Title
A Daily Diary Approach to Understanding Cyberbullying Experiences Among Latino Adolescents: Links with Emotional, Physical and School Adjustment

Permalink
https://escholarship.org/uc/item/5p2791t6

Author
Espinoza, Guadalupe

Publication Date
2013-01-01

Peer reviewed|Thesis/dissertation
A Daily Diary Approach to Understanding Cyberbullying Experiences Among Latino Adolescents: Links with Emotional, Physical and School Adjustment

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Psychology

by

Guadalupe Espinoza

2013
ABSTRACT OF THE DISSERTATION

A Daily Diary Approach to Understanding Cyberbullying Experiences Among Latino Adolescents: Links with Emotional, Physical and School Adjustment

by

Guadalupe Espinoza

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2013

Professor Jaana Juvonen, Chair

With the growing use of electronic communication devices among adolescents, bullying encounters are no longer limited to the school grounds and cyberbullying is becoming increasingly more common. The current study examines how daily cyberbullying experiences among Latino adolescents are associated with their emotional and physical well-being as well as their school adjustment. High school students (N = 136) from predominately Latino backgrounds (88%) completed a baseline questionnaire and daily checklists across five consecutive school days that assessed a variety of school and online events, activities and emotions. Across, the one-week span, 20% of adolescents reported experiencing a cyberbullying incident on at least one day. Hierarchical linear modeling (HLM) results revealed that daily cyberbullying experiences were associated with greater feelings of distress, anger, shame and physical symptoms, even after accounting for average levels of cyberbullying and school bullying experiences. Daily cyberbullying experiences were also related to feeling less safe at school and more attendance
problems, but were not associated with school belonging and academic problems, at the daily level. Results from the daily mediation models indicated that distress and perceptions of school safety accounted for the association between cyberbullying experiences and attendance problems. Moreover, support for the protective role of spending time with friends was found, such that on days that adolescents were cyberbullied and spent time with friends they were less likely to report feelings of distress, anger and were also less likely to report attendance problems, compared to teens who did not spend time with their friends during the day. The results demonstrate that although Latino adolescents may not encounter cyberbullying incidents on a routine basis, any single incident of cyberbullying is associated with changes in their emotional and physical well-being, as well as school adjustment.
The dissertation of Guadalupe Espinoza is approved.

Andrew J. Fuligni

Sandra Graham

Theodore Robles

Jaana Juvonen, Committee Chair

University of California, Los Angeles

2013
TABLE OF CONTENTS

I. Introduction ............................................. 1
   a. Definitions and Prevalence Rates of Cyberbullying  ......................... 3
   b. Links with Emotional and Physical Well-Being and School Adjustment ...... 5
   c. Victim’s Perceptions Following a Cyberbullying Incident .................... 9
   d. Friend Factors as a Buffer .................................. 10
   e. A Daily Diary Approach to Study Cyberbullying ................................. 13
   f. Focusing on Latino Adolescents’ Experiences .................................. 14
   g. Current Study .................................................................................. 16

II. Method ..................................................... 19
    a. Participants .................................................. 19
    b. Procedures .................................................. 20
    c. Measures .................................................... 22

III. Results .................................................... 27
     a. Research Aim #1: Cyberbullying Frequencies and Descriptive Information .... 28
     b. Research Aim #2: Daily Associations of Cyberbullying with Emotions and Adjustment ............ 31
     c. Research Aim #3: Mediating Mechanisms Underlying School Adjustment .... 38
     d. Research Aim #4: Testing the Buffering Role of Friendship Factors .......... 39

IV. Discussion ............................................... 42
    a. Cyberbullying Incidents Among Latino Youth .................................... 43
    b. Emotional and Physical Well-Being ................................................. 48
    c. School Climate Perceptions and Negative School Behaviors ................. 51
    d. The Protective Role of Spending Time with Friends ............................ 53
    e. Limitations, Strengths, and Future Directions .................................... 55
    f. How Can Cyberbullying Incidents be Prevented? ............................... 57
    g. Conclusion ...................................................................................... 60

V. Appendix .................................................. 72

VI. References ............................................... 75
LIST OF TABLES

Table 1. Descriptive Statistics for Mean Level Variables .................................. 62
Table 2. Correlations Among Mean-Level Variables of Interest ............................... 63
Table 3. Descriptive Statistics and Correlations for Individual Cyberbullying Items ...... 64
Table 4. Hierarchical Linear Models Predicting Daily Feelings and Physical Symptoms ... 65
Table 5. Hierarchical Linear models Predicting School Adjustment .......................... 66
Table 6. Models with Significant Cyberbullying by Time Spent with Friends Interaction... 67
LIST OF FIGURES

Figure 1. Reasons Why Students Think They Were Cyberbullied .......................... 68

Figure 2. Associations Between Daily Distress and Cyberbullying

   Experiences Moderated by Gender ............................................. 69

Figure 3. Lower Level Mediation Models ............................................. 70

Figure 4. Cyberbullying by Time Spent with Friends Interactions .......................... 71
ACKNOWLEDGMENTS

This research was supported by funding through research grants from the University of California Institute for Mexico and the United States and the Society for the Psychological Study of Social Issues. This research was also funded through the National Institute of Child and Human Development (F31 HD070783-02). Many thanks to the principal, teachers, staff and students of the school involved for their cooperation and generous contribution of time to this study. Finally, I would like to acknowledge my dissertation committee members for their helpful feedback and support: Jaana Juvonen (chair), Andrew Fuligni, Sandra Graham and Ted Robles.
VITA

EDUCATION

Masters of Arts in Psychology  2008
University of California, Los Angeles
Thesis: Latino and White Students’ Perceptions of the School Context Across the Transition to Middle School

Bachelor of Arts in Psychology  2007
San Diego State University
Minor: Child and Family Development; Magna Cum Laude

FELLOWSHIPS

National Research Service Award, National Institute of Child and Human Development
July 2012 – July 2013

UCLA Graduate Division & Psychology Department Fellowship
September 2011 – June 2012

Ford Foundation Pre-Doctoral Fellowship
September 2008 – June 2011

Eugene V. Cota-Robles Fellowship, University of California, Los Angeles
September 2007 – June 2008

RESEARCH GRANTS

University of California Institute for Mexico and the United States (UC MEXUS)
July 2011 – March 2012

Society for the Psychological Study of Social Issues Grants-in-Aid
August 2011 – July 2012

AWARDS (SELECTED)

UCLA Psychology Teaching Practicum Program  2012
Norma and Seymour Feshbach Doctoral Dissertation Award UCLA  2011
APA Educational Psychology Doctoral Student Seminar in Washington, D.C.  2011
APA Quantitative Training for Underrepresented Groups in San Diego, CA  2010
Graduate Summer Research Mentorship Program Award  2009
National Science Foundation UC Diversity Initiatives for Graduate Study in the Social Sciences Summer Research Mentorship Award  2008
PUBLICATIONS


Introduction

For many adolescents, the Internet and electronic devices are a central and indispensable part of their daily lives. Recent estimates suggest that in the United States, 95% of teens (ages 12 to 17) are connected online and two-thirds go online every day (Lenhart, Madden, Smith, Purcell, Zickuhr, & Rainie, 2011). Moreover, adolescents spend between eight to nine hours a day using different electronic communication devices (Rideout, Foehr, & Roberts, 2010). Although youth multi-task, it is evident, that many adolescents spend as much time with technology as they do with their family or school. Although adolescents use communication technology for multiple purposes such as entertainment and education, communication with peers represents the most pervasive use of technology. As adolescent’s social lives are rooted and expanding in an online culture, they report communicating online with peers to fulfill a sense of belonging (Huang and Chao, 2010). In addition to email, chat rooms and instant messaging, there has been an explosion in use of text messaging via cell phones as well as the use of social networking sites such as Facebook (Lenhart, 2012; Livingstone & Brake, 2010). Given that adolescents are increasingly relying on online communication tools to connect with others, it is critical to understand the role that cyberspace plays in adolescents lives, as it is the latest context of social interactions and development.

Little is known, in particular, about what function online communication may serve for marginalized groups such as ethnic minority youth. There are rationales for why the online context may serve as a safe haven for adolescents. Given that the Internet to some extent affords adolescents anonymity, this may level the “social playground” for ethnic minority youth. That is, presuming that cyberspace knows no race (Ebo, 1989), then ethnic minority youth may feel more able and comfortable connecting across group boundaries online than in the offline world.
However, there is also research to indicate that the online context may be a perilous one for marginalized groups (Tynes, Giang, Williams, & Thompson, 2008). Tynes and colleagues (2004) conducted a study among adolescents to explore interracial and interethnic experiences in chat rooms. The results showed that race was a common topic of conversation, even in general chat rooms, which are often perceived to be public spaces with more anonymity. In particular, it was Latino youth who were most likely to receive negative comments about their race. Thus, it is unclear whether cyberspace protects ethnic minority youth or if it is simply another context in which they may experience victimization that threatens their sense of belonging and well-being.

Relatively little is known about the online experiences of ethnic minority youth, because most research on adolescents’ online lives has focused on White students. Yet, recent findings indicate that it is timely to examine Latino adolescents’ online communication experiences. Although some disparities in use still exist (Lenhart, 2012), the gap in Internet use between ethnic minority, particularly Latino, and White adolescents has declined considerably. According to results from a national study of over 2000 youth, total media exposure is higher for Latino adolescents compared to White teens (Rideout, Foehr, & Roberts, 2010). For example, Latino youth spend more time talking and texting compared to White youth (2 hours and 19 minutes and 1 hour and 47 minutes, respectively) and spend more overall time on the computer. Although the narrowing of the digital divide is promising, inasmuch as it shows some equality across groups in access to technology, it could also mean that Latinos’ increasing use of the Internet carries a hidden cost. Greater online communication with peers can place them at risk for negative social interactions and experiences, such as cyberbullying (i.e., bullying experiences that occur via online communication tools). It is therefore important and timely to examine the cyberbullying experiences of Latino youth. Accordingly, the current study examines the extent to which single
incidents of cyberbullying experiences are associated with Latino adolescents’ daily emotional and physical well-being, as well as school adjustment.

In the following sections, I provide a brief review of cyberbullying research. Following the definition and prevalence of cyberbullying, a summary of the empirical research linking cyberbullying experiences with adolescent emotional and physical well-being and school adjustment is provided. The extent to which victims’ perceptions of cyberbullying incidents (e.g., who bullied them and why they were targeted) and how such perceptions may affect the victims is reviewed next. Given the importance of identifying protective factors, thereafter, I discuss how friendship factors such as spending time with friends may serve to protect adolescents on days they are cyberbullied. Finally, I detail the ways in which repeated daily assessments enable us to gain a better understanding of the nature of negative online experiences and their association with indicators of well-being and adjustment and further describe the importance of focusing on Latino teens’ online experiences.

**Definitions and Prevalence Rates of Cyberbullying**

Across most studies, the definition used for cyberbullying incidents vary. For example, definitions include “willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices” (Hinduja & Patchin, 2009:5), “the use of the Internet or other digital communication devices to insult or threaten someone” (Juvonen & Gross, 2008:497), and “any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort” (Tokunga, 2010:278). Although the specific definitions vary, it is clear that similarly to school bullying, cyberbullying can encompass behaviors such as spreading rumors, exclusion, threats and sharing private information or pictures without permission to do so.
Within the past several years, cyberbullying has emerged as a new social and health concern facing adolescents. The significance of cyberbullying incidents were emphasized in a report from the Internet Safety Technical Task Force which concluded that bullying and harassment typically carried out by known peers are “the most frequent threats that minors face, both online and offline” (Shrock & Boyd, 2008). There is some overlap in bullying involvement across contexts such that the adolescents who get targeted at school are likely to also be targeted online (Juvonen & Gross, 2008; Sumter, Baumgartner, Valkenburg, & Peter, 2012; Ybarra et al., 2007), suggesting that cyberspace may function as an extension of the school grounds. However, there are also teens who only experience victimization online indicating that school and cyberbullying are not completely overlapping (Jose, Kljakovic, Scheib, & Notter, 2012).

Adolescent’s descriptions of personal experiences with cyberbullying illustrate how the nature of bullying via online communication tools can differ from bullying that occurs at school. For example, a 13-year-old female participant in a focus group study reported: “Once I was bullied by a boy. He created a group on Facebook called “Vote for Jenna Simpson to die” where he would get people to say if they wanted me to commit suicide or not…” (Christofides, Muise, & Desmarais, 2012). Comments posted online have the potential to reach a much larger audience than comments passed along in the school hallway. Thus, although some similarities between school bullying and cyberbullying are evident, cyberbullying carries some unique features.

Prevalence estimates vary across studies, usually depending on the operationalization of cyberbullying, sample and measures utilized (Tokunga, 2010). For example, while 4% of first to twelfth grade students reported repeated bullying incidents (i.e., at least two to three times per month; Olweus, 2012), nearly 24% of middle and high school students reported being bullied online at least once in the past three months (Mishna, Khoury-Kassabri, Gadalla, & Daciuk,
Moreover, a web-based sample study (ages 12 – 17) showed that as many as 72% of heavy Internet users reported experiencing at least one online incident of bullying in the past year, while 19% reported repeated encounters during the past year (Juvonen & Gross, 2008). Until some consensus is reached regarding how cyberbullying is defined and measured (e.g., a single incident versus repeated incidents), prevalence estimates will continue to vary. A recent report from the Crimes Against Children Center concluded that although there have been substantial declines since the 1990’s in face-to-face peer victimization, cyberbullying has increased since the 2000’s (Finkelhor, 2013). Specifically, based on data from three cross-sectional national telephone surveys conducted among approximately 1,500 youth (ages 10 – 17), the rates for experiencing at least one incident of “online harassment” increased from 6% in 2000 to 9% in 2005 and increased again to 11% in 2010; indicating an increase of 83% in cyberbullying over the last decade (Jones, Mitchell, & Finkelhor, 2012). Thus, although the prevalence estimates of cyberbullying vary across studies, the rates are clearly increasing.

