"Why You Gotta Be So Mean?" Examining The Impact Of Underlying Social Factors On Traditional And Cyberbullying Offending

2017

Emily Strohacker
University of Central Florida

“WHY YOU GOTTA BE SO MEAN?” EXAMINING THE IMPACT OF UNDERLYING SOCIAL FACTORS ON TRADITIONAL AND CYBERBULLYING OFENDING

by

EMILY R. STROHACKER

B.S. University of Central Florida, 2012

M.A. University of Central Florida, 2014

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Sociology
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Spring Term
2017

Major Professor: Lin Huff-Corzine

ABSTRACT

Instances of traditional school yard bullying among adolescents have been examined by researchers for decades. More recently, cyberbullying has been introduced among adolescents and has begun to be seen as a counterpart to traditional offending behaviors. Scholars have examined the rates of these types of offending, as well as the negative outcomes that result from victimization. However, studies examining the underlying factors that lead to these types of offending, specifically a comparison and combination of the two, are few and far between. This research examines how factors of strain, association with deviant peers, alcohol and/or drug use, and time spent with friends may influence an adolescent's likelihood to engage in any or all offending behaviors. Data are from the Health Behavior in School-Aged Children for which a national sample of 12,642 adolescents aged 10 to 17 years, in grades 5 through 10 were surveyed during the 2009-2010 school year, to assess behaviors that have been linked to health-risks among adolescents. Results indicate that specific factors of strain, drug and/or alcohol use, deviant peers, and time spent with peers significantly impact cyberbullying offending, traditional bullying offending, and both types of offending combined, among adolescents. The findings show that further action should be taken to reduce rates of all types of bullying among adolescents in schools and homes.

Keywords: cyberbullying, traditional bullying, strain, deviance, peer relations

For Jaden Ackerman.

“Education is the most powerful weapon which you can use to change the world.”

– Nelson Mandela

“You have brains in your head. You have feet in your shoes. You can steer yourself any direction you choose.”

– Dr. Seuss

ACKNOWLEDGMENTS

To my mother, Mona-Celeste Didone: What do you say to the woman who has given you a world of opportunity? Thank you is not enough. Because of your sacrifice and never ending support, you have allowed me to achieve things I never thought possible. You've taught me the important of a strong work ethic and have helped to guide me to become the woman I am today. Thank you for standing by my side no matter my mood, and reassuring me that everything will work out. You are an incredible mother and role model and I am so lucky to have you in my life, not only as my mom but as one of my best friends.

To Colt Priesman: You are hands down the greatest dude life could ever bring me. I am so thankful to have had you by my side for the last five years while we grew as individuals and as a couple. You have been my biggest supporter and have kept me going even when I was willing to give it all up. Thank you for always bringing me Taco Bell, Papa Johns, Diet Cokes, and any other cravings my heart desires. I will always remember the night I knew you were my forever, when you let me get drunk and talk about the Protestant Ethic. You really are amazing. Thanks for allowing me to run a zoo in our home. I love you and our family. I can't wait to see what adventures are in store for us next. I can't wait to do life with you.

To Jan Ackerman: Thank you for always encouraging me to learn new things, even if it was only so I would win our next bet. Thank you for encouraging me to be my own person and supporting me as I follow my dreams, no matter how many times they change. Thanks for putting up with me when I need to vent and talking me off the ledge more often than I'd like to admit.

To my parents, Kim and Sally Strohacker: Thank you for your continual support and encouragement. I love that every time I visit you, I leave refreshed and ready to tackle the world. Even though we may be separated by state lines, I know that you are always there with me supporting me through all my journeys. Thank you for always reminding me that I need to let loose and have a little (or a lot) fun every now and then. And for teaching me that at heart – I'm an outlaw!

To the greatest in-laws in the world, Mimi and Chad Priesman: You two have really become such an important part of my life over the last five years. I can always count on you for words of encouragement and support. Thank you for continually pushing me to grow, while always assuring me that you are there if I fall. I am so thankful that you are my third set of parents.

To my co-dependent life partner, Lauren Wright: Thank you for always being my sounding board, my constant resource section, my self-loathing supporter, my Netflix binging and overeating companion. I'm so glad that we were able to basically be the exact same person for this last chapter of our lives. I could not have done the last three years without you and Olive Garden. I can't wait to go from dissertation planning to wedding planning with you - I have a feeling it will be much more fun.

To my betches, Nicole Rosica, Kelli Browning, and Jess Bott: My ladies without whom I would cease to exist. Thank you for continuing to be there for me through it all. While undergrad was so long ago, I will forever remember our times together and be thankful that Kappa brought you to me. Thank you for always being my shoulders to cry on, allowing me to have endless venting sessions that you may or may not have actually been listening to, and keeping me afloat even when my social life officially went down the drain. Thank you for holding me together even when I was physically, mentally, and emotionally undone. I love you girls more than I can say, and there is no nerdier way for me to finally ask you – will you be my bridesmaids?

To my dissertation committee members, Drs. Lin Huff-Corzine, Jay Corzine, Melanie Hinojosa, and Michael Bachmann: Thank you for your continual guidance and support. While I may have stalked some of you in the hallway more often than others, knowing that you all were there for me throughout this process was very reassuring. Melanie, I think I will forever know the sound of your key turning in your door. Thank you all for providing constructive criticism and feedback. I am a better writer and scholar because of you.

To Traci Milbuta: Thank you for being my daily mental health counselor and monthly lunch date. You not only held Lauren and me together but you held this department together and it has been a rough few months without you! While I do not approve of your pretend "open" door policy now, I am so happy that you are happy in your new office – I mean when you are actually in there, and not in a meeting.

To the greatest group of friends, Brittanni, Kyana, Paul, Dylan: Thank you all for the greatest times of my life and continuing to support me as I turn into the grandma that I am. I love you guys!

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: AN INTRODUCTION

Traditional bullying behaviors, which have been defined as specific aggressive behaviors that intend to harm or disturb another person, have been present among adolescents for decades, particularly in the school-yard setting. These behaviors often include physical and/or verbal harassment or abuse, such as spreading rumors, ostracizing individuals, and engaging in relational aggression, and usually continue to occur repeatedly over time (Patchin & Hinduja, 2010). While traditional bullying behaviors have been primarily found to occur on middle- and high-school campuses, the continuing advancements in technology over recent years have led to the creation of electronic bullying, more commonly referred to as cyberbullying (Patchin & Hinduja, 2010; Willard, 2004). Hinduja and Patchin (2009, p.5) have defined cyberbullying as "the willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices." Similar to traditional bullying, cyberbullying behaviors are intentional and deliberate and often occur repeatedly over time (Willard, 2004). Cyberbullying can occur through the use of numerous electronic communication tools, such as email, cell phones, and various social media platforms, including Facebook, Twitter, and Instagram (Patchin & Hinduja, 2010). Through these communication tools, cyberbullying can occur in various ways, such as denigration, outing, trickery, and exclusion (Willard, 2004). In extreme cases, cyberbullying can involve harassment, threats of physical harm, commands to kill oneself, and death threats (Patchin & Hinduja, 2010).

Existing literature has shown that anywhere from 6% to 45% of adolescents between the ages of 12 and 18 years have experienced traditional bullying behaviors from their peers, have been traditional bullying offenders, or have engaged in both offending and/or experienced victimization (Wang, Iannotti, & Nansel, 2009). In regard to cyberbullying, more recent studies

show that between 10% and 40% of adolescents have been victimized, have been the perpetrators, or have engaged in both offending and experienced victimization (Hinduja & Patchin, 2015). Furthermore, studies have shown that rates of cyberbullying are increasing (Hinduja & Patchin, 2015). Existing literature on traditional bullying victimization and cyberbullying victimization has established that each of these types of victimization can have negative outcomes for adolescent individuals. For instance, traditional bullying victimization has been linked to adolescents experiencing higher levels of anxiety, depression, and lower levels of self-esteem (Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999), while cyberbullying victims have been found to engage in risky sexual behavior, misuse prescription drugs and over-the counter drugs, and be at an increased risk for suicide ideation and suicide attempts (Elgar, Napoletano, Saul, Dirks, Craig, Poteat, Holt & Koenig, 2014; Litwiller & Brausch, 2013). Yet the underlying factors that may prompt adolescents to engage in traditional offending, cyber-offending, or a combination of both types of offending behaviors is largely overlooked in existing literature. From the available literature, the primary focus of discussion is on the potential negative outcomes that traditional offenders face, such as delinquency and depression (Olweus, 1999), as well as the rates of which these offending behaviors occur (Centers for Disease Control and Prevention, 2015b; Hinduja & Patchin, 2015; Thiegs, 2011).

As previously stated, there is little existing literature examining the relationship between traditional bullying offending, cyberbullying offending, or both types of bullying offending and the underlying social factors that prompt these offending behaviors in the first place. This study seeks to fill this gap in the literature. We will examine how factors of strain, association with deviant peers, alcohol and/or drug use, and time spent with friends may influence an adolescent's likelihood to engage in any or all of the previously listed offending behaviors. Further, we will

examine the potential mediating effects of drug and/or alcohol use, as well as time spent with friends, on the relationship between association with deviant peers and all types of offending behaviors. The theoretical frameworks that will be used to guide this study are General Strain Theory and Social Learning Theory.

Many educational institutions have anti-bullying policies in place that require administration to address any occurrences of face-to-face bullying behaviors, yet they are lacking policies to address cyberbullying behaviors (Hinduja & Patchin, 2013). Similarly, we are lacking policies and programs to address issues that put adolescents at a higher likelihood of engaging in offending behaviors. If a relationship is established among these various relationships and all types of offending behaviors among adolescents, we have the ability to create and promote educational programs and policies designed to target and address these underlying issues that may lead to offending. By creating these types of policies and/or programs, we have the potential for their latent effect to decrease offending behaviors as well.

CHAPTER 2: TYPES OF BULLYING

What Is Traditional Bullying?

According to the United States Centers for Disease Control and Prevention (2015, p.1), bullying can be defined "as any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated." Typically, traditional bullying occurs among adolescent aged individuals on school grounds (Patchin & Hinduja, 2010). Traditional bullying can be distinguished from other types of adolescent aggressive behaviors because of the unique characteristics of bullying included in many definitions, such as repeated aggression and a power imbalance favoring the aggressor, may make bullying more harmful to experience than similar forms of aggression without these characteristics (Hunter, Boyle, & Warden, 2007; Solberg & Olweus, 2003). Individuals who act as traditional bullies generally use physical force against their victims, such as hitting, kicking, punching, spitting, tripping, and pushing. Traditional bullying can also be committed through verbal communication where the offender taunts, threatens, gestures, or harasses the victim in a face-to-face situation. Furthermore, traditional bullying can be carried out relationally by behaviors that are intended to harm the reputation or relationships of the victim by means of isolation, spreading rumors, or posting embarrassing comments or images of the victim in a physical space (Centers for Disease Control and Prevention, 2015).

Prevalence of Traditional Bullying

Various estimates about the prevalence of traditional bullying among youth have been suggested by researchers due to the differences in the measurement and definition of bullying that they use (CDC, 2013). However, these estimates consistently show that a considerable number of adolescents are bullied. While estimates of traditional bullying vary, Olweus & Limber (2010) found that among 500,000 American children grades 3 through 12, 16.8% of respondents reported having been victimized, and almost 10% reported engaging in bullying behaviors between two and three times per month or more. Bradshaw and colleagues (2007) found that approximately 30% of their sample reported engaging in bullying behaviors. Thiegs (2011) conducted an online bullying survey and found that as many as 91% of his sample reported that they had experienced bullying victimization. Additionally, the Centers for Disease Control and Prevention (2015b) found that 20% of high school students from a nationally representative sample reported being the victims of traditional bullying on school property at some point within the 12 months prior to their study. A majority of the existing literature regarding prevalence of traditional bullying is focused on how many individuals are victimized. We are lacking extensive information about how many adolescents act as traditional bullying offenders, as well as how often these individuals are offending.

What Is Cyberbullying?

Over the past few decades, technology has rapidly evolved, and the availability of technology is more widespread than ever. While innovations in technology and the increase in public access to it have resulted in positive outcomes for most, issues that cause negative effects have begun to surface. A major problem that stems from the widespread access to technology is

cyberbullying. Cyberbullying has been defined as the "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (Hinduja & Patchin, 2009, p.5). Hinduja and Patchin (2009) state that cyberbullying aggressors use some form of electronic communication means to intimidate, harass, and threaten their victims. These are intentional and deliberate behaviors that often occur repeatedly over time (Willard, 2004). The most common forms of cyberbullying found today are posting hurtful messages on various social networking websites, such as Facebook; sending cruel or threatening text messages; and uploading humiliating photos, videos, or information about an individual to the Internet (Hinduja & Patchin, 2009; Kowalski & Limber, 2007).

Prevalence of Cyberbullying

Existing literature states that a significant proportion of adolescents between the ages of 12 and 18 have experienced traditional bullying victimization from their peers (Kowalski & Limber, 2007). Additionally, previous studies have found that anywhere from 10% to 40% of adolescents have been cyberbullying victims, have been cyberbullying offenders, or have engaged in both offending and experienced victimization (Hinduja & Patchin, 2015; Kowalski & Limber, 2007; Ybarra & Mitchell, 2004). Furthermore, previous studies show that the rates of cyberbullying are rising (Hinduja & Patchin, 2015). For example, in 2013, Hinduja and Patchin (2013) found that approximately 24.1% of their sample reported experiencing cyberbullying victimization at some point in their lifetime. When the study was conducted again in 2015, Hinduja and Patchin (2015) found that 34% of their sample reported victimization at some point in their lifetime. Furthermore, Hinduja and Patchin (2015) showed that in just 30 days prior to their study, 21% of their sample had been a victim of cyberbullying and 6% reported having been a cyberbully. Finally, Hinduja

and Patchin (2010) found that 77% of those who reported being a cyberbully also reported engaging in traditional bullying behaviors.

Prior research shows inconsistencies regarding whether or not there is a gender difference among adolescents who report being a cyberbullying offender. Hinduja and Patchin (2015) found that boys were more likely than girls to report cyberbullying others in their lifetime (15.5% vs. 14%). However, various studies have shown that adolescent girls are just as likely, if not more likely, than boys to report being a cyberbullying offender (Floros et al., 2013; Hinduja & Patchin, 2009; Schneider et al., 2012). However, research has shown that there are differences regarding the way in which an adolescent engages in cyberbullying depending on their genders. Hinduja & Patchin (2015) found that boys who cyberbullied were more likely to uses methods such as posting hurtful images, pictures, or videos of their victim. In contrast, girls most often posted mean comments online (Hinduja & Patchin, 2015).

Traditional Bullying vs. Cyberbullying

While psychological and indirect forms of traditional bullying, i.e., spreading rumors, ostracizing individuals, are similar to cyberbullying behaviors, there are specific characteristics associated with cyberbullying that distinguish it from traditional bullying (Patchin & Hinduja, 2010). For example, while traditional bullying is often done face-to-face, cyberbullying allows an aggressor to remain anonymous if they so choose by using fake email accounts and pseudonyms in social media (Kowalski & Limber, 2007). In addition to anonymity, using electronic communication to commit bullying behaviors keeps physical distance between the aggressor and their victim (Patchin & Hinduja, 2006). Patchin and Hinduja (2006) found that this physical distance allows aggressors to be more malicious than they might be in a face-to-face altercation

due to their lack of consideration of social norms, rules, morals, and laws. While the anonymity and physical distance that come with cyberbullying seem to "benefit" the aggressors, they also inhibit individuals in authority positions from taking actions against these behaviors. Educators, administrators, and other authorities are therefore unable to successfully address the growing concern of cyberbullying.

While traditional bullying and cyberbullying each have some unique characteristics, they are both typically committed by malicious offenders who are seeking implicit or explicit profits or pleasures through the exploitation of others (Hinduja & Patchin, 2007; Patchin & Hinduja, 2010). Furthermore, violence is commonly associated with aggression and involves the infliction of injury to another person, be it emotional, psychological, or physical (Hinduja & Patchin, 2007). The behavior of the offender manifests perceived or actual power over the victim. The nature of this inherent power generally differs between traditional bullying and cyberbullying (Hinduja & Patchin, 2007). For instance, traditional bullying offenders are often characterized with physical strength and social competence, both of which can give an offender a "privileged" position during a bullying scenario (Patchin & Hinduja, 2010). However, in regard to cyberbullying, being "tech savvy" or proficient with a computer may be all that's needed to give the offender power over the victim (Hinduja & Patchin, 2007). Nevertheless, each type of adolescent aggression can result in lasting emotional and behavioral consequences among victims (Elgar et al., 2014; Litwiller & Brausch, 2013).

There has also been research to suggest that the effects of cyberbullying may be more harmful than traditional bullying (Peleg-Oren, Cardenas, Comerford, & Galea, 2012). Cyberbullying can be used in conjunction with traditional bullying on school grounds, so that victims do not have reprieve from harassment and infliction of harm from perpetrators. However,

there is little research that specifically examines the relationship between traditional bullying offending, cyberbullying offending, and both types of bullying offending and the potential factors that lead to these behaviors. The purpose of this research is to examine the relationship between factors of strain, association with deviant peers, alcohol and/or drug use, and time spent with friends, on cyberbullying offending, either alone or in conjunction with traditional bullying offending.

