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CYBER-VICTIMIZATION AND DELINQUENCY: A GENERAL STRAIN PERSPECTIVE

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CYBER-VICTIMIZATION AND DELINQUENCY

A GENERAL STRAIN PERSPECTIVE

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CYBER-VICTIMIZATION AND DELINQUENCY: A GENERAL STRAIN PERSPECTIVE

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     This study examines juvenile delinquency and cyber-victimization from a general strain
perspective. General strain theory provides a model where strain is experienced through the (1)
loss of something valued, (2) the presentation of noxious stimuli, or (3) the inability to achieve
valued goals. As a coping mechanism for strain, some juveniles react through criminal or
delinquent behavior. This thesis predicts that cyber-victimization increases the likelihood of
physical fighting, weapon-carrying, and truancy at school. Using the 2013 National Crime
Victimization Survey: School Crime Supplement, the hypotheses are analyzed using multivariate
logistic regression models that include other known correlates of delinquency. Marginal support
is found for cyber-victimization increasing the likelihood of truancy from school. Although the
overall results do not support the hypotheses, several other factors display significant
relationships with delinquent outcomes. A discussion of the results, limitations, and
recommendations for future research is provided in light of these findings.

AKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Cyberbullying is a form of victimization that exposes juveniles to harassment, ridicule, and stalking. Modern technology allows adolescents to engage in peer group activities virtually, which removes the physical constraints that govern face-to-face interactions. This is especially true for juveniles and young adults who have grown up with the internet as a part of their everyday social experience.

Cyber-victimization causes distress or fear in the same manner that bullying or stalking generates discomfort for victims in the physical world (Bossler, Holt, and May 2011). This victimization can consist of threatening messages or sexual images transmitted via e-mail, sent via instant message service, or posted in chat-rooms. For victims, the outcomes of this harassment can vary in severity from a minor nuisance to extreme emotional or physical stress experienced by the victim (Addington 2013; Bossler, Holt, and May 2011). Cyberbullying can also be a precursor to more serious forms of victimization such as identity theft, cyber-stalking, or physical violence (Holt and Bossler 2008).

Following recommendations from prior literature, the present study is an examination of the relationships between cyber-victimization and delinquent outcomes among a juvenile population (Holt 2013; Hay, Meldrum, and Mann 2010; Patchin and Hinduja 2011; Jang, Song, and Kim 2014). General strain theory (Agnew 2006) predicts that cyber-victimization should increase the likelihood of engaging in physical fighting, weapon-carrying, and truancy from school. The inclusion of both cyberbullying victimization alongside other known correlates, including face-to-face bullying victimization, presents an informed analysis of victimization and

delinquency. This thesis employs a large, nationally representative data set addressing self-reported bullying victimization, fighting, weapon-carrying, and truant behaviors.

This study contributes to both the theoretical and practical understandings of cyber-victimization. Employing a general strain theory perspective, including known correlates of delinquency alongside cyberbullying, addresses a broader spectrum of bullying victimization previous studies have neglected. Placing a focus on understanding the role of cyberbullying as one unique form of victimization among many provides a contextual framework for future analyses. The findings contribute to a practical understand of cyber-victimization through the statistical comparison to face-to-face bullying victimization and the resulting unique effects on delinquent outcomes. The finding can be used to understand bullying victimization and school safety at a national level, supplying policy makers with a more accurate depiction of how students are being victimized.

CHAPTER 2

PRIOR RESEARCH ON CYBER-VICTIMIZATION

As a matter of safety and school policy, bullying is considered a serious form of victimization that demands attention from administrators, educators, and parents (Miller 1994; Wynne and Joo 2011). School based peer interactions have provided a focus for existing analyzes on juvenile victimization and offending, in the form of face-to-face bullying (Miller 1994). The expansion of consumer technologies and online social media has created a new digital environment for bullying victimization (Hinduja and Patchin 2008). Previous research has demonstrated that this online-environment can act as an extension of the classroom or the schoolyard in providing opportunities for peer victimization (Waasdorp and Bradshaw 2015; Kubiszewski, Fontaine, Potard, and Auzoult 2015). Cyber-victimization can cause significant distress for juveniles who are socially or psychologically invested in online communications (Hinduja and Patchin 2010; Whittaker and Kowalski 2015).

Adolescent delinquent responses to the distress of face-to-face bullying victimization have been a focus of general strain theory (GST) and widely tested. GST posits that juveniles lack the resources to deal with significant levels of strain and often respond with delinquent acts (Agnew 2006). Similarly, cyber-victimization and delinquency have been correlated in existing research (Holt 2013). As part of an expanding body of research, this study uses a general strain perspective to assess physical fighting, weapon-carrying and truancy at school as a response to the strain of cyberbullying victimization.

From Face-to-Face Bullying to Cyberbullying

Dan Olweus (1993) contributed three key components of the contemporary definition of face-to-face bullying: intentional aggression, repetition, and an imbalance of power between the

offender and the victim. These components have provided a baseline for analyzing bullying as a

construct (Vivolo-Kantor, Martell, Holland, and Westby 2014). In the decade following the

Olweus (1993) definition, additional components such as perpetrator's intent to cause harm,

individual reporting of harm, or differentiation between sibling, peer, and dating violence have

been used to increase accuracy in research and data collection (Vivolo-Kantor et al. 2014).

Definitional refinement of bullying has expanded to include direct forms (e.g., fighting) and

indirect forms (e.g., rumor spreading) (Vivolo-Kantor et al. 2014). Differentiation between

physical, verbal, or relational offending, as well as separating bullying from peer aggression have

created increasingly systematic methodologies for research and measurement (Vivolo-Kantor et

al. 2014). The definition of cyberbullying has undergone a similar conceptualization as a form

of harassment utilizing electronic or technological means (Bauman and Bellmore 2015;

Tokunaga 2010).

Defining Cyberbullying

Defining cyberbullying as an electronic form of face-to-face bullying begins with

preceding research that examined then-emerging online criminal behavior. Grabosky (2001)

discussed online crime as "old wine in new bottles" noting that although technology may change

rapidly, human nature does not. Grabosky (2001) argued that many of the same factors of

motive and opportunity contribute to both street crime and cyber-crime. Consistent with past

social and technological advances, conflict and victimization have become common online social

experiences. As such, there is no clear single definition of cyberbullying used across sociology

and criminology; however, many researchers use similar definitions that combine important

aspects of bullying, such as aggressive intent, use of technology, or injury to the victim.

A combination of rapid technological change and the continued attempt to refine measures of cyberbullying have created a variety of definitions (Berne et al. 2012).   Holt (2013) defines cyberbullying as intentional, aggressive behavior performed through electronic means, involving an imbalance of power comparable to bullying in the physical world. Similar definitions have been used in dozens of other studies and as such the current study uses this as framework to test the relationship between cyber-victimization and delinquency (Vivolo-Kantor et al. 2014; Ybarra, Boyd, Korchmaros, and Oppenheim 2012).

Although this definition is common in cyberbullying research, it does not acknowledge differences in the intensity, repetition, or duration of cyberbullying victimization. For example, face-to-face bullying may occur over several incidences, causing distress at each occurrence, compounding painful memories for the victim. In contrast, cyberbullying could consist of a single offense, but through the permanence of digital media may be distributed to nearly limitless recipients, presenting a similar compounding of distress for the victim (Wolak, Mitchell, and Finkelhor 2007). This creates potential re-victimization as a byproduct of the digital environment and unintentional complicity in sharing the offense. To date little is known about the long term impact of cyber-victimization or the specific goals of cyber-bullies (Dooley, Pyzalski, and Cross 2009).

General Strain Theory

Agnew (2003) outlines that adolescents as more likely to cope with strain through criminal behavior for many reasons specific to the juvenile experience. Adolescents are more likely to possess traits of negative emotionality, low constraint coupled with a demanding social world, and the desire for adult privileges without the legitimate means to reach them (Agnew 2006). At the same time adolescents are still developing complex problem-solving skills, have

insufficient social skills, lack coping resources like money or power, and their social world is more interactive than that of adults. This higher level of interaction exposes their individual experience of strain to others (Agnew 2006). The adolescent social experience as the convergence of strain associated with coming-of-age events coupled with the physiological changes of puberty, increase the likelihood of subsequent criminal coping.

General strain theory (GST) states that strain caused by adverse social interactions result in negative emotional states that demand relief. GST outlines the types of strain, interpersonal experiences with strain, and the criminal or delinquent actions undertaken to relieve strain. Robert Agnew (2006) applies general strain theory to juvenile victimization, identifying it as a significant source of strain. He directly addresses the importance of bullying, citing that peer abuse surpasses other sources of strain including parental pressures, as the premier source of juveniles' unhappiness (Agnew 2006). A primary location for bullying is a school environment which promotes close contact, social interaction, and competition as conditions for peer-on-peer abuse (Agnew 2006).

Agnew (1992) argued that strain theory distinguished itself from social control theory and social learning theory by specifying the type of social relationship that leads to delinquency and the motivation for delinquency. Agnew (1992; 2001; 2002) establishes GST by expanding on the classical strain theory of Merton (1938), Cohen (1955), Cloward and Ohlin (1960) with the introduction of three categories of strain. Agnew (2006) discusses strain as conditions or events that are personally offensive to the individual and cause negative emotionality. These types of strain include: (1) the loss of something that the individual values (removal of positively valued stimuli), (2) the experience of averse or negative treatment by others (the presentation of noxious

stimuli), and (3) the inability to achieve their goals (failure to achieve positively valued goals) (Agnew 2006).

Agnew further argues that strain has objective and subjective components. Objective strain refers to events or conditions that are generally disliked by most people in a given group (Agnew 2001). Examples of objective strain include incidents such as being physically assaulted, being deprived of food, experiencing a death in the family, or being social excluded. GST states that it is important to recognize that individuals can vary on their response to objective strain. Subjective strain are events or conditions that are disliked by the particular individual (Agnew 2001). The subjectivity of strain is influenced by a range of factors including prior experiences, goals, values, and personality traits. Earlier investigations have demonstrated that there is a partial overlap between objective and subjective strains (Agnew 2006). Although objective strain may underestimate the effect of strain on crime, objective strain provides a broader scope of group responses to aversive conditions.

