responded their race/ethnicity as "White" were more likely to report having a physical disability than those who responded their race/ethnicity to be Black, Hispanic or Other (Table 3). Finally, more females (59.8%) reported an emotional disability when compared to males (40.2%). The race/ethnic difference for emotional disability was not statistically significant ($p > 0.05$) (see Table 5).

Dependent Variables

Bullying

Three questions from the YRBS were used to determine the dependent variable of bullying. These questions are:

- 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? (Responses included: “0 times”, “1 time”, “2 or 3 times”, “4 or 5 times”, “6 or more times”)
- During the past 12 months, on how many days has someone threatened or injured you with a weapon such as a gun, knife, or club on school property? (Responses included: “0 times”, “1 time”, “2 or 3 times”, “4 or 5 times”, “6 or 7 times”, “8 or 9 times”, “10 or 11 times”, “12 or more times”)
- During the past 12 months, have you ever been bullied on school property? (“Yes” or “No” response)

These questions were coded in SPSS as a yes/no dichotomous variable. Those who answered “0” to the first two questions or “No” to the third question were coded as “No”. All other responses were coded “Yes”. A chi-square test was conducted to examine whether there was a statistically significant association between each of the three bullying questions and the three disability types (i.e., combined, physical and emotional). Adolescents with any disability (either physical or emotional or both) were more likely to be bullied than those with no reported disability (all p-values < 0.05). Of adolescents who reported a type of disability (emotional, physical or both), 30.8% have been bullied on school property compared to 11.4% of adolescents with

no reported disability. The associations were similar for each bullying question and across each disability type (see results in Tables 6, 7 and 8).

Suicide

Three questions on the YRBS were used to determine the dependent variable of suicide. These questions are:

- During the past 12 months, did you ever seriously consider attempting suicide? ("Yes" or "No" response)
- During the past 12 months, did you make a plan about how you would attempt suicide? ("Yes" or "No" response)
- During the past 12 months, how many times did you actually attempt suicide? (Responses included: "0 times", "1 time", "2 or 3 times", "4 or 5 times", "6 or more times")

The responses were coded in SPSS as a yes/no dichotomous variable. For the third question, responses of "0 times" were coded as "No" and other responses were coded as "Yes". A chi-square test was conducted to examine whether there was a statistically significant association between each of the three suicide questions and the three disability types (i.e., combined, physical and emotional). The statistical tests conducted looked at the statistical significance between each of the three questions and the three possible disability statuses (combined, physical and emotional). Adolescents who had any type of disability (combined, physical or emotional) were more likely have suicide thoughts, plans or attempts than those who responded as not having any type of disability. Of adolescents who reported having a type of disability (physical, emotional or both), 18.7% attempted suicide compared to 3.4% of adolescents with no reported disability. Similar patterns were evident when the

individual disability types were examined. Regardless of physical or emotional disability, adolescents reporting any disability were more likely to have suicide thoughts, plans and/or attempts when compared to those with no disability (all p-values < 0.05; see Tables 9, 10 and 11).

Bullying compared to Suicide Ideation

In order to examine the relationship between bullying, disability status and suicide ideation, the three bullying questions were combined into one variable. Responses of "Yes" to either or all of the three bullying questions were coded as "Yes" or bullied and responses of "No" to all three bullying questions were coded as "No" or not bullied. A chi-square test was used to examine whether there was a statistically significant association between bullying, disability status and each of the suicide related dependent variables. For the question on suicide thoughts overall analysis resulted in a significant chi square statistic of 131.87 (df 1) $p< 0.001$; for the question on suicide plans the analysis resulted in a significant chi-square statistic of 108.561 (df 1) $p<0.001$; for the question on suicide attempts the analysis resulted in a significant chi-square statistic of 108.481 (df 1) $p<0.001$. Additionally within group chi-squares were conducted as a component of these analysis. The results of these tests are reported below along with tables detailing the frequency counts and percentages within each cell separately for adolescents with and without a disability.

Of the respondents who reported having any disability and considered attempting suicide, 36.4% were bullied while 22.0% were not bullied. Of those respondents who reported not having a disability and considered attempting suicide, 14.9% were bullied and 5.9% were not bullied.

Of respondents who reported having any disability and made a plan about attempting suicide, 32.5% were bullied compared to 15.0% who were not bullied. Of those respondents who reported not having a disability and made a plan about attempting suicide, 10.4% were bullied while 4.5% were not bullied.

Of those respondents who reported having any disability and attempted suicide in the past 12 months, 28.5% were bullied and 13.0% were not bullied. Of those respondents who reported not having a disability and attempted suicide in the past 12 months, 8.3% were bullied and 2.5% were not bullied. These finding are consist for those respondents with an emotional disability or a physical disability as shown in tables 12, 13 and 14.