CHAPTER 3: THE EFFECTS OF BULLYING ON ADOLESCENTS

Throughout adolescence, individuals develop a sense of what they believe and form a personal identity through which they become aware of "who they are" (Baumeister & Leary, 1995; Twenge & Campbell, 2001). Adolescents receive cues from their social environments, which are crucial to the formation of their personal identity (Baumeister & Leary, 1995). Therefore, they tend to gravitate toward behaviors and situations that result in feeling positive about themselves, and avoid situations and behaviors that create or produce negative perceptions about themselves, which may in turn play a role in the direction of their personal and professional growth trajectory (Patchin & Hinduja, 2010; Twenge & Campbell, 2001). These negative effects can be seen in various areas of adolescent development, specifically in regard to their alcohol and substance use, as well as, self-esteem and mental well-being (Patchin & Hinduja, 2010).

Alcohol Use

Existing literature shows that there is a significant relationship between traditional bullying and alcohol use (Mitchell, Ybarra, & Finkelhor, 2007). For instance, Mitchell et al. (2007) found that face-to-face bullying victimization was a significant predictor of alcohol use among adolescents. However, little is known about alcohol use and its impact on cyberbullying offending among adolescents. Peleg-Oren et al. (2012) found that though there was a low rate of cyberbullying in their sample (12%) compared to other studies, there was a higher prevalence of alcohol use for those involved in cyberbullying than for physical and verbal bullying. Victims of cyberbullying were twice as likely as those who had been victims of physical and verbal bullying to report alcohol use (Peleg-Oren et al., 2012). Goebert and colleagues (2011) found that victims of cyberbullying were almost three times as likely to engage in binge drinking when compared to

their non-bullied counterparts. As early adolescence is generally a time when the likelihood for cyberbullying victimization increases, adolescence is also an important period for initiation into alcohol use. Early initiation of alcohol use can lead to increased and problematic use in late adolescence and ultimately result in dependence in early adulthood (D'Amico, Ellickson, Collins, Martino, & Klein, 2005).

Substance Use

Adolescents who take part in behaviors that differ from the norm, such as engaging in substance use, are typically found to be at greater risk of engaging in other "health-compromising" behaviors. Much prior research shows that there is a significant relationship between traditional, or face-to-face, bullying and substance use, such as marijuana use (Mitchell, Ybarra, & Finkelhor 2007; Tharp-Taylor, Haviland, & D'Amico 2009). However, literature discussing the relationship between substance use and cyberbullying is scarce. Of the few studies conducted, Hinduja and Patchin (2008) found that adolescents who experienced cyberbullying victimization reported numerous behavioral problems, including substance use. Further, Gamez-Guadix and colleagues (2013) found that substance use was a predictor of adolescents being at an increased risk of experiencing cyberbullying victimization, but that victimization itself did not increase the likelihood of the individual engaging in substance use. Finally, one study found that adolescents who experienced cyberbullying were twice as likely to use marijuana in comparison to those who did not experience cyberbullying (Goebert, Else, Matsu, Chung-Do, & Chang 2011).

Peer Association

For decades, researchers have found that adolescents who socialize with delinquent peers are at an increased risk for engaging in delinquent behaviors themselves (Dishion, 2000; Hinduja

and Patchin, 2013; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Kammen, 1995). For example, Dishion (2000) found that adolescents who were more engaged with a deviant peer group experienced higher levels of substance use, sexual promiscuity, and arrest than their non-deviant counterparts. Additionally Keenan and colleagues (1995) found that adolescent boys who were exposed to more deviant peers were more likely to engage in disruptive and delinquent behaviors in schools, such as traditional bullying offending. The existing literature regarding association between deviant peers and cyber-offending is limited (Hinduja & Patchin, 2013). Hinduja and Patchin (2013) found that adolescents who reported that their peers had engaged in cyberbullying were significantly more likely to report that they had also engaged in cyberbullying themselves. Existing literature does not examine the potential relationship between association with deviant peers and both cyber- and traditional bullying behaviors combined. This study seeks to address this gap.

Self-Esteem

The relationship between the effect of bullying and self-esteem has garnered much scholarly attention (Jankauskiene, Kardelis, Sukys, & Kardeliene, 2008; Leary & Downs, 1995; Patchin & Hinduja, 2010). Self-esteem has been defined as the positive and negative attitudes an individual has about themselves (Leary & Downs, 1995). Additionally, Leary and Downs (1995, p. 616) consider self-esteem to be the "internal representation of social acceptance and rejection and a psychological gauge monitoring the degree to which a person is included versus excluded by others." In other words, the perception one has about their personal value is highly influenced by their participation in the social world.

Previous literature shows that adolescents who are victims of traditional bullying often have a much lower self-esteem than those who are not victimized (Jankauskiene et al., 2008). The

direction of this relationship, however, has been contested among researchers. Some argue that the experiences of victimization lead to a decrease in one's self-esteem, while others argue that those who have lower self-esteem are more likely to be targeted as victims (Jankauskiene et al., 2008; Leary & Downs, 1995). The relationship between the bullying offender and self-esteem has shown much more variation. Studies have found that offenders may have both higher (Jankauskiene et al., 2008) and lower (Leary & Downs, 1995) self-esteems than those who do not bully.

Depression and Suicidal Tendencies

Existing literature shows a significant relationship between bullying victims, as well as bullying offenders, and rates of depression, serious suicidal ideation, and suicide attempts among adolescents (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). Additionally, this study found that individuals who commit more serious bullying offenses, such as physical assaults, were also at greater risk of developing depression and suicide ideation, as well as attempting suicide (Klomek et al., 2007). Previous studies have concluded that, in regard to youth, the most mentally disturbed groups of individuals are those involved in the bully-victim groups (Klomek et al., 2007).

Previous research has shown that gender is associated with rates of participation in bullying behaviors, as well as with rates of depression and suicide (Klomek et al., 2007). For example, Klomek et al. (2007) found that girls who traditionally bullied others were at greater risk for depression and suicide ideation and attempts, even when the number of occurrences of bullying behaviors were lower than their non-bullying counterparts. However, among boys only those who engaged in reoccurring bullying behaviors were at significantly higher risk for depression, suicide ideation, and suicide attempts. Researchers have argued that the occurrence of bullying behaviors among male adolescents can be considered a somewhat normative behavior, as boys compared to girls generally have higher levels of aggression (Wasserman, McReynolds, Ko, Katz, & Carpenter,

2005). When examining minority female bullies, Wasserman et al. (2005) concluded that girls who demonstrate higher levels of aggression also experience greater amounts of conduct problems and are at a higher risk for depression and other affective disorders. Thus, some have argued that bullying behaviors are an example of a "gender paradox" because female adolescents are less likely to be offenders, but compared to male adolescents, when females are victimized, they experience more severe impairments (Wasserman et al., 2005).

Filling the Gap

Existing literature is able to show how detrimental bullying victimization can be on an adolescent. From prior studies, we know that individuals who are victimized through both traditional and cyberbullying are at much higher risk of engaging in alcohol use, substance use, having lower self-esteems, and having higher rates of depression and suicidality (Goebert et al., 2011; Jankauskiene et al., 2008; Klomek et al., 2007; Mitchell, Ybarra, & Finkelhor, 2007; Peleg-Oren et al., 2012; Tharp-Taylor, Haviland, & D'Amico 2009). Existing literature also shows that individuals who engage in offending are more likely to experience depression, suicide ideation, and suicide attempts (Klomek et al., 2007). Furthermore, previous studies have found that youth who spend more time with peers who engage in delinquent behaviors are at an increased risk for engaging in delinquent behaviors themselves (Dishion, Eddy, Haas, Li, & Spracklen, 1997). However, there is a lack of studies focusing on the impact that specific behavioral factors, such as engaging in alcohol or substance use or spending time with deviant peers, have on whether or not adolescents engage in traditional and/or cyberbullying offenders. This study attempts to fill the gaps in the literature.

This study examines how factors of strain, association with deviant peers, alcohol and/or drug use, and time spent with friends may influence an adolescent's likelihood to engage in any or all of the previously listed offending behaviors, while controlling for age, sex, grade in school, race, ethnicity, and depression/anxiety. Further, we examine the potential mediating effects of drug and/or alcohol use, as well as time spent with friends, on the relationship between association with deviant peers and all types of offending behaviors.

CHAPTER 4: THEORETICAL APPLICATION

General Strain Theory

One theory which will act as the theoretical framework that this research will follow is General Strain Theory (GST)[1]. This theory proposes that there are multiple sources of strain which an individual can experience as a result of the presentation of harmful stimuli by others (Agnew, 1985). More specifically, Agnew (1992) argues that there are three primary types of strain that include: the inability to achieve "positively valued" goals; the removal of "positively valued" stimuli; and the presentation of "negatively valued" stimuli. GST argues that individuals experience strain as a result of negative relationships with others. When an individual has an unpleasant interaction with another individual, such as experiencing traditional or cyberbullying victimization, GST says that the victimized individual becomes strained. The "negatively valued" stimuli in this interaction would be the physical or emotional abuse that the victimized individual experiences. These sources of strain have been found to be indirectly linked to delinquency and other negative behavioral outcomes that strain may produce, such as feelings of anger, frustration, or sadness, which can result in the strained individual taking part in antinormative behaviors, such as drug and alcohol use (Hinduja & Patchin, 2007). Engaging in deviant behaviors may function as a coping mechanism for those who experience strain from victimization. For instance, an individual who experiences a poor home life or is victimized at school or online, may engage in drug or alcohol use as an attempt to alleviate their feelings of strain.

Previous studies have found empirical evidence supporting General Strain Theory (Agnew & White, 1992; Paternoster & Mazerolle, 1994). Agnew and White (1992) found general support

[1] General Strain Theory (GST) will be the guiding theory, but strain will also be examined as an independent variable.

for the theory, as strain was found to be significantly and positively associated with drug use and delinquency. In addition, Paternoster and Mazerolle (1994) replicated the study conducted by Agnew and White (1992) and supported their findings. Paternoster and Mazerolle (1994) concluded that individuals may engage in delinquent behaviors because their bonds to conventional institutions are weakened, and their relationships with other deviants are strengthened, once they have experienced strain.

Furthermore, previous literature discussed the application of GST to cyberbullying in regard to social acceptance among adolescents (Hinduja & Patchin, 2007). Adolescents often seek approval and affirmation by their peers; therefore, individuals may engage in offending against specific persons or groups due to the influence of their peers and their desire to attain approval from them (Hinduja & Patchin, 2007). In addition, prior studies have shown that adolescents experiencing feelings of rejection or exclusion from their peers results in a number of negative psychological and behavioral outcomes (Leary & Downs, 1995). Some may argue that cyberbullying is a trivial way for adolescents to express aggression, and see this type of aggression as something that adolescents engage in prior to maturation. These opinions are very similar to those expressed regarding traditional bullying behaviors among male adolescents, which can be considered a somewhat normative behavior, because boys generally have higher levels of aggression than female youth (Wasserman, McReynolds, Ko, Katz, & Carpenter, 2005). However, if the hypotheses of GST are correct, traditional and cyberbullying offending can and should be considered as potential results of the strain an adolescent may face in their family and school life.

Social Learning Theory

Another key theoretical framework that may be of value is Aker's (1998) Social Learning theory which argues that criminal behaviors are learned behaviors which emerge from a "dynamic social learning process" comprised of four components: differential association, definitions that support violating the laws, imitation, and differential reinforcement. It is argued that the process of social learning is driven by differential association with individuals who provide resources and support for offending over time. Existing literature suggests that one of the most important predictors of juvenile delinquency is association with deviant peers (Akers & Lee, 1996; Pratt et al., 2009; Warr, 2002). The argument is that when individuals spend more time with deviant peers, they are exposed to more deviant attitudes and justifications for engaging in delinquency that may lead to a neutralization of responsibility when engaging in criminal behaviors and a stronger perspective that delinquent behaviors are acceptable (Akers & Jensen, 2006; Pratt et al., 2009). Furthermore, existing literature argues that the more an individual associates with deviant peers, the more deviant behaviors are reinforced which makes them more likely they are to imitate the behaviors their peers engage in (Akers & Lee, 1996; Boeringer, Shehan, & Akers, 1991; Pratt et al. 2009).

In regard to cybercrimes, criminologists have found that association with deviant peers is one of the strongest predictors for participation in various types of cybercrimes, such as hacking and piracy (Bossler & Burruss, 2010; Higgins & Marcum, 2011). Furthermore, adolescents who report more support for engaging in cybercrimes and report perceptions that the "real" rules of society do not apply online are found to engage in more cyber-deviance than those with different viewpoints (Bossler & Burruss, 2010; Higgins & Marcum, 2011; Holt et al., 2010). While most literature argues that association and definition are the two major components that are most

commonly measured regarding social learning theory, there are also studies that suggest that deviant peers act as role models for adolescents to imitate and reinforce the likelihood of cybercrimes, such as cyberbullying (Holt et al., 2010).

The application of social learning theory to bullying behaviors has been somewhat limited in existing research. Hinduja and Patchin (2013) found that cyberbullying offenders could be correlated to the association with peers who also engaged in cyberbullying. Furthermore, existing literature states that adolescents who are punished by their parents or school officials for engaging in cyberbullying were less likely to continue to commit these behaviors (Hinduja & Patchin, 2013). Therefore, various aspects of social learning theory may account for adolescents engaging in cyberbullying offending, as well as a combination of both types of offending.

CHAPTER 5: METHODOLOGY

The Current Study

This research aims to explore the potential influence of an individual's perceived quality of life on the incidence of traditional bullying, cyberbullying, and both forms of offending among adolescent individuals.

The research questions that this study addresses are as follows:

1. Do individuals who experience higher home life strains engage in higher incidents of cyberbullying or both types of bullying combined, than traditional bullying?

Hypothesis 1: Adolescents individuals who experience strain in their home life will be more likely to engage in cyberbullying offending or both types of offending in comparison to traditional face-to-face bullying. For adolescents who experience more home life strain, cyberbullying may act as a coping mechanism when the child is in the home. Similarly, those who experience home life strain may not have the means to travel to or associate with peers outside the home setting. Conversely, it is hypothesized that those who experience higher levels of strain at school would be more likely to engage in traditional bullying as a means of alleviating their feelings, or getting back at the individuals or groups who may be causing strain in the first place.

2. Which specific factors of home life strain are correlated with higher incidences of bullying behaviors (traditional, cyber, or both)?

Hypothesis 2: Adolescents that experience factors of strain that may limit their ability to use the internet/technology, such as not owning a computer or perceiving their family as not well-off, will report a higher incidence of traditional bullying behavior. This can be assumed

because if the individual does not have the means to engage in cyberbullying, they would be less likely to do so. Factors of strain such as experiencing hunger or not having family meals on a regular basis, may lead individuals to engage in higher incidents of all types of bullying behaviors than those who experience less strain. These bullying behaviors might help them to cope with or alleviate their feelings from experiencing these forms of strain (Hinduja & Patchin, 2007).

3. Do individuals who have more deviant peers engage in higher incidences of bullying behaviors?

Hypothesis 3: Adolescents who report that their peer are engaged in more deviant behaviors will have higher incidents of all types of bullying behaviors than their counterparts who report that their peers are not deviant. We expect that, similar to existing literature, association with more deviant peers will lead the respondent to engage in more deviant behaviors themselves, such as bullying behaviors.

4. Do individuals who engage in more drug and/or alcohol use engage in higher incidences of bullying behaviors?

Hypothesis 4: Increases in reported alcohol use and/or substance use will increase incident reports of all types of bullying offending among adolescents. We expect that individuals may attempt to alleviate negative feelings or cope by means of alcohol or drug use, which may lower inhibitions and make the individual more likely to engage in bullying.

5. Do individuals who spend more time with friends report higher incidences of bullying behaviors?

Hypothesis 5: Adolescents who report that they spend more time with their peer are will have higher incidents of all types of bullying behaviors than their counterparts who report that they do not spend time with their peers. We expect that, similar to existing literature, the more time the adolescent spends with their peers, the more likely they are exposed to their peers' behaviors. If their peers engage in bullying behaviors, and they spend a significant amount of their time with them, it is safe to assume they would be more likely to take on those attitudes as well, which could lead to offending.

6. Does spending more time with friends mediate the relationship between the association with deviant peers and engaging in offending?

Hypothesis 6: We expect that the more deviant peers adolescent associate with and the more time they spend with these peers, the more likely they would be to imitate, neutralize, and/or justify their own engagement in all types of bullying behaviors.

7. Does engaging in drug and/or alcohol use mediate the relationship between the association with deviant peers and engaging in offending?

Hypothesis 7: We expect that the more deviant peers adolescent associate with and the more time drug and/or alcohol use they engage in, the more likely they would be engage in all types of bullying behaviors.