Previous GST research establishes objective strain that cause negative emotions such as anger, frustration, anxiety, or depression. Most individuals do not cope with strain through criminal behavior; however, former research identifies conditions that increase the likelihood of such coping. Strain resulting from events that are: (1) seen as unjust, (2) seen as high in magnitude, (3) associated with low social control, and (4) seen as creating some pressure or incentive for the individual to engage in crime, are more likely to result in criminal behavior (Agnew 2001).

Social, physical, and environmental strains caused by purposive conflict on behalf of others are objectively seen as unjust. For example, being physically assaulted by peers on the basis of an individual's socioeconomic status, racial identity, or religion may be seen as unjust.

Experiencing unjust strains are likely to lead to emotions related to anger (Agnew 2001). Anger creates extreme pressure for corrective action, reduces the ability to engage in legal coping, and reduces the perceived costs of crime and increases the disposition for crime (Agnew 1992). Social control is reduced by unjust strain, especially if the strain is caused by those who exercise social control. Unjust strain fosters the social learning of crime by presenting an incentive to combat the offender and acts as a justification for deviance.

Strain seen as high in magnitude by the individual generate strong negative emotions including anger, depression, and fear. Examples of a high magnitude strain include marital infidelity, chronic unemployment, or sexual assault. High magnitude strain reduce the ability of individuals to cope in a legal manner, increase overall irritability, and jeopardize positive emotional bonds (Agnew 2006). Strain seen as high in magnitude also foster the social learning of crime by creating feelings of desperation that justify criminal actions.

Strain associated with low social control increases the likelihood of engaging in crime by reducing the social and emotional costs criminal behaviors. The individual choice to engage in crime is easier when the social bonds that connect them to others are weak or nonexistent (Agnew 2006). Weakened social bonds can remove pro-social preventions. For example, chronic unemployment can allow for individuals to engage in crime without worrying that it could jeopardize their job. Low social control may also contribute to negative emotionality and low constraint, in that individuals are then less likely to enact self-control when they devalue interactions with others (Agnew 2006).

Strain can create incentives for crime, in that some types of strain are more easily resolved through criminal behavior and less easily resolved through legal channels (Agnew 2006). For example, the need for money may be easier to achieve through selling illegal drugs

or other criminal activities, rather than achieving educational goals that create job opportunities. The pressure created by strain may also expose individuals to criminal others who act as models of criminal behavior. These criminal models support existing or present new pro-criminal viewpoints, justifying criminal behavior, and diminish legal coping options (Agnew 2006).

Agnew (2006) discusses adolescents' experiences with strain, its relative importance in their social world, and their likelihood of engaging in criminal or delinquent behavior as a coping mechanism. As per Agnew, Ambert (1994) found that peer-on-peer abuse emerged as the main source of unhappiness for juveniles and that much of this abuse occurs in school. GST acknowledges that adolescents are more likely than adults to possess personality traits recognized in other theories as conducive to crime and delinquency. Specifically, juveniles are lower in social control and more likely to associate with other offenders (Agnew, Brezina, Wright, and Cullen 2002). GST argues that juveniles are also more likely to offend than either children or adults because they are more likely to experience those strains conducive to crime and more likely to cope with strain through crime (Agnew 2006).

Cyberbullying and General Strain Theory

Existing literature on cyberbullying, victimization, and delinquency using a general strain perspective have employed a definition similar to the one used in this study. Agnew (2006) highlights that experiences with bullying and peer-abuse are one of the most significant sources of strain for juveniles. GST posits that cyber-victimization as an objective form of strain similar to face-to-face bullying should cause negative emotionality, creating pressure for relief and incentive for delinquency. Prior research has analyzed these relationships treating cyberbullying as both an (independent variable) source of strain for subsequent delinquent behavior and as a (dependent variable) reaction to strain in the form of offending.

Patchin and Hinduja (2011) studied increased likelihoods of engaging in bullying when juveniles reported experiencing common forms of strain including: receiving bad grades, family disagreements, moving to a new school, being the victim of a crime, or a romantic break-up. Their outcome variables measured face-to-face and cyberbullying offending behaviors, analyzing differences across age, race, and gender. The results showed that students who experienced strain were more likely to engage in both types of bullying across age, race, and gender (Patchin and Hinduja 2011). The findings supported the hypothesis, suggesting that experiencing strain significantly increased the likelihood of offending behaviors including cyberbullying.

Patchin and Hinduja (2011) constructed a survey that used a definition of cyberbullying similar to Holt's (2013). The dependent variables of face-to-face bullying and cyberbullying attempted to measure similar real-world and online offending behaviors. The survey asked respondents a range of questions to measure bullying; however, they did not use a standardized response format. On three of the five items used to evaluate cyberbullying, respondents were asked whether the purpose of the attack was to make fun of or induce anger in the victim. However, the ten items used to measure face-to-face bullying present the respondent with a wider variety of motivations for offending.

Hay, Meldrum, and Mann (2010) analyzed the difference in delinquent responses to cyberbullying and face-to-face bullying strain. The delinquent behaviors were measured as "externalized delinquency" in the form of harm to others or "internalized delinquency" in the form of self-harm. The dependent outcome of externalized delinquency included theft, trespassing, fighting, vandalism, and destruction of private property. Internalized delinquency included: suicidal ideation and self-harm in the forms of cutting or burning oneself. Hay, Meldrum, and Mann (2010) found that both forms of bullying affected external and internal

delinquency. Males exhibited higher likelihoods for external and internal forms of delinquency than females.

Hay, Meldrum, and Mann's (2010) findings suggest that cyber-victimization and face-to-face bullying victimization have similar consequences. Cyber-victimization had a significant association with all of the outcome variables of delinquency (as outlined above), self-harm, and suicide ideation. Hay, Meldrum, and Mann (2010) did not include the victimization of face-to-face bullying and cyberbullying in the same ordinary least square (OLS) regression analysis. Although significance was found for each form of bullying, they did not test whether cyber-victimization held any significant relationships with delinquency beyond the inclusion of face-to-face bullying experiences.

Jang, Song, and Kim (2014) used the longitudinal Korean Youth Panel Survey (KYPS) to test the hypothesis that the strain of face-to-face bullying victimization induces juveniles to engage in cyberbullying. The depending outcome of cyberbullying was analyzed with two measures. These measures of online behavior over the last year included: (1) intentionally circulating false information over the internet and (2) insulting others online. Over the course of their four year analysis, they found a dramatic decrease in cyberbullying as a dependent form of offending. This is similar to the aging-out phenomenon observed for face-to-face bullying found in prior research. Jang, Song, and Kim (2014) included theoretically suggested general strain measures of low self-control and association with delinquent peers, each of which were significantly related to engaging in cyberbullying.

Cultural differences between the United States, as the model of expected GST outcomes, and South Korea may account for some of the differences in their findings. Previous research found curvilinear trends for cyberbullying and age, however, the linear decrease found by Jang,

Song, and Kim (2014) could be due to differences in student culture, web accessibility, and other

contextual factors. Jang, Song, and Kim (2014) also point out that a limitation of their study

could be their operational definition of cyberbullying and the measurement methods used to

collect the data. Their choice of measures for cyberbullying fails to capture a spectrum of

offending behaviors. At the same time the decline in cyberbullying is congruent with existing

longitudinal measures of declines in face-to-face bullying across age in South Korea (Jang, Song,

and Kim 2014).

Randa and Reyns (2014) utilized the 2009 National Crime Victimization Study: School

Crime Supplement to assess whether bullying victimization increased the likelihood of adaptive

avoidance behaviors at school. Both cyber-victimization and face-to-face bullying victimization

were included in the analysis as dichotomous independent sources of strain. Adaptive avoidance

behaviors as a dichotomous dependent outcome tested whether students avoided areas at school

because they were afraid someone would attack or harm them. The findings suggest that both

cyber-victimization and face-to-face bullying victimization significantly increased the likelihood

that students avoided areas of school. Beyond the significance of bullying the presence of gangs

at school and generalized fear of being harmed at school also increased the likelihood of

engaging in avoidance behaviors.

Randa and Reyns' (2014) study of adaptive avoidance behavior is not a direct test of

strain and delinquency. However, the study presents that the strain of cyberbullying

victimization achieved a significant association with non-delinquent avoidance behaviors. This

displays the potential for fear, rather than anger, to act as the mediating variable in a GST

approach. Although avoidance behaviors are not delinquent acts, they do display actions

intended to cope with the emotional distress caused by cyberbullying victimization.

Current Study

The purpose of this study is to analyze the association between cyberbullying victimization and delinquent behavior. The findings of Holt (2013), Hay, Meldrum, and Mann (2010), and Patchin and Hinduja (2011) suggest that cyber-victimization holds a unique relationship with delinquency, beyond other known factors. Menesini and Nocentini (2009) and Vivolo-Kantor et al. (2014) both suggest evaluating and constructing indices for cyber-victimization and face-to-face bullying victimization in order to refine the measurements and increase the predictive accuracy of the analysis. Beyond the inclusion of two forms of victimization, student perceptions of school rule fairness are included in the analysis as an attempt to identify the importance of perceived institutional bias. Rebellon, Manasse, Van Gundy, and Cohn (2012) found that negative perceptions of school rule fairness offer a non-peer based relationship between strain and delinquency.

Based on a review of prior literature, three recommendations are followed. First, a nationally representative data set is evaluated in an attempt to remove sampling bias. Second, both a cyber-victimization index and a face-to-face bullying victimization index are created to assess their unique effects on delinquent outcomes. Third, a measure of perception of school rule fairness is included to represent subjective strain discussed in GST. These three hypotheses predict that the strain of cyberbullying victimization will increase delinquent behaviors as an alleviatory response.