Chapter 6

DISCUSSION AND CONCLUSIONS

Adolescents in Delaware who report having a disability are more likely to be bullied, and have thoughts/plans/attempts at suicide than adolescents who report not having a disability.

These findings are consistent with prior literature Rose (2011) suggested that the population of adolescents with disabilities is at an increased risk for being bullied by their peers. In addition, Van Cleave and Davus (2006) found that students with behavior and emotional disabilities were two times likely to be victims of bullying. The percentages presented in Tables 5, 6 and 7 show that according to the questions asked on the YRBS, students with physical, emotional or both types of disabilities are at least twice as likely to be victims of some form of bullying. Pertaining to the topic of suicide among adolescents with disabilities, Ludi, Ballard, Greenbaum, Pao, Bridge, Reynolds & Horowitz (2012) indicated that suicide risk is prevalent among adolescents with disabilities.

The findings of this research not only found that adolescents who report having a disability also report thinking about, planning and/or attempting suicide more often than adolescents who reported not having a disability, but also found a correlation between disability status, bullying and suicide ideation. Students with a disability (emotional, physical, or both) who reported being bullied also reported having thoughts/attempts/plans of suicide more than adolescents with and without a disability who did not report being bullied.

Strengths

This research study has a number of strengths. The large sample size provided by secondary data (YRBS 2011) provided more accuracy when reporting the data and also the ability to segment the data into a number of categories in order to answer specific questions of interest. Also, the survey asked sensitive questions about risky behavior typically not asked in most surveys. This allows for new research studies to be conducted analyzing who may engage in risky behaviors and eventually lead to possible answers as to why adolescents may engage in such activities and behaviors. In addition, Delaware was only five states to ask the two disability questions. This makes this sample especially unique and allows for further in-depth analysis.

Weaknesses/Limitations

The YRBS is a self-reported survey, therefore it is impossible to determine the validity of the answers provided and if data is being underreported or over reported. The survey applies only to those students who attend school, and are therefore not representative of all persons in the age groups. An accurate reading of suicide ideation is impossible to achieve since those who committed suicide are excluded from the statistics. In addition, not all parents may give permission for their children to participate in the study. The survey does not measure the effectiveness of specific interventions (professional development, school curriculum, media campaign) and therefore cannot measure the effort a school makes in decreasing risky behavior among their students. Also, the YRBS only focuses on the leading causes of morbidity and mortality among youths, it does not look at why adolescents may engage in risky behaviors or possible solutions/interventions. Finally, the YRBS fails

to measure social class, therefore an association between risky behaviors and social class cannot be addressed.

The analysis conducted was cross-sectional. It is impossible to analyze if bullying among adolescents with disabilities causes suicide or whether suicide may cause an adolescent with disabilities to be bullied. The study highlights a definite correlation between the two but does not specify which factor causes the other.

Conclusions

The Centers for Disease Control and Prevention (CDC) reported 106 suicide deaths in Delaware in 2010 (the most recent year for which data are available), which is equivalent to 11.2 deaths per 100,000 people. This can be compared to the national average of 38,364 suicide deaths in 2010 or 12.1 deaths per 100,000 people.

In 2012, a report from the CDC reported that between January 1 and May 4, there were 8 suicide deaths in Kent and Sussex Counties, and 116 suicide attempts from students between the ages of 13 and 21. The number of suicide deaths in just five months exceeded the number of suicide deaths typically reported in these two counties for the entire year (the average is 4 suicide deaths/year). The Delaware Department of Health and Human Services: Division of Public Health requested assistance from the CDC to examine risk factors and make recommendations about potential strategies the community can utilize to prevent future suicides. The CDC found common circumstances surrounding the suicides to include mental health problems and recent problems with peers. The CDC indicated that precipitating events can often trigger suicide attempts in an already vulnerable person or population. They highlighted a need for after school activities for youth in Kent and Sussex counties and suggested the lack of such activities may be a contributor to teen suicide in these areas of the

state. They also suggested periodic mental health awareness training for persons serving youth and adolescents.

Suicide among adolescents is an increasing problem in the state of Delaware. Vulnerable populations have been highlighted to be at-risk, especially if they have other contributing factors, such as being bullied and/or negative interaction with peers. Adolescents with disabilities who are bullied by their peers are at an increased risk of suicide ideation. The need for programs to help those who are struggling with being bullied are needed for all adolescents, especially those at-risk in the disability population.