About the Dataset

The Health Behavior in School-Aged Children (HBSC) is a study that is a collaborative, international project conducted by the World Health Organization (WHO) with the focus of examining a variety of behaviors that contribute to the health and well-being of individuals between the ages of ten to seventeen years of age. Data for this study came from the 2009-2010 HBSC survey conducted in the United States, which assesses and monitors adolescent health and well-being behaviors in their social contexts (Iannotti, 2013). The HBSC study is has been conducted every four years since 1985-1986. The 2009-2010 version of the HBSC was used for this study as it is the most recent version of the dataset that is available for analysis. Specifically, this survey monitors a variety of behaviors that have been linked to health-risks among youth including behaviors that lead to violence and unintentional injuries; high-risk sexual behaviors; the use of tobacco products; the use of alcohol and drugs; body image and risky dieting behaviors; and physical inactivity (Iannotti, 2013). This survey fits well with this research as it has a specific section devoted to adolescents' experiences with traditional and cyberbullying offending and victimization. In addition, it has a specific set of survey questions that deal with adolescents' experiences with alcohol and drug use, peer involvement, quality of life, and depression.

The version of the HBSC used in this study obtains a nationally representative sample of students in grades 5-10 across the United States by using a "three-stage, stratified design" (Iannotti, 2013). All students in grades 5-10 in both public and private schools are included in the target population. Data are collected from all 50 states and the District of Columbia (Iannotti, 2013). Following the three-stage, stratified sample design, census divisions and grades were used as strata, and school districts were sorted into primary sampling units (PSUs) in accordance with

the size of the county in which they are located. African American and Hispanic students were oversampled in order to obtain nationally representative samples of these groups. Approximately 475 schools were eligible for participation in the 2009-2010 data collection, from which 314 school actually participated. Out of the 314 participating schools, 14,627 children were found eligible to complete the questionnaire. The day the survey was administered, 675 student respondents were absent. However, within a few days of the original administration date, 301 of the absent students completed the survey, leaving the survey with a sample size of 12,642 and a completion rate of just over 90 percent (Iannotti, 2013). The data provided are for each individual student. Students are not nested within schools, and there are no cluster effects (Iannotti, 2013).

For the national survey, the questionnaire was sent to each participating school for school representatives to administer to students (Iannotti, 2013). Some researchers have argued that allowing school officials to administer surveys to students could limit the data collection by allowing for bias, missing those respondents who dropped out of school, and influencing students to give more socially acceptable answers to please the official (Brownfield & Sorenson, 1993). However, this is a very common method of data collection and numerous national studies, such as Monitoring the Future and the Youth Risk Behavior Surveillance Study, are conducted this way. School representatives (i.e., teachers, counselors, etc.) read a script, which briefly introduced and explained the survey to the participating students. Additionally, school representatives recorded information, such as the grade level and the number of students enrolled in the sample classes. By recording this information, researchers are later able to verify sample selection and weight data. The questionnaire was conducted in a regular classroom setting and took approximately 45 minutes to complete. Since the implementation of the HBSC in the

United States, the survey has been conducted four separate times, and has an average sample size of 14,517 adolescent participants (Iannotti, 2013).

Dependent Variables

Cyberbullying Offending Index. The survey questions regarding cyberbullying offending included: "How often have you bullied another student(s) at school in the past couple of months in the ways listed below?" with the sub-statements of: (1) "I bullied another student(s) using a computer or e-mail messages or pictures;"(2) "I bullied another student(s) using a cell phone;" (3) I bullied others outside of school using a computer or e-mail messages or pictures;" and (4) "I bullied others outside of school using a cell phone." The response options for these questions include: I have not bullied another student in the past couple of months, it has only happened once or twice, 2 or 3 times a month, about once a week, and several times a week.

In the early stages of this study, a Cyberbullying Offending Index was created by combining all four questions together to create an index variable with a range from 4 to 20, with 4=engaged in no offending behaviors and 20=engaged in all offending behaviors listed several times a week. This was attempted to account for the frequency of cyber-offending in the analysis. When examining the univariate statistics for cyberbullying offending, only 7.4% of the initial sample population reported engaging in this type of offending. A normal probability plot (PP-Plot) was generated from exploratory ordinary least squares regression analyses which showed that there was non-normal distribution of observations. Therefore, due to the low response numbers and the PP-Plot, the decision was made to recode each of the 4 questions included in the index to be dichotomous. This left us with a Cyberbullying Offending Index with a range from 0 to 4, with 0=engaged in no offending behaviors and 4=engaged in all offending

behaviors. The Cronbach Alpha for this scale was $\alpha = 0.816$. The Cronbach Alpha is a test that is conducted to determine whether or not a set of items can be considered to have internal reliability when combined as a group. As this index has an alpha coefficient of 0.816, this means that the items in this index have a relatively high internal consistency and this scale can be considered reliable.

Traditional Bullying Offending. The survey questions regarding traditional bullying offending included: (1) "How often have you taken part in bullying another student(s) at school in the past couple of months?" and (2) "How often have you bullied another student(s) at school in the past couple of months in the ways listed below?" with the sub-statements of: (A) "I called another student(s) mean names, and made fun of, or teased him or her in a hurtful way;" (B) "I kept another student(s) out of things on purpose, excluded him or her from my group of friends, or completely ignored him or her;" (C) "I hit, kicked, pushed, shoved around, or locked another student(s) indoors;" (D) "I spread false rumors about another student(s) and tried to make others dislike him or her;" (E) "I bullied another student(s) with mean names and comments about his or her race or color;" (F) "I bullied another student(s) with mean names and comments about his or her religion;" "and (G) "I made sexual jokes, comments, or gestures to another student." The response options for these questions include: I have not bullied another student in the past couple of months, it has only happened once or twice, 2 or 3 times a month, about once a week, and several times a week.

Similar to the previous variable, a Traditional Bullying Offending Index was initially created by combining all eight questions together to create an index variable with a range from 8 to 40, with 8=engaged in no offending behaviors and 40=engaged in all offending behaviors listed several times a week. This was attempted to account for the frequency of traditional

offending in the analysis. When examining the descriptives for traditional offending, a majority of the initial sample population only reported engaging in zero to two traditional bullying behaviors. Additionally, a PP-Plot was run which showed that there was not a normal linear distribution. Due to the low response numbers and the PP-Plot, the decision was made to recode each of the 8 questions included in the index to be dichotomous. This left us with a Traditional Bullying Offending Index with a range from 0 to 8, with 0=engaged in no offending behaviors and 8=engaged in all offending behaviors. The Cronbach Alpha for this scale was α=0.899, meaning that the items in this index have a relatively high internal consistency and this scale can be considered reliable.

Cyberbullying and Traditional Offending. The measure Cyberbullying and Traditional Bullying Offending was created by combining the survey question regarding engaging in cyberbullying and/or traditional bullying behaviors. This index was created by first dummy coding the cyberbullying question "How often have you bullied another student(s) at school in the past couple of months in the ways listed below?" so that 0=I haven't bullied another student in the past couple of months, and 1= any amount of cyberbullying was reported. Next, the traditional bullying question "How often have you taken part in bullying another student(s) at school in the past couple of months?" was dummy coded so that 0=I haven't bullied another student in the past couple of months, and 10=any amount of traditional bullying was reported. These questions were combined to create an index variable Cyberbullying and Traditional Bullying Offending where 0=experienced no type of bullying, 1=engaged in cyberbullying, 10= engaged in traditional bullying, and 11= engaged in both cyberbullying and traditional bullying offending. The Cronbach Alpha for this scale was α=0.936, meaning that the items in this index have a relatively high internal consistency and this scale can be considered reliable.

Independent Variables

Factors of Strain. Strain was measured through a variety of survey questions looking at the respondent's perceived quality of life, family and home life, and family income. The survey questions focused on family and home environment included: (1) "Do you have your own bedroom for yourself?" (2) "Does your family own a car, van, or truck?" (3) "How many computers does your family own?" with response options of none, one, two, or more than two. (4) "How often do you have an evening meal together with your mother or father?" with response options of never, less than once a week, 1-2 days a week, 3-4 days a week, 5-6 days a week, and every day. (5) "Some young people go to school or bed hungry because there is not enough food at home. How often does this happen to you?" with response options of always, often, sometimes, and never. The survey question regarding family income included: (6) "Does your father have a job?" (7) "Does your mother have a job?" and (8) "How well off do you think your family is?" with response options of very well off, quite well off, average, not very well off, and not at all well off.

(1) Own bedroom was coded as 0=respondent reports that they do have their own bedroom and 1=respondent reports that they do not have their own bedroom. (2) Own vehicle was coded as 0=respondent reports that their family does own a car and 1=respondent reports that their family does not own a car. (3) Own computer was coded 0=respondent reports that their family has one, two, or more than two computers and 1=respondent reports that their family does not own a computer. (4) Family meals was coded 0=respondent reports that their family has meals together 1-2 days a week, 3-4 days a week, 5-6 days a week, and every day, and 1=respondent reports that their family has meals together less than once a week or never. (5)

Hunger was coded as 0=respondent reports that they never go to school or bed hungry and 1=respondent reports that they sometimes, often, or always go to school or bed hungry. (6) Dad job was coded as 0=respondent reports that their father has a job and 1=respondent reports their father does not have a job. (7) Mom job was coded as 0=respondent reports that their mother has a job and 1=respondent reports their mother does not have a job. (8) Well off was coded as 0=respondent reports perceiving their family as very well off, quite well off, or average, and 1=respondent reports that they perceive their family as not very well off, or not at all well off.

Initially, a Strain Index was created by combining all six questions together to create an index variable with a range from 0 to 9, with 0=experiences no attributes of strain listed and 8=experiences all attributes of strain listed. When reliability tests were run on the index, the Cronbach alpha ($\alpha = 0.358$) was too low and the index was considered to be unreliable. For this reason, each of the factors of strain were looked at individually: (1) own bedroom; (2) own vehicle; (3) own computer; (4) family meals; (5) hungry; (6) dad job; (7) mom job; (8) well-off.

Drug and Alcohol Use. Survey questions looked at tobacco, alcohol, and marijuana use in the past 30 days. The survey questions regarding tobacco and alcohol use included: (1) "On how many occasions (if any) have you done the following things in the last 30 days?" with the subsections of (A) "Smoked cigarettes;" (B) "Drunk alcohol;" and (C) "Been drunk." The survey questions regarding marijuana use includes: "Have you ever taken marijuana (pot, weed, hashish, joint)?" and asks participants to respond to use in the past 12 months, and use in the last 30 days. The response options for all questions include: never, once or twice, 3-5 times, 6-9 times, 10-19 times, 20-39 times, or 40 times or more. Each question pertaining to drug or alcohol use was coded 0=never, 1=once or twice; 2=3-5 times; 3=6-9 times; 4=10-19 times; 5=20-39 times; and 6=40 times or more. An index was then created combining all four questions which has a range

of 0=engaged in no drug or alcohol behaviors in the past 30 days, to 40=engaged in all drug and/or alcohol behaviors 40 times or more in the past 30 days. The Cronbach Alpha for this scale was α=0.856.

Deviant Peer Behaviors. The survey question addressing deviant peer behaviors included: "How many of your friends would you estimate…." with the sub-statements of: (A) smoke cigarettes; (B) drink alcohol; (C) get drunk at least once a week; (D) smoke/use marijuana (pot, weed, hash, joint); and (E) carry a weapon, such as a gun, knife, or club. The response options for these questions include: none, a few, some, most, and all. Each question pertaining to deviant peer behavior was coded 0=none, 1=a few; 2=some; 3=most; and 4=all. An index was then created combining all five questions which has a range of 0=estimated no friends engaged in any behaviors listed, to 20=estimated that all friends engaged in all behaviors listed. The Cronbach Alpha for this scale was $\alpha = 0.890$, meaning that the items in this index have a relatively high internal consistency and this scale can be considered reliable.

Time Spent with Friends. The survey questions addressing peer association included: (1) "How many days a week do you usually spend time with friends right after school?" with response options of 0 days, 1, 2, 3, 4, 5, 6 days. (2) "How many evenings per week do you usually spend out with your friends?" with response options of 0 evenings, 1, 2, 3, 4, 5, 6, 7 evenings. An index was then created combining both questions which has a range of 0= spent no days after school or evening with friends, to 13=spent every day after school and evening with friends. The Cronbach Alpha for this scale was $\alpha = 0.724$, meaning that the items in this index have a relatively high internal consistency and this scale can be considered reliable.

Control Variables

The demographic control variables include: age, sex, grade in school, ethnicity, race, and Depression/Anxiety Index. Age was measured by asking respondents, "How old are you?" with the choices of 10 years or younger, 11, 12, 13, 14, 15, 16, and 17 years old or older. Sex was measured by asking participants, "Are you a boy or a girl?" with the choices of boy or girl. Grade in school was be measured by asking, "What grade are you in?" with the choices of fifth, sixth, seventh, eighth, ninth, and tenth grade. Ethnicity was measured by asking respondents, "What do you consider your ethnicity to be?" with the choices of Hispanic or Latino, and Not Hispanic or Latino. Race was measured by asking, "What do you consider your race to be?" Participants were asked to mark all that apply from the racial categories: Black or African American, White, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Other.

The Depression/Anxiety Index was created by combining questions that asked if the respondents had any physical symptoms or discomforts that could indicate potential underlying depression and/or anxiety. The survey question included in this index asked "In the last 6 months: how often have you had the following…?" with the subsections of: (A) "Headache;" (B) "Stomach-ache;" (C) "Back ache;" (D) "Feeling low;" (E) "Irritability or bad temper;" (F) "Feeling nervous;" (G) "Difficulties in getting to sleep;" and (H) "Feeling dizzy." The response options for these questions included: rarely or never, about every month, about every week, more than once a week, and about every day. Each question pertaining to deviant peer behavior was coded: 1=about every day; 2=more than once a week; 3=about every week; 4=about every month; and 5=rarely or never. An index was then created combining all eight questions which has a range of 8=experienced all symptoms about every day, to 40=rarely or never experienced all symptoms.

The Cronbach Alpha for this scale was α=0.816, meaning that the items in this index have a relatively high internal consistency and this scale can be considered reliable.

Analytic Strategy

Using IBM SPSS Statistics 24 (IBM Corp, 2015) and STATA SE 14 (StataCorp, 2015), frequency and descriptive tests were run on all dependent, independent, and control variables to provide characteristics of the sample, as well as to check for any errors in the data. The HBSC employs a complex sample design and data are weighted in order to adjust for school and student nonresponse which makes the data more representative of the population of students from which the sample was drawn. Data was appropriately weighted in STATA SE 14 following the HBSC technical manual with the weighting code: svyset [pweight= STU_WT], strata (division) (Iannotti, 2013).

This research explores the relationship between bullying offending and factors of strain, drug and/or alcohol use, association with deviant peers, and/or time spent with peers among adolescents. Additionally, this research analyzed how time spent with friends mediated the relationship between deviant peer association and offending. Models 1, 3, 6, and 7 test the relationship between the factors of strain and the Cyberbullying Offending Index, controlling for all other variables. Model 4 tests the relationship between the factors of strain and the Traditional Bullying Offending Index, controlling for all other variables. Models 2 and 5 test the relationship between the factors of strain and the Cyberbullying and Traditional Bullying Index, controlling for all other variables.

Binary logistic regression models are used when a researcher wants to determine the probability of a data point falling into one of two categories from a set of predictor variables. For

this test to be conducted, we are required to have a dichotomous dependent variable. The independent variable can be nominal, ordinal, or interval-ratio level. There are two primary assumptions for this test: (1) there is normal population distribution; and (2) the data points follow the same probability of success. In a binary logistic regression, the predicted dependent variable is a function of the probability that a respondent will fall into one of the categories. In Models 1-7, binary logistic regressions were conducted to determine the influence of a specific factors of strain on offending behaviors because the dependent variable in each model is dichotomous.

Models 8 and 9 examine the relationship between the Deviant Peer Behaviors Index on cyberbullying offending and traditional bullying offending, controlling for all other variables. Models 11 and 12 test the relationship between the Drug and Alcohol Use Index on cyberbullying offending and traditional bullying offending, controlling for all other variables. Finally, Models 14 and 15 test the relationship between Time Spent with Friends on cyberbullying offending and traditional bullying offending, controlling for all other variables

A Poisson regression is an appropriate analytical test to use when examining count data. Data can be considered count data when it consists of integers and zero appears frequently in the response variable. As there are often many zeros found in count data, it is common to see the variable mean be equal to or less than one. Specifically, Poisson regression is used when the count data have a sample mean that is equal to or larger than the sample variance. Poisson regression is most appropriate to use when working with count data because other linear and logistic regression tests make incorrect assumptions about what count outcomes look like. Conversely, the Poisson distribution is discrete and positive.

When examining the dependent variables, the first step that was conducted was to check for the presents of overdispersion. The histogram for the Cyberbullying Offending Index (see Figure 2) shows that this variable follows a Poisson distribution, meaning that there are a higher number of zeros than ones. Similarly, the histogram for the Traditional Bullying Offending Index (see Figure 3) shows that this variable also follows a Poisson distribution. As each of these dependent variables followed the distribution, the most appropriate test to conduct would be Poisson regression models. Model 10 examines the relationship between the Deviant Peer Behaviors Index on both types of offending, controlling for all other variables. Models 13 tests the relationship between the Drug and Alcohol Use Index on both types of offending, controlling for all other variables. Finally, Models 16 test the relationship between Time Spent with Friends on both types of offending, controlling for all other variables.