**Links with Emotional and Physical Well-Being and School Adjustment**

Given the nascent phase of cyberbullying research, much of the work in the area has focused on providing descriptive statistics such as prevalence rates and the various types of incidents. Moreover, several studies compare online and school-based bullying to address the extent to which youth are involved in a single or both forms of bullying. More recently, research is also addressing the question of how cyberbullying experiences during adolescence are linked with adjustment problems to better understand the impact for victims.

**Emotional well-being.** Across the growing body of cyberbullying research examining links with adjustment, the set of outcomes that have been studied most extensively are adolescents’ negative emotions (e.g., depressive symptoms). Patchin and Hinduja (2006) found
that among the 29% of adolescents who were cyberbullied, the most common negative feelings among the victims were frustration (43%), anger (40%), and sadness (27%). Consistent with research on school bullying (e.g., Arseneault, Bowes, & Shakoor, 2012; Juvonen, Graham & Schuster, 2003; Rigby, 2000), targets of cyberbullying are significantly more likely to report psychosocial adjustment problems compared to youth uninvolved in cyberbullying. Cyberbullying victims report greater psychological distress (Schneider, O’Donnell, Stueve, & Coulter, 2012), depressive symptoms (e.g., Wang, Nansel, & Iannotti, 2011; Ybarra, 2004) and anxiety (Cambell, Spears, Slee, Butler, & Kift, 2012). For example, youth who reported being victimized online were 2.5 times more likely to report depressive symptoms compared to youth with no such experiences (Mitchell et al., 2007). Based on results gathered via web-based anonymous surveys, Juvonen and Gross (2008) found that over and above reports of school based encounters of bullying, online bullying experiences predicted feelings of social anxiety.

Given that few cyberbullying studies have relied on longitudinal designs, inferences about the direction of effects cannot be drawn. Although it has been posited that cyberbullying causes emotional distress, it may also be the case that youth with adjustment problems (e.g., students who display depressive symptoms) are more likely to be targeted with cyberbullying. Sumter and colleagues (2012) examined cyberbullying trajectories with Dutch adolescents across four waves at six-month intervals each (Sumter, Baumgartner, Valkenburg, & Peter, 2012). They found that, after controlling for life satisfaction during the first wave, adolescents who experienced more cyberbullying reported lower life satisfaction during the fourth wave. However, given that this study focused on the trajectories of bullying experiences and not the direction of effects, it is not known if life satisfaction at wave 1 predicts later cyberbullying. Thus, although school bullying research generally finds more support for associations from
bullying to adjustment outcomes (rather than adjustment to bullying; e.g., Bond, Carlin, Thomas, Rubin, & Patton, 2001; Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006), research relying on more than two time points that disentangle the direction of effects between cyberbullying and well-being is lacking.

Physical symptoms. Although several studies have shown a link between cyberbullying and psychosocial well-being, only a couple of studies have examined if cyberbullying experiences are associated with adolescents’ physical well-being. Links with school based bullying have been studied more extensively (e.g., Due et al., 2005; Fekkes et al., 2006). For example, results from a meta-analysis examining school bullying and psychosomatic problems revealed that across 11 samples, bullied youth were two times more likely to display psychosomatic problems (compared to uninvolved youth; Gini & Pozzoll, 2009). Emerging evidence indicates that the association may also exist with online bullying experiences. A recent study among adolescents from Sweden showed a significant association between cyberbullying experiences and psychosomatic health problems (e.g., headaches, little appetite, difficulty sleeping; Beckman, Hagquist, & Hellström, 2012). Based on a different sample of Swedish adolescent, Låftman and colleagues (2013) also found an association between cyberbullying experiences and subjective health symptoms, even after accounting for experiences with school bullying (Låftman, Modin, & Östberg, 2013). In light of these findings, it is important for future studies to examine whether incidents of cyberbullying are associated with physical symptoms over time.

School adjustment. Across the school bullying literature, studies with large samples, multiples waves of data and/or multi-informants have detailed the ways in which school bullying incidents are linked to school problems such as classroom engagement, school climate
perceptions and academic grades (e.g., Juvonen, Wang & Espinoza, 2011; Nakamoto & Schwartz, 2009). Mixed results exist among the few studies examining cyberbullying in association to school outcomes. Based on a national youth online survey, online victimization has been linked to school problems such as detention, suspension and skipping school (Ybarra, Diener-West, & Leaf, 2007). Additionally, in a study conducted among a population-based sample of over 17,000 middle and high school students, results revealed that students who reported harassment based on their ethnicity or sexual orientation and reported that the harassment took place online or in a text message reported lower levels of school belonging and lower grades, compared to other students (e.g., nonharassed, harassed but not online; Sinclair, Bauman, Poteat, Koenig, & Russell, 2012). However, most studies that focus on academic grades, find no association with cyberbullying (Li, 2007; Ybarra et al., 2007). Rather than focusing on distal academic outcomes such as grades, more proximal and malleable school outcomes (e.g., participatory and engagement behaviors) may better help us understand the link between cyberbullying and school adjustment (Fredricks, Blumenfeld, & Paris, 2004).

Whether cyberbullying is directly associated with school outcomes or whether the concerns and worries about online incidents simply spill over to the school context has not been explored. Within school based bullying research, support exists for indirect, or mediational models, such that victims tend to be less engaged in school, with psychosocial problems mediating the effects (Juvonen, Nishina, & Graham, 2000). It is also possible that cyberbullied youth feel more depressed or anxious and thus, have difficulty with school tasks such concentrating on exams or making it to class on time. Overall, there is a dearth of cyberbullying studies testing mediating mechanisms. Thus, in addition to examining direct negative effects of cyberbullying, further research should test mediating mechanisms to explain potential
associations with cyberbullying. One potential mediator is victims’ perceptions following the incident.

**Victim’s Perceptions Following a Cyberbullying Incident**

Following a cyberbullying incident, many thoughts and questions may cross the victim’s mind, such as “who sent me that threatening text message?” and “why did the bully decide to target me?” Although research suggests that cyberbullying incidents are associated with elevated adjustment problems, it is less clear if specific conditions and the adolescents’ perceptions following an incident may make cyberbullying particularly harmful. For example, knowing that the bully is a peer from school may make a cyberbullying incident especially distressing. Or, the reason why a teen thinks they were targeted (i.e., looks, gender) may also impact how consequential the cyberbullying incident is. Currently, little is known about which factors matter the most in the experiences of cyberbullying.

It has been presumed that, unlike the school context, the online context offers the bully anonymity. That is, the bully can send a threatening email or insulting text message while concealing their identity by creating a fake email account or sending a text message from a friend’s phone number. Yet, findings indicate that adolescents often report that they know who bullied them online and that it was someone from their school (Juvonen & Gross, 2008; Kowalski & Limber, 2007; Li, 2007). A study of 177 seventh grade students showed that 32% of victims knew that the online bully was someone from their school (Li, 2007). In a larger study of 3,767 middle school students, 47% of victims reported that the bully was a student from school (Kowalski & Limber, 2007). In spite of these findings, clearly more information is needed about the identity of the perpetrator of cyberbullying and the extent to which the victim knows them. For example, school bullying research has explored how teens may be victimized by peers they
consider friends (Wei & Jonson-Reid, 2011). In cyberbullying research it is unclear how well victims know the perpetrator.

Very little is also known about why victims perceive that they targeted online. Few studies have explored the attributions that adolescents make after being cyberbullied, even though we know that teens often ask “Why me?” following a bullying incident (Graham & Juvonen, 1998). In a study of Canadian adolescents, Mishna and colleagues (2010) found that the most common reasons why victims believed they were bullied online was because of their appearance (reported by 11% of cyberbullied students), followed by race (6%) and school performance (5%). No studies have examined the attributions of ethnic minority youth living in the U.S.. This is an important topic to study given that experiences of prejudice or peer discrimination are more common for members of ethnic minority groups (Huynh & Fuligni, 2010; Rosenbloom & Way, 2004) and often involve behaviors that are also considered bullying, such as name-calling and threats. Thus, examination of the causal or attributional perceptions by ethnic minority youth is needed to be able to then better assess whether certain attributions may make cyberbullying particularly distressing.

In sum, we need a better descriptive understanding of the extent to which victims perceptions of the identity of the bully and the attributions that are being made following a cyberbullying incident. Additionally, it is crucial to identify factors that alleviate the negative emotions and adjustment of being bullied online. Given that friends are essential to teens’ well-being and promote positive adjustment (Crosnoe et al., 2003), friendships may serve a protective function.

**Friendship Factors as a Buffer**
Sullivan (1953) posited that friends play an important role in shaping well-being, especially among adolescents. Friends help adolescents meet important basic needs such as companionship, validation and sense of belongingness. Thus, it may be expected that friendships ameliorate the emotional pain associated with bullying. Indeed, there is research suggesting that friends buffer from the distress of bullying experiences occurring in school. A longitudinal study of fourth and fifth grade students revealed that school-based victimization was associated with an increase in internalizing and externalizing behaviors a year later, but the association was attenuated for students with a mutual friendship (Hodges, Boivin, Vitaro, & Bukowski, 1999). Largely, there is evidence that factors such as classmate support (Davidson & Demaray, 2007), friendship quality (Malcolm, Jensen-Campbell, Rex-Lear, & Waldrip, 2006), and friend support (Schmidt & Bagwell, 2007) protect youth from the distress associated with bullying experiences. Less research has examined how friends may buffer from the impact on school adjustment. In one of the few studies to test the friend buffering hypothesis among Latino youth, Nakamoto and Schwartz (2011) found a moderation effect for school engagement, but not GPA. Contrary to expectations, the effect showed that the association between school victimization and school engagement was exacerbated for Latino children with many friends. The authors conclude that in difficult urban settings having numerous friends may not buffer children against the negative effects of bullying and rather withdrawing from the peer group may be particularly adaptive. An alternative explanation not presented by the authors is that perhaps not all aspects of friendships (e.g., number of friends versus friendship quality) similarly serve to protect youth from the consequences of bullying.

Given that compared to childhood, during adolescence time spent with friends increases (Larson & Richards, 1991), spending time with friends may be particularly important to examine
as a friendship factor that buffers from the negative outcomes of being bullied. Merely spending time with friends, whether it be in-person or via online tools is likely to promote adolescents’ sense of connectedness or belonging, yet, this dimension remains relatively unexamined. In one of the only studies to examine the buffering effect of time spent with friends, Masten and colleagues (2012) found that spending time with friends yielded protective benefits to adolescents by decreasing the degree to which social stressors, such as bullying experiences, were perceived as threatening. To date, no studies have examined if the association between adolescents’ cyberbullying experiences and their emotional and academic well-being is ameliorated by friendship factors.

**Summary**

The research reviewed thus far has shown that adolescents are using online communication tools at increasing rates. Research shows that much like school bullying, cyberbullying is negatively associated with emotional well-being. However, the associations of cyberbullying with physical symptoms and school adjustment are less well understood. In addition, few studies have examined the extent to which victims’ perceptions regarding the identity of the perpetrator and why they were targeted online may impact how cyberbullying is associated with their well-being. Finally, although not yet addressed in cyberbullying research, school bullying studies suggest that friendships may buffer adolescents from the negative outcomes of being bullied.

Of the bullying studies reviewed thus far, only few methods have been utilized. To date, cyberbullying research has been limited in the types of methodology used with the majority of studies relying on traditional, one-time surveys (Espinoza & Juvonen, 2012). Other methods such as focus groups and interviews are now also being increasingly used (Allen, 2012; Parris,
Varjas, Meyers, & Cutts, 2012). The reliance on these methods have provided some initial insights regarding adolescents experiences with cyberbullying. Further extending the methods utilized to study cyberbullying will allow us to answer additional questions that have not been explored. In particular, the use of daily methodology (a type of intensive longitudinal design) will permit day-to-day fluctuations in cyberbullying to be examined.

A Daily Diary Approach to Study Cyberbullying

Daily assessment methodology has been described as a useful tool for “capturing life as it is lived” (Bolger, Davis, & Rafaeli, 2003), yet, has not been utilized to study cyberbullying. In contrast to traditional, one-time measures, which raise some concerns, because youth must rely on retrospective accounts, asking teens to report on specific experiences, feelings and behaviors on a daily basis, reduces the time elapsed between the actual experience and their account of the experience. Thus, daily assessments provide more reliable information than surveys that ask students to think back on experiences that happened in the last several months or the past year (e.g., Ang & Goh, 2010; Juvonen & Gross, 2008). Also, daily methods allow estimation of the associations between variables of interest at the individual and daily level. For example, it is possible to answer questions such as: Do adolescents with high average levels of cyberbullying also report high levels of distress?, as well as daily level questions such as: On days that Latino adolescents report cyberbullying experiences, do they report more attendance problems on the same day? And does this negative association persist for only one day, or more? That is, this method allows estimation of whether specific behaviors, events and feelings co-occur with another on a daily basis.

Although daily assessments are recognized as a promising method, they remain unused in cyberbullying research and have only been used in a few school bullying studies. Indeed, the
school bullying studies that have relied on daily diaries highlight the usefulness and affordances of the method (e.g., Lehman & Repetti, 2007). Based on sixth grade students daily reports on five school days (across a two week period), Nishina and Juvonen (2005) found that on days when youth reported being bullied at school, they reported higher levels of anger and anxiety. In a recent study with Mexican-American high school students, daily school bullying experiences were assessed across ten school days. Results revealed that daily bullying experiences were related to academic problems and perceived role fulfillment as a good student (Espinoza, Gonzales & Fuligni, in press). Thus, daily diary studies have illustrated the usefulness of this method in detailing individual and daily level associations with bullying incidents in the school context. Whether the negative associations from cyberbullying persist on the following day(s) has not been examined although it may be expected that the consequences of being targeted online persist across subsequent days. By relying on daily reports, Flook and Fuligni (2008), found that the spillover of school problems (e.g., doing poorly on a test) on family stress persisted two days after the occurrence of the initial school stressor. Thus, daily diaries allow examination of the potentially lasting impact of daily negative online incidents.

