PARENT-ADOLESCENT ATTACHMENT, BULLYING AND VICTIMIZATION, AND MENTAL HEALTH OUTCOMES

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Traditional and cyber bullying have been identified as universal problematic issues facing adolescents, and research is needed to understand correlates associated with these phenomena. Structural equation modeling analyses examined associations between attachment to parents, traditional and cyber bullying or victimization, and mental health outcomes among 257 high school students (Average age 15.9 years). Key patterns emerged, including associations between maternal attachment and mental health outcomes; victimization and mental health concerns; and bullying and victimization in both traditional and cyber contexts. The role of attachment to mothers and fathers varied by context. Findings extend the literature by identifying risk factors in adolescence associated with bullying and victimization, as well as suggesting appropriate prevention and intervention strategies to increase adolescent well-being.
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Parent-Adolescent Attachment, Bullying and Victimization, and Mental Health Outcomes

Given the rise in media attention, prevention efforts, and concern regarding youth safety following tragic suicides linked with the devastating impact of victimization, it is clear that bullying and victimization are widespread issues that warrant the focus of current research (Department for Children, Schools and Families, 2009). All forms of bullying are damaging and involve a host of negative correlates and outcomes for both victims and bullies (Nansel et al., 2001). The goal of the current study is to better understand bullying and victimization in both traditional and cyber settings by examining their associations to attachment relationships and psychological outcomes in adolescence. Turner, Exum, Brame, and Holt (2013) reported that almost 54% of adolescents surveyed had experienced some form of bullying (physical, verbal, or cyber) within the past year. Guided by attachment theory (Bowlby, 1982), we propose a theoretical model linking attachment to parents, experiences of bullying and victimization (in traditional and cyber forms), and mental health outcomes. Results of this investigation identify risk and resilience factors associated with bullying and victimization and inform efforts to develop appropriate prevention and intervention.

Attachment

Originally conceptualized as the bond between an infant and a primary caregiver (Bowlby, 1982), evidence supports the premise that early attachment experiences form a template for subsequent relationships across the lifespan (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Internal working models (IWMs; Bowlby, 1982) are mental representations constructed in the context of attachment relationships that influence children’s expectations about their needs, safety, security, and love. When attachment figures are viewed as a secure base and a safe haven (Ainsworth & Bell, 1970; Bowlby, 1982), children develop secure
attachment. Securely attached children view themselves as competent and worthy of love, and see important others as interested in and capable of meeting their needs (Cassidy, 2001). Longitudinal data has demonstrated that early secure attachment leads to an appropriate balance of independence and effective help-seeking, as well as adaptive behavior and social competence in childhood (Sroufe, 2005). Insecure IWMs develop when the needs of the child are either met inconsistently or are dismissed or rejected by caregivers. Insecure attachment in infancy predicts low frustration tolerance, a lack of help-seeking behaviors, and isolation, as well as aggression and impulsivity in later childhood. Attachment theory posits that attachment organization is relatively stable across the lifespan and affects ongoing development, mental health, and the capacity for intimacy within close, mutual relationships (Cassidy, 2001).

In adolescence, individuals begin to establish greater independence from family and face the developmental task of identity formation (Erikson, 1968). Adolescents remain attached to important parental figures despite a shift toward increasing investment in peer relationships (Steinberg & Silk, 2002). Given developmental gains in cognitive, social, and emotional realms, adolescent attachment organization becomes less about maintaining proximity to attachment figures and more about IWMs and emotional regulation (Allen, McElhaney, Kuperminc, & Jodl, 2004).

Longitudinal research has demonstrated the key role attachment plays in the development of social competence, emotion regulation, and risk for later psychopathology (Sroufe, 2005). For example, securely attached adolescents tend to experience fewer mental health problems (Liu, 2006; Scott, Briskman, Woolgar, Humayun, & O’Connor, 2011) and endorse better overall adjustment (Scott et al., 2011). In contrast, insecure attachment is linked with poor adjustment
and increased internalizing and externalizing problems in adolescence (Pace & Zappulla, 2011), such as aggression (Gallarin & Alonso-Arbiol, 2012).

IWMs influence expectations of self and others in close relationships and guide interpretation and behavior in social interactions (Allen, Moore, Kuperminc, & Bell, 1998; Boling, Barry, Kotchick, & Lowry, 2011). Links between attachment and psychosocial functioning have been well documented. Securely attached adolescents are more likely to be accepted by their peers and tend to report higher levels of perceived support, as well as fewer negative expectations of their peers (Allen et al., 1998; Liu, 2006). In addition, secure adolescents are less likely to engage in problematic behaviors or social withdrawal (Allen et al., 1998) and are rated by their peers as less aggressive, less withdrawn, and less victimized than their insecurely attached counterparts (Dykas, Ziv, & Cassidy, 2008). The negative expectations of peers stemming from negative IWMs may serve to either inhibit the social behavior of insecure adolescents, rendering them more withdrawn and vulnerable to victimization, or make them more prone to hostile behavior in peer interactions.

Bullying and Victimization

Traditional bullying refers to behavior, typically of a persistent and repetitive nature, that “intentionally inflicts...injury or discomfort upon another” (Olweus, 1993, p. 9). Bullying can be direct, overt physically or verbally aggressive behavior, or conversely indirect, covert and manipulative behavior, often relational in nature (Whitney & Smith, 1993). A new form of bullying receiving increasing research attention is cyber bullying, defined as “any behavior performed through electronic or digital media...that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others” (Tokunaga, 2010, p.278). Cyber bullying can include overt aggression such as harassment, as well as relational aggression
such as denigration, impersonation, outing, and exclusion. Throughout this manuscript, “bullying” refers to engaging in bullying behavior, and “victimization” refers to being a target of bullying behavior. In addition, “traditional” refers to the in-person verbal, social, and physical context of bullying behavior, and “cyber” refers to bullying that occurs in the electronic and online context.

Cyber bullying is a unique and separate construct, distinct from traditional, in-person bullying due to the unique characteristics of the cyber realm (Bonanno & Hymel, 2013; Dempsey, Sulkowski, Nichols, & Storch, 2009). With bullying and victimization no longer confined to the school day and the audience expanded via electronic mediums (Kowalski & Limber, 2007), cyber bullying is a universal issue affecting youth. Due to limited supervision of online behavior (Patchin & Hinduja, 2006), increased access to advanced technology (Lenhart, Madden, & Hitlin, 2005), and peak of prevalence of cyber bullying in high school (Turner et al., 2013), many adolescents are involved in cyber bullying without the awareness of adults.

Victims of bullying typically have a history of internalizing symptoms, social skills deficits, negative attitudes about themselves, and significant peer rejection and isolation (Cook et al., 2010; Guerra, Williams, & Sadek, 2011; Spriggs, Iannotti, Nansel, & Haynie, 2007). Other factors that seem to predispose individuals to being victimized by their peers include anxiety, feelings of inadequacy, and high levels of social stress (D’Esposito, Blake, & Riccio, 2011). Victimization is associated with numerous negative outcomes, including lower levels of physical and psychological well-being (Smokowski & Kopasz, 2005), parent-adolescent relationship difficulties (Haynie et al., 2001), and increased internalizing problems such as depression, suicidal ideation, anxiety, and low self-esteem (Bonnano & Hymel, 2013; Guerra et al., 2011; Turner et al., 2013).
Bullies are not exempt from the harmful and detrimental impact of their aggressive behaviors. Although bullies are typically characterized by behavioral problems, negative attitudes toward others, problematic conflict resolution, and a tendency to be negatively influenced by peers (Cook et al., 2010), research also demonstrates that engaging in traditional bullying behavior, primarily verbal and social forms, is associated with increased internalizing problems such as depressive symptoms (Bonnano & Hymel, 2013). Bonnano and Hymel also found that cyber bullying behavior was linked to increased depressive symptoms and suicidal ideation. Bullies often report problems in their relationships with parents (Haynie et al., 2001) and peers (Spriggs et al., 2007). Studies also suggest associations between bullying and low levels of self-control, as well as higher levels of delinquent behavior and substance use (Nansel et al., 2001). Engagement in bullying behavior has been linked with long-term negative consequences, including increased risk for continued problematic behaviors such as poor academic achievement, fighting (Nansel et al., 2001), and criminal behavior (Aluede, Adeleke, Omoike, & Afen-Akpada, 2008).

The Current Study

Empirical testing of theoretical models regarding the development and outcomes of bullying and victimization is an important task for investigation. Evidence suggests that insecurity in parent-child attachment relationships can predispose children to engage in bullying behaviors and/or become victims (Eliot & Cornell, 2009; Troy & Sroufe, 1985; Walden & Beran, 2010). For example, insecure attachment is linked to lower social competence, problematic peer relationships (Schneider, Atkinson, & Tardiff, 2001), and negative expectations of social interactions (Renken, Egeland, Marvinney, Sroufe, & Mangelsdorf, 1989). More specifically, links between insecure attachment and involvement in both bullying and victimization have been
found in samples of in preschool, elementary, and middle school children (Eliot & Cornell, 2009; Troy & Sroufe, 1987; Walden & Beran, 2010).