Negative binomial regression models are appropriate when the dependent variable is representing count data, and it is overdispersed. Overdispersion occurs when the conditional variance is greater than the conditional mean. While the negative binomial regression model has the same mean structure as a Poisson regression, it is equipped with an extra parameter to model the overdispersion of the dependent variable. If the dependent variable is overdispersed, the confidence intervals for the negative binomial regression model will be narrower than those that would result from the use of a Poisson regression model.

When examining the dependent variable Cyberbullying and Traditional Bullying Index, we found that overdispersion was present. This was determined as the conditional mean for this index (3.989) was smaller than the conditional variance (24.769). Further, the histogram for the Cyberbullying and Traditional Bullying Index (see Figure 4) shows that this variable does not follow a Poisson distribution. Due to the presence of overdispersion, a negative binomial

regression was most appropriate. Figures 4 through 6 examine the relationship between deviant peer behaviors, time spent with friends, and all types of offending. Figures 7 through 9 examine the relationship between deviant peer behaviors, drug and/or alcohol use, and all types of offending. In these relationships, we were interested in determining if there were any mediating effects.

Path analysis is a statistical test that is a unique type of structural equation modeling, which is an extension of the regression model (Stage, Carter, & Nora, 2004). It is created by a group of models that show whether one set of variables influences another. The objective of path analysis is to give an estimate of the significance and magnitude of the hypothesized relationships among sets of variables which can be presented through path diagrams. To conduct a path analysis, the relationships between variables must be linear and the data should follow an interval-type of scale (Stage, Carter, & Nora, 2004). Further, there must be a normal distribution of errors, and causation should be specified in the correct direction.

Path analysis has been found to be a sound methodology because it allows researchers to simultaneously determine direct and indirect effects with multiple independent and dependent variables (Stage, Carter, & Nora, 2004). A direct effect can be assumed when an independent variable affects a dependent variable. An indirect effect can be assumed when an independent variable affects a dependent variable through a mediating variable (Baron & Kenny, 1986). When examining our variables in a path analysis model, we will see two kinds: endogenous variables and exogenous variables. Endogenous means that these variables are inside, these are the variables which arrows are pointing to. Exogenous means that these variables are outside, these are the variables which arrows are pointing away from. Typically, our independent

variables are exogenous, and our dependent variables are endogenous. That is, we are examining the effect of the exogenous variables on the endogenous variables.

For the models shown in Figures 5 through 10, path analysis was conducted as the mediating effects of the independent variables are the focus of these models. The sample model shown in Figure 1 demonstrates how the effects of each model were calculated.

CHAPTER 6: RESULTS

Table 1 provides the descriptives for all measures included in the analysis. The average age of the sample was 13 years old; 51.4% of the sample was male and 48.5% of the sample was female. The average grade of the sample was 7th to 8th. The sample was comprised of 52.1% Whites, 20.3% Blacks, 5.4% Asian, 5.1% American Indian/Alaskan Native, and 1.8% Native Hawaiian/Other Pacific Islander. Approximately 26.9% of the adolescent sample identified as Hispanic or Latino.

When examining variables of strain, 10.5% of the sample reported that they perceived their family to not be "well off," 5.5% reported that their family did not own a computer, and 28.6% of the sample reported that they did not have their own bedroom in their family home. Approximately 3.9% of the sample reported that their family does not own a car, 15.2% reported that they had meals with their family less than once a week or never, and 27.2% reported that they had previously gone to bed or school hungry. Finally, 8.0% of the sample reported that their father did not currently have a job, and 23.0% reported that their mother did not currently have a job.

The Deviant Peer Behavior Index had a mean of 2.479 and a standard deviation of 3.871. The Drug/Alcohol Index had a mean of 1.256 and a standard deviation of 3.515. Finally, the Time with Friends Index had a mean of 4.849 and a standard deviation of 3.654.

Approximately 7.4% of the sample reported that they had engaged in some type of cyberbullying offending within the month prior to the survey being conducted. Adolescents who reported engaging in one or more instances of traditional bullying comprised 35.1% of the sample. Further, 6.7% of the adolescent sample reported engaging in both traditional and cyberbullying offending.

Research Question 1 & 2: Examining the Impact of Factors of Strain

Table 2 displays the results of the binary logistic regression models examining the relationship between not owning a vehicle on cyberbullying and both types of offending behaviors. In Model 1, adolescents who reported that their family did not own a car were at an 80.1% higher odds of cyberbullying offending in comparison to those who did own a car. Blacks were at an 86.8% higher odds of cyberbullying offending than their White counterparts. Further, adolescents who identified as Hispanic or Latino ethnicities were at a 35.9% lowered odds of engaging in cyberbullying offending than their non-Hispanic/Latino counterparts. For every one unit increase in age, respondents were at a 25.7% higher odds to engage in cyberbullying offending. Female adolescents were at a 34.2% lowered odds of engaging in cyberbullying offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 6.5% lowered odds to engage in cyberbullying offending.

In Model 2, adolescents who reported that their family did not own a car were at a 47.3% higher odds of engaging in both cyberbullying and traditional bullying offending in comparison to those who did own a car. Blacks were at a 31.2% higher odds of both types of offending than their White counterparts. Further, Asians were at a 34.1% higher odds of both types of offending than their White counterparts. Female adolescents were at a 25% lowered odds of engaging in both types of offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 6.0% lowered odds to engage in both types of offending.

Table 3 displays the results of the binary logistic regression models examining the relationship between hunger and all types of offending behaviors. In Model 3, adolescents who

reported they sometimes, often, or always went to school or bed hungry were at a 53.2% higher odds of cyberbullying offending in comparison to those who did not experience hunger. Blacks were at an 84.6% higher odds of cyberbullying offending than their White counterparts. Further, adolescents who identified as Hispanic or Latino ethnicities were at a 32.6% lowered odds of engaging in cyberbullying offending than their non-Hispanic/Latino counterparts. For every one unit increase in age, respondents were at a 28.6% higher odds to engage in cyberbullying offending. Female adolescents were at a 32.6% lowered odds of engaging in cyberbullying offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 5.9% lowered odds to engage in cyberbullying offending.

In Model 4, adolescents who reported they sometimes, often, or always went to school or bed hungry were at a 33.4% higher odds of traditional bullying offending in comparison to those who did not experience hunger. Blacks were at a 31.6% higher odds of traditional bullying offending than their White counterparts. Further, Asians were at a 31.9% higher odds of traditional bullying offending than their White counterparts. For every one unit increase in age, respondents were at a 10.3% higher odds to engage in traditional bullying offending. Female adolescents were at a 23.6% lowered odds of engaging in traditional bullying offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 5.4% lowered odds to engage in traditional bullying offending.

In Model 5, adolescents who reported that they sometimes, often, or always went to school or bed hungry were at a 36.9% higher odds of engaging in both cyberbullying and traditional bullying offending in comparison to those who did not experience hunger. Blacks were at a 32.1% higher odds of both types of offending than their White counterparts. Further,

Asians were at a 30.9% higher odds of both types of offending than their White counterparts. Female adolescents were at a 23.9% lowered odds of engaging in both types of offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 5.5% lowered odds to engage in both types of offending.

Table 4 displays the results of the binary logistic regression model examining the relationship between father's unemployment and cyberbullying offending behaviors. In Model 6, adolescents who reported that their father did not have a job were at a 56.9% higher odds of cyberbullying offending in comparison to those whose fathers were employed. Blacks were at a 100.6% higher odds of cyberbullying offending than their White counterparts. Further, adolescents who identified as Hispanic or Latino ethnicities were at a 35.4% lowered odds of engaging in cyberbullying offending than their non-Hispanic/Latino counterparts. Female adolescents were at a 30.1% lowered odds of engaging in cyberbullying offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 6.7% lowered odds to engage in cyberbullying offending.

Table 5 displays the results of the binary logistic regression model examining the relationship between the perception of family status and cyberbullying offending behaviors. In Model 7, adolescents who reported perceiving their family as not very well off or not at all well off were at a 41.1% higher odds of cyberbullying offending in comparison to those who viewed their family status as average, well off, or very well off. Blacks were at a 93.4% higher odds of cyberbullying offending than their White counterparts. Further, adolescents who identified as Hispanic or Latino ethnicities were at a 38.7% lowered odds of engaging in cyberbullying offending than their non-Hispanic/Latino counterparts. For every one unit increase in age, respondents were at a 27.6% higher odds to engage in cyberbullying offending. Female

adolescents were at a 34.1% lowered odds of engaging in cyberbullying offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, respondents were at a 6.4% lowered odds to engage in cyberbullying offending.

Research Question 3: Examining the Impact of Deviant Peers

Table 6 displays the results of the Poisson regression models examining deviant peer behaviors and the impact on cyberbullying offending and traditional bullying offending. Model 8 shows that for every one unit increase of deviant peer behaviors, there is a 10.2% increase in the incident rate of cyberbullying offending. Black adolescents were found to be at a 65.6% increased incident rate of cyberbullying than their White counterparts. Further, adolescents who reported that they were of Hispanic or Latino ethnicities were at a 26.9% decreased incident rate of cyberbullying offending than their non-Hispanic/Latino counterparts. For every one unit increase of grade level, there is a 17.6% decrease in the incident rate of cyberbullying offending. Female adolescents were found to be at a 24.6% decreased incident rate of cyberbullying offending. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 4.3% decreased incident rate of cyberbullying offending.

Model 9 shows that for every one unit increase of deviant peer behaviors, there is a 4.6% increase in the incident rate of traditional bullying offending. Black adolescents were found to be at a 16.3% increased incident rate of traditional bullying than their White counterparts. Additionally, Asian adolescents were found to be at a 20.2% increased incident rate of traditional bullying than White adolescents. Female adolescents were found to be at a 13.4% decreased incident rate of traditional bullying offending. Finally, for every one unit decrease of depression

and/or anxiety symptoms, there was a 2.7% decreased incident rate of traditional bullying offending.

Table 7 displays the results of the negative binomial regression model examining deviant peer behaviors and the impact on both types of offending. Model 10 shows that for every one unit increase of deviant peer behaviors, there is a 6.4% increase in the incident rate of both types of offending. Black adolescents were at a 25.2% increased incident rate of both types of offending than White adolescents. Further, Asian adolescents were at a 27.3% increased incident rate of both types of offending than their White counterparts. Female adolescents were at a 16.0% decreased incident rate of both types of offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 3.6% decreased incident rate of both types of offending.

Research Question 4: Examining the Impact of Drug and Alcohol Use

Table 8 displays the results of the Poisson regression models examining drug and/or alcohol use and the impact on cyberbullying offending and traditional bullying offending. Model 11 shows that for every one unit increase of drug and/or alcohol use, there is a 7.7% increase in the incident rate of cyberbullying offending. Black adolescents were found to be at a 69.3% increased incident rate of cyberbullying than their White counterparts. Further, adolescents who reported that they were of Hispanic or Latino ethnicities were at a 28.3% decreased incident rate of cyberbullying offending than their non-Hispanic/Latino counterparts. Female adolescents were found to be at a 27.0% decreased incident rate of cyberbullying offending. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 4.6% decreased incident rate of cyberbullying offending.

Model 12 shows that for every one unit increase of drug and/or alcohol use, there is a 2.8% increase in the incident rate of traditional bullying offending. Black adolescents were found to be at a 16.1% increased incident rate of traditional bullying than their White counterparts. Additionally, Asian adolescents were found to be at a 19.9% increased incident rate of traditional bullying than White adolescents. Female adolescents were found to be at a 14.8% decreased incident rate of traditional bullying offending. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 3.0% decreased incident rate of traditional bullying offending.

Table 9 displays the results of the negative binomial regression model examining drug and/or alcohol use and the impact on both types of offending. Model 13 shows that for every one unit increase of drug and/or alcohol use, there is a 3.7% increase in the incident rate of both types of offending. Black adolescents were at a 24.4% increased incident rate of both types of offending than White adolescents. Further, Asian adolescents were at a 25.9% increased incident rate of both types of offending than their White counterparts. Female adolescents were at a 17.1% decreased incident rate of both types of offending than their male counterparts. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 3.8% decreased incident rate of both types of offending.

Research Question 5: Examining the Impact of Time Spent with Friends

Table 10 displays the results of the Poisson regression models examining time spent with friends and the impact on cyberbullying offending and traditional bullying offending. Model 14 shows that for every one unit increase of time spent with friends, there is a 10.8% increase in the incident rate of cyberbullying offending. Black adolescents were found to be at a 65.6%

increased incident rate of cyberbullying than their White counterparts. Further, adolescents who reported that they were of Hispanic or Latino ethnicities were at a 30.9% decreased incident rate of cyberbullying offending than their non-Hispanic/Latino counterparts. Female adolescents were found to be at a 23.3% decreased incident rate of cyberbullying offending. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 5.6% decreased incident rate of cyberbullying offending.

Model 15 shows that for every one unit increase of time spent with friends, there is a 2.6% increase in the incident rate of traditional bullying offending. Black adolescents were found to be at a 15.1% increased incident rate of traditional bullying than their White counterparts. Additionally, Asian adolescents were found to be at a 20.2% increased incident rate of traditional bullying than White adolescents. Female adolescents were found to be at a 13.2% decreased incident rate of traditional bullying offending. Finally, for every one unit decrease of depression and/or anxiety symptoms, there was a 3.3% decreased incident rate of traditional bullying offending.

Table 11 displays the results of the negative binomial regression model examining time spent with friends and the impact on both types of offending. Model 16 shows that for every one unit increase of time spent with friends, there is a 3.0% increase in the incident rate of both types of offending. Black adolescents were at a 23.9% increased incident rate of both types of offending than White adolescents. Further, Asian adolescents were at a 25.5% increased incident rate of both types of offending than their White counterparts. Adolescents who reported that they were of Hispanic or Latino ethnicities were at a 9.1% decreased incident rate of both types of offending than their non-Hispanic/Latino counterparts. Female adolescents were at a 15.2% decreased incident rate of both types of offending than their male counterparts. Finally, for every

one unit decrease of depression and/or anxiety symptoms, there was a 4.1% decreased incident rate of both types of offending.

Research Question 6: Examining the Mediating Relationship of Time Spent with Friends on Deviant Peers and Offending

From Figure 5, we conclude that for every one standard deviation increase in deviant peer behaviors, there is a .166 standard deviation increase in cyberbullying offending. Further, for every one standard deviation increase in deviant peer behaviors, there is a .152 standard deviation increase in time spent with friends. Finally, for every one standard deviation increase in time spent with friends, there is a .132 standard deviation increase in cyberbullying offending. Therefore, we can see that the direct effect of deviant peer behaviors (.166), is stronger than the indirect effect of deviant peer behaviors through time spent with friends (.020). The total effect of the model is .186. From this analysis, we can see that the 5.2% of the variance is explained through the direct effect of the model. Additionally, 2.3% of the variance is explained by the indirect and direct effects of the model. This model shows us that 89.2% of the total effect can be explained by the direct effect of deviant peer behaviors on traditional offending, and 10.8% of the total effect can be explained by the direct and indirect effects.

From Figure 6, we conclude that for every one standard deviation increase in deviant peer behaviors, there is a .195 standard deviation increase in traditional bullying offending. Further, for every one standard deviation increase in deviant peer behaviors, there is a .152 standard deviation increase in time spent with friends. Finally, for every one standard deviation increase in time spent with friends, there is a .159 standard deviation increase in cyberbullying offending. Therefore, we can see that the direct effect of deviant peer behaviors (.166), is stronger than the indirect effect of deviant peer behaviors through time spent with friends (.024). The total effect

of the model is .219. From this analysis, we can see that the 7.3% of the variance is explained through the direct effect of the model. Additionally, 2.3% of the variance is explained by the indirect and direct effects of the model. This model shows us that 75.8% of the total effect can be explained by the direct effect of deviant peer behaviors on traditional offending, and 24.2% of the total effect can be explained by the direct and indirect effects.

From Figure 7, we conclude that for every one standard deviation increase in deviant peer behaviors, there is a .181 standard deviation increase in both types of offending. Further, for every one standard deviation increase in deviant peer behaviors, there is a .152 standard deviation increase in time spent with friends. Finally, for every one standard deviation increase in time spent with friends, there is a .160 standard deviation increase in cyberbullying offending. Therefore, we can see that the direct effect of deviant peer behaviors (.181), is stronger than the indirect effect of deviant peer behaviors through time spent with friends (.024). The total effect of the model is .205. From this analysis, we can see that the 6.7% of the variance is explained through the direct effect of the model. Additionally, 2.3% of the variance is explained by the indirect and direct effects of the model. This model shows us that 88.3% of the total effect can be explained by the direct effect of deviant peer behaviors on traditional offending, and 11.7% of the total effect can be explained by the direct and indirect effects.