Hypothesis One:　　*Cyberbullying victimization causes physical fighting at school.*

Hypothesis Two:　　*Cyberbullying victimization causes weapon-carrying at school.*

Hypothesis Three:　*Cyberbullying victimization causes truancy from school.*

The three dependent variables of physical fighting at school, weapon-carrying at school, and truancy from school were selected because they each represent different types of delinquent responses to strain. Physical fighting relates to the core concepts of coping to negative emotional states through reactive behavior sought to exert dominance discussed by Agnew (2006). Weapon-carrying behaviors at school display both an aggressive and a protective reaction to strain, as either the anticipation of strain or empowerment towards defending against strain. Truancy from school displays avoidant behaviors that seek to relieve strain by removing the victim from harmful situations.

These hypotheses will test self-reported measures, collected in the 2013 National Crime Victimization Survey: School Crime Supplement. Suggestions from GST are clear in that cyberbullying victimization should cause significant strain, and that some students should react to relieve that strain through delinquency. This study is unique in that it assesses multiple sources of strain, in completion with cyber-victimization for significant associations with delinquency. The next chapter describes the survey, data collection methods, and respondent characteristics.

CHAPTER 3

METHODOLOGY

In order to analyze whether cyberbullying victimization is significantly associated with delinquency at school the conditions need to be defined. First, the source of the data is discussed to recognize initial limitations. Second, the variables used in the analysis are reviewed to understand what they represent. Third, the strategy used to analyze the data is explained to provide an outline of the statistical technique.

Sample

This study utilizes data from the 2013 School Crime Supplement (SCS) of the National Crime Victimization Survey (NCVS). Since 1973, the NCVS has collected data on self-reported, household and personal victimization across the United States (Bureau of Justice Statistics 2015). The survey collects data on the number of crimes, types of crimes, and the characteristics of criminal victimizations. NCVS data is more comprehensive than some official measures, like the Uniform Crime Report, which only gathers data on crimes reported to the police.

The NCVS is collected by the U.S. Census Bureau, funded by the United States Department of Justice (Bureau of Justice Statistics), and made available by the Inter-University Consortium for Political and Social Research (ICPSR). Data collection points are based on U.S. Census Bureau records of resident characteristics by home address and gathered using a multistage cluster sampling technique (National Archive of Criminal Justice Data, 2010). The NCVS divides multistage cluster sampling into two stages. First, primary sampling units (PSU) are selected from counties or large metropolitan areas based on decennial Census data. Second, each PSU is divided into clusters of four housing units and a sample is drawn from a single household address.

The NCVS defines a household as any individuals who consider the sampled address their residence (National Archive of Criminal Justice Data, 2010).   Households include persons living in dormitories, rooming houses, and religious group dwellings. Persons living in military barracks, hospitals, institutions, correctional facilities, or homeless are excluded from the sample. Once included the respondents are interviewed seven times over a three-year period. The first interview is conducted face-to-face, while subsequent interviews utilized computer-assisted telephone technology. The generalizability of this data is constrained to persons living in households as defined by the NCVS.

From January through June 2013, roughly 90,000 households, representing over 160,000 respondents were surveyed for the NCVS, resulting in an individual response rate of 88% (Bureau of Justice Statistics 2015). NCVS questionnaires ask respondents to identify elements of the criminal victimization they experienced such as: the time, location, characteristics of the offender, victim's relationship to the offender, self-protective actions taken by the victim at the time of the offense, and whether or not the crime was reported to law enforcement. Beyond victimization data, demographic data, including age, race, gender, and income are collected, allowing further analysis of subpopulations.

The NCVS is designed with four objectives in mind: (1) to collect detailed information on the victims and consequences of crime, (2) to estimate the number and type of crimes not reported to law enforcement, (3) to provide uniform measures for categories of crimes, and (4) to allow for analysis of crime, by type, over time (National Archive of Criminal Justice Data, 2010). Crimes are divided into two categories, crimes against persons and crimes against property. Crimes against persons include rape, sexual attack, robbery, aggravated assault, simple

assault, and theft from the individual. Crimes against property include burglary, theft, motor vehicle theft, and vandalism.

The School Crime Supplement is collected every two years, measuring self-reported crime in school and school related violence. The SCS samples household members, ages 12 to 18, who are in primary or secondary education programs within the six months before the initial interview. Students who dropped out of school, were expelled, suspended, or temporarily absent for any reason were included, as long as they attended school anytime during the past six months. Juveniles who were homeschooled are not included in the sample, as many of the questions are not relevant to their situation. The SCS asks juveniles about their school environment, including: school safety measures, involvement in school sponsored activities, school rules and punishments, interpersonal interactions with adults, availability of drugs at school, fighting, bullying, fear, weapon-carrying, gang activity, and truancy.

Proxy interviews are conducted when: (1) parents refused to allow the juvenile to be interviewed, (2) the juvenile was temporarily absent during the interview period, or (3) the juvenile was physically or mentally unable to respond. The accuracy of proxy interviews creates doubts as to the validity of how a parent will answer for their child. Both the NCVS and the SCS allow for respondents to skip survey questions or choose not to respond and remain in the sample population. Listwise deletion is conducted to remove proxy interviews and surveys containing non-responses; after removal the final sample size is 3,731 respondents.

Measures

Cyber-victimization

The independent variable is a *cyber-victimization* index, based on prior research and represents a range of victimizations (Hinduja and Patchin 2008; Holt 2013; Jang, Song, and Kim

2014; Vivolo-Kantor et al. 2014). The cyber-victimization index is constructed from five

dichotomous measures. The measures correspond to events during the school year including: (1)

hurtful information being posted on a social networking site, (2) the theft of private information

or photos, (3) receiving threats via email, (4) receiving threats via instant messaging, and (5)

receiving threats via text message. The cyber-victimization index is coded so zero represents no

reported victimization, while each whole digit increase represents experiencing a form of cyber-

victimization, resulting in a potential maximum score of five.

Delinquency

The three dependent variables of *physical fighting*, *weapon-carrying*, and *truancy*

represent delinquent outcomes at school. Each variable is dichotomous and coded so one

represents the outcome. The physical fighting question on the SCS asks students if they were in

one or more physical fights at school, during this school year. Weapon-carrying measures

whether or not a student brought a gun, knife, or some other weapon to school during the

academic year. Truancy measures whether a student skipped any classes during the last four

weeks of school.

Control Variables

The control variables in this study represent personal-biographical factors related to

delinquency and include: age, biological sex, race, household income, public school attendance,

being involved in school activities, the fairness of school rules, adult support, and face-to-face

bullying victimization. *Age* shows a curvilinear correlation with peak offending behaviors

during adolescence, displaying that younger student are more likely to be involved in

delinquency (Agnew 2003; Hirschi and Gottfredson 1983; Nagin and Land 1993). The variable

age is continuous and ranges from 12 to 18 years. Biological sex is dichotomous and coded so

one represents *male*. Previous research has found that adolescent men have higher rates of offending than adolescent women (Agnew 2006; Nagin and Land 1993).

Existing literature suggests that race can exert an effect on the reporting of crime and delinquency, beyond the variance explained by major competing criminological theories (Felson, Deane, and Armstrong 2008). To account for this variation, race is evaluated as five categorical dummy-coded variables representing racial identities commonly used in criminological research (Felson, Deane, and Armstrong 2008). The categories of *White* (Non-Hispanic), *Hispanic* (White), *Black*, *Asian*, and *Other* are constructed; *White* is the reference category. Each response is coded as a dummy variable, so one represents membership in that racial identity. Respondents that listed their racial identity as Black Hispanic or Asian Hispanic were categorized as Black or Asian to create a clear delineation between those individuals and ethnically Hispanic Whites. The *Other* racial identity category includes Native Americans, Alaskan Natives, Pacific Islanders, and any multi-racial responses. For this analysis *White* is used as the control group and allows for a comparison across racial categories for differences in cyber-victimization.

Variations in household income can affect the distribution of delinquency, including a higher likelihood of offending for lower socioeconomic status youth (Hannon 2003; Patterson 1991). In order to account for these socioeconomic differences, *household income* data is coded as a continuous measure, representing fourteen income intervals. The NCVS collects household income across fourteen uneven intervals[1]. Each income measure is set to the midpoint of the NCVS associated interval and divided by 1,000. For example, the NCVS income interval of $7,500 to $9,999 is represented as 8.75. This results in the household income variable ranging

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[1] The NCVS income intervals are as follows: (1) less than $5,000; (2) $5,000 to $7,499; (3) $7,500 to $9,999; (4) $10,000 to $12,499; (5) $12,500 to $14,999; (6) $15,000 to $17,499; (7) $17,500 to $19,999; (8) $20,000 to $24,999; (9) $25,000 to $29,999; (10) $30,000 to $34,999; (11) $35,000 to $39,999; (12) $40,000 to $49,999; (13) $50,000 to $74,999; and (14) $75,000 and over.

from 2.5 to 75, representing an income range of $2,500 to $75,000. A difference in the level of

security and social control between public and private schools has been found to correlate with

rates of delinquency (Roncek and Lobosco 1983; Roncek and Faggiani 1985). *Public school* or

private school attendance is dichotomous and coded so one represents public school attendance.

Beyond the type of school a student attends, this study includes involvement in school sponsored

activities. *School involvement* represents the extent to which structured, peer-group activities

diminish delinquent outcomes (Stewart 2003). Involvement in school activities is dichotomous

and a coding of one represents participation in: (1) athletic teams, (2) spirit groups or pep clubs,

(3) performing arts, (4) academic clubs or honor society, (5) student government, (6) volunteer

or community service, or (7) other alternative, school clubs.