Correlations between attachment and involvement in traditional bullying or victimization have been established with elementary and middle school students (Walden & Beran, 2010). Despite trends indicating that cyber bullying increases with age and grade level (Kowalski & Limber, 2007), no studies to date have investigated associations between adolescent attachment in relation to cyber bullying. The current study extends the research literature on adolescent development by investigating associations between attachment, various forms of bullying/victimization, and internalizing mental health outcomes. Furthermore, the research on cyber bullying and victimization is limited by scope and lack of sound measures, so we have incorporated improved measurement of these constructs with a high school sample.

The central aim of the current study is to test a theoretical model linking parent-adolescent attachment, involvement in bullying/victimization (both traditional and cyber forms), and internalizing psychological health. Securely attached adolescents should be less involved in bullying and victimization of all forms and demonstrate more positive internalizing mental health outcomes than insecurely attached adolescents. The following hypotheses were proposed: (1) Higher levels of secure parental attachment (as measured by levels of trust, communication, and alienation within relationships to parents) are positively associated with psychological well-being (high self-esteem, low levels of depressive and anxious symptoms), (2) Involvement in traditional and cyber bullying and victimization is positively associated with poor psychological functioning (low self-esteem, high levels of depressive and anxious symptoms), and (3) Higher levels of secure parental attachment are negatively related to involvement in both traditional and cyber bullying and victimization. Two structural models were tested, one addressing the
processes involved in traditional bullying and victimization, and one addressing processes
involved in cyber bullying and victimization (See Figure 1).

Methods

Sample and Participant Selection

Participants (N = 257) were drawn from a larger project investigating social factors and
adolescent functioning in a suburban community in the southern United States. These high
school students (female = 148, male = 107, unidentified sex = 2) reported an average age of 15.9
years. All grade levels were represented: freshman (38.2%), sophomore (28.6%), junior (22.8%),
and senior (9.7%). Over half of the participants (57.5%) identified as White/European-American
(n = 149), 19.7% as Hispanic/Latino (n = 51), 10% as Biracial/Multi-racial (n = 26), 5.8 % as
African American (n = 15), 3.5% as Asian/Pacific Islander (n = 9), 1.5% as Native American (n
= 4), and 1.2% as other ethnicity (n = 3). The sample was representative of students enrolled in
the education system in the United States, with the exception of a smaller percentage of African
American students and a higher percentage Biracial/Multiracial identified students than the

Measures

Background Information Questionnaire (BIQ). The BIQ was developed for this study.
This questionnaire consists of 16 items regarding basic demographics, including age, sex, and
ethnicity.

Revised Adolescent Peer Relations Instrument – Bully and Target (RAPRI-BT). The
RAPRI-BT (Griezel, Craven, Yeung, & Finger, 2008; Parada, 2000; Parada, Marsh, & Craven,
2005) is a 62-item self-report measure comprised of two 31-item higher order scales assessing
three forms of traditional bully and target behaviors (Physical, Verbal, and Social) and two forms
of cyber bully and target behaviors (Visual and Text). Participants rate how often they engage in or experience specific behaviors on a 6-point Likert scale ranging from 1 (“never”) to 6 (“everyday”). Griezel et al. (2008) found good psychometric properties for the RAPRI-BT, with Chronbach alphas ranging from .80 to .94 for the higher-order factor measures and subscales. In the current study, Cronbach alphas ranged from poor to excellent: .80 (Bully Traditional Physical), .84 (Bully Traditional Verbal), .81 (Bully Traditional Social), .62 (Bully Cyber Visual), .55 (Bully Cyber Text), .83 (Target Traditional Physical), .93 (Target Traditional Verbal), .92 (Target Traditional Social), and .69 (Target Cyber Text).

Social Networking Scale. Developed for this study, the Social Networking Scale consists of 75 items that request information regarding use of and involvement with social networking sites. Only the dichotomous items (yes/no) regarding cyber bullying and cyber victimization were utilized in this study: “Has anyone ever been excessively mean to you online?”, “Have you ever done something mean to someone online?”, and “Have you ever been the victim of online rumors or gossip?”.

Inventory of Parent and Peer Attachment (IPPA). The IPPA (Armsden & Greenberg, 1987) is a 75-item, self-report measure comprised of three 25-item scales designed to assess perceived quality of maternal, paternal, and peer attachment relationships. Each scale includes items evaluating degree of trust, quality of communication, and extent of anger and alienation. Items are answered on a 5-point Likert scale ranging from 1 (“almost never or never true”) to 5 (“almost always or always true”). Scales are calculated by reverse-scoring negative items and summing all responses. Higher scores on the IPPA scales indicate relationship quality indicative of more secure attachment (i.e., high level of trust, positive communication, low level of alienation). The IPPA demonstrates good reliability and validity (Armsden & Greenberg, 1987).
Cronbach’s alpha for parental IPPA subscales utilized in the current study ranged from good to excellent as follows: .92 for Maternal Trust, .91 for Maternal Communication, .83 for Maternal Alienation, .93 for Paternal Trust, .91 for Paternal Communication, .83 for Paternal Alienation.

Behavioral Assessment System for Children, 2nd Edition, Self-Report of Personality (BASC-2-SRP). The BASC-2-SRP (Reynolds & Kamphaus, 2006) is a 176-item scale designed to measure clinical symptoms and adaptive behaviors in children and adolescents. Items are written either in true-false response format or a four-point Likert scale ranging from 1 (“never”) to 4 (“almost always”). The BASC-2-SRP has demonstrated adequate internal consistency, test–retest reliability, and validity with reported Chronbach alphas as follows: .86 for Depression, .86 for Anxiety, and .82 for Self-Esteem (Reynolds & Kamphaus, 1998, 2004). For the current study, the BASC-2-SRP clinical scales of Depression, Anxiety, and Self-Esteem were utilized as indicators of mental health. BASC-2 ASSIST Scoring and Reporting Software was utilized.

Procedure

Researchers first obtained approval from the school district superintendent and board and the university Institutional Review Board (IRB). In collaboration with school officials, researchers recruited participants over one month by distributing a description of the study and parental consent forms to all students in social studies classes because the classes are inclusive and not based on grade level or academic performance. After parental consent forms were signed and returned, participants completed an assent form prior to administration of measures by a doctoral student in Counseling Psychology. All participants were given an opportunity to enter a drawing for an 8GB iPod Touch ($199 value) and two iTunes gift cards ($20 value each) by providing contact information that was separated from the data. Students who elected not to participate or did not have parental consent were given an alternate activity.
Data Preparation

Seventeen participants were excluded from analyses due to incomplete data, leaving 240 participants, adequate for planned analyses (Westland, 2010). Less than .5% of all relevant data was missing, and Little’s MCAR test indicated that missing values were random. Preliminary analyses were conducted with all available data.

Minor violations of normality (i.e., skewness) were noted for scales pertaining to mental health, parental attachment, and peer relationships. RAPRI scale scores were negatively skewed; that is most participants reported not engaging in bullying behaviors nor were they victimized. Removing outliers from the highly skewed variables proved to be untenable due to lack of variability remaining. RAPRI scale scores required inverse transformations for preliminary analyses, but we chose not to utilize transformed variables in primary analyses.

Preliminary analyses were conducted to provide descriptive statistics and examine the bivariate relationships among variables. In this study, structural equation modelling (SEM) testing was accomplished with the R software using the lavaan package (Rosseel, 2012). Initially, confirmatory factor analysis (CFA) was conducted to confirm that the items proposed as the indicators for each latent construct loaded together and had adequate fit. The measurement models were used to assess construct reliability (within latent construct) and discriminant validity (between latent constructs). Despite a few reliability concerns for individual RAPRI-BT scales, latent construct reliability was deemed sufficient for modeling purposes (Fornell & Larcker, 1981; Hair, Black, Babin, Anderson, & Tatham, 2006).

Although path coefficients have been shown to be robust to violations of normality when conducting SEM related analyses, some fit indices are less valid when normality is violated (Kline, 2011). Thus, the adjusted chi-square (chi-square/df) values are reported for all models,
along with fit indices to assess absolute fit via Standardized Root Mean Square Residual (SRMR), parsimony via the root mean square error of approximation (RMSEA), and incremental fit via the non-normed fit index (NNFI) and comparative fit index (CFI). Based on the recommendation of Hu and Bentler (1999), the maximum cutoff values for the SRMR and RMSEA were .08, and the minimum cutoff values for the NNFI and the CFI were .95 to conclude a good fit between the model and the data. A maximum cut off of 3.00 was used to evaluate the adjusted $\chi^2$. Modification indices specifically regarding covariance among constructs and indicators guided model changes until a model with adequate fit was found.

Results

Nonparametric Spearman’s correlations for indicator variables included in the final structural equation models are shown in Table 1. Based on preliminary analyses, sex was controlled for in SEM analyses (See Appendix A).