Research Question 7: Examining the Mediating Relationship of Drug/Alcohol Use on Deviant Peers and Offending

From Figure 8, we conclude that there is no direct effect because the standardized regression coefficient is not significant (p=0.619). This means that the slope is assumed to be zero. For every one standard deviation increase in deviant peer behaviors, there is a .527 standard deviation increase in drug and/or alcohol use. Finally, for every one standard deviation increase

in drug and/or alcohol use, there is a .315 standard deviation increase in cyberbullying offending. Therefore, we can see that the direct effect of deviant peer behaviors (0.0) is weaker than the indirect effect of deviant peer behaviors through time drug and/or alcohol use (.166). The total effect of the model is.166. From this analysis, we can see that the 9.1% of the variance is explained through the direct effect of the model. Additionally, 27.8% of the variance is explained by the indirect and direct effects of the model. This model shows us that 0.0% of the total effect can be explained by the direct effect of deviant peer behaviors on traditional offending, and 100.0% of the total effect can be explained by the direct and indirect effects.

From Figure 9, we conclude that for every one standard deviation increase in deviant peer behaviors, there is a .067 standard deviation decrease in traditional bullying offending. Further, for every one standard deviation increase in deviant peer behaviors, there is a .527 standard deviation increase in drug and/or alcohol use. Finally, for every one standard deviation increase in drug and/or alcohol use, there is a .256 standard deviation increase in cyberbullying offending. Therefore, we can see that the direct effect of deviant peer behaviors (0.067) is weaker than the indirect effect of deviant peer behaviors through time drug and/or alcohol use (.135). The total effect of the model is .202. From this analysis, we can see that the 9.0% of the variance is explained through the direct effect of the model. Additionally, 27.8% of the variance is explained by the indirect and direct effects of the model. This model shows us that 33.2% of the total effect can be explained by the direct effect of deviant peer behaviors on traditional offending, and 66.8% of the total effect can be explained by the direct and indirect effects.

From Figure 10, we conclude that there is no direct effect because the standardized regression coefficient is not significant (p=0.962). This means that the slope is assumed to be zero. For every one standard deviation increase in deviant peer behaviors, there is a .527 standard

deviation increase in drug and/or alcohol use. Further, for every one standard deviation increase in drug and/or alcohol use, there is a .316 standard deviation increase in cyberbullying offending. Therefore, we can see that the direct effect of deviant peer behaviors (0.0), is weaker than the indirect effect of deviant peer behaviors through time drug and/or alcohol use (.167). The total effect of the model is .167. From this analysis, we can see that the 9.9% of the variance is explained through the direct effect of the model. Additionally, 27.8% of the variance is explained by the indirect and direct effects of the model. This model shows us that 0.0% of the total effect can be explained by the direct effect of deviant peer behaviors on traditional offending, and 100.0% of the total effect can be explained by the direct and indirect effects.

CHAPTER 7: DISCUSSION AND CONCLUSIONS

Discussion

In summary this research examined the impacts of (1) strain; (2) deviant peers; (3) time spent with peers; and (4) drug/alcohol use on cyberbullying offending, traditional bullying offending, and both types of offending combined among a nationally representative sample of adolescents aged 10 to 17. Additionally, this study examined the mediating effects of (5) time spent with friends and (6) drug/alcohol use on the relationship between deviant peers and all types of offending. This research is important as previous studies have shown that rates of traditional bullying victimization impact a significant portion of the adolescent population and rates of cyberbullying victimization are continually rising (Centers for Disease Control and Prevention, 2015b; Hinduja & Patchin, 2015; Hinduja and Patchin, 2010; Thiegs, 2011). Based on these alarming trends it is crucial that we continue to address this issue empirically so that policies and programs in schools can be adjusted based on factual knowledge rather than on beliefs or anecdotal information. In addition, most of the existing studies have focused purely on the rates of bullying offenders; this research seeks to fill a void in the literature by moving beyond a focus of offending rates to examine the social factors that may influence these adolescents to offend in the first place.

Factors of Strain

As stated in Research Questions 1 and 2, this study was focused on determining if home life strain would impact the respondent's likelihood of engaging in all types of bullying offending. Specifically, this study sought to determine which factors of strain were correlated

with higher incidences of all bullying behaviors. From our results, we found that adolescents who experienced home life strain did engage in higher rates of cyberbullying, traditional bullying, and both types of bullying behaviors than their counterparts who did not experience home life strain. The factors of strain that proved to be significant included not owning a car, experiencing hunger, father's unemployment, and the respondent's perception of their family's social status.

From this study, we found that not owning a car increased the odds that an adolescent would engage in cyberbullying, and both cyber- and traditional bullying offending. When examining the impact of not owning a vehicle on cyberbullying offending, we found that adolescents who identified as Black were more likely to engage in cyberbullying offending, and both types of offending than their White counterparts. Additionally, respondents who identified as Asian engaged in both types of offending than Whites. Conversely, adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying. The findings show that as the respondents' age increased, so did the odds of engaging in cyberbullying. Female respondents were found to be less likely to engage in cyberbullying and both types of offending than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in incidents of cyberbullying and both types of offending.

Additionally, we found that individuals who experience hunger are at higher odds of engaging in all types of bullying behaviors. When examining the impact of experiencing hunger on each type of offending, we found that adolescents who identified as Black were more likely to engage in all types of offending than their White counterparts. Additionally, respondents who identified as Asian were more likely to engage in traditional bullying offending and both types of

offending than Whites. Similarly, as the respondents' age increased, so did the likelihood of engaging in cyberbullying offending and traditional bullying offending. Adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying. Female respondents were found to be less likely to engage in all types of offending than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in all types of offending.

Further, we found that the respondent's father being unemployed increased the odds that they would engage in cyberbullying offending. We found that adolescents who identified as Black were more likely to engage in cyberbullying offending than their White counterparts. Conversely, adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying than non-Hispanic/Latino respondents. Female respondents were found to be less likely to engage in cyberbullying offending than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in incidents of cyberbullying offending.

Finally, we found that respondents who viewed their family as not very well off or not well off at all were at an increased odds of engaging in cyberbullying offending. We found that adolescents who identified as Black were more likely to engage in cyberbullying offending than their White counterparts. Conversely, adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying than non-Hispanic/Latino respondents. The findings show that as the respondents' age increased, so did the odds of engaging in cyberbullying. Female respondents were found to be less likely to engage in cyberbullying offending than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in incidents of cyberbullying offending.

These findings relate back to, and support, the hypotheses for this study regarding factors of strain. Adolescents whose families do not own cars may be at a higher odd to cyberbullying, simply for the fact that they do not have transportation to take them to places in which traditional bullying outside of school may occur (i.e., playgrounds, rec centers, etc.). Those who are at higher odds to engage in a combination of the two behaviors may do so for similar reasons. Perhaps they engage in some form of traditional bullying at school, but once the school day has concluded, their only means of offending is through the cyber-outlets. Similar to existing literature, hunger was a significant factor in predicting higher odds of offending (Wilson, Dunlavy, & Berchtold, 2013). Adolescents that reported experiencing hunger may be from more deprived areas or families of lower socioeconomic status. Through the lens of General Strain Theory, experiencing hunger may cause feelings of frustration or sadness, which existing literature shows can result in antinormative behaviors, such as the examined types of offending behaviors (Hinduja & Patchin, 2007). Father's unemployment, as well as perceived familial social status, may also be considered to produce negative feelings such as rejection or exclusion from peers who do not experience these factors of strain. These negative feelings may lead to offending as a way for the adolescent to cope with or alleviate their feelings of home life strain (Hinduja & Patchin, 2007; Leary & Downs, 1995).

Deviant Peers, Drugs and Alcohol, and Time Spent With Friends

As stated in Research Questions 3, 4, and 5, this study sought to determine if (1) having more deviant peers; (2) consuming drugs and/or alcohol; and (3) spending more time with peers correlated with higher incidences of all bullying behaviors.

From our results, we found that adolescents who associated with deviant peers engaged in higher incident rates of all types of bullying behaviors. Black adolescents were more likely to engage in incidents of all types of bullying behaviors than their White counterparts. Similarly, Asian adolescents were more likely to engage in incidents of traditional bullying and both types of bullying behaviors than White adolescents. Conversely, adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying offending than non-Hispanic/Latino respondents. Female respondents were found to be less likely to engage in cyberbullying offending than their male counterparts. The findings show that as the respondents' grade level increased, their incident rates of cyberbullying offending decreased. Female respondents were found to be less likely to engage in all types of offending than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in all types of offending.

When examining drug and/or alcohol use, we found that adolescents who reported using drugs and/or alcohol engaged in higher incident rates of all types of bullying behaviors. Black adolescents were more likely to engage in incidents of all types of bullying behaviors than their White counterparts. Similarly, Asian adolescents were more likely to engage in incidents of traditional bullying and both types of bullying behaviors than White adolescents. Conversely, adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying offending than non-Hispanic/Latino respondents. Female respondents were found to be less likely to engage in cyberbullying offending than their male counterparts. The findings show that as the respondents' grade level increased, their incident rates of cyberbullying offending decreased. Female respondents were found to be less likely to engage in all types of offending

than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in all types of offending.

Finally, we found that adolescents who reported spending more time with their friends engaged in higher incident rates of all types of bullying behaviors. Black adolescents were more likely to engage in incidents of all types of bullying behaviors than their White counterparts. Similarly, Asian adolescents were more likely to engage in incidents of traditional bullying and both types of bullying behaviors than White adolescents. Conversely, adolescents who identified as Hispanic/Latino were less likely to engage in cyberbullying offending and both types of offending than non-Hispanic/Latino respondents. Female respondents were found to be less likely to engage in cyberbullying offending than their male counterparts. The findings show that as the respondents' grade level increased, their incident rates of cyberbullying offending decreased. Female respondents were found to be less likely to engage in all types of offending than their male counterparts. Finally, the fewer depressive/anxious symptoms a respondent reported experiencing, the less likely they were to engage in all types of offending.

These findings relate back to, and support, the hypotheses for this study regarding association with deviant peers, drug and/or alcohol use, and time spent with friends. While the dataset did not provide information about whether the deviant peers had engaged in bullying offending, previous literature supports our finding that associating with deviant peers itself has been found to significantly increased the likelihood of the respondent engaging in delinquent behaviors themselves (Akers & Lee, 1996; Keenen et al., 1995; Pratt et al., 2009; Warr, 2002). Through the lens of Social Learning theory, adolescents who report having more deviant peers may be more likely to identify with their peers and engage in behaviors, such as offending, that they think may bring them more acceptance from the deviant peer group. Similarly, those who

report spending more time with their peers may be more likely to engage in all types of bullying offending as their deviant behaviors are being reinforced by their peer groups (Akers & Lee, 1996; Boeringer, Shehan, & Akers, 1991; Pratt et al. 2009).

In regards to drug and/or alcohol use impacting all types of offending, this study is able to fill a void in the literature. Prior research focuses on drug and/or alcohol use of those who are victimized by cyber- or traditional bullying offending (Gamez-Guadix et al., 2013; Gobert et al. 2011; Hinduja & Patchin, 2008; Mitchell, Ybarra, & Finkelhor 2007; Tharp-Taylor, Haviland, & D'Amico 2009), but does not place emphasis on the offender's use. Adolescents who report drug and/or alcohol use may be more likely to engage in all types of bullying offending because they themselves have previously been a victim. Perhaps they are falling victim to the cyclical bully-victim nature that is ever present in the adolescent population.

Mediating Effects

As stated in Research Question 6 and 7, this study determined whether (1) spending more time with peers; or (2) consuming drugs and/or alcohol mediated the relationship between associating with deviant peers and engaging in incidences of all bullying behaviors. When examining the mediating effects of time spent with friends on the relationship between deviant peer behaviors and all types of offending, we saw that the direct effect of the relationship was stronger in each model. Thus, while there is a minor mediating effect in each relationship, a larger amount of the variance of the relationship is explained through the direct effect of having deviant peers on all types of offending.

When examining the mediating effects of drug and/or alcohol use on the relationship between deviant peer behaviors and all types of offending, we saw that the indirect effect of the relationship was stronger in each model. For instance, when examining cyberbullying offending and both types of offending no significant direct effect was present. This means that the variance of the relationship is only explained through the indirect effect of the mediating variable. When examining traditional bullying, there is a minor direct effect, however, a larger amount of the variance of the relationship is explained through the indirect effect of using drugs and/or alcohol on traditional bullying offending.

The findings regarding time spent with friends mediating the relationship between association with deviant peers and all types of offending does not support our initial hypothesis. We assumed that, similar to previous studies, adolescents who had deviant peers and spent more time with their peers would be more likely to engage in deviant acts themselves, such as offending (Dishion, 2000). While there is a mediating relationship, it is not as impactful as the direct relationship between deviant peers and offending behaviors. Perhaps adolescents who report having more deviant peers have parents who are more disapproving of them spending time with their deviant friends, which limits the strength of this mediating relationship.

The findings regarding drug and/or alcohol use mediating the relationship between association with deviant peers and all types of offending does support our initial hypothesis. In these models, the indirect relationship is much more significant that the direct. Adolescents who report having deviant peers may be more likely to engage in drug and/or alcohol use as a way to fit in with their friends. Further, they could be encouraged by their friends to engage in more deviant behaviors, such as offending, after they have been introduced to drug and/or alcohol use in order to continue to secure their "spot" in their peer group.

Limitations of Present Study

A potential limitation of this study is the data set that was used. The 2009-2010 version of the HBSC dataset was the most recent version that was available for data analysis. As this study is conducted every four years, the most recent version would be the 2015-2016 which has not yet been released. That being said, the trends and relationships found between variables in the 2009-2010 version of the HBSC may not accurately reflect the current patterns or rates. While the use of the Internet was still commonplace during these earlier years, technological advances in communication have given adolescents even more opportunities to engage in cyberbullying presently than when the initial sample was collected. In other words, the overall presence of cyber-offending today may be more similar to those presented in other more recent studies using nationally-representative samples, such as the YRBSS conducted by the CDC (Centers for Disease Control and Prevention, 2015b; Hinduja and Patchin, 2015). Thus, potential difference in rates should be considered when attempting to generalize these results to a larger population. With this consideration, this study still has merit to be pertinent to policy makers and school officials as it shows that offending behaviors are something that are continuing to happen both in and outside of school-property.

An additional limitation of this data set is the self-report nature of the survey. Individuals may have underreported their experiences the examined variables, such as, offending behaviors and drug and/or alcohol use, as there is a tendency for individuals to provide answers that are socially desirable (Brownfield & Sorenson, 1993). Therefore, the respondents may not have answered truthfully about their involvement in these activities, but rather in a way that they felt was more acceptable and would reflect them in a better light.

A final limitation would be the cross-sectional design of the original study. Since the data were not collected from the same students over multiple time points, it is impossible to conclude that experiencing any of the examined independent variables would be a direct cause for any type of offending. While determining correlation among these variables is a good starting point, future research is needed. Researchers should collect information regarding home life strain, drug and/or alcohol use, deviant peer association, and all types of bullying offending from adolescents at multiple time points in order to create a well-rounded data set.

Directions for Future Research

Self-esteem was briefly discussed in the literature review, yet the data set did not include questions about self-esteem so it was not included as a dependent variable. Few studies have examined the relationship between cyberbullying and self-esteem, but those that have found results similar to traditional bullying (Patchin & Hinduja, 2010). Patchin and Hinduja (2010) concluded that experiences with cyberbullying, as a victim or aggressor, are significantly associated with lower levels of self-esteem. Additional research in this area would be beneficial to strengthen the existing literature. Furthermore, the relationship between self-esteem and cyberbullying shows the need for response and prevention of these behaviors.

As previously stated, the data collected in this survey are cross-sectional. Researchers should collect information regarding all types of offending behaviors from adolescents at multiple time points in order to create a more comprehensive data set. Future research should continue to distinguish traditional from cyberbullying, as well as combine the two behaviors, in order to examine the potential negative outcomes for those who are an offender and/or a victim.

Conclusion

Based on the findings of this study, we can provide evidence for the need to create/improve and implement nationwide policies and programs targeting all types of bullying offending at both the school and legal level. It is imperative that we continue to address the issue of bullying offending and victimization empirically so that educational institutions can adjust their current policies/programs based on factual knowledge rather than on beliefs or anecdotal information. Educators may view bullying as a normative behavior among adolescents that does not have negative impacts on the offending and/or victimized individual in the long run. However, this study has shown that this is not the case.