Sandstrom and Cillessen (2003) stressed the need for daily research to examine whether negative peer interactions (i.e., bullying, discrimination) are associated with adaptive functioning indices such as mental health and academic adjustment. Accordingly, this study examines how negative online experiences, are related to urban, Latino adolescents emotional and physical well-being and school adjustment on a day-to-day basis.

**Focusing on Latino Adolescents’ Experiences**

Despite the growing use of online tools among Latino youth and the fact that Latinos are the fastest growing ethnic group in the United States (U.S. Census Bureau, 2011), they continue
to be underrepresented in research on victimization. To date, cyberbullying research has predominately studied the experiences of White adolescents. Few studies have even had a sample of Latino youth large enough to simply compare their rates of cyberbullying experiences with other groups. One exception is a study among 1,491 high school students with predominately White (46%) students but with other groups also represented, such as Hispanic/Latino (24%), multiple Hispanic (14%), and American Indian (6%). No differences based on ethnicity were found in reports of victimization experiences (Bauman, Toomey, & Walker, in press). In general, more research is needed with Latino youth not only to draw comparisons with other groups but moreover, to explore potential within-group variations (Han, 2008), which are often ignored in comparative studies but might help us understand the generalizability of cyberbullying findings.

Given that Latino teens are at high risk of mental health problems (e.g., Centers for Disease Control and Prevention, 2010; Roberts, Roberts, & Chen, 1997) and of doing poorly in school (e.g., Kohler & Lazarin, 2007), it is important to examine Latino youth’s social experiences online. For example, it would be important to know whether cyberbullying can help explain Latino adolescents’ higher rates of psychological distress (Joiner, Perez, Wagner, Berenson, & Marquine, 2001). With regards to academics, whether the objective index of school failure is low engagement, dropout rates, low standardized test performance or low college-entrance rates, Latino students are disproportionately represented as at-risk for school failure. For example, spanning across the period from 1972 to 2009, the percentage of Latino youth who dropout has been consistently higher than that of White, Black and Asian American youth (U.S. Census Bureau, 2009). Interestingly, most programs and policies aimed at promoting achievement among Latino students emphasize the role of the family (Hill & Torres, 2010), with little attention paid to the influence of peer interactions. Although several, home and
neighborhood factors have been found to account for why Latino adolescents do poorly in school (e.g., Benner & Graham, 2011; DeGarmo & Martinez, 2006; Lee & Bowen, 2006), it is important to examine if everyday negative online experiences, such as cyberbullying, also compromise not only the school adjustment of Latino adolescents, but also their emotional and physical well-being.

**Current Study**

The current study addresses some of the voids in the cyberbullying literature that have been reviewed. By relying on daily methodology, this study aims to better understand everyday cyberbullying incidents among urban, predominately Latino high school students. Four central research aims guide this study.

**Research aim 1.** *The first research aim is to better understand Latino high school student’s everyday cyberbullying incidents, descriptively.* Specifically, I will describe how frequently Latino high school students experience cyberbullying incidents in their day-to-day lives, examine if differences in prevalence exist based on grade, gender or generational status and test whether the prevalence of cyberbullying differs from school bullying incidents. Furthermore adolescents’ perceptions after being cyberbullied are also explored, particularly the extent to which they knew the person who targeted them online and why they think they were bullied (i.e., attributions).

**Research aim 2.** *The second aim guiding this study is to examine whether episodic and/or chronic cyberbullying experiences are related to adolescents’ daily emotions (i.e., anger, distress, shame, happiness), physical symptoms and school adjustment (i.e., school climate perceptions, negative school behaviors).* Multiple indicators of emotions and school adjustment are assessed in order to best capture the array of outcomes that are most closely linked with
cyberbullying incidents. For example, past studies examining negative emotions have studied distress and depressive symptoms most extensively. However, findings from descriptive studies indicate that students also report feeling other emotions as a response to being cyberbullied such as anger and shame (Mishna et al., 2010; Patchin & Hinduja, 2006). Thus, it is important to empirically test the extent to which single incidents of cyberbullying are linked with emotions, beyond feelings of distress. It is hypothesized that on days that adolescents experience bullying online they will report greater feelings of distress, anger and shame as well as lower feelings of happiness on the same day. It is also hypothesized that daily cyberbullying experiences will be associated with adolescents school adjustment problems.

To expand upon the second aim, additional models with school bullying predictors are tested to ensure that any significant cyberbullying associations remain, over and above adolescents’ experiences with bullying at school. Olweus (2012) emphasized the importance of reporting the effects of cyberbullying while taking into account the potentially co-existing negative effects of traditional bullying. The extent to which significant variability found in daily-level associations vary by the individual demographics of grade, gender or generational status is also tested. For example, Bauman and colleagues (in press) found that cyberbullying experiences were significantly associated with depressive symptoms, but only for girls. These results suggest that girls may be more sensitive to the emotional pain associated with being targeted online. Although it is unknown whether this gender difference applies to Latino youth, it is expected that girls will report more negative emotions such as distress and shame on days that they are cyberbullied, compared to boys. Also, grade-level differences during the high school years are examined. Given that the transition year tends to be stressful (e.g., Benner & Graham, 2009) cyberbullying experiences for students in the ninth grade may be more strongly related to
adjustment problems, compared to students in the later high school years. Finally, generational status has not received empirical consideration within the bullying literature. It may be that cyberbullying is particularly harmful for first-generation immigrant adolescents because they are simultaneously managing many challenges as they adapt to the U.S. culture (e.g., identity development, “fitting in” with peers; McKenney et al., 2006). Alternatively, it may also be that bullying is more harmful for second- and third-generation students because they place more importance on peer relationships (e.g., Stromheier et al., 2011). Moreover, to understand whether the impact of a cyberbullying experience may last longer than for a single day, lagged (i.e., spillover) effects are tested. That is, if a cyberbullying incident on one day is associated with anger on the same day, does the feeling of anger carry over to the following day?

**Research aim 3.** *The third aim of the study is to identify mediating mechanisms by examining if potential associations between cyberbullying experiences and school adjustment problems can be accounted by adolescents’ reports of daily emotions.* Given that psychosocial problems (e.g., depression) in particular have been shown to mediate associations between school bullying incidents and school adjustment (Juvonen, Nishina, & Graham, 2000), it is expected that feelings of distress serve as a mediator between daily experiences of cyberbullying and the school climate and negative school behavior indicators. Additional exploratory meditational models, such as a model with school safety as the mediator in the association of cyberbullying with attendance problems, is also be tested to fully understand the mechanisms underlying the associations between cyberbullying and school adjustment.

**Research aim 4.** *The final aim focuses on examining whether potential associations between cyberbullying and daily emotions, physical symptoms, and school adjustment are moderated by friendship factors.* To best understand how friendship factors may buffer or restore
Latino adolescent’s negative emotions and school problems after being cyberbullied, it is important to examine multiple friendship factors. Specifically, the extent to which spending time with friends or perceiving high friendship quality protects adolescents from feeling angry or distressed on days that they experience cyberbullying is tested. Based on school bullying research, it is hypothesized that both time spent with friends and friendship quality will be particularly protective against negative emotions. The question of whether friends buffer from the impact on school adjustment has been less studied, thus this question is exploratory.

**Method**

**Participants**

Students were recruited from a public high school located in an urban area of Los Angeles, California. The school was comprised of predominately Latino (94%) students and 68% of students were eligible for free or reduced lunch. Based on the academic performance index (API) distribution for schools in California, the school is considered below average (score = 612). The school is organized into four smaller learning communities; students were recruited from a learning community (targeted for youth at-risk of dropping out) that included slightly less than 300 students in grades 9 – 12. Students in homerooms with primarily ninth, tenth and eleventh grade students were invited to participate in the study (some twelfth grade students were included in these homerooms and were permitted to participate). Based on the number of students who were invited to participate, returned a signed consent form with permission to participate from their parent or guardian and those who signed an assent form, the participation rate was 67% which compares favorably with past adolescent daily diary studies (e.g., Ham & Larson, 1990; Kiang, Yip, Gonzales-Backen, Witkow, & Fuligni, 2006). A total of 144
adolescents participated in the initial part of the study, which included completing a background survey during homeroom period.

For the current study focusing on daily cyberbullying experiences, the final analytic sample included 136 adolescents who completed both the background survey and at least one checklist during the five-day span. The sample was equally split by gender (50% female) and students across ninth (26%), tenth (34%), eleventh (33%) and twelfth (7%) grade were included. With regards to ethnic background, the sample paralleled the school-level demographics such that a vast majority were Latino (88%) and also included students who self-identified as White (4%), African-American (3%) and Other (e.g., Asian, Middle Eastern) or Multiracial (6%). Among the Latino group, students were Central American (57%) or Mexican American (39%), with a smaller group of Mixed students (i.e., both Central American and Mexican American; 4%). A majority of the adolescents (74%) were second-generation (i.e., the adolescent was born in the United States and at least one parent was born outside of the U.S.). Eighteen percent of students were first-generation immigrants (i.e., adolescent and parent(s) born outside of U.S.) and 8% were third generation (i.e., adolescent and parent(s) born in the U.S.). With regards to languages spoken at home, most adolescents (52%) reported speaking both English and Spanish. Additionally, 31% of adolescents reported speaking only Spanish at home, 9% only English and 8% another language or English plus another language.

**Procedures**

During the fall of 2011, students were recruited to participate in the study during their homeroom. Homerooms were not organized strictly by grade resulting in some mixing of grade levels (e.g., a homeroom class of mostly ninth grade students with a few tenth grade students). Of the twelve homeroom classes, ten classrooms that were comprised of mostly ninth, tenth, and
eleventh grade students were invited to participate. The final two homeroom classes were made up of mostly twelfth grade students who were excluded because they had various senior class and graduation related activities during homeroom period. Students received information about the study via classroom presentations led by the graduate student principal investigator and trained research assistants. During the classroom presentations students were told about the goals of the project, what would be asked of them if they agreed to participate, the incentives for participating and they were also encouraged to ask questions. The study goal was described broadly as “trying to learn more about teens’ experiences with peers online and also in school”.

Students were given a packet to take home to their parent or guardian that included an informational letter and the consent form (provided in English and Spanish). A challenge of recruiting school-based samples, particularly among high school students, is offering adequate incentives to encourage students to return the consent forms. To encourage students to return signed consent forms (whether it be granting or not granting permission to participate), their names were entered in a raffle with prizes including: iTunes and frozen yogurt gift cards, university shirts, hats, and water bottles. Several follow-up visits were made across a span of approximately three weeks to remind students to return the signed consent form.

Students with permission from their parent or guardian to participate in the study and those who also provided their assent completed background questionnaires during the homeroom period. The background questionnaire included a variety of questions such as demographics (e.g., languages spoken at home, parent education level, country of birth) and use of the Internet and cell phones. Only responses to the demographic questions from the background survey were included in the current study. After completing and collecting the background survey (approximately 20 minutes), students received instructions for completing the daily checklists.
Researchers answered any student questions and ensured that each participant received a packet including a set of paper diary checklists and envelopes to complete for the next five school days before going to bed. After completing the daily checklist, students were instructed to write the time and date at the top of the checklist, fold it over, seal it in an envelope, return it to school the following morning and place it in the project box located in their homeroom. Each daily checklist took less than five minutes to complete.

At the end of the background survey, participants were asked to provide their email address or a cell phone number where they could receive text messages. Over three-fourths of students provided this information and were sent an email or text message twice during the week to remind them to complete the checklists and return them to school on the following day. The checklists were gathered during each homeroom period to further ensure that they were completed on time. To encourage students to complete each checklist and as compensation for their input and time, they received two dollars for each completed checklist, resulting in a ten dollar payment if all checklists were completed. Although nearly all of the checklist days were completed, for some students less than five checklist days were analyzed, if, for example, the adolescent either forgot to fill out the checklist or to return it to school the following day. On average, across the five days, 97% of diaries were completed and 81% of diaries were completed on time, which compares favorably with past daily checklist studies with Latino high school students (Espinoza, Gonzales, & Fuligni, in press).

**Measures**

Demographic information, such as grade and ethnicity, were included from the background questionnaires. The primary daily measures used in the current study assessed a variety of school and online events, activities and emotions. The specific measures that were
The various constructs that were utilized were either taken from previous studies or developed based on past theory and studies. The items were piloted with approximately 40 high school students (who did not participate in the study). Based on student feedback and alpha reliability estimates calculated from the piloted daily checklists, some items were deleted or modified for the final checklist. Table 1 presents descriptive statistics for the mean-level computed variables (averages across all school days) and Table 2 displays correlation coefficients among all of the measures to show general patterns of association among the constructs.

**Cyberbullying experiences.** In a section titled, *Online Events and Experiences,* adolescents were asked, “Did any of the following things happen online or in a text message today?” with five items assessing cyberbullying. The items included: “someone called you names that insulted you”, “someone threatened you, physically or otherwise”, “someone spread rumors about you online or via text message”, “someone shared private pictures of you that embarrassed you”, and “someone shared private information, without your permission, that embarrassed you”. Each evening, students checked a box labeled either *no* or *yes* next to each item to indicate whether the event occurred during the day. These items were adapted from a previous study of adolescent cyberbullying (Juvonen & Gross, 2008).