TABLES

Table 1 Frequency of adolescents with each type of disability and combined disability status

	Yes (N, %)	No (N, %)	Total (N, %)
Do you have any physical disabilities or long-term health problems?	200 (8.7%)	1906 (82.9%)	2106 (91.6%)
Do you have any long-term emotional problems or learning disabilities?	268 (11.7%)	1842 (80.1%)	2110 (91.8%)
Overall disability status	409 (17.8%)	1651 (71.8%)	2060 (89.6%)

Table 2 Frequency of adolescents with and without a disability for Delaware, North Dakota, and Rhode Island (information for Massachusetts and Rhode Island not available)

	Disability (N, %)	No Disability (N, %)
Delaware	409 (19.9%)	1651 (80.1%)
North Dakota	8448 (31.7%)	18170 (68.3%)
Rhode Island	9521 (25.3%)	28089 (74.7%)
Massachusetts	Not available	Not available
North Carolina	Not available	Not available

Table 3 Demographic characteristics by combined disability status

	Combined disability Status		**Chi-Square Tests**		
Demographic Value	Yes (N, %)	No (N, %)	x^2	df	p-value
Sex					
Male	166 (41.2%)	866 (52.9%)	17.838	1	0.000
Female	237 (58.8%)	770 (47.1%)			
Race/ethnicity					
White	199 (50.1%)	829 (51.4%)	175.918	1	0.000
Black	96 (24.2%)	429 (26.6%)			
Hispanic	49 (12.3%)	210 (13.0%)			
Other	53 (13.4%)	144 (8.9%)			
Age (years)					
14	17 (4.2%)	112 (6.8%)	4.436	4	0.350
15	67 (16.6%)	247 (15.1%)			
16	108 (26.8%)	412 (25.1%)			
17	138 (34.2%)	575 (35.1%)			
18	73 (18.1%)	293 (17.9%)			
Grade					
9	74 (19.0%)	310 (19.1%)	3.633	3	0.304
10	81 (20.8%)	272 (16.8%)			
11	153 (39.2%)	666 (41.1%)			
12	82 (21.0%)	372 (23.0%)			

*Column totals vary due to missing data

Table 4 Demographic characteristics by physical disability status

	Physical Disabilities		**Chi-Square Tests**		
Demographic Value	Yes (N, %)	No (N, %)	x^2	df	p-value
Sex					
Male	77 (39.5%)	979 (51.8%)	10.767	1	0.001
Female	118 (60.5%)	910 (48.2%)			
Race/ethnicity					
White	88 (45.4%)	970 (52.1%)	10.331	3	0.016
Black	50 (25.8%)	483 (26.0%)			
Hispanic	25 (12.9%)	240 (12.9%)			
Other	31 (16.0%)	168 (12.9%)			
Age (years)					
14	13 (6.6%)	123 (6.5%)	0.897	4	0.925
15	29 (14.7%)	293 (15.5%)			
16	55 (27.9%)	476 (25.2%)			
17	65 (33.0%)	669 (35.4%)			
18	35 (17.8%)	331 (17.5%)			
Grade					
9	40 (21.2%)	358 (19.2%)	2.614	3	0.455
10	34 (18.0%)	327 (17.5%)			
11	82 (43.4%)	763 (40.8%)			
12	33 (17.5%)	420 (22.5%)			

*Column totals vary due to missing data

Table 5 Demographic characteristics by emotional disability status

	Emotional Disabilities		**Chi-Square Tests**		
Demographic Value	Yes (N, %)	No (N, %)	x^2	df	p-value
Sex					
Male	107 (40.2%)	962 (52.7%)	14.553	1	0.000
Female	159 (59.8%)	862 (47.3%)			
Race/ethnicity					
White	137 (52.5%)	914 (50.9%)	1.379	3	0.710
Black	64 (24.5%)	475 (26.4%)			
Hispanic	31 (11.9%)	237 (13.2%)			
Other	29 (11.1%)	170 (9.5%)			
Age (years)					
14	9 (3.4%)	127 (7.0%)	5.404	4	0.248
15	47 (17.7%)	283 (15.5%)			
16	69 (26.0%)	455 (24.9%)			
17	91 (34.3%)	634 (34.7%)			
18	49 (18.5%)	328 (18.0%)			
Grade					
9	48 (18.8%)	352 (19.5%)	4.749	3	0.191
10	57 (22.4%)	305 (16.9%)			
11	94 (36.9%)	736 (40.8%)			
12	56 (22.0%)	411 (22.8%)			

*Column totals vary due to missing data

Table 6 Association between disability and bullying by combined disability status