APPENDIX: TABLES

Table 1: Descriptive Statistics of Sample Characteristics

Independent Variables		Total Percent		N
Not Well Off		10.5		1331
Does Not Own Computer		5.5		693
Does Not Have Own Bedroom		28.6		3612
Family Does Not Own Vehicle		3.9		488
Do Not Have Family Meals		15.2		1927
Experience Hunger		27.2		3434
Dad Does Not Have Job		8.0		1007
Mom Does Not Have Job		23.0		2911
	Range	Mean/Proportion	Std Dev.	N
Deviant Peer Behaviors	0,20	2.479	3.871	11705
Drug and Alcohol Use	0,24	1.256	3.515	11612
Time with Friends	0,13	4.849	3.654	12296
Dependent Variables		Total Percent		N
Cyberbullying Offending				
Did not offend		83.5		10552
Reported one or more offenses		7.4		934
Traditional Offending				
Did not offend		54.4		6877
Reported one or more offenses		35.1		4435
Cyber & Traditional Offending				
Did not offend		53.8		6804
Only Cyberbullying		0.3		44
Only Traditional Bullying		28.1		3551
Both types of offenses		6.7		844
Controls				
Gender				
Male		51.4		6502
Female		48.5		6136
Grade				
5		13.6		1717
6		16.2		2050
7		19.2		2421
8		19.6		2475
9		16.4		2072
10		15.1		1907
Race and Ethnicity				
White		52.1		6581
Black		20.3		2562
Asian		5.4		681
American Indian/Alaskan Native		5.1		648
Native Hawaiian/Other Pacific Islander		1.8		225
Hispanic/Latino		67.0		8464
	Range	Mean/Proportion	Std Dev.	N
Age	10,17	13.000	3.950	12623
Depression/Anxiety	8,40	31.704	6.899	11541

Table 2: Logistic Regression: Effects of No Car on Cyberbullying and Both Types of Offending

	Model 1 Cyberbullying		**Model 2** Both	
Own Vehicle	1.801	*	1.473	*
	(0.505)		(0.257)	
Black	1.868	***	1.312	***
	(0.225)		(0.099)	
Asian	0.846		1.341	*
	(0.184)		(0.165)	
AI or AN	1.007		0.978	
	(0.210)		(0.120)	
NH or OPI	1.632		1.140	
	(0.469)		(0.235)	
Ethnicity	0.641	***	0.898	
	(0.069)		(0.060)	
Grade	0.841		1.038	
	(0.091)		(0.054)	
Age	1.257	*	1.070	
	(0.124)		(0.052)	
Female	0.658	***	0.750	***
	(0.068)		(0.043)	
Depression/Anxiety Index	0.935	***	0.940	***
	(0.006)		(0.004)	
Constant	1.230		2.726	***
	(0.671)		(0.773)	
N	10,255		10,068	
R-squared				

Note: Cell entries are given as odds ratio with the standard error given in parenthesis. *p<.05; **p<.01; ***p<.001

Table 3: Logistic Regression: Effects of Hunger on All Types of Offending

	Model 3 Cyberbullying		**Model 4** Traditional Bullying		**Model 5** Both	
Hunger	1.532	***	1.334	***	1.369	***
	(0.172)		(0.087)		(0.090)	
Black	1.846	***	1.316	***	1.321	***
	(0.223)		(0.099)		(0.100)	
Asian	0.808		1.319	*	1.309	*
	(0.177)		(0.164)		(0.163)	
AI or AN	1.010		0.971		0.948	
	(0.214)		(0.117)		(0.115)	
NH or OPI	1.568		1.088		1.117	
	(0.453)		(0.226)		(0.232)	
Ethnicity	0.674	***	0.918		0.920	
	(0.074)		(0.062)		(0.062)	
Grade	0.835		1.012		1.041	
	(0.089)		(0.052)		(0.055)	
Age	1.286	**	1.103	*	1.078	
	(0.123)		(0.052)		(0.052)	
Female	0.674	***	0.764	***	0.761	***
	(0.069)		(0.044)		(0.044)	
Depression/Anxiety Index	0.941	***	0.946	***	0.945	***
	(0.007)		(0.004)		(0.004)	
Constant	0.819		2.181	**	1.974	*
	(0.457)		(0.629)		(0.581)	
N	10,159		10,030		9,975	
R-squared	0.031		0.055		0.055	

Note: Cell entries are given as odds ratio with the standard error given in parenthesis. *p<.05; **p<.01; ***p<.001

Table 4: Logistic Regression: Effects of Father's Unemployment on Cyberbullying Offending

	Model 6	
Dad Job	1.569	*
	(0.283)	
Black	2.006	***
	(0.267)	
Asian	0.866	
	(0.204)	
AI or AN	0.965	
	(0.210)	
NH or OPI	1.597	
	(0.514)	
Ethnicity	0.646	***
	(0.075)	
Grade	0.856	
	(0.107)	
Age	1.240	
	(0.142)	
Female	0.699	***
	(0.078)	
Depression/Anxiety Index	0.933	***
	(0.007)	
Constant	1.127	
	(0.693)	
N	8,876	
R-squared	0.031	

Note: Cell entries are given as odds ratio with the standard error given in parenthesis. *p<.05; **p<.01; ***p<.001

Table 5: Logistic Regression: Effects of Negative Well-Being on Cyberbullying Offending

	Model 7	
Well Off	1.412	**
	(0.188)	
Black	1.934	***
	(0.236)	
Asian	0.863	
	(0.190)	
AI or AN	1.007	
	(0.215)	
NH or OPI	1.678	
	(0.488)	
Ethnicity	0.613	***
	(0.066)	
Grade	0.817	
	(0.090)	
Age	1.276	*
	(0.126)	
Female	0.659	***
	(0.069)	
Depression/Anxiety Index	0.936	***
	(0.006)	
Constant	0.304	
	(0.779)	
N	9,867	
R-squared	0.0313	

Note: Cell entries are given as logistic regression odds ratio with the standard error given in parenthesis. *p<.05; **p<.01; ***p<.001

Table 6: Poisson Regression of Deviant Peer Behaviors on Cyberbullying and Traditional Bullying Offending

	Model 8		Model 9	
	Cyberbullying Offending		**Traditional Bullying Offending**	
	Incidence Rate Ratios (IRR)	Confidence Intervals	Incidence Rate Ratios (IRR)	Confidence Intervals
Deviant Peer Behaviors	1.102***	1.084 to 1.121	1.046***	1.038 to 1.054
Black	1.656***	1.338 to 2.049	1.163***	1.068 to 1.266
Asian	0.883	0.602 to 1.295	1.202**	1.048 to 1.379
AI or AN	0.865	0.582 to 1.287	0.961	0.836 to 1.106
NH or OPI	1.367	0.829 to 2.254	0.994	0.797 to 1.238
Ethnicity	0.731***	0.605 to 0.883	0.969	0.896 to 1.047
Grade	0.824*	0.688 to 0.986	0.986	0.930 to 1.045
Age	1.141	0.967 to 1.346	1.029	0.976 to 1.086
Female	0.754**	0.628 to 0.906	0.866***	0.809 to 0.927
Depression Anxiety Index	0.957***	0.946 to 0.969	0.973***	0.968 to 0.977
Constant	0.611	0.235 to 1.584	0.79	0.580 to 1.076

Note: *p<.05; **p<.01; ***p<.001

Table 7: Negative Binomial Regression of Deviant Peer Behaviors on Both Types of Offending

	Model 10	
	Cyber- and Traditional Bullying Offending	
	Incidence Rate Ratios (IRR)	Confidence Intervals
Deviant Peer Behaviors	1.064***	1.054 to 1.075
Black	1.252***	1.136 to 1.381
Asian	1.273**	1.089 to 1.487
AI or AN	0.979	0.842 to 1.139
NH or OPI	1.145	0.885 to 1.480
Ethnicity	0.937	0.858 to 1.027
Grade	0.964	0.900 to 1.032
Age	1.047	0.983 to 1.113
Female	0.840***	0.777 to 0.907
Depression Anxiety Index	0.964***	0.959 to 0.970
Constant	11.195	7.737 to 16.197

Note: *p<.05; **p<.01; ***p<.001

Table 8: Poisson Regression of Drug and Alcohol Use on Cyberbullying and Traditional Bullying Offending

	Model 11		Model 12	
	Cyberbullying Offending		**Traditional Bullying Offending**	
	Incidence Rate Ratios (IRR)	Confidence Intervals	Incidence Rate Ratios (IRR)	Confidence Intervals
Drug and Alcohol Index	1.077***	1.062 to 1.091	1.028***	1.021 to 1.035
Black	1.693***	1.331 to 2.098	1.161***	1.066 to 1.265
Asian	0.842	0.564 to 1.257	1.199**	1.045 to 1.375
AI or AN	0.919	0.637 to 1.327	0.978	0.852 to 1.122
NH or OPI	1.524	0.938 to 2.476	1.039	0.834 to 1.294
Ethnicity	0.717***	0.592 to 0.867	0.953	0.881 to 1.030
Grade	0.868	0.719 to 1.046	1.014	0.956 to 1.076
Age	1.159	0.982 to 1.369	1.037	0.982 to 1.094
Female	0.730***	0.606 to 0.879	0.852***	0.796 to 0.911
Depression Anxiety Index	0.954***	0.943 to 0.965	0.970***	0.965 to 0.974
Constant	0.529	0.200 to 1.398	0.757	0.553 to 1.037

Note: *p<.05; **p<.01; ***p<.001

Table 9: Negative Binomial Regression of Drug and Alcohol Use on Both Types of Offending

	Model 13 **Cyber- and Traditional Bullying Offending**	
	Incidence Rate Ratios (IRR)	Confidence Intervals
Drug and Alcohol Index	1.037***	1.029 to 1.046
Black	1.244***	1.127 to 1.372
Asian	1.259**	1.079 to 1.468
AI or AN	1.002	0.862 to 1.165
NH or OPI	1.163	0.909 to 1.486
Ethnicity	0.919	0.841 to 1.004
Grade	1.013	0.947 to 1.083
Age	1.045	0.982 to 1.112
Female	0.829***	0.768 to 0.895
Depression Anxiety Index	0.962***	0.956 to 0.967
Constant	9.74	6.780 to 13.991

Note: *p<.05; **p<.01; ***p<.001

Table 10: Poisson Regression of Time Spent with Friends on Cyberbullying and Traditional Bullying Offending

	Model 14		Model 15	
	Cyberbullying Offending		**Traditional Bullying Offending**	
	Incidence Rate Ratios (IRR)	Confidence Intervals	Incidence Rate Ratios (IRR)	Confidence Intervals
Time with Friends	1.108***	1.085 to 1.132	1.026***	1.017 to 1.035
Black	1.656***	1.347 to 2.035	1.151***	1.058 to 1.252
Asian	0.923	0.630 to 1.354	1.202**	1.049 to 1.377
AI or AN	0.994	0.697 to 1.416	0.991	0.868 to 1.132
NH or OPI	1.284	0.781 to 2.110	1.008	0.811 to 1.254
Ethnicity	0.691***	0.572 to 0.835	0.952	0.881 to 1.029
Grade	0.892	0.747 to 1.065	1.012	0.955 to 1.072
Age	1.171	0.999 to 1.372	1.048	0.995 to 1.105
Female	0.767***	0.638 to 0.922	0.868***	0.811 to 0.929
Depression Anxiety Index	0.944***	0.934 to 0.954	0.967***	0.962 to 0.971
Constant	0.373*	0.147 to 0.946	0.741	0.543 to 1.012

Note: *p<.05; **p<.01; ***p<.001

Table 11: Negative Binomial Regression of Time Spent with Friends on Both Types of Offending

Table #. Negative Binomial Regression of Time Spent with Friends on Both Types of Offending

	Model #	
	Cyber- and Traditional Bullying Offending	
	Incidence Rate Ratios (IRR)	Confidence Intervals
Time with Friends	1.030***	1.020 to 1.041
Black	1.239***	1.124 to 1.366
Asian	1.255**	1.075 to 1.465
AI or AN	0.997	0.860 to 1.548
NH or OPI	1.136	0.891 to 1.448
Ethnicity	0.909*	0.833 to 0.992
Grade	1.019	0.955 to 1.088
Age	1.053	0.992 to 1.118
Female	0.848***	0.786 to 0.914
Depression Anxiety Index	0.959***	0.953 to 0.964
Constant	9.144	6.354 to 13.161