*Traditional Bullying and Victimization*

Confirmatory factor analyses (CFAs) examined factor loadings and fit within each latent construct, yielding adequate fit. The measurement model adequately fit the data, $\chi^2 (78) = 182.18, p < .001$, adjusted $\chi^2 = 2.34$, RMSEA = .08, NNFI = .93, CFI = .95, SRMR = .06. Composite and discriminant validity among constructs was deemed sufficient using the suggested procedures outlined by Fornell and Larker (1981). Theoretically meaningful covariances between constructs and indicators were added based on modification indices following CFA in order to improve model fit (e.g., between maternal and paternal attachment, between maternal and paternal alienation, between bullying and victimization, and between physical bullying and physical victimization; Kline, 2011).
Results for the full, hypothesized SEM for traditional bullying/victimization yielded sufficient fit with the obtained data, $\chi^2 (92) = 218.19, p < .01$, adjusted $\chi^2 = 2.37$, RMSEA = .08, NNFI = .92, CFI = .94, SRMR = .07 (See Figure 2). Maternal and paternal attachment were significantly related ($\beta = .37, p < .001$), as were traditional bullying and traditional victimization ($\beta = .43, p < .001$). As expected, maternal attachment was associated with fewer mental health concerns ($\beta = -.37, p < .001$), and less involvement in traditional bullying ($\beta = -.16, p = .035$) and victimization ($\beta = -.17, p = .030$). Contrary to hypotheses, paternal attachment was unrelated to mental health concerns ($\beta = -.12, p = .072$), traditional bullying ($\beta = .01, p = .195$), or traditional victimization ($\beta = -.03, p = .674$). Partially confirming hypotheses, traditional victimization was associated with greater mental health concerns ($\beta = .41, p < .001$), but traditional bullying was unrelated to mental health concerns ($\beta = -.09, p = .195$).

**Cyber Bullying and Victimization**

The cyber bullying measurement model yielded sufficient fit with the data, $\chi^2 (79) = 199.03, p < .01$, adjusted $\chi^2 = 2.52$, RMSEA = .08, NNFI = .90, CFI = .93, SRMR = .07. Based on measures of composite reliability and average variance explained, reliability of constructs was considered good. Discriminant analysis was also deemed sufficient for all measures. Theoretically meaningful covariances between constructs and indicators were added based on modification indices in order to improve model fit (e.g., between maternal and paternal attachment, between maternal and paternal alienation, between cyber bullying and cyber victimization).

SEM results indicated adequate fit with the obtained data, $\chi^2 (93) = 232.21, p < .01$, adjusted $\chi^2 = 2.50$, RMSEA = .08, NNFI = .89, CFI = .92, SRMR = .08 (See Figure 3). Like the previous model, maternal and paternal attachment were significantly related ($\beta = .35, p < .001$),
as were cyber bullying and cyber victimization ($\beta = .42, p < .001$). As expected, maternal attachment was associated with fewer mental health concerns ($\beta = -.42, p < .001$). Contrary to expectations, maternal attachment was unrelated to cyber bullying or cyber victimization ($\beta = .10, p = .287; \beta = -.01, p = .889$, respectively), and paternal attachment was unrelated to mental health concerns ($\beta = -.10, p = .141$). However, partially confirming hypotheses, paternal attachment was associated with less involvement in cyber bullying ($\beta = -.23, p = .013$) but was unrelated to cyber victimization ($\beta = -.14, p = .099$). In turn, cyber victimization was associated with greater mental health concerns ($\beta = .40, p < .001$), but cyber bullying was unrelated to mental health concerns ($\beta = .03, p = .744$).

Discussion

The current study explored connections between parent-adolescent attachment, bullying and victimization, and mental health outcomes. Two structural equation models separately examined traditional and cyber bullying contexts to determine if there are different mechanisms and outcomes involved. Several notable themes emerged across traditional and cyber models. Both mother-adolescent attachment and experiences of victimization in either context were related to mental health outcomes in expected directions. Surprisingly, neither father-adolescent attachment nor bullying behavior in either context were significantly related to mental health outcomes. The role of parent-adolescent attachment varied depending on the context in which bullying and victimization occurred. Overall, findings suggest intriguing differences in the role of attachment to mothers versus fathers and highlight the contribution of victimization to adolescent mental health outcomes.

Attachment to Parents and Mental Health Outcomes

Extensive research documents the relationship between attachment and mental health (Armsden & Greenberg, 1987; Liu, 2006; Scott et al., 2011). Current results partially confirmed
the first hypothesis that secure parental attachment is positively related to psychological well-being. Specifically, adolescents who are securely attached to their mothers are likely to develop a positive self-concept, cope successfully with the social challenges faced during adolescence, and exhibit fewer psychological problems. Although consistently associated with mental health indices in preliminary correlations, security of attachment to fathers was not significantly related to overall mental health in either traditional or cyber structural models. These findings suggest that parent-child attachment relationships remain important to psychological well-being during adolescence, but attachment to mother may be more salient to mental health outcomes. In general, mothers tend to play a prominent role in the daily activities associated with child-rearing and have more involvement with children (Dubas & Gerris, 2002), which may foster greater closeness in the mother-adolescent relationship and contribute to a protective role in preventing negative mental health outcomes relative to father-adolescent relationships.

Previous research examining attachment and mental health has often measured attachment to parents without differentiating between maternal and paternal attachment (Lee & Hankin, 2009) or utilized a composite score of parental attachment based on both maternal and paternal attachment (Sund & Wichstrom, 2002) rather than looking at each parent-child relationship separately. Studies that distinguished between attachment to mother and to father like the current study have reported mixed results regarding mental health outcomes. Some findings suggest that attachment security to father plays a more influential role in the development of depressive symptoms during adolescence (Liu, 2008), while others have indicated that attachment security to mothers, but not fathers, is negatively related to adolescent depressive symptomatology (Duchesne, Ratelle, Poitras, & Drouin, 2009). Similar to current findings, Duchesne et al. reported that only mother-adolescent attachment security remained
statistically significant in predicting adolescent depressive symptoms when attachment to both parents was accounted for simultaneously through structural equation modeling. However, the lack of a statistically significant contribution by father-adolescent attachment security within the current study should be interpreted with caution given the substantial covariance between maternal and paternal attachment and the small to moderate direct correlations between father-adolescent attachment and individual indicators of mental health.

*Bullying, Victimization, and Mental Health Outcomes*

A key theme that emerged in the current investigation is the detrimental impact of victimization on adolescent mental health. Results of this study indicate that experiences of both traditional and cyber victimization are related to greater mental health concerns, suggesting that adolescents who have been victimized by others are at risk for psychological problems. This finding is in line with previous research showing that victims of traditional bullying often report high levels of internalizing problems (Cook et al., 2010). Previous literature also highlights the association between cyber victimization and emotional difficulties (Sourander et al., 2010). Given the increased importance and emotional significance of peer relationships during adolescent development (Wilkinson, 2010), it is reasonable to conclude that victimization within these relationships could negatively impact adolescent self- and other- images and lead to symptoms of depression and anxiety, including hopelessness, withdrawal, isolation, worry, and decreased motivation.

Contrary to our hypothesis, engaging in bullying towards others was not significantly related to mental health outcomes in either model. This finding contrasts with previous research linking bullying with both internalizing and externalizing mental health problems (Bonnano & Hymel, 2013; Yen, Yang, Wang, Lin, Liu, Wu et al., 2014). However, these studies examined
bullying in isolation, or in analyses separate from victimization, and therefore did not account for the impact of victimization on mental health. When examined simultaneously as in the current study, it appears that experiences of victimization contribute to poor psychological functioning over and above involvement in bullying behavior. Given that the current study was cross-sectional, it is also possible that the negative impact of victimization is more immediate and engaging in bullying contributes to later negative outcomes in adulthood (Aluede et al., 2008).

Cautious interpretation of these findings is warranted in light of the moderate overlap between bullying and victimization in both traditional and cyber contexts, along with the small to moderate direct correlations between various bullying behaviors and individual indicators of mental health. The consistent positive relationship between bullying and victimization experiences across both traditional and cyber contexts is key to understanding their relationship to mental health outcomes and may partially explain the lack of significant relationship between bullying and mental health. Adolescents who engage in bullying behavior in either context also appear to be at greater risk of experiencing victimization in that same context. Likewise, victims of bullying in either context also appear to be more likely to engage in bullying behavior in that same context. This finding is consistent with previous research demonstrating the reciprocal nature of bullying and victimization (Parada et al., 2005), including the cyber context (Griezel et al., 2008; Jose et al., 2012). Although both bullying and victimization can lead to adverse outcomes, adolescent psychological well-being appears most directly and negatively impacted through the experience of victimization.

The Role of Parental Attachment in Bullying and Victimization

The results of the current study suggest that the protective role of parental attachment in the development of bullying and victimization varies by context. Mother-adolescent attachment
is negatively associated with traditional bullying and victimization, but not cyber bullying and 
victimization. These results replicate earlier research demonstrating significant associations 
between mother-child attachment, bullying behavior and experiences of victimization in 
traditional contexts during childhood and early adolescence (Eliot & Cornell, 2009; Troy & 
Sroufe, 1985; Walden & Beran, 2010). Attachment theory suggests that insecure mother-
adolescent attachment relationships may predispose adolescents to involvement in both bullying 
and victimization through negative internal working models (IWMs) of self and others (Allen et 
al., 2004). Adolescents who experience security in their relationships with mothers are less 
likely to engage in inappropriate or problematic social behavior such as behaving in hostile or 
harmful ways, negatively interpreting social cues or situations and reacting from those 
misperceptions, or exhibiting social deficits that render them vulnerable to traditional forms of 
victimization.