**Cyberbullying attributions.** Students were instructed to complete an additional set of questions if they reported any of the “online events” (i.e., cyberbullying incidents) occurring during the day. One set of follow-up items asked adolescents why they think the incident(s) happened. Students were instructed to check all the responses that applied to why they thought the online incident happened. Specifically, the item asked “Do you think this happened because of your…?” Six response options were provided, including: gender, skin color, family is poor,
country of origin (e.g., because you are Mexican or Central American), languages spoken and other looks (e.g., height, weight, acne). Some of these attributions were taken from a previous cyberbullying study (Juvonen & Gross, 2008). Also, given the focus on Latino youth, additional items specific to race and ethnicity (e.g., country of origin, languages spoken) were included to explore the extent to which cyberbullying incidents among a sample of predominately Latino adolescents are attributed to race/ethnicity factors.

**Identity of the bully.** In order to better understand the extent to which the victim knew who the online bully was they responded to the item, “Do you know the person who did it”. The three response options included: “no,” “yes, it is not someone from my school,” and “yes, someone from my school.” If they checked the last item and identified the bully as someone from their school they were asked to further indicate whether they: “hardly know this person”, “know this person but don’t consider him/her a friend”, or “consider this person a friend”.

**School bullying experiences.** In a section titled, *School Events and Experiences*, adolescents were asked, “Did any of the following happen today?” with three items measuring school bullying. The items tapped into physical (“someone from school hit, kicked or shoved me”), verbal (“someone from school insulted or made fun of me”) and relational (“someone from school spread rumors about me or excluded me”) forms of victimization.

**Daily emotions.** Students were asked to report the extent to which they experienced certain emotions during the day. The items were prefaced with “The following is a list of feelings. Today, did you feel…”? All of the items were rated on a 5-point scale labeled *not at all* (1) and *extremely* (5) at its end points. Items measured adolescent’s emotions of distress, anger, shame and happiness.
Distress. Distress was assessed with six items modified from the anxiety and depression subscales of the Profile of Moods States (POMS; Lorr and McNair, 1971). Each evening, adolescents rated the extent to which they had anxious feelings (items include: worried, distracted and nervous) and depressive feelings (items include: discouraged, hopeless and sad). Given that the two scales were highly correlated ($r = .55, p < .001$), they were combined to form a single index of distress ($\alpha = .78$).

Anger. Two items, “angry” and “mad”, were used to assess levels of daily anger. The items were strongly correlated ($r = .82, p < .001$).

Shame. Four items were used to measure adolescent’s daily feeling of shame. Participants indicated the extent to which they felt “embarrassed”, “ashamed”, “humiliated” and “mortified” during the day. The measure showed good internal reliability ($\alpha = .74$).

Happiness. Two items assessed daily levels of happiness. Each evening students indicated the extent to which they felt “excited” and “happy”. The two items were strongly correlated ($r = .62, p < .001$).

Daily physical symptoms. Six items were used to assess physical symptoms. The items were prefaced with the question, “Did you feel any of the following today?”. Each evening, students indicated the extent to which they felt “dizzy or light-headed”, “stomachaches or pain”, “headaches”, “trouble sleeping”, “tired for no reason” and had a “poor appetite”. Each item was rated on a 5-point scale ranging from not at all to extremely such that higher values indicate more symptoms. Similar items have been used in previous studies that examine daily physical symptoms among adolescents (e.g., Espinoza, Gonzales & Fuligni, in press; Ghandour, Overpeck, Huang, Kogan & Scheidt, 2004). The items had strong internal reliability ($\alpha = .87$).
School adjustment. In a section titled, School Events and Experiences, adolescents were asked to indicate whether certain events happened at school and also how they felt about school during the day. To assess school adjustment, four measures were used: school belonging and school safety tapped into perceived school climate perceptions and academic problems and attendance problems were indices of negative school behaviors.

School belonging. Three items adapted from Gottfredson’s (1984) Effective School Battery that have been used in past studies with high school students (e.g., Benner & Graham, 2007) were used to measure sense of school belonging. The items were prefaced with, “How did you feel at school today?” and the items included: “I felt like I belong in school”, “I felt like I am a part of this school”, and “I felt close to people at school”. Each item was rated on a 5-point scale from not at all (1) to extremely (5). The scale showed excellent internal reliability (α = .96).

School safety. The item “I was worried about my safety” was prefaced with “How did you feel today at school?” to measure school safety. Response options ranged from not at all (1) to extremely (5). The item was reverse coded such that higher scores indicate higher feelings of school safety. An alpha coefficient was not calculated given that this is a single item measure.

Academic problems. A single checklist item was used to assess academic problems. Participants reported whether they did poorly on a test, quiz, or homework. Given that this is a binary (0 = no, 1 = yes) single item, an alpha coefficient cannot be calculated.

Attendance problems. Every evening, participants indicated whether they were “late for a class” and whether they “skipped or cut a class” during the day. An index of attendance problems was created by averaging the number of incidents reported each day. It was not appropriate to calculate alpha coefficients for this measure given that it is a count of events.
Friendship factors. In a section titled, Friend Events and Experiences, adolescents responded to checklist items that assessed whether they spent time with their friends during the day and also perceived closeness and support from friends. Two friendship indices were measured: time spent with friends and friendship quality.

Time spent with friends. Adolescents responded to a single checklist item “spent time with your friends today” every evening. Given that this is a binary (0 = no, 1 = yes), single item an alpha coefficient cannot be calculated.

Friendship quality. Four checklist items were used to assess perceived friendship quality, including: “got along with your friends(s)”, “felt really close to your friend(s)”, “your friend(s) were there when you needed them”, and “felt like your friend(s) really understood you”. A daily mean of the four items was computed to create the composite. The items were modified from existing friendship scales that assess the affective quality of friendships (Greenberg, Siegel, & Leitch, 1983) and a scale of social support (Zimet, Dahlem, Zimet, & Farley, 1988).

Results

The results section is divided into four main sections, stemming from the four research aims that guide the study. The first section provides descriptive results based on the examination of mean differences in frequencies and correlations of cyberbullying experiences. This section also provides descriptive information regarding the frequencies and overlap between the cyberbullying and school bullying measures. Among those adolescents who experienced at least one incident of cyberbullying across the week, descriptions are provided regarding adolescents’ attributions for why they thought they were bullied and also whether the victim knows the person who targeted them.

The second section describes the results from the hierarchical linear modeling (HLM;
Bryk & Raudenbusch, 1992) analyses that simultaneously tested both the individual (between-persons) and daily (within-persons) associations between adolescent’s cyberbullying experiences and their emotions, physical symptoms and school adjustment. This section also describes analyses that tested whether associations with cyberbullying persisted across the following day and whether significant individual variability in associations could be explained, in part, by adolescents’ gender, grade, or generational status. The third section details the results from lower level meditational tests that were run to test whether daily emotions may account for the association between cyberbullying experiences and school adjustment outcomes. Finally, the fourth section presents the results from the moderation models that examined the extent to which friendship factors, specifically time spent with friends and perceived friendship quality, may buffer the potential negative associations with daily cyberbullying.

**Research Aim #1: Cyberbullying Frequencies and Descriptive Information**

Item level descriptive statistics and intercorrelations among the five cyberbullying items are presented in Table 3. The item “someone called you names that insulted you” was the most prevalent form of cyberbullying and “someone threatened you, physically or otherwise” was the least prevalent across the five school days. Indeed, making threats online is often characterized as one of the more serious cyberbullying behaviors (Hinduja & Patchin, in press). As expected, the five items were significantly correlated with one another although the degree of association varied such that the two items related to sharing private pictures and private information were very strongly correlated \( r = .85 \) and calling names and spreading rumors were less strongly related \( r = .26 \).

The composite measure of daily cyberbullying experiences were averaged across the five school days to create a score that indicated the proportion of days that students were targeted
online. On average, cyberbullying was an infrequent experience that occurred on only 2% of days ($M = .02, SD = .06$). Overall, 20% of predominately Latino high school students reported at least one cyberbullying incident across the school days such that 10% reported one incident, 5% reported two incidents and 5% reported three or more incidents. Independent samples t-tests revealed no differences in cyberbullying experiences based on gender. One way analysis of variance tests also showed no differences based on grade, ethnicity, or generational status (all $p$’s $>.05$).

Descriptive analyses were also conducted to examine if there were differences in the frequency of cyberbullying and school bullying experiences and to test the overlap across both constructs. A paired t-test comparing the average number of bullying incidents reported by adolescents at school and online across the five-day span revealed that there were no differences in the frequency of bullying experiences across each context, $t(136) = 1.95, p > .05$. Thus, one type of bullying was not more prevalent than the other. The mean-level cyberbullying and school bullying measures were moderately correlated ($r = .40, p < .001$). Cross-tab descriptive analyses were conducted to examine the overlap between cyberbullying and school bullying incidents on each day (a daily mean was calculated for each measure) to explore the frequency with which adolescents experienced both types of bullying on any given day. Results showed that there were very few adolescents who experienced both types of bullying in one day; the number of adolescents ranged from one to six, across the five school days.

**Attributions of cyberbullying.** To better understand adolescents’ attributions following a cyberbullying incident, those adolescents who reported experiencing at least one cyberbullying incident during the five-day span, were asked about their attributions and why they thought the incident happened. These descriptive findings (and the subsequent findings on the identity of the
bully) are based on the 20% of participants who reported a cyberbullying incident. Thus, given the low sample size for these analyses, they were examined only for descriptive and exploratory purposes. Figure 1 displays the percentage of students who indicated each attribution response item at least once (students were able to check more than one response). Most commonly (54%) students perceived that the reason the incident happened was because of their “looks” such as weight, followed by attributing the incident to their skin color (21%). Although many adolescents indicated speaking a language other than English at home, the least common attribution for being targeted online was languages spoken (4%). Additionally, 29% of students did not check any of the response options. This might have been because they did not know why they were targeted or the reason they thought they were targeted was not listed as an option.

**Identity of the perpetrator.** A majority of adolescents knew the identity of the person who targeted them online; 26% reported it was someone they know but who does not attend their school and 37% reported it is someone from their school. Among those adolescents who indicated on at least one occasion that the online bully was someone from their school, slightly more students reported that it was someone they considered a friend (57%) rather than someone they know but do not consider a friend (43%). No students indicated that the person from school who bullied them was someone they hardly knew, suggesting that when adolescents are targeted by someone from school, they usually at least know the person. Slightly more than one-third (37%) of adolescents who were cyberbullied did not know who the bully was.

In sum, results addressing the first research aim revealed that one-fifth of students reported at least one incident of cyberbullying across the five-day span. The frequency of cyberbullying was similar for adolescents across gender, grade, ethnicity and generational status. Among the teens who reported at least one incident of cyberbullying, the most common
attribution made as to why they were targeted was because of their “looks”. Only about one-third of adolescents did not know who the online bully was – it is most frequently someone who the teen knows and who goes to their school.

**Research Aim 2: Daily Associations of Cyberbullying with Emotions and Adjustment**

HLM was used to test the extent to which both mean- (between-subjects) and daily-levels (within-subjects) of cyberbullying experiences predict adolescents’ daily emotions, physical symptoms, and school adjustment. Additional analyses were conducted to test for individual differences in the daily-level associations based on grade, gender, and generational status. Also, whether associations with cyberbullying experiences lasted for only one day or persisted on the following day was tested. That is, lagged analyses tested the lasting impact of a cyberbullying incident on any given day.

**HLM analyses plan.** In the most basic HLM models testing the associations between cyberbullying experiences and the outcome variables, a mean-level cyberbullying predictor was entered at the intercept of Level 2 to indicate whether students who on average report more cyberbullying experiences, are also, on average, more likely to report negative feelings and adjustment. The daily-level predictor of cyberbullying experiences was entered at Level 1 to specifically test whether youth experience more negative emotions, physical symptoms and school adjustment problems on any given day that they experienced a cyberbullying incident. The Level 1 cyberbullying predictor was group mean centered to remove the between-persons variation given that the mean-level cyberbullying predictor (grand mean centered) is included in the models (West, Ryu, Kowk, & Cham, 2011). That is, rather than including a daily raw score of cyberbullying, the group-mean centered variable entered at Level 1 represents the daily deviation from an adolescent’s average cyberbullying experiences (Raudenbush & Bryk, 2002).
The centered, daily predictor captures the within-subject fluctuations across the five-day span. Thus, both chronic and episodic cyberbullying incidents were captured by partitioning the overall effect of cyberbullying into the distinct between-persons and within-persons effect via the centering and inclusion of predictors at both levels (West et al., 2011).

A total of nine models were estimated in which each indicator of daily emotions, physical symptoms and school adjustment was predicted from adolescent’s bullying experiences. For example, the Level 1 equation estimated to predict daily anger from cyberbullying was:

$$\text{Anger}_{ij} = b_{0j} + b_{1j} \text{ (daily cyberbullying experiences)} + e_{ij}$$  \hspace{1cm} (1)

In this model, anger on a particular day (i) for a particular adolescent (j) is modeled as a function of the adolescents’ intercept, or the average feelings of anger across days ($b_{0j}$) and daily fluctuations in cyberbullying experiences (i.e., group mean centered cyberbullying; $b_{1j}$). The error term ($e_{ij}$) accounts for variance in anger that is unexplained by the predictor (i.e., standard deviation estimates presented in Tables 4 and 5). In addition, the basic Equation 1 model predicting daily anger included multiple individual-level equations for Level 2:

$$b_{0j} \text{ (average daily anger)} = c_{00} + c_{01} \text{ (average cyberbullying)} + u_{0j}$$  \hspace{1cm} (2)

$$b_{1j} \text{ (daily association of cyberbullying with anger)} = c_{10} + u_{1j}$$  \hspace{1cm} (3)

In Equation 2, average cyberbullying ($c_{01}$) represents the relationship between mean levels of cyberbullying experiences and anger. That is, a significant $c_{01}$ coefficient would indicate that adolescent’s who, on average, experience higher levels of cyberbullying also report greater feelings of anger. No additional predictors are entered in Equation 3, which models the daily association of cyberbullying with anger. The coefficients $u_{0j}$ and $u_{1j}$ account for the remaining variance in the intercept and slope that is left unexplained.