Note: *p<.05; **p<.01; ***p<.001

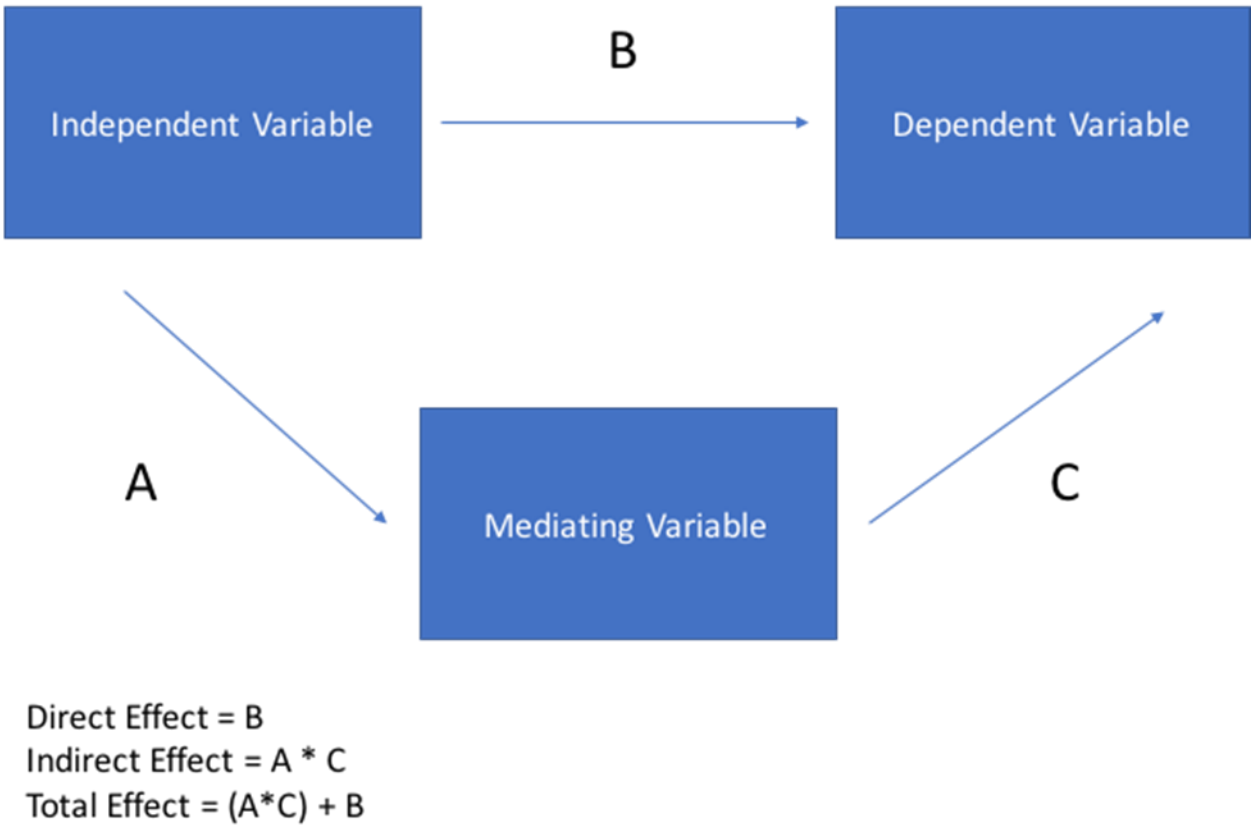

Figure 1: Sample Path Analysis Model Demonstrating How Effects Were Calculated

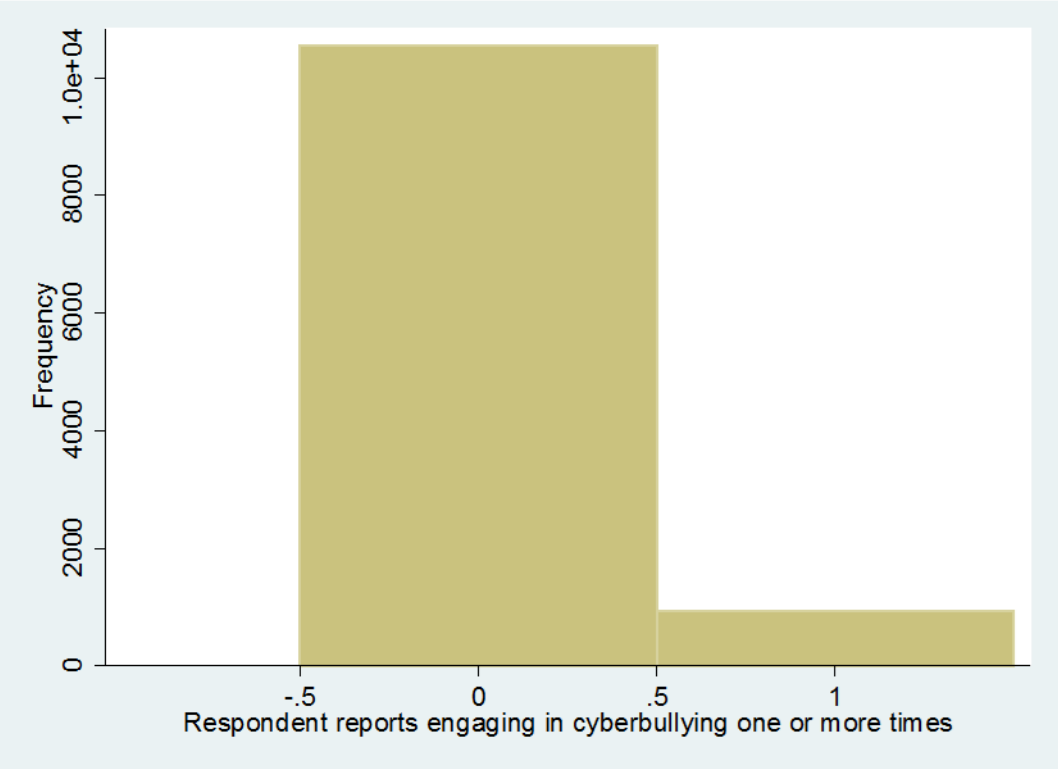

Figure 2: Histogram Showing Dispersion of Cyberbullying Offending Index

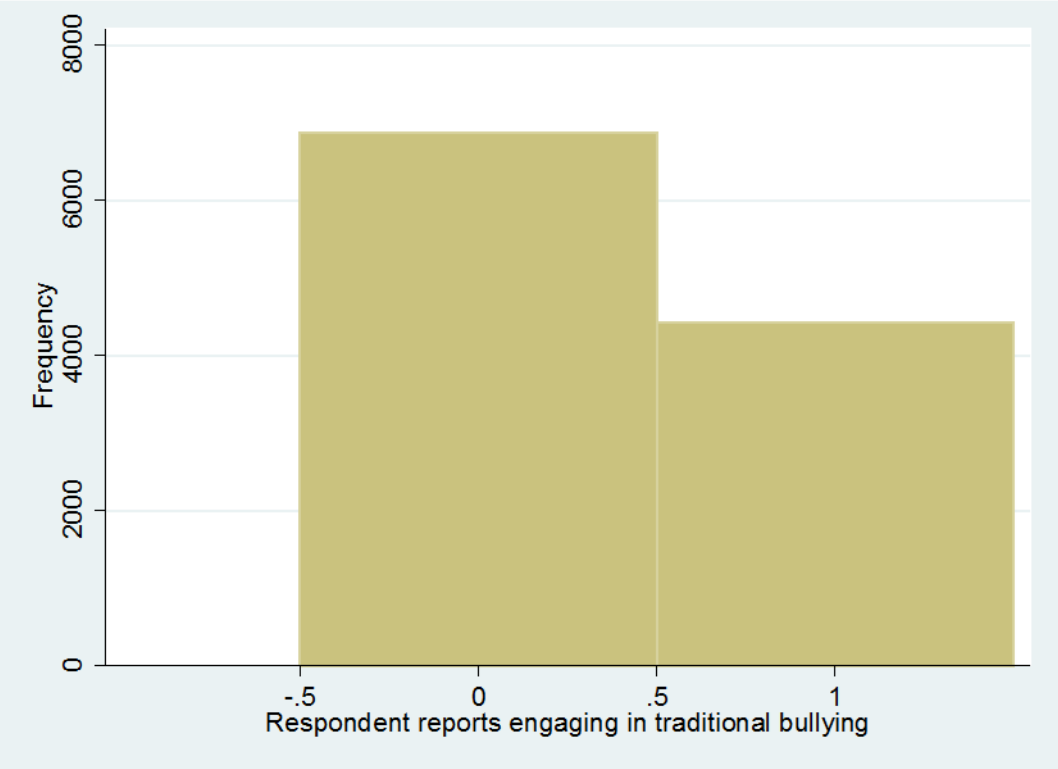

Figure 3: Histogram Showing Dispersion of Traditional Bullying Offending Index

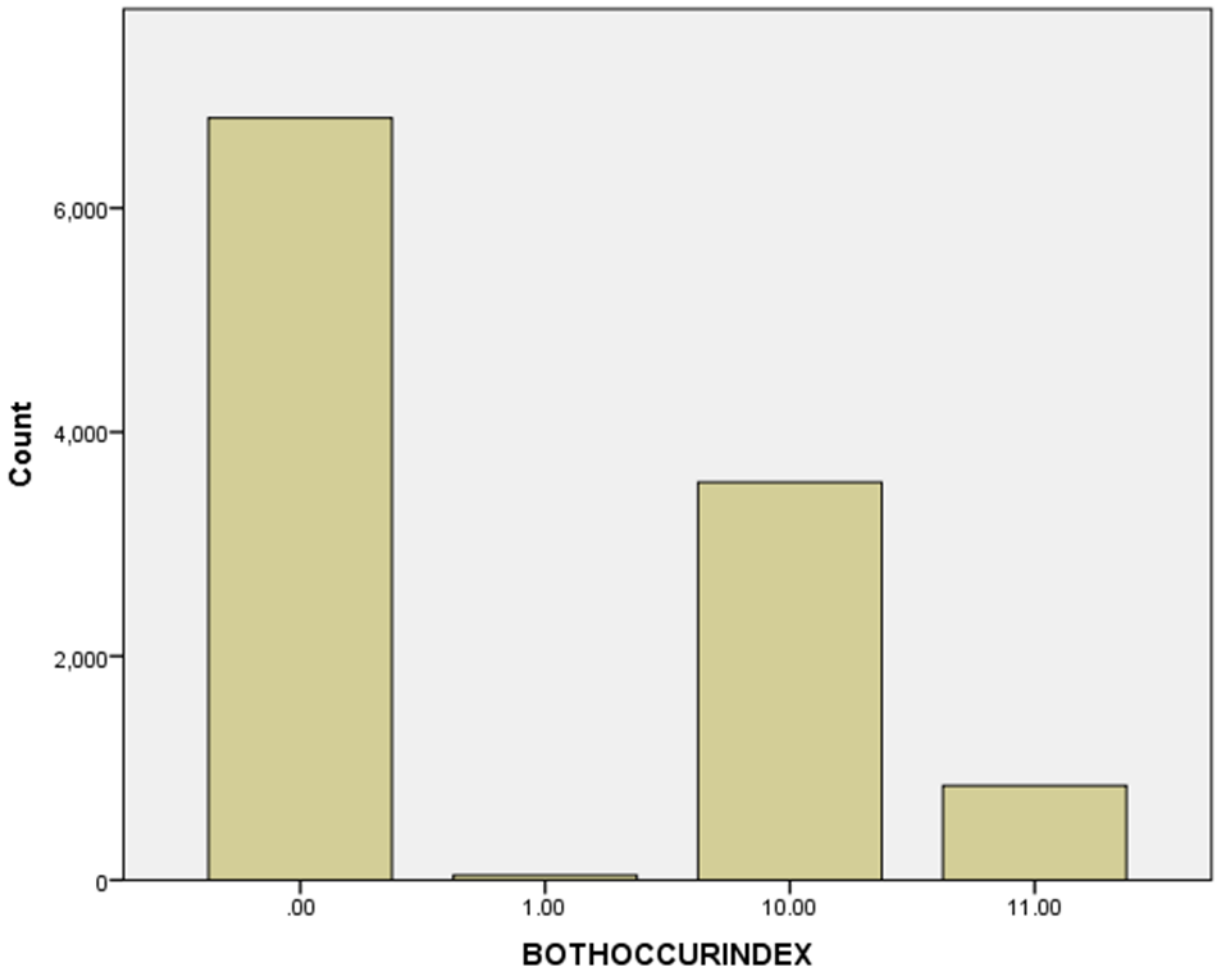

Figure 4: Histogram Showing Dispersion of Cyber- and Traditional Offending Index

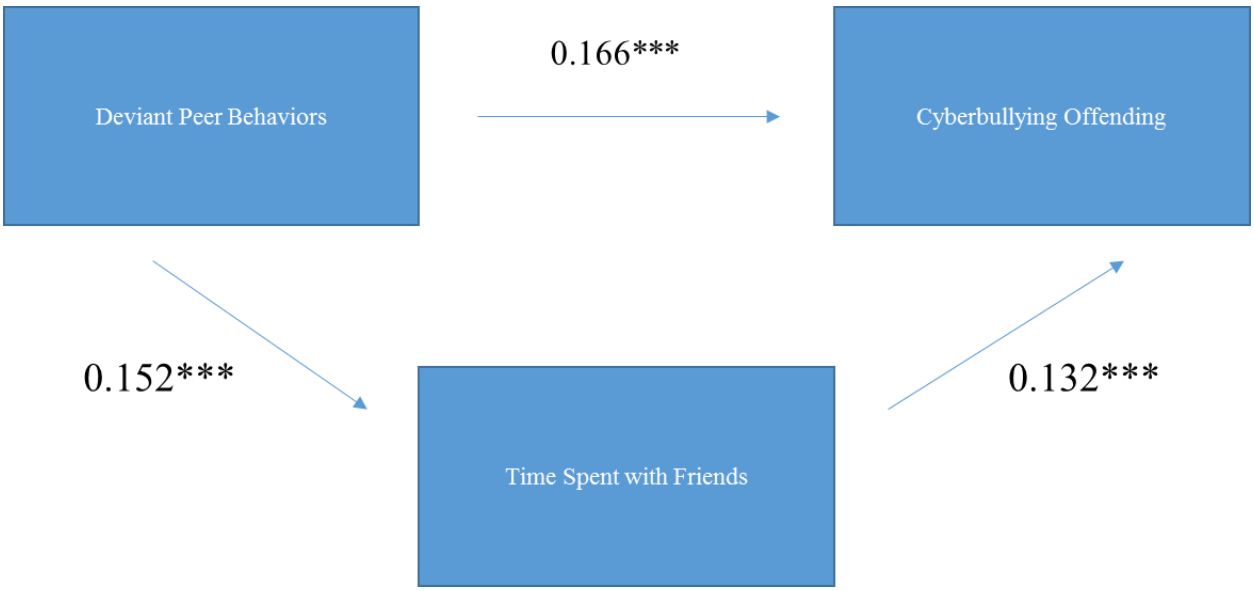

Figure 5: Path Analysis showing the Direct Effects of Deviant Peers and Indirect Effects of Time Spent with Friends on Cyberbullying Offending Index[2]

[2] The direct effect of the model is 0.166. The indirect effect of the model is 0.020. This is calculated by multiplying 0.152 by 0.132. The total effect of the model is .186. This is calculated by adding the direct effect to the indirect effect. Direct R^2=0.052; Indirect R^2=0.023.

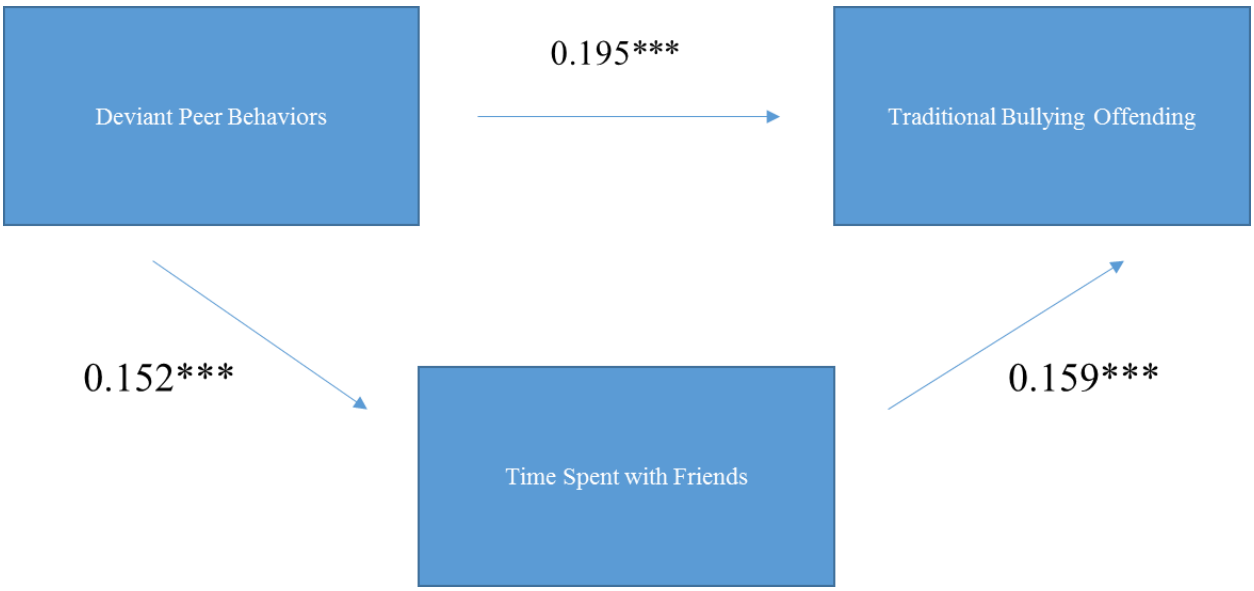

Figure 6: Path Analysis showing the Direct Effects of Deviant Peers and Indirect Effects of Time Spent with Friends on Traditional Bullying Offending Index[3]

[3] The direct effect of the model is 0.195. The indirect effect of the model is 0.024. This is calculated by multiplying 0.152 by 0.159. The total effect of the model is .219. This is calculated by adding the direct effect to the indirect effect. Direct R^2=0.073; Indirect R^2=0.023.

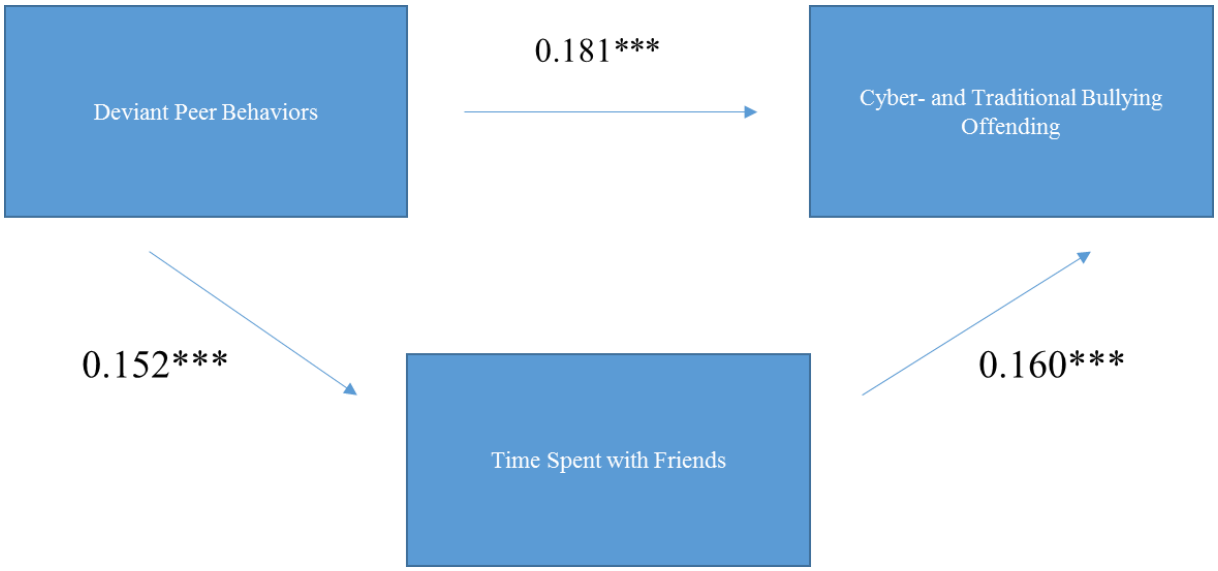

Figure 7: Path Analysis showing the Direct Effects of Deviant Peers and Indirect Effects of Time Spent with Friends on Cyber- and Traditional Bullying Offending Index[4]

[4] The direct effect of the model is 0.181. The indirect effect of the model is 0.024. This is calculated by multiplying 0.152 by 0.160. The total effect of the model is .205. This is calculated by adding the direct effect to the indirect effect. Direct R^2=0.067; Indirect R^2=0.023.