Including a subjective student assessment of the fairness of school rules presents a

measure of perceived institutional bias as a source of strain, beyond the primary test of cyber-

victimization. The comparison offers a more nuanced analysis of the unique effect of

cyberbullying victimization strain on delinquency. Beyond this comparison, prior research has

found differences in perceptions of school rule fairness on the basis of student racial identity

(Kupchik and Ellis 2008). The *school fairness* index is constructed from four, ordinal responses:

(1) strongly disagrees, (2) disagrees, (3) agrees, or (4) strongly agrees. The school rule fairness

measures include: (1) student's knowledge of the rules, (2) fairness of the rules, (3) whether

punishment is equitable for all students, (4) strict rule enforcement, and (5) predictability of the

punishment. The *school fairness* index is coded so zero represents low belief in the fairness of

the school rules and each whole unit increase represents rising belief in school rule fairness,

resulting in a potential maximum score of fifteen.

Adult support at school has been shown to reduce the odds of students engaging in school-related violence (James, Bunch, and Clay-Warner 2014). This reduction in violence relates to the authority adults have at school and the buffering effect of their support. The *adult support* index is constructed from four, ordinal responses: (1) strongly disagrees, (2) disagrees, (3) agrees, or (4) strongly agrees. The support measures include identifying if an adult: (1) cares about you, (2) notices you, (3) listens to you, (4) encourages you, (5) wants you to do your best, and (6) believes in your success. The *adult support* index is coded so zero represents no identified adult support and each whole unit increase represents identifying one form of adult support at school, resulting in a potential maximum score of eighteen.

Face-to-face bullying victimization has been found to increase the likelihood that students fight and carry weapons at school (Nansel, Overpeck, Haynie, Ruan, and Scheidt 2003). Including face-to-face bullying victimization in the study separates the unique effects cyber-victimization on delinquency from traditional forms of bullying. The *face-to-face bullying victimization* index is constructed from seven dichotomous measures. These victimization measures correspond to events during the school year including: (1) being made fun of or insulted, (2) being the target of hurtful rumors, (3) being threatened with harm, (4) being pushed, shoved, tripped, or spit on, (5) being extorted or coerced, (6) being excluded from activities, and (7) the destruction of personal property. The *face-to-face bullying victimization* index is coded so zero represents no reported victimization, while each whole digit increase represents experiencing a form of face-to-face bullying victimization, resulting in a potential maximum score of seven.

Analytic Strategy

The current study uses STATA, version 12, to determine the significant and unique

relationship that cyber-victimization has with delinquency. Before multivariate logistic

regressions can be conducted, a preliminary analysis of index suitability is necessary. Indices

representing cyber-victimization, face-to-face bullying victimization, school fairness, and adult

support are constructed, based on an overall evaluation of suitability. Each index is a composite

measure, based on multiple responses intended to encompass a concept (Chambliss and Schutt

2010). The variation in responses across the same concept will average, creating a measure

representing a broader scope of the intended concept than any single measure could provide.

Correlations of measures used in the indices are evaluated to reveal the strengths of those

relationships. A scale reliability test of Cronbach's alpha is conducted to determine the internal

consistency of the measures. A Kaiser-Meyer-Olkin (KMO) test is conducted to determine

sampling adequacy and the suitability of each index. Confirmatory factor analysis (CFA)

assesses the underlying structure of the variables, revealing the basic dimensions upon which

they differ (Tabachnick and Fidell 2013). Using CFA in the process of index construction has

displayed a reduction in errors during further analysis of victimization and delinquency data

(Parker and McDowall 1986).

Multivariate logistic regression models analyze whether cyberbullying victimization is

significantly associated with delinquency. Multivariate logistic regression evaluates a single

dichotomous outcome across multiple independent relationships. For example, in each

regression the likelihood of a delinquent outcome, as predicted by cyber-victimization, is

compared against control variables (e.g., face-to-face bullying victimization or age) for

associations significant enough to rule out random chance. Multivariate logistic regression is

specifically designed for dichotomous variables, fitting the dependent delinquent outcomes of this study. Beyond this multivariate logistic regression does not assume normality, linearity, or homogeneity for the variance of the independent measures (Tabachnick and Fidell 2013).

The methodological approach to this study follows established data analysis techniques, allowing for comparisons and interpretation between this study and existing research. First, the suitability of the four proposed indices are tested. Next, multivariate logistic regressions assess the relationships between delinquency, cyber-victimization, and other factors. Each multivariate logistic regression is designed to determine the significant and unique relationship cyber-victimization has with physical fighting, weapon-carrying, and truancy while including competing sources of strains. These competing strains include face-to-face bullying victimization, perceptions of school rule fairness, and other factors associated with delinquency.

CHAPTER 4

RESULTS

The results of the current study include descriptive statistics that characterize the student sample and compare those findings to U.S Census data. Suggestions from prior research are included into the analysis to increase the accuracy and aid in defining any unique associations between cyber-victimization and delinquency. Following the analytic strategy, variables generated in STATA are inspected and compared to the original 2013 NCVS: SCS measures. The tests of index construction and suitability including correlation matrixes, Cronbach's alpha, Kaiser-Meyer-Olkin (KMO), and confirmatory factor analysis (CFA) are conducted for each set of measures representing a theoretical construct. Using these variables, three multivariate logistic regressions are conducted to determine whether cyber-victimization is significantly associated with delinquency at school.

Descriptive Statistics

Table 1 (see Appendix) displays the descriptive statistical information for the variables used in the analysis. Across the dependent delinquent outcomes, 3.65% of students report engaging in physical fighting, 2.12% report weapon-carrying, and 5.47% report truancy. The independent variable, cyber-victimization, has a range of 0 to 5, with a mean of 0.10 (standard deviation [SD] = 0.48), revealing that the majority of students report experiencing less than one form of cyberbullying victimization in the last school year.

The average age is 14.78 (SD = 1.86), and 50.76% of students are men. The majority of the students are White (55.59%), followed by Hispanic (22.22%), Black (12.65%), Other (5.40%), and Asian (4.50%). These values are close to the 2012 U.S. Census Bureau estimates for racial identity within the age category for juveniles, with a slight under-representation of

Whites and an over-representation of Hispanics. In line with the 2012 U.S. Census, the average

household income is $50,450 (SD = $23,840), and 92.58% of students attend public school.

A majority, 68.16% of students, report school involvement in some school sponsored

activity. School fairness has a range of 0 to 13, with a mean of 9.01 (SD = 2.28), while adult

support has a range of 0 to 18, with a mean of 14.11 (SD = 2.72), displaying that for both of

these indices a majority of students affirm that the school rules are fair and that an adult at school

shows them social support. Face-to-face bullying victimization has a range of 0 to 7, with a

mean of 0.47 (SD = 1.07), revealing that the majority of students report experiencing less than

one form of victimization in the last school year.

Evaluating Index Construction

Each of the indices is evaluated at four levels: (1) an analysis of the correlations between

items within each construct, (2) a Cronbach's alpha test on internal consistency, (3) a KMO test

of sampling adequacy, and (4) a confirmatory factory analysis (CFA) of items within each

construct. The discipline standard value for an acceptable Cronbach's alpha score is greater than

0.70 (Cronbach 1951). A KMO value of greater than 0.50 establishes the appropriateness for

further factor analysis (Cerny and Kaiser 1977). A CFA, principal factor eigenvalue over 1

reveals that the measures explain a majority of the variance in the sample (Parker and McDowall

1986).

Table A displays low to moderate cyber-victimization correlations ($p \leq 0.001$), signifying

that the items are related, but not so highly associated that any assumptions of item independence

are violated (see Appendix). Table B displays a Cronbach's alpha of 0.71, a KMO of 0.76, and a

CFA two-factor solution with a principle eigenvalue of 1.62 (see Appendix). The eigenvalue of

1.62 represents that the measures considered for the construction of the cyber-victimization

index explain a majority of variance in the sample. Based on these results, the cyber-victimization index is constructed.

Table C displays low to moderate face-to-face bullying victimization correlations ($p \leq 0.001$) (see Appendix). Again, the items are related, but not so highly associated that any assumptions of item independence are violated. Table D displays a Cronbach's alpha of 0.74, a KMO of 0.82, and a CFA three-factor solution with a principle eigenvalue of 2.05(see Appendix). As before, the eigenvalue of 2.05 surpasses the standard of 1 and based on the overall results the face-to-face bullying victimization index is constructed.

Table E displays moderate school fairness correlations ($p \leq 0.001$), maintaining the assumptions of item independence (see Appendix). Table F displays a Cronbach's alpha of 0.78, a KMO of 0.81, and a CFA two-factor solution with a principle eigenvalue of 2.02 (see Appendix). The school fairness index is constructed based on an overall analysis of the results. Table G displays moderate to high adult support correlations ($p \leq 0.001$), maintaining the assumptions of item independence (see Appendix). Table H (see Appendix) displays a Cronbach's alpha of 0.91, a KMO of 0.90, and a CFA two-factor solution with a principle eigenvalue of 3.78. Based on an analysis of the results the adult support index is constructed.

Multivariate Analysis

After completion of the preliminary analysis, the next phase is to test the hypotheses using multivariate logistic regressions. Hypothesis One predicts that cyberbullying victimization is significantly associated with physical fighting at school. Table 2 displays the results for this logistic regression, revealing that cyber-victimization is not a predictor of physical fighting (see Appendix). Based on the evidence I reject Hypothesis One. Several other factors are predictors of physical fighting. Being male was the most significant predictor of physical fighting. Men

are over 4 times more likely than women to fight at school ($p \leq 0.001$). Blacks are 80% more likely than their White counterparts to fight at school ($p \leq 0.05$). Students who experience more forms of face-to-face bullying victimization are 77% more likely to fight at school ($p \leq 0.001$).