In contrast, although not significant in the model of traditional bullying and victimization, 
higher levels of father-adolescent attachment security were associated with lower levels of cyber 
bullying behavior. When adolescent relationships with their fathers were characterized by trust, 
communication, and low levels of anger or alienation, adolescents were less likely to engage in 
bullying behavior in the cyber context. This is consistent with previous findings regarding links 
between insecure attachment to fathers and aggression in adolescence (Gallarin & Alonso-Arbiol, 
2012), as well as between insecure attachment to parents and bullying behavior (Eliot & Cornell, 
2009).

Inherent differences in traditional versus cyber contexts may account for the differential 
impact of attachment relationships with mothers and fathers on bullying and victimization. The 
context of traditional bullying and victimization is an interpersonal, face-to-face interaction,
which may be more influenced by attachment to mothers versus fathers. The cyber context is quite different from typical in-person relational scripts and represents a novel social situation, characterized by limited social cues, lack of nonverbal communication outside of emoticons, and limited empathic resonance or awareness of the impact of one’s cyber behaviors or verbalizations. Additionally, the perception or experience of anonymity within the cyber context may have important implications for determining one’s behavior and may lend itself to more aggressive behavior or increased volatility than in face-to-face situations (Patchin & Hinduja, 2006). Another important consideration is the relative, and potentially excessive, freedom and independence adolescents may experience in the cyber context, similar to the concept of premature autonomy (Dishion, Nelson, & Bullock, 2004) that has also been associated with risk of increased problematic and deviant behavior.

Given these distinctions, cyber behavior may be less related to the quality of mother-child attachment relationships than traditional bullying and victimization because it does not conform to traditional, face-to-face rules of social engagement and emotion regulation. Instead, behavior in the cyber context may be guided by processes such as risk-taking and exploratory behaviors in a new social situation, which have previously been linked to father-child attachment (Paquette & Bigras, 2010). Thus, while insecure attachment to one’s mother may increase factors that predispose an adolescent to engage in or be victim to traditional, in-person bullying, insecure attachment to one’s father may predispose an adolescent to engage in cyber bullying due to associated behaviors, such as increased risk-taking and impulsivity in this novel social situation.

Another potential explanation of our results regarding the cyber context of bullying and victimization relates to parental monitoring. Father-adolescent relationships characterized by higher levels of connectedness have also been associated with increased parental monitoring of
adolescent behavior (Fosco, Stormshak, Dishion, & Winter, 2012), which may also include monitoring of computer usage and setting rules or limitations that impact engagement in the cyber context. Adolescents securely attached to their involved fathers may spend less time online, and therefore have less opportunity or temptation to engage in cyber bullying.

Limitations and Directions for Future Research

Several limitations of the current study should be noted. First, self-report measures were utilized to gather data and are subject to underreporting symptoms or behaviors due to self-presentation bias. Future research might consider including additional informants, such as parents, teachers, or peers, to obtain a more comprehensive picture of adolescent relationships, behavior, and mental health. Additionally, the cross-sectional design of the current study does not allow for causal conclusions. Longitudinal research is needed to examine how these relationships change over time and how these variables influence each other.

In addition, the current study conceptualized mental health from an internalizing perspective (symptoms of depression, anxiety, and self-esteem), as opposed to an externalizing perspective (symptoms of impulsivity, anger, conduct problems). Previous literature suggests that those who engage in traditional bullying experience both internalizing and externalizing behavioral concerns (Cook et al., 2010; Nansel et al., 2001). Future research might include a broader view of mental health concerns. Finally, additional investigation regarding the overlap between bullying and victimization is warranted.

Clinical Implications

Our findings provide additional impetus for the evaluation of bullying and victimization experiences in adolescence, including regular screening, in order to engage in targeted intervention and treatment planning. Although adolescents are navigating independence during
this developmental transition, results from this study and previous literature (Fosco et al., 2012) suggest the importance of continued parental monitoring of adolescent behavior, particularly in the cyber context. In both traditional and cyber contexts, security of parent-adolescent attachment relationships seemed to serve a protective role regarding involvement in bullying and victimization. Findings from the current study suggest that clinical intervention with adolescents who are involved in bullying and/or victimization should assess and target the quality of parent-adolescent relationships to facilitate improved traditional and cyber interactions and positive psychological outcomes.

Results from the current study confirm that both traditional and cyber bullying warrant concerted intervention efforts from educators and mental health professionals. According to suggestions from Von Marées and Petermann (2012), prevention and intervention approaches should directly address all participants involved: (a) bullies through interventions that target the development of empathy and education regarding extent of harm and risk of later victimization; (b) victims through interventions that enhance social skills and educate on how to respond to, cope with, and avoid being targeted; (c) bystanders through interventions aimed at developing confidence and self-efficacy to defend and support victims; and (d) the general school context by establishing norms of acceptable and reinforced behavior. Other researchers have made practical suggestions regarding enhancing education for students, parents, and educators regarding cyber safety, appropriate cyber behavior, and strategies for responding to cyber bullying (Ockerman, Kramer, & Bruno, 2014).

Overall, findings from the current investigation enhance our knowledge regarding the associations between parental attachment, bullying and victimization, and mental health outcomes. Strengths of this investigation include distinguishing between mother- and father-
adolescent relationships, as well as between traditional and cyber contexts, and the inclusion of bullying and victimization simultaneously within analyses given the degree of covariance between these constructs. Our results confirm the negative impact of victimization by bullying on adolescent mental health and highlight the continued importance and protective nature of parent-adolescent attachment relationships. Additionally, our findings support recommendations for targeted screening and intervention directed at bullying and victimization during adolescence.
References


Table 1

Correlations, Means, Standard Deviations, Ranges, and Cronbach’s Alpha for SEM Indicators

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| (SD) | 8.66 | 8.72 | 5.52 | 10.62 | 9.87 | 6.22 | 10.22 | 11.06 | 10.20 | 3.01 | 4.07 | 3.18 | 2.98 | 5.13 | 4.16 | .67 | 1.35 | 1.89 |
| Range | 11-50 | 9-45 | 6-30 | 10-50 | 9-45 | 6-30 | 36-95 | 29-83 | 16-64 | 5-31 | 6-31 | 5-24 | 5-24 | 6-36 | 6-35 | 4-12 | 8-18 | 7-20 |
| Cronbach’s α | .92 | .91 | .83 | .93 | .91 | .83 | -- | -- | -- | .80 | .84 | .81 | .83 | .93 | .92 | .62 | .55 | .69 |

* p<.05, ** p<.01

Note. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA F-Tr = IPPA Paternal Trust; IPPA F-Co = IPPA Paternal Communication; IPPA F-Al = IPPA Paternal Alienation; BASC = Behavioral Assessment System for Children; BASC D = BASC Depression; BASC A = BASC Anxiety, BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BP = RAPRI Bully Traditional Physical; RAPRI BV = RAPRI Bully Traditional Verbal; RAPRI BS = Bully Traditional Social; RAPRI TP = RAPRI Target Traditional Physical; RAPRI TV = RAPRI Target Traditional Verbal; RAPRI TS = RAPRI Target Traditional Social; RAPRI BCV = RAPRI Bully Cyber Visual; RAPRI BCT = RAPRI Bully Cyber Text; RAPRI TCT = RAPRI Target Cyber Text
Figure 1. Theoretical models for traditional and cyber bullying and victimization. 

Note. Models were identical with the exception of bullying and victimization constructs and indicators. Cyber indicators are noted by dashed lines. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA P-Tr = IPPA Paternal Trust; IPPA P-Co = IPPA Paternal Communication; IPPA P-Al = IPPA Paternal Alienation; BASC = Behavioral Assessment System for Children; BASC D = BASC Depression; BASC A = BASC Anxiety, BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BT = RAPRI Bully Traditional Physical; RAPRI BV = RAPRI Bully Traditional Verbal; RAPRI BS = Bully Traditional Social; RAPRI TT = RAPRI Target Traditional Physical; RAPRI TV = RAPRI Target Traditional Verbal; RAPRI TS = RAPRI Target Traditional Social; RAPRI BC1 = RAPRI Bully Cyber Indicator 1; RAPRI BC2 = RAPRI Bully Cyber Indicator 2; RAPRI TC = RAPRI Target Cyber Indicator; SNS = Social Networking Scale; SNS BC = SNS Bully Cyber Indicator; SNS TC1 = SNS Target Cyber Indicator 1; SNS TC2 = SNS Target Cyber Indicator 2.
Figure 2. SEM for traditional bullying and victimization.

Note. Model Summary: $\chi^2$ (92) = 218.19, $p < .01$, adj. $\chi^2 = 2.37$, RMSEA = .08, NNFI = .92, CFI = .94, SRMR = .07. Standardized paths, * $p < .05$, ** $p < .01$. Solid lines indicate significant paths; dashed lines indicate non-significant paths.
Figure 3. SEM for cyber bullying and victimization.