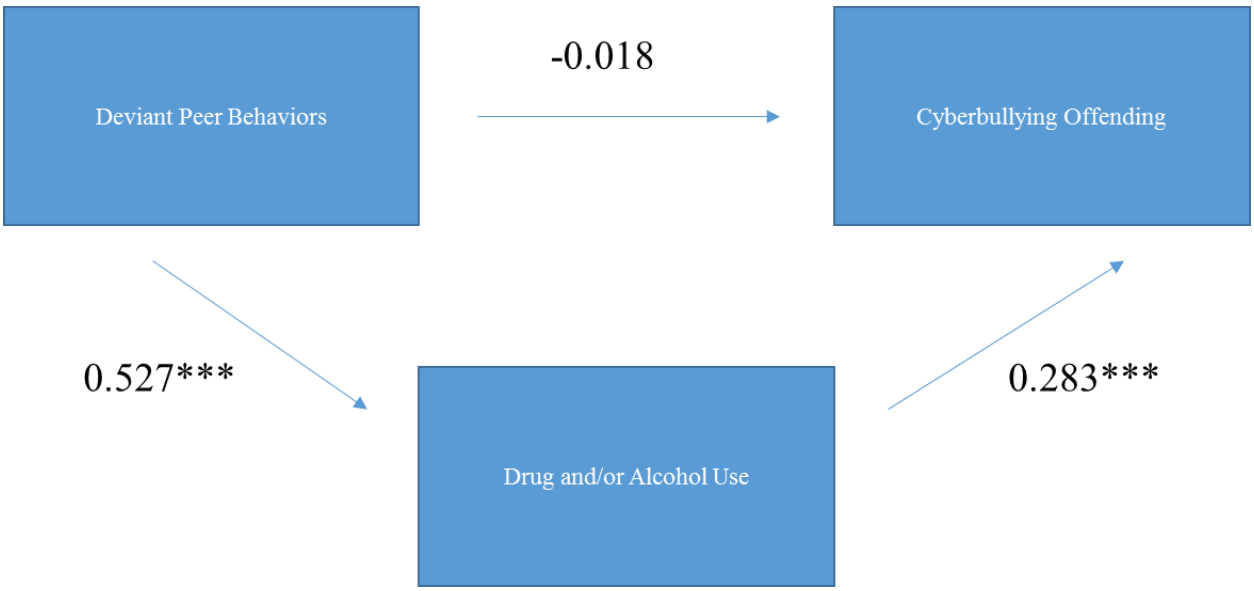

Figure 8: Path Analysis showing the Direct Effects of Deviant Peers and Indirect Effects of Drug/Alcohol Use on Cyberbullying Offending Index[5]

[5] The direct effect of the model is assumed to be zero as the regression coefficient is not significant. The indirect effect of the model is 0.166. This is calculated by multiplying 0.527 by 0.283. The total effect of the model is .166. This is calculated by adding the direct effect to the indirect effect. Direct R^2=0.091; Indirect R^2=0.278.

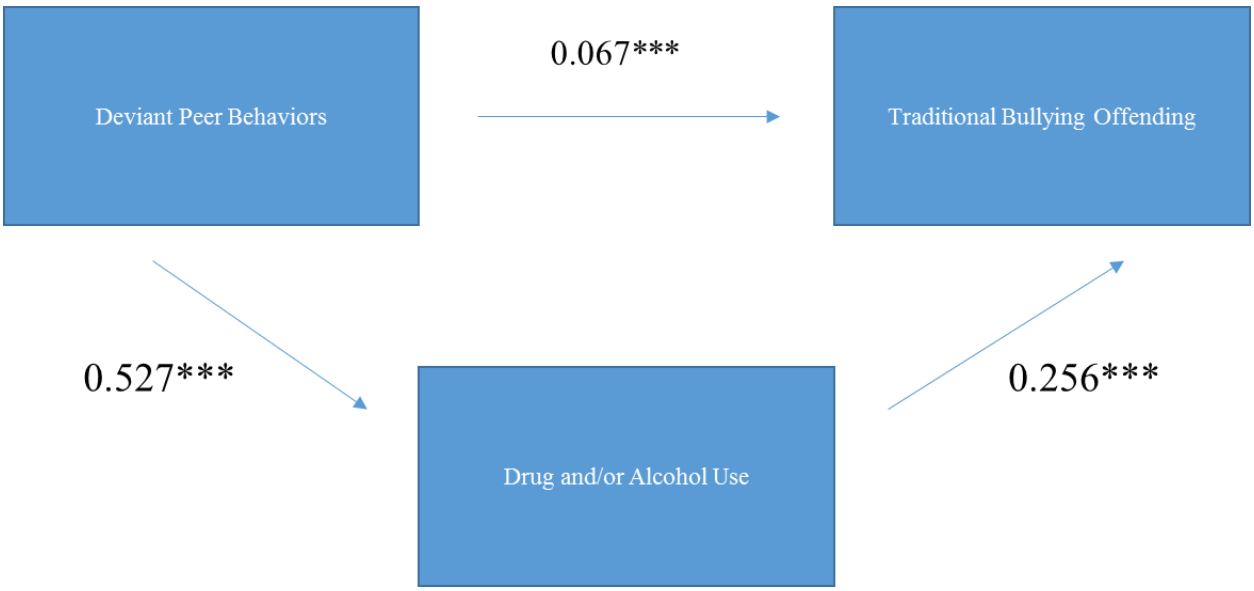

Figure 9: Path Analysis showing the Direct Effects of Deviant Peers and Indirect Effects of Drug/Alcohol Use on Traditional Bullying Offending Index[6]

[6] The direct effect of the model is 0.067. The indirect effect of the model is 0.135. This is calculated by multiplying 0.527 by 0.256. The total effect of the model is .202. This is calculated by adding the direct effect to the indirect effect. Direct R^2=0.090; Indirect R^2=0.278.

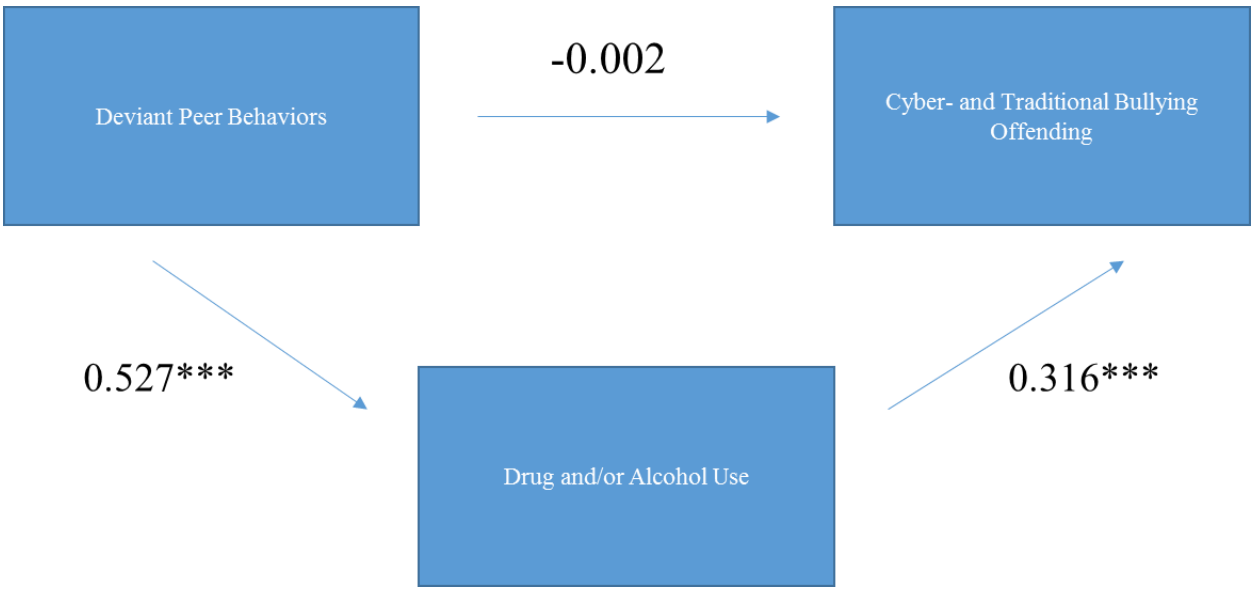

Figure 10: Path Analysis showing the Direct Effects of Deviant Peers and Indirect Effects of Drug/Alcohol Use on Cyber- and Traditional Bullying Offending Index[7]

[7] The direct effect of the model is assumed to be zero as the regression coefficient is not significant. The indirect effect of the model is 0.167. This is calculated by multiplying 0.527 by 0.316. The total effect of the model is .167. This is calculated by adding the direct effect to the indirect effect. Direct R^2=0.099; Indirect R^2=0.278.

REFERENCES

Agnew, R. (1985). A revised strain theory of delinquency. *Social Forces, 64*, 151-167.

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology, 30*(1), 47-87.

Agnew, R., & White, H. R. (1992). Empirical Test of General Strain Theory, An. Criminology, 30, 475.

Akers, R. L. (1998). Social structure and social learning. *Los Angeles: Roxbury*.

Akers, R. L., & Jensen, G. F. (2006). The empirical status of social learning theory of crime and deviance: The past, present, and future. *Taking stock: The status of criminological theory*, *15*, 37-76.

Akers, R. L., & Lee, G. (1996). A longitudinal test of social learning theory: Adolescent smoking. *Journal of Drug Issues*, *26*(2), 317-343.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.

Boeringer, S. B., Shehan, C. L., & Akers, R. L. (1991). Social contexts and social learning in sexual coercion and aggression: Assessing the contribution of fraternity membership. *Family Relations*, 58-64.

Bradshaw, C. P., Sawyer, A. L., & O'Brennan, L. M. (2007). Bullying and peer victimization at school: Perceptual differences between students and school staff. *School psychology review*, *36*(3), 361.

Centers for Disease Control and Prevention (2015). *Understanding bullying: Fact sheet.* Retrieved from https://www.cdc.gov/violenceprevention/pdf/bullying_factsheet.pdf.

Centers for Disease Control and Prevention. (2015b). *Trends in the Prevalence of Behaviors that Contributed to Violence National YRBS: 1991-2015.* Available at www.cdc.gov/healthyyouth/data/yrbs/pdf/trends/2015_us_violence_trend_yrbs.pdf. Accessed January 25, 2017.

D'Amico, E. J., Ellickson, P. L., Collins, R. L., Martino, S., & Klein, D. J. (2005). Processes linking adolescent problems to substance-use problems in late young adulthood. *Journal of studies on alcohol*, *66*(6), 766-775.

Dishion, T. J. (2000). Cross-setting consistency in early adolescent psychopathology: Deviant friendships and problem behavior sequelae. Journal of Personality, 68, 1109–26.

Dishion, T. J., Eddy, J. M., Haas, E., Li, F., & Spracklen, K. M. (1997). Friendships and violent behavior during adolescence. *Social Development*, 6, 207–225.

Elgar, F.J., Napoletano, A., Saul, G., Dirks, M.A., Craig, W., Poteat, P., Holt, M., & Koenig B.W. (2014). Cyberbullying Victimization and Mental Health in Adolescents and the Moderating Role of Family Dinners. *JAMA Pediatrics*, 168, 1015-1022.

Floros, G., & Siomos, K. (2013). The relationship between optimal parenting, Internet addiction and motives for social networking in adolescence. *Psychiatry research*, *209*(3), 529-534.

Gamez-Guadix, M., Orue, I., Smith, P.K., & Calvete, E. (2013). Longitudinal and reciprocal relations of cyberbullying with depression, substance use, and problematic internet use among adolescents. *Journal of Adolescent Health*, 53(4), 446-452.

Goebert, D., Else, I., Matsu, C., Chung-Do, J., & Chang, J. Y. (2011). The impact of cyberbullying on substance use and mental health in a multiethnic sample. *Maternal and child health journal*, *15*(8), 1282-1286.

Higgins, G. E., & Marcum, C. D. (2011). *Digital piracy: An integrated theoretical approach*. Carolina Academic Press.

Hinduja, S., & Patchin, J. W. (2007). Offline consequences of online victimization: School violence and delinquency. *Journal of school violence*, *6*(3), 89-112.

Hinduja, S., & Patchin, J. W. (2009) *Bullying Beyond the Schoolyard: Preventing and Responding to Cyberbullying.* Thousand Oaks, CA: Sage Publications.

Hinduja, S. & Patchin, J. W. (2013). Social influences on cyberbullying behaviors among middle and high school students. *Journal of Youth and Adolescence, 42*(5), 711-722.

Hinduja, S., & Patchin, J. W. (2013). *State cyberbullying laws: A brief review of state cyberbullying laws and policies*. Retrieved from http://cyberbullying.usBullying_and_Cyberbullying_Laws.pdf.

Hinduja, S., & Patchin, J. W. (2015) *2015 Cyberbullying Data*. Retrieved from http://cyberbullying.org/2015-data/

Holt, T. J., Burruss, G. W., & Bossler, A. M. (2010). Social learning and cyber-deviance: Examining the importance of a full social learning model in the virtual world. *Journal of Crime and Justice*, *33*(2), 31-61.

Holt, T. J., Burruss, G. W., & Bossler, A. M. (2010). Social learning and cyber-deviance: Examining the importance of a full social learning model in the virtual world. *Journal of Crime and Justice*, *33*(2), 31-61.

Hunter, S. C., Boyle, J. M., & Warden, D. (2007). Perceptions and correlates of peer-victimization and bullying. *British Journal of Educational Psychology*, *77*(4), 797-810.

Iannotti, Ronald J. (2013) Health Behavior in School-Aged Children (HBSC), 2009-2010. ICPSR34792-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research. Retrieved from http://doi.org/10.3886/ICPSR34792.v1

IBM Corp. (2015). IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.

Jankauskiene, R., Kardelis, K., Sukys, S., & Kardeliene, L. (2008). Associations between school bullying and psychosocial factors. *Social Behavior and Personality: An International Journal*, 36, 145-162.

Keenan, K., Loeber, R., Zhang, Q., Stouthamer-Loeber, M. and van Kammen, W.B. (1995) 'The influence of deviant peers on the development of boys' disruptive and delinquent behavior: A temporal analysis', *Development and Psychopathology*, 7(4), pp. 715–726.

Klomek, A. B., Marrocco, F., Kleinman, M., Schonfeld, I. S., & Gould, M. S. (2007). Bullying, depression, and suicidality in adolescents. *Journal of the American Academy of Child Adolescent Psychiatry*, 46, 40-49.

Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health*, 41, 22-30.

Leary, M. R., & Downs, D. L. (1995). *Interpersonal Functions of the Self-Esteem Motive: The Self-Esteem System as a Sociometer*. New York: Plenum Press.

Litwiller, B. & Brausch, A. (2013). Cyberbullying and physical bullying in adolescent suicide: The role of violent behavior and substance use. *Journal of Youth and Adolescence, 42*, 675-684.

Mitchell, K. J., Ybarra, M., & Finkelhor, D. (2007). The relative importance of online victimization in understanding depression, delinquency, and substance use. *Child maltreatment*, *12*(4), 314-324.

Olweus, D., & Limber, S. P. (2010). Bullying in school: Evaluation and dissemination of the Olweus Bullying Prevention Program. *American Journal of Orthopsychiatry*, *80*(1), 124-134.

Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence Juvenile Justice, 4*, 148-169.

Patchin, J. W., & Hinduja, S. (2010). Traditional and nontraditional bullying among youth: A test of general strain theory. *Youth & Society*, 20, 1-25.

Paternoster, R., & Mazerolle, P. (1994). General strain theory and delinquency–a replication and extension. *Journal of Research in Crime and Delinquency, 31*(3), 235-263

Peleg-Oren, N., Cardenas, G., Comerford, M., & Galea, S. (2012). An association between bullying behaviors and alcohol use among middle school students. *The Journal of Early Adolescence*, *32*(6), 761-775.

Pratt, T. C., Cullen, F. T., Sellers, C. S., Thomas Winfree Jr, L., Madensen, T. D., Daigle, L. E., Fearn, N. E., & Gau, J. M. (2010). The empirical status of social learning theory: A meta-analysis. *Justice Quarterly*, *27*(6), 765-802.Warr, M. (2002). *Companions in crime: The social aspects of criminal conduct*. Cambridge University Press.

Salmivalli, C., Kaukiainen, A., Kaistaniemi, L., & Lagerspetz, K. M. (1999). Self-evaluated self-esteem, peer-evaluated self-esteem, and defensive egotism as predictors of adolescents' participation in bullying situations. *Personality and Social Psychology Bulletin*, 25, 1268-1278.

Schneider, S. K., O'Donnell, L., Stueve, A., & Coulter, R. W. (2012). Cyberbullying, school bullying, and psychological distress: A regional census of high school students. *American Journal of Public Health*, *102*(1), 171-177.

Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive behavior*, *29*(3), 239-268.

StataCorp. (2015). Stata Statistical Software: Release 14. College Station, TX: StataCorp LP.

Stage, F., Carter, H., & Nora, A. (2004). Path Analysis: An Introduction and Analysis of a Decade of Research. The Journal of Educational Research, 98(1), 5-12.

Tharp-Taylor, S., Haviland, A., & D'Amico, E. J. (2009). Victimization from mental and physical bullying and substance use in early adolescence. *Addictive behaviors*, *34*(6), 561-567.

Thiegs, E. (2011). *Bullies: How teens feel about real world issues*. Available at https://www.stageoflife.com/TeensandBullies.aspx. Accessed January 25, 2017.

Twenge, J. M., & Campbell, W. K. (2001) Age and birth cohort differences in self-esteem: A cross-temporal meta-analysis. *Personality and Social Psychology Review*, 5, 321-344.

Wang, J., Nansel, T. R., Iannotti, R. J. (2011). Cyber and traditional bullying: Differential association with depression. *Journal of Adolescent Health*, 48, 4, 415-417.

Wasserman, G. A., McReynolds, L. S., Ko, S. J., Katz, L. M., & Carpenter, J. R. (2005). Gender differences in psychiatric disorders at juvenile probation intake. *American Journal of Public Health*, 95, 131-137.

Wilson, M. L., Dunlavy, A. C., & Berchtold, A. (2013). Determinants for bullying victimization among 11–16-year-olds in 15 low-and middle-income countries: A multi-level study. *Social Sciences*, *2*(4), 208-220.