Older students are less likely than their younger counterparts to be in a physical fight. The results display that for each year increase in age a student is 17% less likely to be in a physical fight at school ($p \leq 0.01$). As household income increases, by one unit on the constructed scale, the likelihood of a student being involved in fighting at school increases by 2% ($p \leq 0.001$). Counter to researcher expectations, declining perceptions of school rule fairness and lack of adult support at school lowered the likelihood of delinquency. As belief in the fairness of school rules decreases, students are 12% less likely to engage in fighting at school ($p \leq 0.01$). As adult support at school decreases, students are 8% less likely to be in a fight at school ($p \leq 0.05$).

Hypothesis Two predicts that cyberbullying victimization is significantly associated with weapon-carrying at school. Table 3 displays the results for this logistic regression, revealing that cyber-victimization is not a predictor of weapon-carrying (see Appendix). Based on the evidence I reject Hypothesis Two. Control variable factors are the best predictors of weapon-carrying. Being male is the strongest predictor; men are 72% more likely than women to carry a weapon at school ($p \leq 0.05$). Students who experience more forms of face-to-face bullying victimization are 58% more likely to carry a weapon school ($p \leq 0.001$). Younger students are more likely to carry a weapon at school than their older counterparts. The results display that for each year decrease in age students are 18% more likely to carry a weapon at school ($p \leq 0.001$). Attending a public school achieved marginal significance, with a $p = 0.53$. Students attending

public school are over 6 times more likely to carry a weapon than their private school counterparts.

Hypothesis Three predicts that cyberbullying victimization is significantly associated with truancy from school. Table 4 displays the results for this logistic regression, revealing that cyber-victimization is not a predictor of truancy (see Appendix). Based on the evidence I reject Hypothesis Three. However, cyber-victimization approached significance with truancy, revealing the strongest relationship with a delinquent outcome in this study. Although only marginally significant, students who experience more forms of cyber-victimization are 21% more likely to skip school ($p \leq 0.10$).

Beyond these results, other factors are predictors of truancy. Age is the most significant predictor of truancy, revealing that older students are more likely to skip class than their younger counterparts. The results display that for each year of age increase students are 60% more likely to skip class ($p \leq 0.001$). Students who experience more forms of face-to-face bullying victimization are 32% more likely to skip class ($p \leq 0.001$). Students from families with lower levels of household income are less likely to be involved truancy by 1% ($p \leq 0.05$). Again, counter to researcher expectations, students who report decreasing belief of the fairness of school rules are 8% less likely to skip class ($p \leq 0.05$).

These results vary from prior findings in that cyber-victimization did not achieve a significant association with any of the forms of delinquency tested. In each logistic regression other predictive factors including, age, being male, experiencing face-to-face bullying victimization, and perceptions of school rule fairness did achieve significance. Based on these results all three hypotheses are rejected. The failure to find support for the hypotheses could be the result of several factors discussed in the next chapter.

CHAPTER 5

DISCUSSION

This study examined the relationship between cyber-victimization, general strain theory, and delinquency. The hypotheses sought to further examine the association between cyber-victimization and delinquency discussed in previous literature. The results of the logistic regressions suggest that cyber-victimization is not significantly associated with physical fighting, weapon-carrying, or truancy. This study included a variety of delinquent correlates designed to refine the unique relationship of cyber-victimization on delinquency, and produced oppositional results to the existing literature.

Agnew (2006) outlines that bullying and peer abuse cause significant strain for juveniles. As an attempt to cope with this strain, some juveniles engage in criminality or delinquency. The first hypothesis predicted that increasing forms of cyberbullying victimization would increase the likelihood of physical fighting at school. The multivariate analysis revealed that experiencing multiple forms of cyber-victimization was not a significant predictor of fighting. Several factors were significant predictors of increases in physical fighting at school. These include being male, experiencing more forms of face-to-face bullying victimization, as well as identifying as racially Black (in comparison to a White racial identity). Fighting at school displayed decreases related to being an older student, those questioning the fairness of school rules, students identifying a lack of adult support, and students from a lower socioeconomic status.

The second hypothesis predicted that cyberbullying victimization would increase the likelihood of weapon-carrying at school. This multivariate analysis also revealed that experiencing multiple forms of cyber-victimization was not a significant predictor of weapon-carrying behavior. Again, several factors were significant, displaying increases in weapon-

carrying related to being male, experiencing more forms of face-to-face bullying victimization, and being a younger member of the sample. Attending public school was marginally significant, however, the strong relationship suggests that this should be included in similar studies of school related violence and delinquency.

The third hypothesis predicted that cyberbullying victimization would increase the likelihood of truancy from school. The multivariate analysis revealed that experiencing multiple forms of cyber-victimization was not a significant predictor of truancy. Several factors were significant, displaying increases in truancy related to being an older member of the sample and experiencing more forms of face-to-face bullying victimization. Truancy from school saw decreases related to factors associated with juveniles questioning the fairness of school rules and students from a lower socioeconomic status.

Several factors could contribute to these findings being in opposition to prior research on cyber-victimization and delinquency. The general strain perspective outlines that bullying victimization is significantly associated with delinquency. It then stands to reason that cyberbullying victimization should elicit a similar response. One important difference between cyberbullying and face-to-face bullying is the environment in which the victimization occurs.

Cyberbullying exists in a virtual space, physically distancing the victim from the offender. This physical separation may moderate the severity of a cyber-victimization experience in relation to strain induced delinquency. Although both cyberbullying and face-to-bullying can be serious forms of victimization, learned processes of threat evaluation may apply differently. Simply, student reports of cyberbullying may not mean the same thing as reports of face-to-face bullying, because the victim assesses the personal importance of each form of victimization differently. In order to address differences in responses to forms of victimization,

30

detailed assessments of emotional reactions analyzing a variety of victimizations is necessary. Under these conditions cyber-victimization could be more closely related to the emotional reactions of a verbal argument than those of a physical altercation. Studying cyber-victimization from this perspective could increase the accuracy of predicting criminal, delinquent, or deviant outcomes.

Differential emotional, social, or interpersonal reactions to cyberbullying victimization may also relate to non-delinquent coping. Cyberbullying victimization could result in an increase of deviant behaviors online, that are not status offenses and do not violate any legal statutes. Jang, Song, and Kim (2014) studied a similar concept; however, their measures of cyberbullying as a dependent outcome evaluated the intention to cause harm to others online. Reactions to cyber-victimization may be non-violent or non-conflict oriented and as such are not captured in their measures.

Agnew (2006) discusses that reactions to strain can include retaliation against the offender as a form of restorative justice. The anonymity offered through online interactions can make this form of coping impossible for the victim. As such, cyberbullying victims may internalize their feelings differently and cope through alternate cognitive strategies not involving delinquency. Online anonymity may also act as a self-protective factor for the victim, allowing them to avoid unwanted interactions. Cyber-victims can choose to stop using or limit their use of online communications, thereby limiting their exposure to victimization.

Beyond differential reactions to cyber-victimization, the use of the School Crime Supplement focuses this analysis on delinquency at school. It could be the case that a school environment is not the optimal location for testing associations of cyber-victimization. Schools have their own set formal and informal rules that students must learn. These rules may be

different from what they experience outside of school and some measures of cyberbullying victimization may be more important to a school environment than others. Understanding cyberbullying in the context of school victimizations relies on how we measure cyber-victimization and which outcomes we assess.

Previous research by Randa and Reyns (2014) used similar cyber-victimization measures from the 2009 NCVS: SCS and achieved significance with adaptive avoidance behaviors at school. Students reported avoiding school entrances, hallways, restrooms, or other areas out of fear of being attacked. Although there are similarities between the two studies, Randa and Reyns (2014) chose to create a dichotomous cyber-victimization variable. The differences in the findings of this study and Randa and Reyns' (2014) may be an artifact of the measurement techniques.

The index used in this study measures whether a student reported experiencing various forms of cyberbullying. It does not measure the frequency of each form of cyberbullying or the intensity of the victimization. Existing literature establishes experiencing one type of bullying at a high frequency can result in significant strain (Agnew 2006). The marginal association between cyber-victimization and truancy found in this study reveals that experiencing a spectrum of victimization is related to a coping behavior. The dichotomous measure Randa and Reyns (2014) utilize also fails to include the frequency and intensity of victimization. In both studies cyber-victimization and face-to-face bullying victimization measures represent only forms of victimization as a consequence of the format of the questions in the SCS.

Future research could benefit from using both approaches, including conducting a confirmatory factor analysis to evaluate which measures from the SCS should be combined into one or more dichotomous variable. These new constructs could then attempt to best represent an

intended aspect of cyber-victimization. This technique could reveal subtle differences between hurtful social media posts, receiving threats via electronic communications, and association with school delinquency. Understanding how various forms of cyber-victimization correlate with delinquency could yield significant findings.

The overall results support existing research on bullying victimization and delinquency from a general strain perspective. The findings suggest significant associations between delinquency and age, being male, household income, perceptions of school rule fairness, adult support, and face-to-face bullying victimization. Although each hypothesis was rejected, some support for a relationship between cyber-victimization and truancy was observed.

The association between age, being male, household income and delinquency are not only predicted relationships in general strain theory, but predicted relationships in nearly every other criminological theory. As such these finding were expected, however, the extent to which their inclusion affects cyber-victimization is unknown. Currently there is a gap in understanding how age, sex (or gender), and socioeconomic status effect the use of technology. Each of these variables could effect how a student uses technology differently and the resulting probability of being a victim of cyberbullying.

Prior research by Hay, Meldrum, and Mann (2010) suggested that men and women would differ in their delinquent responses to cyber-victimization. However, the relationships between cyber-victimization and delinquency were only partially moderated by sex. They cite that delinquency often occurs when facilitated by peers. As such, differences in delinquent peer associations may account for the differences they found between forms of delinquency and cyber-victimization. Although this is just one example of a demographic variable and an

interaction between cyberbullying victimization and delinquency, it is important to conduct research that examines these relationships in detail.