Note. Model Summary: $\chi^2 (93) = 232.21, p < .01$, adj. $\chi^2 = 2.50$, RMSEA = .08, NNFI = .89, CFI = .92, SRMR = .08. Standardized paths, * $p<.05$, ** $p<.01$. Solid lines indicate significant paths; dashed lines indicate non-significant paths.
APPENDIX A

Additional Results
Additional Results

Preliminary Analyses

Frequency data from the SNS indicated that 24% (n = 54) of participants reported experiencing cyber victimization, 28.4% (n = 64) of participants reported experiencing victimization by cyber rumors or gossip, and 20% (n = 45) of participants reported engaging in cyber bullying behavior. Using SNS results to categorize participants, approximately 5% of the sample self-identified as cyber bullies (n = 12), 18% as cyber victims (n = 44), 14% as cyber bully-victims (n = 33), and 57% as being uninvolved (n = 136). Chi-square results indicated that participants who reported experiencing cyber victimization were significantly more likely to report that they were also cyber bullies (57.8%) compared to those who had not experienced cyber victimization (15.6%), $\chi^2 (1) = 35.19, p < .001$, Cramer’s $V = .40$.

Regarding demographic variables, age and grade level were unrelated to all scales utilized in this study, and ethnicity was unrelated to SNS categorization, RAPRI subscales, and BASC scales. Although a MANOVA indicated a non-significant multivariate effect for IPPA subscales by ethnicity, examination of univariate effects revealed that participants of ethnicities other than White or Hispanic reported lower levels of maternal communication than did White or Hispanic participants, $F (2, 235) = 4.06, p = .010, \eta^2 = .033$.

A series of MANOVAs were conducted to examine differences in RAPRI, BASC, and IPPA subscales by sex. There was a significant multivariate effect of sex on RAPRI subscales, $F (9, 228) = 3.78, p < .001, \eta^2 = .130$. Univariate effects revealed that male participants reported engaging in higher levels of traditional physical bullying than did female participants, $F (1, 236) = 9.34, p = .003, \eta^2 = .038$. Results also indicated that female participants reported higher levels of traditional social victimization, $F (1, 236) = 8.17, p = .005, \eta^2 = .033$, and cyber text.
victimization, \( F (1, 236) = 13.61, p < .001, \eta^2 = .055 \), than did male participants. There were no significant differences on other RAPRI subscales by sex, \( ps > .05 \). Equivalent nonparametric Mann–Whitney \( U \) tests agreed with the parametric analyses. There was a significant multivariate effect of sex on IPPA subscales, \( F (6, 231) = 3.42, p = .003, \eta^2 = .082 \). Univariate effects revealed that female participants reported higher levels of paternal alienation than did male participants, \( F (1, 236) = 4.23, p = .041, \eta^2 = .018 \). There were no significant differences on other IPPA subscales by sex, \( ps > .05 \). Additionally, although there was no significant multivariate effect of sex on BASC subscales, univariate effects revealed that female participants reported higher levels of anxiety than did male participants, \( F (1, 236) = 4.36, p = .038, \eta^2 = .018 \), and male participants reported higher levels of self-esteem than did female participants, \( F (1, 236) = 3.90, p = .050, \eta^2 = .016 \). There was no significant difference on BASC Depression by sex, \( p > .05 \).

Relationship between cyber bullying and cyber victimization.

Crosstabulations with Pearson’s chi-square and Cramer’s \( V \) were conducted to examine the relationship between participant responses regarding cyber bullying and cyber victimization. The relationship between cyber victimization and cyber bullying was significant, \( \chi^2 (1) = 35.19, p < .001, \text{Cramer’s } V = .40 \). Of those who experienced cyber victimization, a greater proportion reported engaging in cyber bullying (57.8%) compared to those who denied engaging in cyber bullying (15.6%).

Characteristics of self-identified victims of cyber bullying.

Mental health. A MANOVA was conducted to examine the differences in BASC scales by cyber victimization. There was a significant multivariate effect of cyber victimization on BASC scales, \( F (3, 221) = 7.41, p < .001, \eta^2 = .091 \). Further examination of univariate effects
revealed significant differences of cyber victimization on the scores of BASC Anxiety, $F (1, 223) = 17.15, p < .001, \eta^2 = .071$; BASC Depression, $F (1, 223) = 15.95, p < .001, \eta^2 = .067$; and BASC Self-Esteem, $F (1, 223) = 14.97, p < .001, \eta^2 = .063$. Participants who experienced cyber victimization had higher scores for BASC Anxiety ($M = 59.19, SD = 11.32$) and BASC Depression ($M = 53.57, SD = 12.87$) compared to participants who did not experience cyber victimization ($M = 52.22, SD = 10.61; M = 47.33, SD = 8.95$; respectively). Moreover, participants who reported experiencing cyber victimization had lower scores for BASC Self-Esteem ($M = 44.24, SD = 12.11$) compared to participants who did not report experiencing cyber victimization ($M = 50.17, SD = 8.98$). Because the data violated some of the assumptions of parametric analyses, equivalent nonparametric Mann–Whitney $U$ tests were conducted, and results agreed with the parametric analyses. Results are presented in Table A.1.

Attachment. A MANOVA was conducted to examine the differences across all six IPPA subscales (Trust, Communication, and Alienation for Maternal and Paternal Attachment) by cyber victimization. There was a significant multivariate effect of cyber victimization on IPPA subscales, $F (6, 218) = 2.90, p = .011, \eta^2 = .072$. Further examination of univariate effects revealed significant differences of cyber victimization on the score for IPPA Paternal Trust, $F (1, 223) = 5.52, p = .020, \eta^2 = .024$. The score for IPPA Paternal Trust was significantly lower for participants who reported cyber victimization ($M = 33.82, SD = 11.10$) than it was for participants who did not report cyber victimization ($M = 37.71, SD = 10.47$), indicating they perceived lower levels of trust within their relationships with their fathers. There were no significant differences in the scores for other IPPA subscales by cyber victimization: IPPA Maternal Trust, $F (1, 223) = 1.02, p = .315, \eta^2 = .005$; IPPA Maternal Communication, $F (1, 223) = .15, p = .699, \eta^2 = .001$; IPPA Maternal Alienation, $F (1, 223) = 2.28, p = .133, \eta^2 = .010$;
IPPA Paternal Communication, $F (1, 223) = .65, p = .422, \eta^2 = .003$; IPPA Paternal Alienation, $F (1, 223) = 2.99, p = .085, \eta^2 = .013$. Results are presented in Table A.1.

Sex. A crosstabulation with Pearson’s chi-square and Cramer’s $V$ was conducted to examine the relationship between cyber victimization and sex. The association between SNS cyber victimization and sex was significant, $\chi^2 (1) = 5.01, p = .025$, Cramer’s $V = .15$, with females more likely to report cyber victimization (29.5%, $N = 39$) than males (16.5%, $N = 15$).

*Characteristics of self-identified cyber bullies.*

Mental health. A MANOVA examining the differences in BASC scales by cyber bullying was non-significant, $F (3, 221) = 2.52, p = .059, \eta^2 = .033$. However, further examination of univariate effects revealed significant differences of cyber bullying on the scores of BASC Anxiety, $F (1, 223) = 4.83, p = .029, \eta^2 = .021$ and BASC Depression, $F (1, 223) = 4.58, p = .034, \eta^2 = .020$. Participants who reported being cyber bullies had higher scores for BASC Anxiety ($M = 57.13, SD = 12.51$) and BASC Depression ($M = 51.76, SD = 12.90$) compared to participants who did not report being cyber bullies ($M = 53.08, SD = 10.69; M = 48.09, SD = 9.51$; respectively). There were no significant differences of BASC Self-Esteem by cyber bullying, $F (1, 223) = .34, p = .559, \eta^2 = .002$. These results should be interpreted with caution because the overall MANOVA was not significant. Results are presented in Table A.2.

Attachment. A MANOVA was conducted to examine the differences across all six IPPA subscales (Trust, Communication, and Alienation for Maternal and Paternal Attachment) by cyber bullying and yielded no significant relationships, $F (6, 218) = .98, p = .440, \eta^2 = .026$. Participants who were cyber bullies and who were not had comparable IPPA subscales. Results are presented in Table A.2.
Sex. A non-significant chi-square indicated that similar proportions of males and females reported or denied engaging in cyber bullying behavior, $\chi^2 (1) = .214$, $p = .644$, Cramer’s $V = .03$.

*Ethnicity differences.*

Involvement in cyber bullying and victimization. Crosstabulations with Pearson’s chi-square and Cramer’s $V$ were conducted to examine the relationships between victim of online rumors or gossip, victim of online bullying, online bullying, and ethnicity. None of these results were significant, suggesting that similar percentages of participants in each ethnicity category reported being victims of online rumors or gossip, victims of online bullying, and online bullies.

*Exploratory analyses regarding cyber status.*

Descriptive statistics regarding cyber status revealed that approximately 5% of participants self-identified as cyber bullies ($n = 12$), 18% as cyber victims ($n = 44$), 14% as cyber bully-victims ($n = 33$), and 57% as being uninvolved ($n = 136$). A series of MANOVAs were conducted to examine the differences across mental health and attachment variables by cyber status (cyber bully, cyber victim, cyber bully-victims, and uninvolved).