**Associations with daily emotions and physical symptoms.** The results from the models
predicting daily emotions and physical symptoms are displayed in Table 4. Overall, there was a
daily association between cyberbullying and feelings of distress, anger, shame and also physical
symptoms. Thus, on any given day that an adolescent deviated from their average levels of daily
cyberbullying experiences (i.e., reported a higher level of cyberbullying) they reported greater
feelings of distress, anger, and shame as well as more physical symptoms such as headaches and
stomach pain. Additionally, a significant association with the mean-level of cyberbullying
emerged for these outcomes. In predicting adolescent’s feelings of happiness only chronic
cyberbullying experiences, but not episodic experiences, were related to a sense of happiness.
That is, adolescents’ who, on average, report higher levels of cyberbullying experiences, also
report feeling less happy. Estimates of the degree of individual variability in the daily-level
associations with cyberbullying are also presented in Table 4. There was significant individual
variability in the association of daily cyberbullying experiences with distress, anger, shame and
physical symptoms, but not happiness. These findings indicate that the daily association between
cyberbullying with distress, anger, shame and physical symptoms has remaining variance that
may be explained by individual-level factors (e.g., gender).

Controlling for both mean- (between-subjects) and daily-levels (within-subjects) school
bullying incidents, an additional set of models were run to examine whether these incidents
might account for, or change, the daily cyberbullying findings. Results revealed no changes in
the daily cyberbullying associations. That is, daily associations with distress, anger, shame and
physical symptoms remained significant even when accounting for adolescents’ experiences with
bullying at school. Thus, the above documented findings demonstrating that daily cyberbullying
is independently related to psychosocial adjustment, both at the within-subject level of daily
incidents as well as between-subject level, suggest these associations are very robust, indeed.
**Associations with daily school adjustment.** The results from the four models predicting the school adjustment outcomes, including the school climate (i.e., school belonging, school safety) and negative school behavior indicators (i.e., academic problems, attendance problems) are shown in Table 5. The results revealed a few significant findings. A daily association emerged with feelings of school safety. Specifically, adolescents who on any given day deviated from their average level of cyberbullying and experienced more cyberbullying incidents also reported feeling less safe at school. No other significant associations with school safety were found. In predicting school belonging, adolescents who, on average, reported higher levels of cyberbullying, also reported feeling a lower sense of school belonging. However, there was no association with daily-level cyberbullying experiences.

In predicting the negative school behaviors, a daily-level association with cyberbullying emerged only in predicting attendance problems. Adolescents reported being late for class and/or skipping class on days that they experienced a cyberbullying incident. A mean-level association also suggests that adolescents who reported more cyberbullying experiences also reported more attendance problems across the five-day span. For academic problems there was only an association with mean-level cyberbullying. Thus, students who on average reported more cyberbullying incidents were more likely to do poorly on a quiz, test or homework assignment. The estimates of the degree of individual variability showed that only the two school climate indicators (i.e., belonging, safety) had significant variability in the daily-level associations with cyberbullying.

As was done with the previous models, additional models with daily- and mean-level school bullying incidents tested whether these incidents might account for, or alter, the daily cyberbullying findings with school adjustment outcomes. There were no changes in the daily
cyberbullying associations such that even after accounting for school bullying, daily cyberbullying experiences were related to lower school safety and greater attendance problems.

**Moderation effects of gender, grade and generational status?** HLM models were tested to examine whether the associations of cyberbullying with the outcomes that had significant individual variability (i.e., distress, anger, shame, physical symptoms, school belonging, school safety) could be explained by adolescents’ demographic characteristics, including gender, grade or generational status differences\(^1\). When the full models were tested, there was a lack of significant findings based on grade. Therefore, the most parsimonious models were retained and grade was removed from the final models. For example, the basic Equation 1 model predicting daily anger included the following individual-level equations:

\[
\begin{align*}
\text{b}_{0j} (\text{average daily anger}) &= c_{00} + c_{01} (\text{average cyberbullying}) + c_{02} (\text{gender}) + c_{03} (\text{second generation}) + c_{04} (\text{third generation}) + u_{0j} \\
\text{b}_{1j} (\text{daily association of cyberbullying with anger}) &= c_{10} + c_{11} (\text{gender}) + c_{12} (\text{second generation}) + c_{13} (\text{third generation}) + u_{1j}
\end{align*}
\]  

\(4\)

\(5\)

The gender variable (male = -1, female = 1), was effect coded and generational status was dummy coded (first generation = 0, second generation = 1, third generation = 1) with the first generation adolescents as the comparison group. Equation 4 tests whether there are gender or generational status differences in the intercept, or the average daily anger. This model also continues to account for the mean-levels of cyberbullying. Equation 5 tests whether the daily association of cyberbullying experiences with anger is predicted by the adolescents’ gender or generational status (i.e., moderation effects). The coefficients \(u_{0j}\) and \(u_{1j}\) account for the remaining variance in the intercept and slope that is not explained by the other variables.

\[^1\] Tests of differences based on ethnicity were not conducted because of the small sample size among certain ethnic groups that would limit the power to detect such findings.
In the models predicting distress, a significant association with gender \( (b = .14, SE = .04, p = .001) \) and the mean-level cyberbullying predictor \( (b = 1.52, SE = .58, p = .01) \) emerged at the intercept. Additionally, a significant difference between boys and girls emerged in the daily association of cyberbullying with distress \( (b = .49, SE = .24, p = .04) \). Follow-up simple slope analyses were run to probe the interaction. As shown in Figure 2, the results from HLM simple slope computational tools (Preacher, Curran, & Bauer, 2006), revealed that a daily cyberbullying incident was associated with greater feeling of distress for girls \( (b = 2.09, SE = .13, p < .001) \), but not as strongly among boys \( (b = 1.12, SE = .06, p = .06) \). That is, among girls a cyberbullying experience on any given day was associated with higher distress on the same day.

The results indicated that for anger, there was a significant association with gender \( (b = .17, SE = .05, p = .001) \) and third generation status \( (b = -.38, SE = .15, p = .01) \) at the intercept, such that girls compared to boys, and first generation students compared to third generation students, report higher levels of anger. The association with cyberbullying experiences also remained significant at the intercept \( (b = 2.05, SE = .75, p = .007) \). No significant findings emerged at the slope (Equation 5). In the models with shame as the outcome, no significant effects emerged. The physical symptoms model revealed only a significant effect of gender at the intercept such that girls \( (b = .15, SE = .05, p = .03) \) reported more physical symptoms than boys.

In the model predicting school belonging there was only an effect at the intercept for average cyberbullying \( (b = -2.96, SE = 1.30, p = .02) \) and gender \( (b = .16, SE = .08, p = .04) \), such that girls reported higher levels of school belonging than boys. In the final model, no significant results emerged for school safety.

**Do cyberbullying associations last for one day or persist across subsequent days?**

Additional models tested whether daily associations persisted on the day following the
cyberbullying incident. That is, thus far the results have shown that on days that adolescents experienced cyberbullying, they also reported more negative feelings (e.g., anger, distress), more physical symptoms and school adjustment problems including less school safety and more attendance problems. Do these associations with cyberbullying only last for one day or do they persist into the following day? To test this “spillover” question, Equation 1 was slightly modified to examine if there were lagged associations such that cyberbullying on one day, continued to be linked with the outcome (e.g., anger) on the next day. To address the lagged-effect hypothesis, the daily level equation predicting anger based on cyberbullying is as follows:

\[ \text{Anger}_{ij} = b_{0j} + b_{1j}(\text{cyberbullying experience}_{t-1}) + e_{ij} \]  \hspace{1cm} (6)

Anger is modeled as a function of each individual’s intercept \( b_{0j} \) and the cyberbullying incident experienced on the previous day \( b_{1j} \). As in the previous models, the main daily predictor, cyberbullying, is group centered. The Level 2 equations with mean-level cyberbullying were identical to those from Equations 2 and 3.

Results indicated that the daily-level association of cyberbullying only with anger persisted on the following day \( (b = 1.08, \ SE = .50, \ p = .03) \). Thus, on any given day that an adolescent experienced cyberbullying they reported greater feelings of anger, not only on the same day of the incident, but also on the following day. The associations of cyberbullying with the other outcomes were not found on the following day \( (p’s > .05) \), suggesting that these were only same-day associations.

In sum, on days that adolescents reported a cyberbullying incident they also reported higher levels of anger, distress, shame and physical symptoms, compared to days that they were not cyberbullied. Moderation analyses showed that cyberbullying incidents were more distressing for girls. Moreover, the daily association with anger was found to persist across the
following day, suggesting a spillover effect. Daily associations were also found between cyberbullying and perceived school safety and attendance problems at school such as skipping class. Thus, daily associations were found across indicators of well-being, physical health, as well as school adjustment.

**Research Aim 3: Mediating Mechanisms Underlying School Adjustment**

The third aim was to better understand the less studied link between cyberbullying and school adjustment problems. A series of mediation models in which daily emotions served as the mediator in the associations between cyberbullying with school safety and attendance were tested. All of the variables in the mediation model were assessed at the daily level, or Level 1, of the hierarchical linear models and thus, the mediation models being tested are lower level mediations. In lower level mediations, the relationships among the predictor, mediator and/or outcome can be random (i.e., vary across individuals). In order to examine the direct, indirect and total effects in our HLM models among the variables measured at the daily level and with the effects allowed to vary randomly, the procedures set forth by Bauer, Preacher and Gil (2006) were followed. This approach is also ideal for testing mediation models that include repeated measures. In these mediation procedures, the data are rearranged to obtain the random effects of daily cyberbullying within a single model on each reported emotion (path a), the daily association of emotions to the school adjustment indicator (path b) and cyberbullying experiences on the school adjustment outcome (path c’; see Figure 3).

The first series of mediation models tested whether distress, anger, or shame mediated the daily association between cyberbullying experiences and school safety. No support was found for these models (all $p’s > .05$) indicating the daily emotions do not account for the link between cyberbullying and sense of safety at school. In the second series of mediation models testing
whether feelings mediated the daily association between cyberbullying and school attendance problems there was support for the mediation model with distress serving as the mediator. That is, the Bauer et al. (2006) method for testing the significance of indirect effects showed that distress mediated the association between cyberbullying and attendance problems at the daily level \( z = 1.94, p = .05 \). Overall, there was partial mediation such that 17% of the total, daily association between cyberbullying and attendance problems was mediated by distress.

An additional mediation model was tested to examine whether student’s sense of school safety may serve as a mediator between cyberbullying and attendance. That is, do students who get targeted online feel less safe at school and is this in turn associated with their school attendance problems? Indeed, results revealed that school safety significantly mediated the association such that students who experience cyberbullying on any given day feel less safe in school and this, in turn, helps explain why they show up late to class or skip class altogether \( z = 9.08, p < .001; 14\% \) of total effect mediated). In sum, the mediation results revealed that feeling distressed and unsafe at school accounts for the daily association between cyberbullying incidents and attendance problems.

**Research Aim 4: Testing the Buffering Role of Friendship Factors**

The final set of analyses tested whether friendship factors (i.e., time spent with friends, perceived friendship quality) buffers adolescents from the negative impact of cyberbullying experiences. The daily level Equation 1 was expanded to test for potential moderation effects. For example, the equation estimated to predict daily anger and test for moderation was:

\[
\text{Anger}_{ij} = b_{0j} + b_{1j} \text{ (daily cyberbullying experiences)} + b_{2j} \text{ (daily friendship factor)} \\
+ b_{3j} \text{ (cyberbullying x friend interaction)} + e_{ij} 
\]

The daily cyberbullying experiences variable was group-centered, as was done previously. The
daily friendship factor was not centered. In addition, the following corresponding individual-level equations were modeled:

\[ b_{0j} \text{(average daily anger)} = c_{00} + c_{01} \text{(average cyberbullying)} + u_{0j} \]  
\[ b_{1j} \text{(daily association of cyberbullying with anger)} = c_{10} \]  
\[ b_{2j} \text{(daily association of friendship with anger)} = c_{20} \]  
\[ b_{3j} \text{(daily association of cyberbullying with interaction term)} = c_{30} \]  

As done in the previous models, average cyberbullying is modeled at the intercept \( b_{0j} \) to account for adolescent’s chronic experiences with cyberbullying. The slopes for the main predictors (cyberbullying, \( b_{1j} \); friendship factors, \( b_{2j} \); cyberbullying x friend interaction, \( b_{3j} \)) were treated as fixed. Initial models that allowed all effects to vary randomly were run and resulted in a general lack of significant variability in these variables and the models also had limited power, thus, the most parsimonious models with the fixed effects were retained.

**Time spent with friends.** In the first set of moderation models with *time spent with friends*, a significant interaction with cyberbullying emerged in the models predicting anger, distress, and attendance problems (see Table 6). In the model predicting anger, in addition to the significant interaction (\( b = -3.37, SE = 1.03, p = .002 \)), the daily- and mean-level cyberbullying experiences variables were also significant. The significant interaction was probed with the Preacher and colleagues (2006) HLM simple slope computational tools and is depicted in the upper panel of Figure 4. On any given day that adolescents did not spend time with friends, there was a significant association between cyberbullying and anger (\( b = 3.81, SE = 1.01, p < .001 \)), such that those adolescents who were bullied reported higher feelings of anger. However, for adolescents who did spend time with their friends during the day, there was no association (\( b = .45, SE = .32, p = .17 \)). The pattern of findings can also be described as indicating that when
adolescents are cyberbullied, a lack of contact with friends increases their levels of anger (compared to days when they spend time with friends). A similar, buffering role of time spent with friends was found for distress and attendance problems. For distress, there was a positive association with cyberbullying for both adolescents who did not spend time with their friends ($b = 3.47, SE = .33, p < .001$) and those who did spend time with friends ($b = .76, SE = .27, p = .005$), but as shown in Figure 4, the association was weaker for students who reported spending time with friends during the day. In predicting attendance problems, there was a positive association with cyberbullying for adolescents who did not spend time with friends ($b = .42, SE = .12, p < .001$), such that these teens were more likely to report attendance problems if they were cyberbullied during the day. For adolescents who spent time with their friends during the day there was no association between cyberbullying and attendance problems ($b = .08, SE = .07, p = .26$; last panel of Figure 4).