The importance of student perceptions on the fairness of school rules addresses a subjective element of strain. The current study found that a decreasing belief in the fairness of school rules was associated with a reduction in the likelihood of physical fighting and truancy. It is counterintuitive to find that declining belief in the fairness of school rules does not act as an aggravating factor for delinquency. However, it may be the case that students who think the school rules are not fair also fear the punishment for violating those rules more than other students. This relationship was not tested and as such more thorough analytical techniques should be used to when including this SCS measure in future research.

Adult support at school is a variable that has received conflicting support from former research. The current study also found that decreasing belief in adult support at school was associated with a reduction in the likelihood of physical fighting. Again this counterintuitive finding suggests that declining adult support does not act as an aggravating factor for delinquency. Perhaps there is an underlying difference between students who feel they receive adult support, those who do not, and engaging in delinquency. James, Bunch, and Clay-Warner (2014) found that adult support was most important when measures of teacher fairness and peer support were included in an analysis. Following their research, social support at school could be treated as a larger construct, encompassing teacher, adult, and peer aspects. More thorough analytical techniques, including confirmatory factor analysis, could be used to identify which elements of each type of support maintain significant relationships with delinquency at school.

Face-to-face bullying victimization was one of the most significant predictors of delinquency at school. Previous research from a general strain perspective identifies that

bullying and peer abuse are among the highest correlates of delinquency (Agnew 2006). This study supports GST and prior research that suggests that a school environment is a primary location for face-to-face bullying. Face-to-face bullying victimization consistently held associations in this study and should be included in future studies of cyber-victimization in order to understand differences in forms of victimization.

The SCS covers a wide array of face-to-face bullying victimization measures ranging from being made fun of to being pushed or spit on. As such the recommendations made by Vivolo-Kantor and her colleagues (2014), as well as Menesini and Nocentini (2009), cited in constructing cyber-victimization indices should be implemented for face-to-face bullying victimization. Using advanced analytical techniques to understand which measures most accurately represent import aspects of face-to-face bullying victimization could increase the clarity of future research.

The overall findings of this study support existing research on face-to-face bullying victimization and delinquency from a general strain perspective. Cyberbullying victimization failed to achieve significance with physical fighting and weapon-carrying. Cyber-victimization held marginal significance with truancy. The failure of cyber-victimization to achieve a significance across delinquent outcomes may be related to issues in measurement, environment, or victim coping behaviors. The implications, limitations, and suggestions for future research are discussed in the final chapter.

CHAPTER 6

CONCLUSION

This thesis utilized a general strain perspective to assess cyberbullying victimization and juvenile delinquency among adolescents at school. Three multivariate logistic regressions were designed to assess whether cyberbullying victimization is significantly associated with the delinquent outcomes of physical fighting, weapon-carrying, and truancy. Based on the evidence that cyber-victimization failed to achieve significance, each of the three hypotheses were rejected. The greatest contribution of this study is that it produced oppositional findings. These findings suggest that many forms of cyber-victimization may not be significant sources of strain in a school environment.

This study built on existing research and attempted to present a broader perspective on cyber-victimization, face-to-face bullying victimization, and delinquency at school. Although a significant relationship between cyber-victimization and truancy was not achieved, the investigation revealed that cyberbullying victimization approached significance when accounting for the inclusion of face-to-face bullying victimization. Prior research on cyber-victimization, including that of adaptive avoidance behavior (Renda and Reyns 2014), displayed significance by dichotomizing any reported bullying. The methodology of the current study and the construction of a cyber-victimization index presents a different approach as an attempt to contextualize a range of victimizations. The statistical strength found in comparing dichotomized cyberbullying victimization and face-to-face bullying victimization measures appear to yield differential results from a comparison of indexes representing the same measures using an iteration of the same secondary data set.

The current statistical analysis also reveals that within the SCS measures of cyber-victimization there may be some statistical disagreement within the index (Table B). These measures may not be the most representative indicators of the same core construct. Future research could focus on an exhaustive evaluation of which measures best represent both the theoretical and pragmatic definition of cyber-victimization. Rather than relying on either an aggregate dichotomous measure or a generalized index, single representative measures could provide more targeted results revealing significant relationships between cyber-victimization and delinquency at school.

It is possible that the SCS focus on a school environment fails to capture the effects of cyber-victimization on delinquency. Actions taken outside of school grounds or those used by a victim online could provide a broader perspective of the effects of cyberbullying victimization. However, these findings add to existing literature by supporting existing GST research in that age, experiencing forms of face-to-face bullying, and being male all serve as consistent predictors of delinquency. The findings also suggest that student perceptions on the fairness of school rules and adult support at school are significantly associated with delinquency. However, those results vary in that lower levels of belief in either concept diminished the likelihood of delinquency.

A limitation of this study is the SCS focus on the school environment. Previous GST research found that school is the primary area for bullying and peer abuse. The SCS focus on interactions at school may fail to capture important outcomes for cyberbullying victimization. It is important to evaluate studies that use the SCS, like those of James, Bunch, and Clay-Warner (2014), as well as Renda and Reyns (2014) for their successes in finding significant

relationships. Evaluating and advancing their statistical techniques could provide increased accuracy to subsequent analyzes.

The next limitation of this study is that the SCS measures forms of victimization, without measuring specific frequency of victimization. The cyber-victimization and face-to-face bullying victimization measures simply ask if a form of victimization occurred. A single follow up question measures how often the victimization occurred, however it is not specific to the form of victimization. Prior GST research identifies that strains seen as unjust or strains related to physical violence are significantly associate with delinquency (Agnew 2002). From this perspective, delinquency could vary depending on whether a student is experiencing peer assault at a high frequency or being the target of rumors at a high frequency. To more fully understand how cyberbullying and face-to-face bullying uniquely associate with delinquency researchers need more complete measures of victimization.

Future research using bullying and victimization measures from the SCS would benefit from conducting an index construction procedure similar to the one used in this study. Individual measures of the same concept, most closely correlated and factoring together could be collapsed into dichotomous variables. For example, three of the cyber-victimization measures identify whether a student was threatened via email, instant message, or text message. The important element of each of the measures is being threatened as the source of strain. If the electronic delivery method is not of direct concern to the researcher, conducting a CFA to determine the suitability of creating a single dichotomous variable could create a more robust measure of strain related to cyberbullying victimization. Although this may create a more simplistic set of independent measures, it may also reveal significant associations with delinquent outcomes. Multiple years of cyber-victimization SCS data could be tested to evaluate

the validity of the measurement technique. Although this does not fill the SCS frequency measurement gap, it does provide more specific relationships between forms of victimization and delinquency.

Further limitations of this study are the SCS measures of fairness and support. These are complicated concepts that could moderate the relationship between the strain of victimization and delinquency. This study found counterintuitive relationships between student perceptions of school rule fairness and delinquency (Table 2). This analysis and existing studies suggests that there are potentially conflicting relationships within measurement categories. James, Bunch, and Clay-Warner (2014) found a variety of relationships across teacher, adult, and peer support. However, this research did not specifically focus on the same relationships between student perceptions concerning the fairness of school rules and the dependent measures. These SCS measures of fairness and adult support should be acknowledged for achieving a significant correlation in a regression analysis focusing on varying forms of school bullying. Future research could benefit from including these variables and build to establishing a better understanding of the moderating effects of adult support within a general strain approach.

The cross-sectional SCS data presents limitations in evaluating changes in bullying and delinquency. Longitudinal data could show how changes in cyberbullying victimization over a school year or from year to year impacts delinquency. Although many GST studies use cross-sectional SCS data (James, Bunch, Clay-Warner 2014; Renda and Reyns 2014), establishing a causal relationship between the strain of victimization and the delinquency enacted as coping mechanism is difficult. Understanding this relationship across time provides stronger evidence for the causal relationships outlined in GST.

The implications of these results suggest that cyber-victimization continue to be included alongside measures of delinquency and school related violence. Cyber-victimization held marginal significance with truancy and should be considered a potential factor in delinquency. School administrators, teachers, and parents should be aware that cyberbullying can be a serious form of victimization, causing significant distress. As juvenile online interactions expand, peer victimization can extend beyond the classroom and the schoolyard.

This study and further analysis of SCS data can inform future directions in cyberbullying and cyber-victimization research from a general strain perspective. Data from the SCS suggests that designing more accurate measures of cyberbullying victimization is necessary to understand the unique relationship with delinquency and school related violence. Asking students to report both the type and frequency of victimization increases the variation within measures and characterizes the relationships with delinquent outcomes. Measures of offending across cyberbullying and face-to-face bullying should be included as delinquent outcomes. School based cyberbullying victimization may be significantly related to school based cyberbullying offending, rather than other forms of delinquency.

This research promotes the inclusion of cyberbullying measures in studies evaluating victimization, juvenile crime, and delinquency. Although this study found oppositional results to prior research, cyberbullying is an important form of victimization that holds implications for school policy and school safety. Beyond these results it is important for students, parents, educators, and administrators to be aware of bullying victimization regardless of form or method of delivery in order to promote equality and safety.

REFERENCES

Addington, Lynn A. 2013. "Reporting and Clearance of Cyberbullying Incidents: Applying 'Offline' Theories to Online Victims." *Journal of Contemporary Criminal Justice*, 20(10):1-21.

Agnew, Robert. 1992. "Foundation for a General Strain Theory of Crime and Delinquency." *Criminology*, 30:47-87.

Agnew, Robert. 2001. "Building on the Foundation of General Strain Theory: Specifying the Types of Strain Most Likely to Lead to Crime and Delinquency." *Journal of Research in Crime and Delinquency*, 38(4):319-361.

Agnew, Robert. 2002. "Experienced, Vicarious, and Anticipated Strain: An Exploratory Study on Physical Victimization and Delinquency." *Justice Quarterly*, 19(4):603-632.

Agnew, Robert, Timothy Brezina, John Paul Wright, and Francis T. Cullen. 2002. "Strain, Personality Traits, and Delinquency: Extending General Strain Theory." *Criminology*, 40:43-71.

Agnew, Robert. 2003. "An Integrated Theory of the Adolescent Peak in Offending." *Youth and Society*, 34(3):263-299.