Mental health. A MANOVA was conducted to examine the differences in BASC scales by cyber status. There was a significant multivariate effect of cyber status on BASC scales, $F (3, 233) = 3.39$, $p < .001$, $\eta^2 = .055$. Further examination of univariate effects revealed significant differences of cyber status on the scores of BASC Anxiety, $F (4, 235) = 6.43$, $p < .001$, $\eta^2 = .099$; BASC Depression, $F (4, 235) = 7.43$, $p < .001$, $\eta^2 = .112$; and BASC Self-Esteem, $F (4, 235) = 5.61$, $p < .001$, $\eta^2 = .087$. Tukey’s post hoc analyses revealed that both cyber victims ($M = 58.02$, $SD = 10.80$) and cyber bully-victims ($M = 59.58$, $SD = 12.99$) had significantly higher BASC Anxiety scores than did cyber bullies ($M = 50.42$, $SD = 8.23$) and participants who were uninvolved ($M = 51.48$, $SD = 10.18$). Additionally, both cyber victims ($M = 53.02$, $SD = 11.88$)...
and cyber bully-victims ($M = 54.45, SD = 13.84$) had significantly higher BASC Depression scores than did cyber bullies ($M = 44.33, SD = 5.16$) and participants who were uninvolved ($M = 46.50, SD = 8.03$). Both cyber victims ($M = 43.70, SD = 13.55$) and cyber bully-victims ($M = 45.91, SD = 9.72$) had significantly lower BASC Self-Esteem scores than did cyber bullies ($M = 53.58, SD = 5.05$) and uninvolved participants ($M = 50.64, SD = 8.42$). Results are presented in Table A.3.

Attachment. A MANOVA was conducted to examine the differences in IPPA subscales (Trust, Communication, and Alienation for Maternal and Paternal Attachment) by cyber status and results were not significant, $F(6, 230) = 1.48, p = .065, \eta^2 = .037$. Participants who were cyber bullies, cyber victims, cyber bully-victims, and who were uninvolved had comparable IPPA subscales. Results are presented in Table A.3.

*Original Primary Analyses*

The original hypothesized models are presented in Figures A.1 and A.2 and incorporated a peer relationships construct. Following analyses and results presented below, it was determined that models for the manuscript would be modified in the interest of parsimony and contribution to the literature. The peer relationships construct was dropped from the models due to limited contribution to the model and limited association with constructs of primary interest, bullying and victimization. See Appendix C for original hypotheses. Nonparametric Spearman’s correlations for indicator variables included in the original hypothesized structural equation models are shown in Table A.4.

*Traditional Bullying and Victimization.* Prior to testing the full model, confirmatory factor analyses (CFAs) were conducted to examine factor loadings and fit within each latent construct, yielding adequate fit. Evaluation of fit indices indicated that the measurement model
adequately fit the data, $\chi^2 (119) = 322.94$, $p < .01$, adjusted $\chi^2 = 2.71$, RMSEA = .09, NNFI = .90, CFI = .92, SRMR = .07.

Reliability of indicators was assessed by examining the individual composite reliabilities and average variance explained (AVE) using the suggested procedure outlined by Fornell and Larker (1981). Composite reliability across items was good, ranging from .75 (Mental Health) to .89 (Traditional Bullying). AVE for 5 of the 6 constructs was greater than the critical value of .50, and the remaining AVE for mental health approached this critical value (.497). As further recommended by Fornell and Larker (1981), the highest shared variance (HSV) was calculated and evaluated based on the relationship to the AVE. Across all constructs, the HSV was lower than the observed AVE, indicating sufficient discriminant validity.

Theoretically meaningful covariances between constructs and indicators were added based on modification indices in order to improve model fit (e.g., between maternal and paternal attachment, between maternal and paternal alienation, and between bullying and victimization; Kline, 2011).

Following validation of the measurement model, the full, hypothesized SEM for traditional bullying/victimization was tested. Results yielded sufficient fit with the obtained data, $\chi^2 (136) = 364.55$, $p < .001$, adjusted $\chi^2 = 2.68$, RMSEA = .08, NNFI = .89, CFI = .91, SRMR = .07. The final statistical model is shown in Figure A.3.

Cyber Bullying and Victimization. The cyber bullying measurement model was validated using the same methods as described above. The measurement model yielded sufficient fit with the data, $\chi^2 (119) = 281.67$, $p < .001$, adjusted $\chi^2 = 2.37$, RMSEA = .08, NNFI = .90, CFI = .92, SRMR = .07. Composite reliability across items was good, ranging from .74 (Mental Health) to .96 (Cyber Target). AVE for 5 of the 6 constructs was greater than the critical value of .50,
and the remaining AVE for mental health approached this critical value (.493). As further recommended by Fornell and Larker (1981), the highest shared variance (HSV) was calculated and evaluated based on the relationship to the AVE. Across all constructs, the HSV was lower than the observed AVE, indicating sufficient discriminant validity. Theoretically meaningful covariances between constructs and indicators were added based on modification indices in order to improve model fit (e.g., between maternal and paternal attachment, between maternal and paternal alienation, between cyber bullying and cyber victimization).

SEM results indicated adequate fit with the obtained data, $\chi^2 (136) = 317.08, p < .001$, adjusted $\chi^2 = 2.33$, RMSEA = .08, NNFI = .90, CFI = .92, SRMR = .07. The final cyber bullying/victimization model is presented in Figure A.4.

Modified Primary Analyses

Confirmatory factor analyses (CFAs) examined factor loadings and fit within each latent construct, yielding adequate fit. These measurement models are presented in Figures A.5 and A.6. Reliability of indicators was assessed by examining the individual composite reliabilities and average variance explained (AVE) using the suggested procedure outlined by Fornell and Larker (1981). Composite reliability across items was good, ranging from .75 (Mental Health) to .89 (Traditional Bullying). AVE for 5 of the 6 constructs was greater than the critical value of .50, and the remaining AVE for mental health approached this critical value (.497). As further recommended by Fornell and Larker (1981), the highest shared variance (HSV) was calculated and evaluated based on the relationship to the AVE. Across all constructs, the HSV was lower than the observed AVE, indicating sufficient discriminant validity.
Table A.1

**MANOVAs of Mental Health and Attachment Variables for Cyber Victims**

<table>
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<tr>
<th>Multivariate/Univariate</th>
<th>Cyber Victim ( (n = 54) )</th>
<th>Non Cyber Victim ( (n = 171) )</th>
<th>( F )</th>
<th>( df )</th>
<th>( p )</th>
<th>( \eta^2 )</th>
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<td></td>
<td></td>
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<td>BASC Anxiety</td>
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<td>52.22</td>
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<td>1, 223</td>
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<td>.071</td>
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*Note. MANOVA = Multivariate analysis of variance; BASC = Behavioral Assessment System for Children; IPPA = Inventory of Parent and Peer Attachment; IPPA M Trust = IPPA Maternal Trust; IPPA M Communication = IPPA Maternal Communication; IPPA M Alienation = IPPA Maternal Alienation; IPPA F Trust = IPPA Paternal Trust; IPPA F Communication = IPPA Paternal Communication; IPPA F Alienation = IPPA Paternal Alienation*
Table A.2

MANOVAs of Mental Health and Attachment Variables for Cyber Bullies

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<th>Multivariate/Univariate</th>
<th>Cyber Bully (n = 45)</th>
<th>Non Cyber Bully (n = 180)</th>
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<th>df</th>
<th>p</th>
<th>η²</th>
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<td>1, 223</td>
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<td>.012</td>
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</table>

*Note. MANOVA = Multivariate analysis of variance; BASC = Behavioral Assessment System for Children; IPPA = Inventory of Parent and Peer Attachment; IPPA M Trust = IPPA Maternal Trust; IPPA M Communication = IPPA Maternal Communication; IPPA M Alienation = IPPA Maternal Alienation; IPPA F Trust = IPPA Paternal Trust; IPPA F Communication = IPPA Paternal Communication; IPPA F Alienation = IPPA Paternal Alienation*
Table A.3

MANOVAs of Mental Health and Attachment Variables for Cyber Status

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<tr>
<th>Multivariate/ Univariate</th>
<th>Cyber Victim</th>
<th>Cyber Bully</th>
<th>Cyber Bully-Victim</th>
<th>Uninvolved</th>
<th>F</th>
<th>df</th>
<th>p</th>
<th>η²</th>
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<td>(n = 12)</td>
<td>(n = 33)</td>
<td>(n = 136)</td>
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<tr>
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<tr>
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<td>50.42</td>
<td>8.23</td>
<td>3.39</td>
<td>3, 233</td>
<td>&lt; .001</td>
<td>.055</td>
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<td>BASC D</td>
<td>53.02</td>
<td>11.88</td>
<td>44.33</td>
<td>5.16</td>
<td>3.39</td>
<td>3, 233</td>
<td>&lt; .001</td>
<td>.099</td>
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<tr>
<td>BASC SE</td>
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<td>13.55</td>
<td>53.58</td>
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<td>.087</td>
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<td>.065</td>
</tr>
<tr>
<td>IPPA M C</td>
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<td>33.42</td>
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<td>3, 233</td>
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<td>.014</td>
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<td>IPPA M A</td>
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<td>3, 233</td>
<td>&lt; .001</td>
<td>.035</td>
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</table>

Note. MANOVA = Multivariate analysis of variance; BASC = Behavioral Assessment System for Children; BASC A = BASC Anxiety; BASC D = BASC Depression; BASC SE = BASC Self Esteem; IPPA = Inventory of Parent and Peer Attachment; IPPA M T = IPPA Maternal Trust; IPPA M C = IPPA Maternal Communication; IPPA M A = IPPA Maternal Alienation; IPPA F T = IPPA Paternal Trust; IPPA F C = IPPA Paternal Communication; IPPA F A = IPPA Paternal Alienation
Table A.4
Correlations, Means, Standard Deviations, Ranges, and Cronbach’s α for Original SEM Indicators