**Perceived friendship quality.** Similar analyses were conducted to examine whether the **perceived quality** of friendships might also buffer the associations between cyberbullying and negative outcomes. Only one significant interaction with cyberbullying emerged, in the model predicting distress ($b = -1.77, SE = .84, p = .04$). The simple slope analyses revealed a similar pattern of results as described in the previous moderation models. For adolescents with lower levels of perceived friendship quality there was a positive daily association between cyberbullying and distress ($b = 2.64, SE = .68, p < .001$) and although there was also an association for adolescents with higher levels of perceived friendship quality ($b = .87, SE = .34, p = .01$) this link was weaker.

Thus, the moderation models indicate that merely spending time with friends alleviates the anger, distress and attendance problems, associated with cyberbullying. However, the
affective component of friendships, perceived friendship quality, only protects adolescents from feelings of distress on days that they are cyberbullied.

Discussion

Adolescents are increasingly relying on online communication devices to keep in touch with their peers. As these online devices continue to also be used to cause harm via name-calling, threats and privacy violations, it is important for researchers, school personnel and parents to better understand how cyberbullying incidents on any given day are associated with teens’ feelings and behaviors at school. Three central voids in the current cyberbullying literature were specifically addressed in the current study. First, existing research on adolescents’ online experiences has predominately focused on White students, thus, relatively little is known about the online experiences of ethnic minority youth. Specifically, even though Latino youth are using online communication tools at increasing rates (Brenner, 2012; Livingston, Parker, & Fox, 2009; Rideout, Foehr, & Roberts, 2010), they are underrepresented in the literature. Secondly, cyberbullying studies are largely descriptive and limited in the types of methodology used with the majority of studies relying on traditional, one-time surveys. To date, no studies have examined the daily occurrence and associations of specific cyberbullying experiences with daily indicators of adjustment. Lastly, there has been a limited investigation of the factors that may serve as mediators to account for the association between cyberbullying and adjustment problems and those that may serve as moderators and protect adolescents from the potential negative links with cyberbullying. To work towards addressing these voids, this study provides new insights into the ways in which daily cyberbullying is linked to emotions, physical symptoms and school adjustment.
In discussing the findings, I want to first highlight the most novel or significant results. The current research contributes probably most to our understanding of the links between cyberbullying incidents and school adjustment. Much attention in the traditional bullying literature has focused on understanding how school bullying compromises academic performance and impacts perceptions towards school (Espinoza, Gonzales, & Fuligni, in press; Graham, Bellmore, & Mize, 2006; Juvonen, Nishina, & Graham, 2000; Juvonen, Wang & Espinoza, 2011; Schwartz, Gorman, Nakamoto, & Toblin). However, given that cyberbullying incidents may often be occurring off of school grounds, less attention has been paid to potential school correlates. The current analyses revealed that even after accounting for high school students’ experiences with school bullying, cyberbullying experiences were linked to daily feelings of school safety and attendance problems. Moreover, the mediation analyses highlighted that the links with attendance could be explained via psychological constructs, such that distress served as a mediator in the daily association between cyberbullying experiences and attendance problems. These findings underscore the need for schools to address not only bullying that takes place on the school grounds, but also online, and hence the findings have policy implications. I will return to the discussion of the implications in the end of the discussion section.

**Cyberbullying Incidents Among Latino Youth**

Findings regarding the prevalence of cyberbullying revealed that one-fifth of predominately Latino high school students reported at least one incident of cyberbullying. Although this rate may seem low, it is based on experiences that occurred during a short five-day span, across one week of school. Overall, cyberbullying was found to occur on 2% of days which similarly may appear infrequent, but it suggests that any given high school student on average experiences about seven incidents of cyberbullying during a year. Moreover, the simple
estimates may be deceiving. For example, if a teen receives a threatening message on their Facebook account it is treated as a single incident. However, that single comment may be seen by a large group of people who may comment about it and overall, the negative impact of that comment may be experienced every time that the student signs into their Facebook account and sees the comment or every time that a peer mentions it. Thus, among researchers many concerns remain regarding the extent to which the repetitiveness criterion used in the school bullying literature may apply to cyberbullying (Olweus, 2012), which is an important point to address to better understand how a child or teen experiences a single or multiple incidents of cyberbullying.

The rates of cyberbullying experiences were consistent across adolescent’s gender, grade and generational status. Previous studies that have examined differences based on grade (or age) and gender show inconsistent findings. With regards to gender differences, some studies report that girls are more likely to experience cyberbullying (e.g., Kowalski & Limber, 2007; Schneider et al., 2012; Sourander et al., 2010). However, similarly to the results of the current study, most previous studies indicate that no gender differences exist in victimization rates of cyberbullying (Bauman et al., in press; Hinduja & Patchin, 2008; Juvonen & Gross, 2008; Li, 2007; Slonje & Smith, 2008; Williams & Guerra, 2007).

Findings regarding grade-level differences are also inconclusive although a slight majority of studies seem to indicate no grade or age differences (Juvonen & Gross, 2008; Patchin & Hinduja, 2006; Smith et al., 2008; Ybarra, 2004). One explanation put forth for the lack of grade differences is that most studies examine a large age range (e.g., ages 12 to 17) and perhaps a curvilinear association exists that is not being captured (Tokunga, 2010). For example, based on studies with early adolescents online victimization seems to increases across ages 10 to 15 (Kowalski & Limber, 2007; Ybarra et al., 2006) and then perhaps decline or remain stable across
the later years. The results from this suggest that no grade-level differences in cyberbullying estimates exist, at least across the four years of high school.

Whether prevalence rates of cyberbullying differ based on generational status has not been examined in previous research due to the fact that few studies have been conducted among ethnic minority youth. Based on the results of this study, among a sample of predominately Latino youth the rates are similar whether the teen is a first generation immigrant or is third generation or later. A previous school bullying study among Mexican-American youth found that third generation Mexican-American adolescents were more likely to report victimization incidents compared to first generation adolescents (Espinoza, Gonzales, & Fuligni, in press). One explanation for this finding posited that first-generation Latino high school students may have smaller, tightly knit peer groups, which help teens stay protected from negative interactions with the dominant culture peer group (Matute-Bianchi, 1986; Wall et al., 1993). However, perhaps in the cyber context, existing peer networks are less pertinent of who may or may not get targeted. It is therefore important for cyberbullying research to continue to examine if differences in cyberbullying rates exist among samples of largely immigrant groups to examine if generational status differences exist to more conclusively identify the populations that might be most vulnerable to online bullying.

Who is the online bully? The results revealed that although there is some variability in the extent to which the victim knows the identity of the online bully, it most often tends to be someone who the victim knows, either from their school or from another school. In slightly over two-thirds of cyberbullying incidents, the victim reported that they knew who targeted them. In those instances in which the bully was someone from their school (37%), it was most common for the bully to be someone whom the victim considers a friend. A handful of school bullying
studies (e.g., Crick & Nelson, 2002; Mishna, Wiener, & Pepler, 2008; Wei & Jonson-Reid, 2011) and at least one cyberbullying study (Mishna et al., 2010) have examined the extent to which bullying occurs among friends. Some findings suggest that being victimized by friends may be especially challenging for youth (e.g., Crick & Nelson, 2002). One question that arises is, if it is “friend” who is doing the name calling and making the threats, is it still considered bullying? Although the bully may consider the name-calling and threats harmless, most often the victim still perceives the behaviors as hostile (Kruger, Gordon & Kuba, 2006). Indeed, in the current study the cyberbullying items included an affective component (e.g., “someone called you names that insulted you”, someone shared private pictures of you that embarrassed you”) indicating that even though it may have been a friend who did the bullying, the incident was nonetheless hurtful. More research is needed to understand whether incidents are more distressing or shameful if perpetrated by a friend compared to a known peer who the victim does not consider a friend or compared to being targeted by an unknown peer. In the current study, only in about one-third of cyberbullying incidents did the victim not know the identity of the perpetrator. Thus, overall the descriptive findings underscore that although the role of anonymity was once considered a key component of cyberbullying that distinguished it from school bullying, with the rise of public online contexts such as social networking sites, perhaps anonymity is no longer a pertinent cyberbullying feature.

“I was targeted because…” The research question, “Why do adolescents think they are targeted online?” was also addressed in the current study. Among adolescents who experienced a cyberbullying incident, the most common reason they thought the incident occurred was because of their looks (such as weight, height or acne). This finding parallels results from the only previous study to ask students why think they were targeted online. Mishna and colleagues
(2010) found that the most common reason why Canadian middle and high school students believed they were bullied online was because of their appearance, followed by race. Interestingly, although the majority of the sample in the current study was Latino, attributions to ethnicity related factors such as languages spoken and country of origin were uncommon. However, attributing the incident to their skin color was the second most common attribution. Given that research indicates that it is largely “being different in any way” that explains why teens are bullied (Horowitz et al., 2004), taking into account the context is important. That is, because our sample of Latino teens was drawn from a predominately Latino high school, speaking another language (i.e., Spanish) and having parents from Mexico or El Salvador is normative and thus, not be a common reason why a teen is bullied. Perhaps in a school with predominately White students, a Latino student may be more likely to be targeted because of the languages they speak or their skin color. More research that includes multiple schools with varying ethnic composition of students would allow for the testing of this hypothesis.

Additional research is also needed to examine the extent to which making specific attributions, such as those related to race and/or ethnicity may strengthen or weaken the impact of cyberbullying. For example, if an ethnic minority youth attribute a cyberbullying incident to their race or ethnicity, then there may be different implications compared to an ethnic minority adolescent who does not make this attribution. The self-blame associated with school bullying has been linked to aversive outcomes such as high levels of anxiety and depressive feelings (Graham and Juvonen, 1998). In particular, characterological self-blame (i.e., victim perceiving that that they are bullied because of something about them that cannot be changed) is associated with heightened distress (Janoff-Bulman, 1979). Thus, if a teen believes that the reason they were targeted online was related to their race or ethnicity (e.g., skin color), it may be especially
detrimental to Latino youth. Given the low prevalence of cyberbullying incidents in the current study it was not possible to test whether certain attributions exacerbated negative emotions after an incident. However, these descriptive findings are helpful in understanding the most common attributions and future research that relies on a larger sample of ethnic minority youth that tests these hypotheses is an area ripe for inquiry.

**Emotional and Physical Well-Being**

The main results of the study revealed that a cyberbullying incident on any given day is associated with adolescents’ elevated feelings of distress, anger and shame. Although the set of outcomes that have been studied most extensively in relation to cyberbullying are adolescent’s negative emotions such as distress or depressive symptoms (Juvonen & Gross, 2008; Wang, Nansel, & Iannotti, 2011; Ybarra, 2004), this is the first study to show that even a single incident of cyberbullying is related to increased negative emotions. Moreover, a strength of the current study is that results were found even after accounting for average levels of cyberbullying and also adolescent’s reports of school bullying across the five-day span. Following the suggestion of Olweus (2012) to report cyberbullying effects that take into account the potential influence of school bullying experiences, the results indicate that day-to-day incidents with cyberbullying are independently related to well-being.

The emotions of anger and shame, until now, have not been empirically examined in relation to experiences of cyberbullying. Shame has only been examined in the cyberbullying literature as a predictor of engagement in cyberbullying behaviors. That is, targeting others in both the school and cyber contexts is associated with lower levels of shame (e.g., Menesini & Camodeca, 2008). However, this study shows that experiencing cyberbullying as the victim leads to feeling ashamed and embarrassed. Moreover, some cyberbullying studies have tested the
extent to which cyber victimization leads to cyber aggression (Wright & Li, in press) draw upon the general strain theory (Agnew, 1992). According to this theory, victimization is a source of strain in adolescents’ lives which makes the victim feel angry and frustrated which in turn leads them to seek revenge online. It is interesting that even though cyberbullying experiences have been considered a source of strain that leads to feelings of anger (Patchin & Hinduja, 2011), no studies have empirically tested this link. Rather, Patchin and Hinudja (2011) tested the extent to which a measure of strain (e.g., bad grades, breaking up with significant other) was associated with anger and whether that in turn was associated with engaging in cyberbullying behaviors. Thus, this is the first study to indicate that cyberbullying experiences are related to feelings of anger, at a daily level.

Interestingly, the set of models that tested the lasting impact of cyberbullying, that is, whether an incident of cyberbullying on one day continues to be associated with negative emotions on the following day revealed that there was only a next-day association for anger. Given that few bullying studies have utilized daily methodology that permits tests of next-day associations, there are no past studies that may offer an explanation of why it is anger that lingers following a cyberbullying incident. Anger has been described as a guardian to one’s self-esteem in that it allows an individual to reduce causes of distress (Novaco, 2000) and remove a frustrating circumstance (Champion & Clay, 2007). Thus, it may be the case that following a cyberbullying incident, a teen feels a host of negative emotions (as shown in the current study) and it is anger that lingers, possibly serving to displace the feelings of distress and shame.