Agnew, Robert. 2006. *Pressured Into Crime*. Los Angeles, CA: Roxbury Publishing Company.

Ambert, Anne-Marie. 1994. "A Qualitative Study of Peer Abuse and its Effects: Theoretical and Empirical Implications." *Journal of Marriage and the Family* 56:119-130.

Bauman, Sheri and Amy Bellmore. 2015. "New Directions in Cyberbullying Research." *Journal of School Violence*, 14:1(1-10).

Berne S., Frisen A., Schultze-Krumbholz A., Scheihauer H., Naruskov K., Luik P., Katzer C.,
    Erentaite R., and Zukauskiene R. 2013. "Cyberbullying Assessment Instruments: A
    systematic Review." *Aggression and Violent Behavior*, 18:320-334.

Bossler, Adam M. and Thomas J. Holt. 2010. "The Effect of Self-Control on Victimization in
    the Cyberworld." *Journal of Criminal Justice*, 2010:227-236.

Bossler, Adam M., Thomas J. Holt, and David C. May. 2012. "Predicting Online Harassment
    Victimization Among a Juvenile Population." *Youth & Society*, 44(4):500-523.

Bureau of Justice Statistics. 2015. "Data Collection: National Crime Victimization Survey
    (NCVS)". *Bureau of Justice Statistics*, retrieved on July 16, 2015; bjs.gov .

Cerny, Barbara and Henry Kaiser. 1977. "A Study of a Measure of Sampling Adequacy for
    Factor-Analytic Correlation Matrices." *Multivariate Behavioral Research*, 12(1):43-47.

Chambliss, Daniel F. and Russell K. Schutt. 2010. *Making Sense of the Social World: Methods
    of Investigation* 3rd ed. Thousand Oaks, CA: Pine Forge Press.

Dooley, Julian J., Jacek Pyzalski, and Donna Cross. 2009. "Cyberbullying versus Face-to-Face
    Bullying." *Journal of Psychology*, 217(4):182-188.

Grabosky, Peter N. 2001. "Virtual Criminality: Old Wine in New Bottles?" *Social & Legal
    Studies*, 10(2):243-249.

Hay, Carter, Ryan Meldrum, and Karen Mann. 2010. "Traditional Bullying, Cyber Bullying,
    and Deviance: A General Strain Theory Approach." *Journal of Contemporary Criminal
    Justice*, 26(2):130-147.

Hinduja, Sameer and Justin W. Patchin. 2008. "Cyberbullying: An Exploratory Analysis of
    Factors Related to Offending and Victimization." *Deviant Behavior*, 29(2):129-156.

Hinduja, Sameer and Justin W. Patchin. 2010. "Bullying, Cyberbullying, and Suicide."

    Archives of Suicide Research, 14(3):206-221.

Hirschi, Travis and Michael Gottfredson. 1983. "Age and the Explanation of Crime."

    American Journal of Sociology, 89(3):552-584.

Holt, Thomas J. 2013. *Crime On-Line: Correlates, Causes, and Context* 2nd ed. Durham, NC:

    Carolina Academic Press.

Holt, Thomas J. and Adam M. Bossler. 2008. "Examining the Applicability of Lifestyle-

    Routine Activities Theory for Cybercrime Victimization." *Deviant Behavior*, 30(1):1-25.

James, Katie, Jackson Bunch, and Jody Clay-Warner. 2014. "Perceived Injustice and School

    Violence: An Application of General Strain Theory." *Youth Violence and Juvenile*

    Justice, 13(2):169-189.

Jang, Hyunseok, Juyoung Song, and Ramhee Kim. 2014. "Does the Offline Bully-Victimization

    Influence Cyberbullying Behavior Among Youths? Application of General Strain

    Theory." *Computers in Human Behavior*, 31:85-93.

Kubiszewski, Violaine, Roger Fontaine, Catherine Potard, and Laurent Auzoult. 2015. "Does

    Cyberbullying Overlap with School Bullying when taking Modality of Involvement into

    Account?" *Computers in Human Behavior*, 43:49-57.

Miller, Gloria. 1994. "School Violence Miniseries: Impressions and Implications". *School*

    Psychology Review, 23(2):257-261.

Menesini, Ersilia and Annalaura Nocentini. 2009. "Cyberbullying Definition and

    Measurement." *Zeitschift fur Psychologie / Journal of Psychology*, 217(4):230-232.

Nagin, Daniel S. and Kenneth C. Land. 1993. "Age, Criminal Careers, and Population Heterogeneity: Specification and Estimation of a Nonparametric, Mixed Poisson Model." *Criminology* 31(3): 327-362.

Nansel, Tonja, Mary Overpeck, Denise Haynie, June Ruan, and Peter Scheidt. 2003. "Relationships Between Bullying and Violence among US Youth." *Archives of Pediatrics & Adolescent Medicine*, 157(4):348-353.

National Archive of Criminal Justice Data. 2010. "National Crime Victimization Survey Resource Guide." Inter-University Consortium for Political and Social Research, retrieved on July 16, 2015; icpsr.umich.edu

Olweus, Dan. 1993. *Bullying at School: What We Know and What We Can Do*. Malden, MA: Blackwell Publishing.

Parker, Robert Nash and David McDowall. 1986. "Constructing an Index of Officially Recorded Crime: The use of Confirmatory Factory Analysis." *Journal of Quantitative Criminology*, 2(3):237-250.

Patchin, Justin W. and Sameer Hinduja. 2011. "Traditional and Nontraditional Bullying Among Youth: A Test of General Strain Theory." *Youth & Society*, 43(2):727-752.

Patterson, E. Britt. 1991. "Poverty, Income Inequality, and Community Crime Rates." *Criminology*, 29(4):755-776.

Randa, Ryan and Bradford W. Reyns. 2014. "Cyberbullying Victimization and Adaptive Avoidance Behaviors at School." *Victims & Offenders: An International Journal of Evidence-based Research, Policy, and Practice*, 9(3):255-275.

Rebellon, Cesar, Michelle Manasse, Karen Van Gundy, and Ellen Cohn. (2012). "Perceived Injustice and Delinquency: A Test of General Strain Theory." *Journal of Criminal Justice*, 40(3):230-237.

Roncek, Dennis W. and Antoinette Lobosco. 1983. "The Effect of High Schools on Crime in their Neighborhood." *Social Science Quarterly* 64(3):598-613.

Roncek, Dennis W. and Donald Faggiani. 1985. "High Schools and Crime: A Replication." *The Sociological Quarterly* 26(4):491-505.

Stewart, Eric. 2003. "School Social Bonds, School Climate, and School Misbehavior: A Multilevel Analysis." *Justice Quarterly*, 20(3):575-604.

Tabachnick, Barbara G. and Linda S. Fidell. 2013. *Using Multivariate Statistics*, 6th ed. Pearson Publishing.

Tokunaga, Robert S. 2010. "Following You Home from School: A Critical Review and Synthesis of Research on Cyberbullying Victimization." *Computers in Human Behavior*, 26:277-287.

United States Census Bureau. 2015. "Population: Estimates and Projections by Age, Sex, Race/Ethnicity." *United States Census Bureau*, retrieved on July 17, 2015; census.gov .

Vivolo-Kantor, Alana M., Brandi N. Martell, Kristin M. Holland, and Ruth Westby. 2014. "A Systematic Review and Content Analysis of Bullying and Cyber-Bullying Measurement Strategies." *Aggression and Violent Behavior*, 19:423-434.

Waasdorp, Tracy E. and Catherine P. Bradshaw. 2015. "The Overlap Between Cyberbullying and Traditional Bullying." *Journal of Adolescent Health*, 14(1):11-29.

Whittaker, Elizabeth and Robin M. Kowalski. 2015. "Cyberbullying Via Social Media." *Journal of School Violence*, 14(1):11-29.

Wolak, Janice, Kimberly Mitchell, and David Finkelhor. 2006. *Online Victimization of Children: Five Years Later.* Washington D.C.: National Center for Missing & Exploited Children.

Wynne, Susan L. and Hee-Jong Joo. 2011. "Predictors of School Victimization: Individual, Familial, and School Factors". *Crime & Delinquency*, 57(3):458-488.

Ybarra, Michele L., Danah Boyd, Josephine D. Korchmaros, and Jay (Koby) Oppenheim. 2012. "Defining and Measuring Cyberbullying within the Larger Context of Bullying Victimization." *Journal of Adolescent Health*, 51:53-58.