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<td>.31**</td>
<td>.35**</td>
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<td>-.23**</td>
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<td>.37**</td>
<td>.35**</td>
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<td>-.21**</td>
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(SD) 8.66   8.72   5.52   10.62  9.87   6.22   7.41   6.64   5.25   10.22  11.06  10.20  3.01  4.07  3.18  2.98  5.13  4.16  .67  1.35  1.89
Cronbach’s α .92  .91  .83  .93  .91  .83  .94  .93  .91  --  .89  .93  .84  .91  --  .80  .84  .91  .83  .93  .92  .62  .55  .69

Note. * p<.05, ** p<.01. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA F-Tr = IPPA Paternal Trust; IPPA F-Co = IPPA Paternal Communication; IPPA F-Al = IPPA Paternal Alienation; IPPA P-Tr = IPPA Peer Trust; IPPA P-Co = IPPA Peer Communication; MSPSS F = Multidimensional Scale of Perceived Social Support, Friends Scale; BASC = Behavioral Assessment System for Children; BASC D = BASC Depression; BASC A = BASC Anxiety, BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BP = RAPRI Bully Traditional Physical; RAPRI BV = RAPRI Bully Traditional Verbal; RAPRI BS = Bully Traditional Social; RAPRI TP = RAPRI Target Traditional Physical; RAPRI TV = RAPRI Target Traditional Verbal; RAPRI TS = RAPRI Target Traditional Social; RAPRI BCV = RAPRI Bully Cyber Visual; RAPRI BCT = RAPRI Bully Cyber Text; RAPRI TCT = RAPRI Target Cyber Text
Figure A.1. Original hypothesized theoretical model for traditional bullying and victimization.

Note. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA P-Tr = IPPA Paternal Trust; IPPA P-Co = IPPA Paternal Communication; IPPA P-Al = IPPA Paternal Alienation; IPPA P = IPPA Peer Trust; MSPSS = Multidimensional Scale of Perceived Social Support, Friends Scale; BASC = Behavioral Assessment System for Children; BASC IP = BASC Interpersonal Relations Scale; BASC D = BASC Depression; BASC A = BASC Anxiety; BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BT = RAPRI Bully Traditional Physical; RAPRI BV = RAPRI Bully Traditional Verbal; RAPRI BS = Bully Traditional Social; RAPRI TT = RAPRI Target Traditional Physical; RAPRI TV = RAPRI Target Traditional Verbal; RAPRI TS = RAPRI Target Traditional Social.
Figure A.2. Original hypothesized theoretical model for cyber bullying and victimization.

Note. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA P-Tr = IPPA Paternal Trust; IPPA P-Co = IPPA Paternal Communication; IPPA P-Al = IPPA Paternal Alienation; IPPA P = IPPA Peer Trust; MSPSS = Multidimensional Scale of Perceived Social Support, Friends Scale; BASC = Behavioral Assessment System for Children; BASC IP = BASC Interpersonal Relations Scale; BASC D = BASC Depression; BASC A = BASC Anxiety, BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BC1 = RAPRI Bully Cyber Indicator 1; RAPRI BC2 = RAPRI Bully Cyber Indicator 2; RAPRI BC3 = Bully Cyber Indicator 3; RAPRI TC1 = RAPRI Target Cyber Indicator 1; RAPRI TC2 = RAPRI Target Cyber Indicator 2; RAPRI TC3 = RAPRI Target Cyber Indicator 3.
Figure A.3. Original SEM for traditional bullying/victimization.

*Note.* Model Summary: $\chi^2 (136) = 364.55$, $p < .001$, adjusted $\chi^2 = 2.68$, RMSEA = .08, NNFI = .89, CFI = .91, SRMR = .07. Standardized paths, * $p < .05$, ** $p < .01$. Solid lines indicate significant paths; dashed lines indicate non-significant paths.
Figure A.4. Original SEM for cyber bullying/victimization.

Note. Model Summary: $\chi^2 (136) = 317.08$, $p < .001$, adjusted $\chi^2 = 2.33$, RMSEA = .08, NNFI = .90, CFI = .92, SRMR = .07. Standardized paths, * $p<.05$, ** $p<.01$. Solid lines indicate significant paths; dashed lines indicate non-significant paths.
Figure A.5. Measurement model for traditional bullying/victimization.

Note. Model Summary: $\chi^2 (78) = 182.18$, $p < .01$, adj. $\chi^2 = 2.34$, RMSEA = .08, NNFI = .93, CFI = .95, SRMR = .06. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA P-Tr = IPPA Paternal Trust; IPPA P-Co = IPPA Paternal Communication; IPPA P-Al = IPPA Paternal Alienation; BASC = Behavioral Assessment System for Children; BASC D = BASC Depression; BASC A = BASC Anxiety, BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BT = RAPRI Bully Traditional Physical; RAPRI BV = RAPRI Bully Traditional Verbal; RAPRI BS = Bully Traditional Social; RAPRI TT = RAPRI Target Traditional Physical; RAPRI TV = RAPRI Target Traditional Verbal; RAPRI TS = RAPRI Target Traditional Social.
Figure A.6. Measurement model for cyber bullying/victimization.

Note. Model Summary: \( \chi^2 (79) = 199.03, p < .01, \) adj. \( \chi^2 = 2.52, \) RMSEA = .08, NNFI = .90, CFI = .93, SRMR = .07. IPPA = Inventory of Parent and Peer Attachment; IPPA M-Tr = IPPA Maternal Trust; IPPA M-Co = IPPA Maternal Communication; IPPA M-Al = IPPA Maternal Alienation; IPPA P-Tr = IPPA Paternal Trust; IPPA P-Co = IPPA Paternal Communication; IPPA P-Al = IPPA Paternal Alienation; BASC = Behavioral Assessment System for Children; BASC D = BASC Depression; BASC A = BASC Anxiety, BASC SE = BASC Self Esteem; RAPRI = Revised Adolescent Peer Relations Instrument; RAPRI BCV = RAPRI Bully Cyber Visual; RAPRI BCT = RAPRI Bully Cyber Text; RAPRI TCT = RAPRI Target Cyber Text; SNS = Social Networking Scale; SNS CB = SNS Cyber Bully Indicator; SNS CV = SNS Cyber Victim Indicator 1; SNS CV2 = SNS Cyber Victim Indicator 2.
APPENDIX B

Additional Discussion
Key themes that emerged in additional results of the current investigation will be discussed in light of existing research.

Prevalence of cyber bullying and victimization

Prevalence rates of cyber bullying and cyber victimization have varied widely in the literature. A recent meta-analysis provided a mean prevalence rate of 15% for both cyber bullying and cyber victimization (Modecki, Minchin, Harbaugh, Guerra, & Runions, 2014). Within the current study, 5% of participants self-identified at cyber bullies (indicated that they had engaged in cyber bullying behavior at least once), 18% self-identified as cyber victims, and 14% self-identified as cyber bully-victims.

Sex differences in cyber bullying and victimization

Regarding cyber victimization, sex differences emerged. Similar to previous research, which has suggested that females are more likely to be the targets of cyber bullying (Wang et al., 2009), a greater proportion of female participants in the current study reported being victims of cyber bullying and victims of online rumors or gossip compared to male participants. No significant sex differences emerged regarding cyber bullying involvement. Evidence of sex differences and involvement in cyber bullying behavior has been inconsistent in previous research (Turner et al., 2013).

Impact of cyber bullying

Victims of cyber bullying had higher levels of depression and anxiety and lower levels of self-esteem than their non-victimized counterparts. They also indicated lower levels of trust within their attachment relationships with fathers. These findings demonstrate the detrimental impact that experience of cyber victimization can have on adolescents and is also consistent with previous research (Guerra et al., 2011; Smokowski & Kopasz, 2005; Turner et al., 2013). Both
cyber victims and cyber bully-victims fared the worse that cyber bullies and uninvolved students on all measures of mental health outcomes utilized in the current investigation. Contrary to previous investigations, cyber bully-victims did not demonstrate worse outcomes overall (Cook et al., 2010), but the limited number of participants in these groups may have also impacted results.

Additionally, those who self-identified as being cyber bullies had slightly higher levels of depression and anxiety, suggesting that engaging in cyber bullying behaviors can also have a detrimental impact on bullies as well. Other researchers have also demonstrated that cyber bullies can be associated with both internalizing and externalizing mental health problems (Bonnano & Hymel, 2013; Yen et al., 2014).

Limited association between peer relationships and bullying/victimization

Surprisingly, quality of peer relationships was not significantly associated with bullying or victimization in either traditional or cyber contexts. This finding contradicts previous research, which has suggested that experience of victimization is related to social skills deficits and peer relationship problems (Allen et al., 1998; Cook et al., 2010; Dykas et al., 2008), as well as research demonstrating associations between self-reported problems within peer relationships, lower levels of perceived social support, and bullying behaviors (Calvete et al., 2010; Spriggs et al., 2007).