	Combined Disability Status		**Chi-Square Tests**		
Bullying	Yes (N, %)	No (N, %)	x^2	df	p-value
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?					
Yes	43 (10.6%)	49 (3.0%)	42.943	1	0.000
No	364 (89.4%)	1598 (97.0%)			
During the past 12 months, on how many days has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?					
Yes	44 (10.8%)	73 (4.4%)	24.393	1	0.000
No	365 (89.2%)	1573 (95.6%)			
During the past 12 months, have you ever been bullied on school property?					
Yes	124 (30.8%)	188 (11.4%)	93.765	1	0.000
No	279 (69.2%)	1457 (88.6%)			

*Column totals vary due to missing data

Table 7 Association between disability and bullying by physical disability status

	Physical Disabilities		**Chi-Square Tests**		
Bullying	Yes (N, %)	No (N, %)	x^2	df	p-value
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?					
Yes	20 (10.1%)	70 (3.7%)	17.808	1	0.000
No	179 (89.9%)	1831 (96.3%)			
During the past 12 months, on how many days has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?					
Yes	20 (10.0%)	94 (4.9%)	8.998	1	0.003
No	180 (90.0%)	1806 (95.1%)			
During the past 12 months, have you ever been bullied on school property?					
Yes	55 (27.5%)	264 (13.9%)	25.763	1	0.000
No	145 (72.5%)	1630 (86.1%)			

*Column totals vary due to missing data

Table 8 Association between disability and bullying by emotional disability status

	Emotional Disabilities		**Chi-Square Tests**		
Bullying	Yes (N, %)	No (N, %)	x^2	df	p-value
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?					
Yes	34 (12.7%)	60 (3.3%)	49.005	1	0.000
No	233 (87.3%)	1778 (96.7%)			
During the past 12 months, on how many days has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?					
Yes	33 (12.3%)	87 (4.7%)	24.980	1	0.000
No	235 (87.7%)	1750 (95.3%)			
During the past 12 months, have you ever been bullied on school property?					
Yes	97 (37.0%)	223 (12.2%)	109.663	1	0.000
No	165 (63.0%)	1612 (87.8%)			

*Column totals vary due to missing data

Table 9 Association between combined disability status and suicide ideation

	Combined Disability Status		**Chi-Square Tests**		
Suicide	Yes (N, %)	No (N, %)	x^2	df	p-value
During the past 12 months, did you ever seriously consider attempting suicide?					
Yes	111 (27.4%)	119 (7.3%)	131.867	1	0.000
No	294 (72.6%)	1519 (92.7%)			
During the past 12 months, did you make a plan about how you would attempt suicide?					
Yes	87 (21.5%)	88 (5.4%)	108.561	1	0.000
No	317 (78.5%)	1555 (94.6%)			
During the past 12 months, how many times did you attempt suicide?					
Yes	66 (18.7%)	47 (3.4%)	108.481	1	0.000
No	287 (81.3%)	1339 (96.6%)			

*Column totals vary due to missing data

Table 10 Association between physical disability status and suicide ideation

	Physical Disabilities		**Chi-Square Tests**		
Suicide	Yes (N, %)	No (N, %)	x^2	df	p-value
During the past 12 months, did you ever seriously consider attempting suicide?					
Yes	42 (21.0%)	195 (10.3%)	20.498	1	0.000
No	158 (79.0%)	1694 (89.7%)			
During the past 12 months, did you make a plan about how you would attempt suicide?					
Yes	34 (17.0%)	144 (7.6%)	20.538	1	0.000
No	166 (83.0%)	1750 (92.4%)			
During the past 12 months, how many times did you attempt suicide?					
Yes	30 (17.1%)	80 (5.0%)	39.703	1	0.000
No	145 (82.9%)	1513 (95%)			

*Column totals vary due to missing data

Table 11 Association between emotional disability status and suicide ideation

	Emotional Disabilities		**Chi-Square Tests**		
Suicide	Yes (N, %)	No (N, %)	x^2	df	p-value
During the past 12 months, did you ever seriously consider attempting suicide?					
Yes	94 (35.6%)	144 (7.9%)	175.918	1	0.000
No	170 (64.4%)	1684 (92.1%)			
During the past 12 months, did you make a plan about how you would attempt suicide?					
Yes	73 (27.8%)	107 (5.8%)	140.764	1	0.000
No	190 (72.2%)	1726 (94.2%)			
During the past 12 months, how many times did you attempt suicide?					
Yes	52 (22.9%)	61 (3.9%)	119.894	1	0.000
No	175 (77.1%)	1491 (96.1%)			

*Column totals vary due to missing data

Table 12 Association between bullying and suicide ideation by combined disability status