APPENDIX

Table 1: Descriptive Statistics (*N* = 3,731)

	Percent	Mean (SD)	Min	Max
Dependent Variables				
Physical Fighting	3.56 %	-	0	1
Weapon Carrying	2.12 %	-	0	1
Truancy	5.47 %	-	0	1
Independent Variable				
Cyber-Victimization	-	0.10 (0.48)	0	5
Control Variables				
Age	-	14.78 (1.86)	12	18
Male	50.76 %	-	0	1
White (Reference Category)	55.59 %	-	0	1
Hispanic	22.22 %	-	0	1
Black	12.65 %	-	0	1
Asian	4.50 %	-	0	1
Other	5.40 %	-	0	1
Household Income (x $1,000)	-	50.45 (23.84)	2.5	75
Public School	92.58 %	-	0	1
School Involvement	68.16 %	-	0	1
School Fairness	-	9.01 (2.28)	0	13
Adult Support	-	14.11 (2.72)	0	18
Face-to-Face Bullying Victimization	-	0.47 (1.07)	0	7

Table 2: Logistic Regression of Physical Fighting on Cyber-Victimization ($N = 3{,}731$)

	β	Standard Error	Odds Ratio
Cyber-Victimization	0.07	0.14	1.08
Age	- 0.19 **	0.06	0.83
Male	1.45 ***	0.23	4.28
Hispanic	- 0.29	0.26	0.75
Black	0.59 *	0.26	1.80
Asian	- 0.96	0.75	0.39
Other	- 0.44	0.47	0.64
Household Income (x $1,000)	- 0.02 ***	0.01	0.98
Public School	- 0.31	0.35	0.73
School Involvement	- 0.06	0.21	0.94
School Fairness	- 0.12 **	0.05	0.88
Adult Support	- 0.08 *	0.04	0.92
Face-to-Face Bullying Victimization	0.57 ***	0.06	1.77

Likelihood Ratio χ^2 (13) = 231.39 ***

Pseudo R^2 = 0.20

Note: $\dagger p \leq 0.10$; $*p \leq 0.05$; $**p \leq 0.01$; $***p \leq 0.001$ (two-tailed tests)

Table 3: Logistic Regression of Weapon-Carrying on Cyber-Victimization   ($N = 3,731$)

	β	Standard Error	Odds Ratio
Cyber-Victimization	0.04	0.17	1.04
Age	- 0.16 *	0.07	1.18
Male	0.54 *	0.24	1.72
Hispanic	- 0.11	0.30	0.90
Black	- 0.23	0.38	0.79
Asian	- 0.04	0.61	0.96
Other	- 1.73	1.02	0.18
Household Income (x $1,000)	- 0.04	0.01	0.99
Public School	1.97 †	1.02	7.15
School Involvement	0.47	0.28	1.60
School Fairness	- 0.02	0.06	0.98
Adult Support	- 0.01	0.05	0.99
Face-to-Face Bullying Victimization	0.46 ***	0.08	1.58

Likelihood Ratio χ^2 (13) = 62.57 ***

Pseudo R^2 = 0.08

Note: † $p \leq 0.10$;   * $p \leq 0.05$;   ** $p \leq 0.01$;   *** $p \leq 0.001$ (two-tailed tests)

Table 4: Logistic Regression of Truancy on Cyber-Victimization ($N = 3,731$)

	β	Standard Error	Odds Ratio
Cyber-Victimization	0.19 †	0.12	1.21
Age	0.47 ***	0.05	1.60
Male	0.27	0.15	1.31
Hispanic	0.02	0.19	1.02
Black	- 0.51	0.27	0.60
Asian	- 0.34	0.44	0.71
Other	0.40	0.29	1.49
Household Income (x $1,000)	- 0.01 *	0.01	0.99
Public School	- 0.20	0.30	0.82
School Involvement	- 0.02	0.17	0.98
School Fairness	- 0.08 *	0.04	0.92
Adult Support	- 0.04	0.03	0.96
Face-to-Face Bullying Victimization	0.28 ***	0.06	1.32

Likelihood Ratio χ^2 (13) = 174.24 ***

Pseudo R^2 = 0.11

Note: † $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed tests)

Table A: Cyber-Victimization Correlations   (*N* = 3,731)

	(1) SM	(2) Theft	(3) Email	(4) IM	(5) TM
(1) Hurtful Social Media Postings	1.00				
(2) Theft of Private Information	0.38 ***	1.00			
(3) Threatened via Email	0.29 ***	0.20 ***	1.00		
(4) Threatened via Instant Message	0.36 ***	0.21 ***	0.41 ***	1.00	
(5) Threatened via Text Message	0.36 ***	0.29 ***	0.35 ***	0.49 ***	1.00

Note: * *p* ≤ 0.05;   ** *p* ≤ 0.01;   *** *p* ≤ 0.001

Table B: Cyber-Victimization Confirmatory Factor Analysis   (*N* = 3,731)

Factor	Eigenvalue	Difference
Factor 1	1.61	1.49
Factor 2	0.12	0.22
Factor 3	- 0.09	0.05
Factor 4	- 0.15	0.06
Factor 5	- 0.21	

Variable	Factor1	Factor2	Uniqueness
(1) Hurtful Social Media Postings	0.57	0.16	0.64
(2) Theft of Private Information	0.44	0.23	0.74
(3) Threatened via Email	0.52	- 0.12	0.70
(4) Threatened via Instant Message	0.63	- 0.15	0.57
(5) Threatened via Text Message	0.63	- 0.05	0.59

Likelihood Ratio test: independent vs. saturated: χ^2 (10) = 3319.86 ***

Cronbach's alpha: 0.71

Kaiser-Meyer-Olkin overall: 0.76

Note: * *p* ≤ 0.05;   ** *p* ≤ 0.01;   *** *p* ≤ 0.001

Table C: Face-to-Face Bullying Victimization Correlations   (*N* = 3,731)

	(1) Insult	(2) Rumor	(3) Harm	(4) Assau	(5) Extort	(6) Exclu	(7) Destr
(1) Hurtful Insults	1.00						
(2) Spread Rumors	0.52 ***	1.00					
(3) Threatened with Harm	0.37 ***	0.37 ***	1.00				
(4) Physically Assaulted	0.42 ***	0.36 ***	0.41 ***	1.00			
(5) Extortion	0.23 ***	0.21 ***	0.22 ***	0.23 ***	1.00		
(6) Exclusion	0.37 ***	0.36 ***	0.21 ***	0.29 ***	0.24 ***	1.00	
(7) Destruction of Private Property	0.20 ***	0.20 ***	0.23 ***	0.24 ***	0.14 ***	0.22 ***	1.00

Note: $* p \leq 0.05$; $** p \leq 0.01$; $*** p \leq 0.001$

Table D: Face-to-Face Bullying Victimization Confirmatory Factor Analysis   (*N* = 3,731)

Factor	Eigenvalue	Difference
Factor 1	2.05	1.96
Factor 2	0.08	0.03
Factor 3	0.04	0.08
Factor 4	- 0.04	0.06
Factor 5	- 0.10	0.05
Factor 6	- 0.16	0.02
Factor 7	- 0.19	

Variable	Factor1	Factor2	Factor3	Uniqueness
(1) Hurtful Insults	0.67	- 0.10	- 0.05	0.53
(2) Spread Rumors	0.63	- 0.11	- 0.05	0.57
(3) Threatened with Harm	0.55	0.14	- 0.06	0.66
(4) Physically Assaulted	0.59	0.11	- 0.03	0.62
(5) Extortion	0.37	0.03	0.11	0.84
(6) Exclusion	0.51	- 0.11	0.11	0.71
(7) Destruction of Private Property	0.35	0.11	0.08	0.85

Likelihood Ratio test: independent vs. saturated: $\chi^2 (21) = 4636.85$ ***

Cronbach's alpha: 0.74

Kaiser-Meyer-Olkin overall: 0.82

Note: $* p \leq 0.05$; $** p \leq 0.01$; $*** p \leq 0.001$

Table E: School Fairness Correlations ($N = 3,731$)

	(1) Rules	(2) Fair	(3) Unbiased	(4) Srtict	(5) Predict
(1) Students Know the Rules	1.00				
(2) School Rules are Fair	0.46 ***	1.00			
(3) Unbiased Punishment	0.36 ***	0.47 ***	1.00		
(4) Strict Enforcemnt of Rules	0.40 ***	0.38 ***	0.49 ***	1.00	
(5) Predictible Punishment	0.40 ***	0.38 ***	0.43 ***	0.45 ***	1.00

Note: * $p \leq 0.05$;   ** $p \leq 0.01$;   *** $p \leq 0.001$

Table F: School Fairness Confirmatory Factor Analysis ($N = 3,731$)

Factor	Eigenvalue	Difference
Factor 1	2.01	2.00
Factor 2	0.01	0.05
Factor 3	- 0.04	0.09
Factor 4	- 0.13	0.07
Factor 5	- 0.20	

Variable	Factor1	Factor2	Uniqueness
(1) Students Know the Rules	0.60	0.06	0.62
(2) School Rules are Fair	0.63	0.06	0.59
(3) Unbiased Punishment	0.66	- 0.03	0.55
(4) Strict Enforcemnt of Rules	0.65	- 0.05	0.57
(5) Predictible Punishment	0.61	- 0.03	0.61

Likelihood Ratio test: independent vs. saturated: $\chi^2 (10) = 4659.82$ ***
Cronbach's alpha: 0.78
Kaiser-Meyer-Olkin overall: 0.81

Note: * $p \leq 0.05$;   ** $p \leq 0.01$;   *** $p \leq 0.001$

Table G: Adult Support Correlations ($N = 3{,}731$)

	(1) Cares	(2) Notices	(3) Listens	(4) Good J	(5) Achieve	(6) Success
(1) An Adult Cares about you	1.00					
(2) Notices when you are Absent	0.59 ***	1.00				
(3) Listens to you	0.62 ***	0.61 ***	1.00			
(4) Tells you Good Job	0.58 ***	0.59 ***	0.68 ***	1.00		
(5) Promotes Achievement	0.58 ***	0.55 ***	0.67 ***	0.71 ***	1.00	
(6) Believes in your Success	0.59 ***	0.55 ***	0.67 ***	0.71 ***	0.79 ***	1.00

Table H: Adult Support Confirmatory Factor Analysis ($N = 3{,}731$)

Factor	Eigenvalue	Difference
Factor 1	3.78	3.64
Factor 2	0.13	0.17
Factor 3	- 0.04	0.03
Factor 4	- 0.07	0.02
Factor 5	- 0.10	0.01
Factor 6	- 0.11	

Variable	Factor1	Factor2	Uniqueness
(1) An Adult Cares about you	0.72	0.16	0.44
(2) Notices when you are Absent	0.70	0.19	0.46
(3) Listens to you	0.81	0.08	0.33
(4) Tells you Good Job	0.82	- 0.02	0.32
(5) Promotes Achievement	0.84	- 0.18	0.25
(6) Believes in your Success	0.84	- 0.17	0.25

Likelihood Ratio test: independent vs. saturated: $\chi^2 (15) = 1.4e{+}04$ ***
Cronbach's alpha: 0.91
Kaiser-Meyer-Olkin overall: 0.90

Note: * $p \le 0.05$;   ** $p \le 0.01$;   *** $p \le 0.001$