Results also revealed a daily link between cyberbullying experiences and physical symptoms. This finding extends recent cyberbullying findings showing that adolescents who on average report more cyberbullying experiences are also more likely to report more physical
symptoms (Beckman, Hagquist, & Hellström, 2012; Fredstrom, Adams, & Gilman, 2011; Låftman, Modin, & Östberg, 2013). Not only are chronic experiences with cyberbullying related to symptoms such as headaches and stomach pains, but a single incident on any given day is related to adolescent’s symptoms on that same day. In sum, the findings from the current study indicate that victims of cyberbullying are likely to experience psychological harm and also physical symptoms from a single incident of cyberbullying and thus, highlight the importance of addressing cyberbullying experiences as an important social health concern that adolescents are facing.

The results from the models testing the extent to which the daily associations with emotions and physical symptoms with significant variability could be explained by gender, grade-level and generational status revealed only a difference by gender. Specifically, the daily association between cyberbullying experiences and distress was stronger among girls, compared to boys. This finding is in line with previous research findings regarding school bullying (e.g., Galen & Underwood, 1997) and also a couple of cyberbullying studies (Bauman et al., in press; Låftman, Modin, & Östberg, 2013) showing that girls are more impacted by bullying experiences compared to boys. For example, Bauman and colleagues (in press) found that the association between cyberbullying experiences and depressive symptoms was only significant for girls. Thus, the current findings are consistent with past studies and show that they extend to Latina adolescents. Given that most of the students in the study were second-generation and in the early years of high school, there may not have been enough power across generational status and grade levels to detect differences. Additional research studies that include larger Latino samples with greater variability in these factors will allow us to better understand if the impact of cyberbullying experiences are truly the same across generational status and the four years of high
school.

**School Climate Perceptions and Negative School Behaviors**

Seeking to discover the potential links between cyberbullying experiences and school adjustment, the current study examined associations with school climate perceptions (i.e., school belonging, safety) and negative school behaviors (i.e., academic problems, attendance problems). As previously discussed, the findings suggest that although cyberbullying incidents do not take place face-to-face in the school context, they nonetheless influence how victims perceive their school and also how they behave in school. The findings suggest that on days when adolescents are cyberbullied they feel less safe at school and are also more likely to skip class or be late to class(es) on the same day. Why is a teen more likely to feel unsafe at school and to miss school after they receive a threatening email or an insulting message on their Facebook profile? It may be the case that the teen has concerns about the bully targeting them at school or that their peers saw the insulting comment and will ridicule them over the incident. Any of these concerns could lead to feeling unsafe at school or avoiding contact with peers by skipping school classes.

Although there was no daily association with school belonging and academic problems, the findings with the mean-level indicator of cyberbullying incidents indicate that students who on average report more cyberbullying are also more likely to feel a lower sense of belonging and are also more likely, on average, to do poorly on a quiz or homework assignment. These results are in line with some of the negative school associations found with school bullying incidents (e.g., Buhs et al., 2006; Espinoza, Gonzales, & Fuligni, in press) and further emphasize the importance of examining how cyberbullying impacts students at school. Whereas past cyberbullying studies that have shown no link with school outcomes such as grades (Li, 2007; Ybarra et al., 2007), associations between online bullying and more proximal and malleable
indicators of school adjustment such as school climate perceptions and behaviors (e.g., Ybarra et al., 2007) highlight that these online experiences do spillover to the school context in multiple ways. Thus, whether there is a connection between cyberbullying experiences and school outcomes may vary depending on what types of school-related factors one studies.

**Explaining links with school adjustment.** Given that few studies have tested and found significant associations between cyberbullying experiences and school outcomes, the factors that explain or account for the associations are unknown. Identifying mediating mechanisms is critical because perhaps school safety and attendance problems can be reduced by targeting the intermediate, more proximal, construct that accounts for the association. Based on previous school bullying research findings (e.g., Juvonen, Nishina & Graham, 2000; Totura, Karver, & Gesten, in press) it was expected that negative emotions, such as distress, that result from victimization might in turn, lead to school problems. Partial support for this hypothesis was found. Specifically, the results revealed that on any given day that adolescents reported being cyberbullied they were more likely to feel distressed and this in turn was predictive of arriving late to class or skipping class(es) altogether. That is, distress served as a mediator in the association daily association between cyberbullying experiences and attendance problems. Past research suggests that when students experience incidents that result in feelings of psychological distress, such as victimization by peers, it is often difficult for them to be engaged during classes and focused on school activities (Roeser et al., 2002) which may explain why on days that teens experience cyberbullying they disengage from school and have attendance problems. Interestingly, feelings of anger or shame did not mediate associations between cyberbullying and attendance problem, suggesting that it not simply negative feelings that explain this association but rather, specifically, feeling worried, distracted and sad that leads students to miss class.
In addition, sense of school safety mediated the association between cyberbullying and attendance problems. On days that adolescents experienced cyberbullying, they felt less safe at school and this in turn, was predictive of attendance problems. Although it is logical to presume that when students feel unsafe in their high school, resulting from a victimization experience, they will be more likely to leave school, this is the first study to show that school safety accounts for the association between bullying and attendance problems. Given that Latino adolescents are at increased risk of doing poorly in school and are over-represented in dropout rates (e.g., Kohler & Lazarin, 2007) it is critical that they attend classes and remain engaged in schooling. Based on the results of this study, increasing feelings of safety at school may be one method for combating the negative effects of online victimization experiences. Although the mediation analyses revealed that none of the mediators explained the association between cyberbullying and academic problems, the findings shed light on how and why cyberbullying experiences might be related to attendance problems.

**The Protective Role of Spending Time With Friends**

A central contribution of the study is identifying that friendship factors, particularly time spent with friends, protect adolescents from some of the negative outcomes of being cyberbullied. To date, a limitation of the cyberbullying research is that studies have mostly focused on the factors that may place children and teens at increased risk of being targeted online, such as the amount of hours spent daily on the computer (Hinduja & Patchin, 2008; Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012) and disclosure of personal information (Mesch, 2009), with few studies exploring the protective factors that may alleviate the pain resulting from online victimization. Consistent with the hypotheses that spending time with friends would act as a buffer against the negative outcomes linked to cyberbullying the results
revealed that this friendship factor buffered the daily negative associations between cyberbullying with distress, anger, and attendance problems. Given that the role of peers and friendships is often ignored in research with Latino adolescents, only a few studies among Latinos have examined the protective role of friendships in relation to school bullying and those findings have been mixed (Nakamoto & Schwartz, 2011). Moreover, thus far, cyberbullying studies have only tested the extent to which having friends or feeling supported by friends and peers may be related to a lower likelihood of being cyberbullied (Fanti, Demtriou, & Hawa, 2012; Williams & Guerra, 2007). The current results extend the cyberbullying and friendship literature by demonstrating the buffering role of friendships at the daily level.

Interestingly, spending time with friends was more protective for cyberbullied teens than perceived friendship quality. There was only a significant moderating role of perceived friendship quality on the daily association between cyberbullying and distress. That is, on days that adolescents felt like they got along well with their friends and felt close to them, they reported less distress if they were cyberbullied compared to students who reported lower friendship quality. Although friendship quality plays an important role in protecting teens from feelings of distress, simply spending time with friends serves to not only protect them from feeling distress but also alleviates feelings of anger and prevents them from missing class. Thus, regardless of whether teens feel close to their friends or feel that their friends really understand them, simply being around them and spending time with them may be sufficient to restore negative emotions and to motivate students to attend class. Indeed, companionship is one of the many benefits that may be gained from the additional hours adolescents spend with friends (Buhrmester, 1996). Results from an experimental study revealed that after being socially excluded in an online game (i.e., Cyberball), adolescents who communicated online with a peer
facilitated greater replenishment of their self-esteem and reduced negative affect, compared to adolescents who engaged in solitary computer play after being excluded (Gross, 2009). Furthermore, it has been speculated that youth who spend more time with friends may feel a strong sense of acceptance and belonging within their group of friends and thus are simply less concerned by negative interactions with other peers (Masten, Telzer, Fuligni, Lieberman, & Eisenberger, 2012). It is important to highlight that the moderating effect of time spent with friends was found at the daily level, suggesting that spending time with friends has an immediate, same-day impact, whereas it may be the case that qualitative aspects of friendships such as feeling understood by friends may be more influential at chronic rather than episodic levels.

Future research that examines the protective role of friendships in relation to cyberbullying experiences should consider behavioral attributes of the victim’s friends. For example, low levels of aggression among friends (e.g., Schwartz, Gorman, Dodge, Petit, & Bates, 2008), has been found to be important in the ameliorative role of friendships for school victimization. This is particularly important given the findings that some teens report being cyberbullied by their friends. Thus, better understanding the extent to which friends in the victim’s peer network engage in cyberbullying behaviors may be important to consider when examining the extent to which friends buffer or exacerbate the effects of being cyberbullied.

**Limitations, Strengths, and Future Directions**

The findings of the current study should be considered in light of some limitations. Although the use of daily methodology is a strength of the study, when asking adolescents to complete a checklist every day for an extended period of time it is important to ensure that it is brief, in order to reduce the reporting demands placed on them. There were some constructs that
were measured with only a single item, such as academic problems and school safety. However, this is not uncommon in daily studies (e.g., Almeida et al. 2001; Chung et al. 2009; Fuligni & Masten, 2010). Given the need to keep the daily checklist brief, some additional information regarding daily cyberbullying incidents was not assessed that would have been useful in better understanding day-to-day incidents. For example, future research that utilizes a daily assessment would benefit from asking students when (e.g., before school, during school, middle of the night) the cyber bullying incident took place. The findings from this study showing that on days that teens were cyberbullied they felt less safe and were more likely to report attendance problems suggest that the cyber bullying is most likely happening before or during school. This information would allow us to better understand the timing and temporal sequence of cyber bullying incidents and their impact on adolescents well-being and adjustment.

Another limitation that has been briefly noted is that due to the small sample size and limited variability in key demographics such as generational status, there may have been limited power to detect within group differences among the Latinos in this sample. For example, the low frequency of daily cyberbullying incidents coupled with the small sample size did not permit differences between Mexican-American and Central American students to be tested. Many researchers (e.g., Han, 2008; Umaña-Taylor & Bámaca-Gómez, 2003) have stressed the importance of exploring within group differences in order to understand the heterogeneity that exists within ethnic minority groups. The current study makes an important advancement towards this goal by focusing on Latino youth and exploring gender, grade and generational status differences but more work is needed in this area.

Despite these limitations and important areas for future research, the current study also has several strengths. One particular strength of the study that has not been discussed is the
measurement of cyberbullying experiences. There is still much debate in the cyberbullying research regarding the best method for measuring cyberbullying. For example, some researchers provide participants with a definition of cyberbullying and then ask them to indicate how often in the past month or year they have experienced cyberbullying (e.g., Låftman, Modin, & Östberg, 2013; Li, 2010; Wang, Iannotti, Luk & Nansel, 2010). However, researchers who have used this method have pointed to some of its limitations, including the fact that although a definition is provided, there may be differences and difficulties in how terms such as “bullying” are interpreted, particularly among older students (Bauman et al., in press). Moreover, there is still little consensus regarding the criterion for cyberbullying and whether the staple criteria for school bullying, including an intent to harm, repetition and power imbalance are appropriate in order to label an action cyberbullying (e.g., Nocentini, Calmaestra, Schultze-Krumbholz, Scheithauer, Ortega, & Menesini, 2010). Among the studies that do ask about experiencing behaviors that capture cyberbullying incidents some are further limited by asking about only one or two types of behaviors. For example, Fanti and colleagues (2012) only asked about receiving a threatening or harassing message. In the current study, by asking adolescents to indicate how often they experienced a variety of incidents such as being called insulting names or being threatened, the frequency of specific items was assessed and the results indicated that name-calling and sharing private information that is embarrassing were the most common forms of cyberbullying. Similarly, for the other constructs assessed in this study, there were multiple indices used, for example, distress, anger, shame and happiness assessed emotional well-being. This is particularly important to be able to demonstrate that cyberbullying experiences are related to a “larger set of external variables” (Olweus, 2012).

How Can Cyberbullying Incidents be Prevented?
As expected, many researchers and school personnel alike are interested in the recommendations that can be made regarding intervention programs based on the existing cyberbullying research. Across school bullying intervention programs, school-wide approaches show a modest effect in increasing student’s awareness of traditional bullying and in reducing these incidents (e.g., Merrell, Gueldner, Ross, & Isava, 2008; Olweus, 1993). Rather than targeting one group of students (i.e., the bullies or victims), a school-wide program involves students, teachers, school staff, administrators and parents and include multiple elements such as creating effective strategies for reporting school bullying, integrating the topic of bullying into classroom curriculum and increasing monitoring of hallways and bathrooms.

Should interventions for cyberbullying follow a similar approach? Would the same interventions that work for school bullying also work for cyberbullying? Due to the fact that cyberbullying research is still in a nascent phase, there is not a wealth of information to inform the development and implementation of programs that may effectively target cyberbullying incidents. However, given the overlap between school bullying and cyberbullying in regards to the types of behaviors and the group of students who are perpetrators and victimized (e.g., Raskauskas & Stoltz, 2007; Sumter et al., 2012), some researchers have suggested that strategies to address traditional, school bullying may also be beneficial in reducing cyberbullying incidents (Cross & Walker, 2012; Pearce, Cross, Monks, Waters, & Falconer, 2011) and there is some empirical evidence to suggest this as well (Salmivalli, Kärnä, & Poskiparta, 2011). The KiVa program in Finland treats bullying as a group phenomenon and includes multiple components such as student lessons that include discussions and video films done in dyads and small groups as well as a parents’ guide and school posters. A recent evaluation revealed that although the KiVa program did not directly address cyberbullying, the program was successful in reducing
cybervictimization (Salmivalli et al., 2011). As researchers continue to study the extent to which cyberbullying occurs within the context of social groups and relationships (Mishna, Siani, & Solomon, 2009), more evidence may suggest that school-wide approaches may indeed be effective in reducing cyberbullying.