		Disability Combined		**Chi-Square Tests**		
		Yes	No	x^2	df	p-value
Bullied	During the past 12 months, did you ever seriously consider attempting suicide?					
	Yes	55 (36.4%)	37 (14.9%)	24.464	1	0.000
	No	96 (63.6%)	211 (85.1%)			
	During the past 12 months, did you make a plan about how you would attempt suicide?					
	Yes	49 (32.5%)	26 (10.4%)	30.103	1	0.000
	No	102 (67.5%)	224 (89.6%)			
	During the past 12 months, how many times did you attempt suicide?					
	Yes	37 (28.5%)	18 (8.3%)	24.594	1	0.000
	No	93 (71.5%)	198 (91.7%)			
		Disability Combined		**Chi-Square Tests**		
		Yes	No	x^2	df	p-value
Not Bullied	During the past 12 months, did you ever seriously consider attempting suicide?					
	Yes	56 (22.0%)	82 (5.9%)	72.825	1	0.000
	No	198 (78.0%)	1308 (94.1%)			
	During the past 12 months, did you make a plan about how you would attempt suicide?					
	Yes	38 (15.0%)	62 (4.5%)	41.914	1	0.000
	No	215 (85.0%)	1331 (95.5%)			
	During the past 12 months, how many times did you attempt suicide?					
	Yes	29 (13.0%)	29 (2.5%)	52.005	1	0.000
	No	194 (87.0%)	1141 (97.5%)			

*Column totals vary due to missing data

Table 13 Association between bullying and suicide ideation by physical disability status

		Physical Disability		**Chi-Square Tests**		
		Yes	No	x^2	df	p-value
Bullied	During the past 12 months, did you ever seriously consider attempting suicide?					
	Yes	21 (30.9%)	69 (20.2%)	3.745	1	0.053
	No	47 (69.1%)	272 (79.8%)			
	During the past 12 months, did you make a plan about how you would attempt suicide?					
	Yes	21 (30.9%)	50 (14.6%)	10.557	1	0.001
	No	47 (69.1%)	293 (85.4%)			
	During the past 12 months, how many times did you attempt suicide?					
	Yes	17 (29.8%)	33 (11.3%)	13.331	1	0.000
	No	40 (70.2%)	259 (88.7%)			
		Physical Disability		**Chi-Square Tests**		
		Yes	No	x^2	df	p-value
Not Bullied	During the past 12 months, did you ever seriously consider attempting suicide?					
	Yes	21 (15.9%)	126 (8.1%)	9.196	1	0.002
	No	111 (84.1%)	1422 (91.9%)			
	During the past 12 months, did you make a plan about how you would attempt suicide?					
	Yes	13 (9.8%)	94 (6.1%)	2.932	1	0.087
	No	119 (90.2%)	1457 (93.9%)			
	During the past 12 months, how many times did you attempt suicide?					
	Yes	13 (11.0%)	47 (3.6%)	14.647	1	0.000
	No	105 (89.0%	1254 (96.4%)			

*Column totals vary due to missing data

Table 14 Association between bullying and suicide ideation by emotional disability status

		Emotional Disability		**Chi-Square Tests**		
		Yes	No	x^2	df	p-value
Bullied	During the past 12 months, did you ever seriously consider attempting suicide?					
	Yes	49 (42.2%)	47 (15.9%)	32.410	1	.000
	No	67 (57.8%)	249 (84.1%)			
	During the past 12 months, did you make a plan about how you would attempt suicide?					
	Yes	41 (35.3%)	35 (11.7%)	31.029	1	.000
	No	75 (64.7%)	263 (88.3%)			
	During the past 12 months, how many times did you attempt suicide?					
	Yes	30 (30.0%)	26 (10.1%)	21.677	1	.000
	No	70 (70.0%)	232 (89.9%)			
		Emotional Disability		**Chi-Square Tests**		
		Yes	No	x^2	df	p-value
Not Bullied	During the past 12 months, did you ever seriously consider attempting suicide?					
	Yes	45 (30.4%)	97 (6.3%)	101.082	1	.000
	No	103 (69.6%)	1435 (93.7%)			
	During the past 12 months, did you make a plan about how you would attempt suicide?					
	Yes	32 (21.8%)	72 (4.7%)	67.452	1	.000
	No	115 (78.2%)	1463 (95.3%)			
	During the past 12 months, how many times did you attempt suicide?					
	Yes	22 (17.3%)	35 (2.7%)	64.183	1	.000
	No	105 (82.7%)	1259 (97.3%)			

*Column totals vary due to missing data

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