It is also important, however, to consider that unique features of cyberbullying such as the greater audience that witnesses any single incident, the constant access to technology and the possibility of remaining anonymous online, may require more targeted interventions. For example, based on the results of their study, Ang and Goh (2010) suggested that empathy training and education should be included in cyberbullying intervention programs. Although such trainings have shown success in reducing traditionally aggressive behaviors (e.g., Björkqvist, Österman, & Kaukiainen, 2000), training adolescents to take the victims perspective may not be as effective for cyberbullying given that the perpetrator may not see the victim’s reaction to their insulting comment due to the reduction in social-contextual cues online.

An additional avenue for cyberbullying intervention is via the use of technology itself. For example, in a collaboration between the social networking site Facebook, and Yale, Columbia and Berkley universities a set of online tools were developed for young teens (13 – 14 years old). Specifically, if a young teen feels that they are being cyberbullied, they are able to click on a "This post is a problem" button that directs them to a questionnaire which determines how they perceived the incident (for example, there is a grid in which they rank their emotions). Based on the information provided by the teen, Facebook provides suggestions for how they may be able to deal with the incident. Suggestions range from getting help from a friend or sending a pre-written message to the bully for minor incidents to contacting a professional if the teen has suicidal thoughts. The extent to which this particular tool is an effective method for reducing
cyberbullying or alleviating the pain victims experience from cyberbullying has not been formally evaluated. However, currently, across several countries, programs aimed at reducing cyberbullying (e.g., Cyber Friendly Schools in western Australia) are currently being implemented and in the following decade as the results of intervention evaluations are published, there will be a greater understanding of how to respond to this relatively new form of cyberbullying.

**Conclusion**

The current study contributes to the growing field of cyberbullying in several, important ways. By utilizing daily methodology, which has not been utilized in the field, a unique set of questions are addressed. The results highlight that although cyberbullying may not be a frequent occurrence during a one-week span it is nonetheless, an impactful experience in that a single incident is associated with feelings of distress, anger, and shame, physical symptoms and also is related to feelings of safety at school and attendance problems. A majority of cyberbullying studies focus on the experiences of White youth, thus, the focus of the current study on Latino adolescents highlights that cyberbullying is an important stressor in the daily lives of Latino youth. As the representation of Latino youth continues to grow in U.S. schools and as their mental health and scholastic outcomes continue to fare worse than other ethnic groups, it is important to better understand the extent to which peer interactions and online negative experiences, in particular are factors that may be related to their emotional well-being and school adjustment. Identifying the mediating role of distress and sense of school safety in explaining the link between cyberbullying experiences and school attendance problems and the protective role of spending time with friends will also further advance the cyberbullying area from a focus on descriptives and simple associations to providing a more complete depiction of the dynamics.
within day-to-day cyberbullying among high school students. The emerging evidence in the field of cyberbullying research illustrating the impact of cyberbullying and the processes by which it unfolds and hurts youth it critical for the development of interventions and for parents and school personnel who encounter youth struggling with these experiences.
Table 1  

*Descriptive Statistics for Mean Level Variables*

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyberbullying</td>
<td>.02</td>
<td>.06</td>
<td>0 – 1</td>
</tr>
<tr>
<td>School Bullying</td>
<td>.03</td>
<td>.08</td>
<td>0 – 1</td>
</tr>
<tr>
<td>Daily Emotions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distress</td>
<td>1.54</td>
<td>.47</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Anger</td>
<td>1.57</td>
<td>.61</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Shame</td>
<td>1.14</td>
<td>.23</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Happiness</td>
<td>3.16</td>
<td>.84</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>1.49</td>
<td>.56</td>
<td>1 – 5</td>
</tr>
<tr>
<td>School Adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belonging</td>
<td>3.50</td>
<td>.95</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Safety</td>
<td>4.21</td>
<td>.96</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Academic Problems</td>
<td>.14</td>
<td>.22</td>
<td>0 – 1</td>
</tr>
<tr>
<td>Attendance Problems</td>
<td>.20</td>
<td>.23</td>
<td>0 – 1</td>
</tr>
<tr>
<td>Friendship Factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time with Friends</td>
<td>.88</td>
<td>.23</td>
<td>0 – 1</td>
</tr>
<tr>
<td>Friendship Quality</td>
<td>.83</td>
<td>.24</td>
<td>0 – 1</td>
</tr>
</tbody>
</table>
### Table 2

**Correlations Among Mean-Level Variables of Interest**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cyberbullying</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. School Bullying</td>
<td>.40**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Distress</td>
<td>.18*</td>
<td>.28**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Anger</td>
<td>.18*</td>
<td>.33*</td>
<td>.66**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Shame</td>
<td>.27*</td>
<td>.20*</td>
<td>.59**</td>
<td>.35**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Happiness</td>
<td>-.21*</td>
<td>-.19*</td>
<td>-.13</td>
<td>-.24**</td>
<td>-.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Physical Symptoms</td>
<td>.28*</td>
<td>.39*</td>
<td>.49**</td>
<td>.43**</td>
<td>.12</td>
<td>-.19*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. School Belonging</td>
<td>-.15</td>
<td>-.34**</td>
<td>-.22*</td>
<td>-.23**</td>
<td>-.18*</td>
<td>.54**</td>
<td>.26**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. School Safety</td>
<td>-.01</td>
<td>-.02</td>
<td>.11</td>
<td>.10</td>
<td>-.11</td>
<td>.01</td>
<td>.17</td>
<td>-.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Academic Problems</td>
<td>.14</td>
<td>.29**</td>
<td>.42**</td>
<td>.33**</td>
<td>.16</td>
<td>-.03</td>
<td>.34**</td>
<td>-.18*</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Attendance Problems</td>
<td>.27**</td>
<td>.18*</td>
<td>.22**</td>
<td>.16</td>
<td>.02</td>
<td>-.08</td>
<td>.40**</td>
<td>-.20*</td>
<td>.22**</td>
<td>.44**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Time with Friends</td>
<td>-.09</td>
<td>-.13</td>
<td>.05</td>
<td>.04</td>
<td>-.10</td>
<td>.31**</td>
<td>.07</td>
<td>.21*</td>
<td>.14</td>
<td>.04</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Friendship Quality</td>
<td>-.05</td>
<td>-.10</td>
<td>-.13</td>
<td>-.06</td>
<td>-.15</td>
<td>.47**</td>
<td>-.06</td>
<td>.41**</td>
<td>.10</td>
<td>.01</td>
<td>-.08</td>
<td>.48**</td>
<td></td>
</tr>
</tbody>
</table>

*Note. *p < .05; **p < .01.*
Table 3  

*Descriptive Statistics and Correlations for Individual Cyberbullying Items*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Call Names</td>
<td>.044</td>
<td>.133</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Threaten</td>
<td>.007</td>
<td>.057</td>
<td>.275</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Spread rumors</td>
<td>.013</td>
<td>.065</td>
<td>.261</td>
<td>.595</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Share Private Pictures</td>
<td>.008</td>
<td>.048</td>
<td>.273</td>
<td>.855</td>
<td>.715</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. Share Private Information</td>
<td>.021</td>
<td>.077</td>
<td>.452</td>
<td>.720</td>
<td>.676</td>
<td>.850</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. All correlations were significant at least at the p < .01 level.*
### Table 4

**Hierarchical Linear Models Predicting Daily Feelings and Physical Symptoms**

<table>
<thead>
<tr>
<th></th>
<th>Distress</th>
<th>Anger</th>
<th>Shame</th>
<th>Happiness</th>
<th>Physical Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>b</td>
<td>SE</td>
<td>b</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.54***</td>
<td>.04</td>
<td>1.58***</td>
<td>.05</td>
<td>1.14***</td>
</tr>
<tr>
<td>L1 Daily Cyberbullying</td>
<td>1.41***</td>
<td>.03</td>
<td>1.19**</td>
<td>.44</td>
<td>.57**</td>
</tr>
<tr>
<td>L2 Mean Cyberbullying</td>
<td>1.62*</td>
<td>.78</td>
<td>2.21**</td>
<td>.81</td>
<td>1.06*</td>
</tr>
<tr>
<td>Standard deviation estimate</td>
<td>.59**</td>
<td>.77</td>
<td>.99*</td>
<td>1.00</td>
<td>.24**</td>
</tr>
</tbody>
</table>

*Note.* Results are shown for five separate HLM models. The coefficients reported are unstandardized estimates. The “standard deviation estimate” is the degree of individual variability in the estimates of the daily associations between cyberbullying and each outcome. * p < .05; ** p < .01; *** p < .001
### Table 5

*Hierarchical Linear Models Predicting School Adjustment*

<table>
<thead>
<tr>
<th></th>
<th>School Belonging</th>
<th>School Safety</th>
<th>Academic Problems</th>
<th>Attendance Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>b</td>
<td>SE</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.49***</td>
<td>.08</td>
<td>1.79***</td>
<td>.08</td>
</tr>
<tr>
<td>L1 Daily Cyberbullying</td>
<td>.60</td>
<td>.55</td>
<td>-1.68*</td>
<td>.83</td>
</tr>
<tr>
<td>L2 Mean Cyberbullying</td>
<td>-2.64*</td>
<td>1.06</td>
<td>.28</td>
<td>1.10</td>
</tr>
<tr>
<td>Standard deviation estimate</td>
<td>3.01**</td>
<td>1.74</td>
<td>8.27***</td>
<td>2.88</td>
</tr>
</tbody>
</table>

*Note.* Results are shown for four separate HLM models. The coefficients reported are unstandardized estimates. The “standard deviation estimate” is the degree of individual variability in the estimates of the daily associations between cyberbullying and each outcome. * $p < .05$; ** $p < .01$; *** $p < .001$
Table 6

*Models with Significant Cyberbullying by Time Spent with Friends Interaction*

<table>
<thead>
<tr>
<th></th>
<th>Anger</th>
<th>Distress</th>
<th>Attendance Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>b</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.69***</td>
<td>.11</td>
<td>1.52***</td>
</tr>
<tr>
<td>L1 Daily Cyberbullying</td>
<td>3.81***</td>
<td>1.00</td>
<td>3.47***</td>
</tr>
<tr>
<td>L1 Time with Friends</td>
<td>-.06</td>
<td>.12</td>
<td>.08</td>
</tr>
<tr>
<td>L1 Cyberbullying ×</td>
<td>-3.37**</td>
<td>1.03</td>
<td>-2.71***</td>
</tr>
<tr>
<td>Friend Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L2 Mean Cyberbullying</td>
<td>5.21***</td>
<td>1.19</td>
<td>4.26***</td>
</tr>
<tr>
<td>Standard deviation estimate</td>
<td>.24***</td>
<td>.48</td>
<td>.40***</td>
</tr>
</tbody>
</table>
Figure 1. Reasons why students think they were cyberbullied

- Languages spoken: 4%
- Country of origin: 8%
- Family is poor: 8%
- Gender: 17%
- Skin color: 21%
- Other looks: 54%
Figure 2. Association between daily distress and cyberbullying experiences moderated by gender
Figure 3. Lower level mediation models

![Diagram showing the relationship between Emotions, Cyberbullying Experiences, and School Adjustment.]

- Emotions has an influence on Cyberbullying Experiences and School Adjustment.
- Cyberbullying Experiences has an influence on School Adjustment.
- Emotions has a direct influence on School Adjustment.
Figure 4. Cyberbullying by Time Spent with Friends Interactions for Anger (a), Distress (b) and Attendance Problems (c)
Appendix

Daily Checklist Measures

Cyberbullying Experiences (yes/no)

Someone called you names that insulted you

Someone shared private pictures of you that embarrassed you

Someone threatened you, physically or otherwise

Someone shared private information, without your permission, that embarrassed you

Someone spread rumors about you online or via text message

School Bullying Experiences (yes/no)

Someone from school hit, kicked or shoved you

Someone from school insulted or made fun of you

Someone from school spread rumors about you or excluded you

Distress (scale from not at all to extremely)

Worried

Distracted

Nervous

Discouraged

Hopeless

Sad

Anger (scale from not at all to extremely)

Angry

Mad
Shame (scale from not at all to extremely)

*Embarrassed*

*Ashamed*

*Humiliated*

*Mortified*

Happiness (scale from not at all to extremely)

*Happy*

*Excited*

Physical Symptoms (scale from not at all to extremely)

*Dizzy or light-headed*

*Stomach aches or pain*

*Headache*

*Trouble sleeping (last night)*

*Had poor appetite*

School Belonging (scale from not at all to extremely)

*I felt like I belong in school*

*I felt like I am a part of my school*

*I felt close to people at school*

School safety (scale from not at all to extremely)

*I worried about my safety*
Academic Problems (yes/no)

I did poorly on a test, quiz or homework

Attendance Problems (yes/no)

Late for a class

Skipped or cut a class

Time Spent with Friends (yes/no)

Spent time with your friend(s)

Friendship Quality (yes/no)

Got along with your friend(s)

Felt really close to your friend(s)

Your friend(s) were there when you needed them

Felt like your friend(s) really understood you
References


Arseneault, L., Bowes, L., & Shakoor, S. (2010). Bullying victimization in youths and mental health problems” ‘Much ado about nothing”? *Psychological Medicine, 40*, 717 – 729. doi: 0.1017/S0033291709991383


Major, B., Quinton, W., & McCoy, S. K. (2002). Antecedents and consequences of attributions to discrimination: Theoretical and empirical advances. In M. Zanna (Ed.), *Advances in*


Nishina, A., Juvonen, J., & Witkow, M. R. (2005). Sticks and stones may break my bones, but names will make me feel sick: The psychosocial, somatic, and scholastic consequences