One possible explanation of this contradictory finding is the differences in measurement of peer relationships across investigations. Previous research utilized measures of peer relationship problems such as loneliness and social isolation (Spriggs et al., 2007). In this study, quality of trust and communication, as well as perceived levels of social support from friends,
may not have captured quality of peer relationships overall, but may have only captured experiences within adolescents’ close peer relationships.

A possible explanation of the limited association between peer relationships and cyber bullying and victimization may involve the cyber context itself. The context of cyber bullying is unlike traditional peer interactions in that it is not an interpersonal, face-to-face interaction. It is possible that behavior and experiences in the cyber realm are less related to the quality of in-person relationships. Behavior in the cyber context may be less guided by rules of social engagement and emotion regulation within interpersonal situations, and more guided by processes such as risk-taking and decision-making in a new social situation.

In light of parsimony and improved model fit, and given the lack of association between peer relationships and the constructs of bullying and victimization, we decided to drop the peer relations construct from our primary analyses.
APPENDIX C

Extended Literature Review
Bullying and victimization are widespread, problematic issues affecting today’s youth. Although definitions vary, there is a general consensus that bullying comprises an “attack or intimidation with the intention to cause fear, distress, or harm; a real or perceived imbalance of power between the bully and the victim; and repeated attacks or intimidation between the same children over time” (Centers for Disease Control and Prevention [CDC], 2012, p. 1). All forms of bullying, whether direct or indirect, traditional, physical, or relational, are damaging and involve a host of negative correlates and outcomes for both victims and bullies themselves (e.g., Nansel et al., 2001). A recent investigation estimated that close to 36% of adolescents are victimized by bullying at some point during their education (Wang, Iannotti, & Nansel, 2009), and research suggests that up to 13 percent of adolescents engage in moderate to frequent levels of bullying others (Nansel et al., 2001). Research on cyberbullying, the newest and increasingly pervasive form of bullying through electronic means, has indicated that between six and 35 percent of adolescents experience cyberbullying during their school years (Beran & Li, 2005; Li, 2006; Patchin & Hinduja, 2006; Smith, Mahdavi, Carvalho, & Tippet, 2006; Ybarra & Mitchell, 2004). Although empirical investigation is increasing, there is limited research (both in quantity and quality of measurement) on this particular form of bullying and victimization. The goal of the current study is to better understand these phenomena, in particular cyberbullying, and their associations to relationships and outcomes in adolescence. Specifically, guided by attachment theory (Bowlby, 1980, 1982), we propose and test a theoretical model linking experience of bullying and victimization (both traditional and cyber forms), attachment to parents, quality of peer relationships, and general mental health outcomes. Results of this investigation will assist in identifying risk factors associated with cyberbullying and cybervictimization in order to more effectively develop appropriate prevention and intervention programs.
Literature Review

Attachment

Originally conceptualized as the bond between an infant and a primary caregiver (Bowlby, 1980), empirical evidence later supported the premise that attachment in this early relationship becomes a template for subsequent relationships across the lifespan (e.g., Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Understanding the main principles of attachment theory is essential before addressing attachment specific to the time period of adolescence.

Bowlby (1980) asserted that the need for secure emotional connection and nurturance is a basic tenet of human nature. In infancy, a child begins to employ behavioral strategies, such as crying, that result in proximity of the caregiver and getting basic needs met. These attachment strategies are activated and heightened in times of threat or distress. Responsiveness and consistency of the caregiver to the child’s attachment behaviors determine the expectations the child will develop in terms of getting his or her needs met and whether the child feels safe, secure, and loved. These expectations, or mental representations, are also referred to as internal working models of the self and the attachment figure, and attachment theory purports that these models provide a prototype for later close relationships (Bowlby, 1969/1982). If the caregiver is responsive to the infant and basic needs are consistently met, the child develops a secure internal working model of attachment and feelings of love and self-worth.

This internal working model is further developed as the caregiver provides evidence, or lack thereof, of being both a secure base and a safe haven, from which the child can explore the world but can always return to in periods of distress or when needing comfort (Ainsworth & Bell, 1970; Bowlby, 1969/1982). Inconsistent or lack of responsiveness from caregivers to attachment
strategies of children can hinder the development of positive expectations of relationships and ultimately lead to the development of an insecure attachment representation. An insecure internal working model of abandonment or rejection develops when the needs of the child are either met inconsistently or are dismissed or rejected by caregivers, and the child fails to develop feelings of being loved and valued. The internal working models that are developed in childhood serve as the basis for expectations and behaviors within the child-caregiver relationship, as well as for later relationships and how an individual experiences, expresses, and regulates distressing emotions within relationships.

*Individual differences in attachment.* Through the use of the laboratory procedure known as the Strange Situation (Ainsworth & Bell, 1970), Ainsworth, Blehar, Waters, and Wall (1978) investigated individual differences in infant attachment. Ainsworth et al. noted infant behaviors during exploration with the caregiver present, separation from the caregiver, the presence of a stranger, and reunion with the caregiver. They identified three distinctive patterns of infant attachment behavior: secure, ambivalent/resistant, and avoidant. Main and Solomon (1986) later identified a fourth pattern referred to as disorganized.

Given their internal working model of attachment and representation of the caregiver as a secure base who will be available during times of need (Main & Cassidy, 1988), securely attached children are able to explore novel surroundings with ease, seek comfort from the caregiver when distressed, and exhibit distress during separation from the caregiver (Ainsworth et al., 1978). According to Ainsworth (1990) and later researchers (e.g., Cassidy, 2001), securely attached children view themselves as competent and worthy of affection and love from others, and they view important others as interested in and capable of meeting needs that arise. In general, their close relationships are experienced as safe and secure. Longitudinal data has
demonstrated that security of attachment in infancy leads to an appropriate balance of independence and effective help/support-seeking in toddlerhood, as well as adaptive behavior and social competence in childhood (Sroufe, 2005).

On the other hand, inconsistent or conflicting caregiver responses to the child’s attachment behaviors foster an insecure-ambivalent internal working model (Cassidy, 2001). In this environment, the child becomes hypervigilant and preoccupied with the caregiver, unsure of when and how the caregiver will respond and meet his or her needs. Insecurely-ambivalent children have internal working models based on uncertainty, confusion, and frustration. In the Strange Situation, these children are less exploratory, appear dependent or clingy towards the caregiver, become intensely distressed during separation, seek out the caregiver upon reunion, but then are resistant and unable to be soothed by the caregiver (Ainsworth et al., 1978). According to Cassidy (2001), insecure-ambivalent children often exhibit exaggerated attachment behaviors and experience distress in navigating their relationship to their caregivers. They often hold a negative view of themselves and express exaggerated emotional responses during times of need (Kobak, Cole, Ferenz-Gillies, Flemming, & Gamble, 1993). Longitudinal data indicates that insecurely-ambivalent toddlers are easily frustrated and tend to give up easily during problem-solving tasks, and in later childhood, they are impulsive and fairly dependent on their teachers for guidance (Sroufe, 2005).

If caregiver responses to the child are characterized by rejection or dismissal of attachment behaviors, or the caregiver is unavailable or unresponsive during times of distress, the child often develops an insecure-avoidant internal working model (Main & Solomon, 1986). In the Strange Situation, insecurely-avoidant children seem unconnected to the caregiver; they are physically and emotionally independent of their caregiver, not noticeably distressed during
separation, and upon reunion, appear disinterested (Ainsworth et al., 1978). Despite their relative calmness during these events, physiological evidence of elevated internal distress (i.e., measurements of heart rate) has been demonstrated, and this is often attributed to active suppression of the attachment system (Cassidy, 2001). Lacking the experience of comfort and security within the attachment relationship, the internal working models of these children are based on rejection and abandonment so they tend to avoid connecting to others, minimize emotions, view themselves as isolated, and view others as unable or unwilling to respond to their needs (Cassidy, 2001; Larose & Bernier, 2001). Longitudinal data suggests that insecurely-avoidant attachment in infancy leads to a lack of help-seeking behaviors in toddlerhood, as well as isolation and potential aggression or impulsivity in childhood (Sroufe, 2005).

Disorganized attachment often develops as the result of contradictory, unpredictable, and/or frightening caregiver responses to attachment behaviors (Main & Hesse, 1990). Characterized by an incoherent and unorganized behavioral pattern, children respond to the paradox of wanting to simultaneously approach and avoid their caregiver, who is the source of both safety and fear (Cassidy, 2001). Their internal working models of self and others are often characterized by hostility, violence, and unpredictability. According to Lyons-Ruth and Spielman (2004), the most common parenting styles associated with disorganized attachment are those involving emotional abuse and/or neglect. These researchers further distinguished these parenting styles into two groups: hostile/self-referential and helpless/fearful. Mothers characterized by helpless/fearfulness are noticeably withdrawn, inhibited, and easily overwhelmed in their parenting with evidence of underlying anxiety or tension regarding the caregiver role. On the other hand, mothers in the hostile/self-referential group are characterized by contradictory behaviors, overt rejection or ignoring of their child’s attachment behaviors, and
making self-referential statements (as opposed to child-referential) during infant distress and care-seeking behaviors.

Continuity of attachment. Attachment theory posits that an individual’s attachment organization is relatively stable across the lifespan and continues to impact later development, mental health, and capacity for later intimacy within close, mutual relationships (Bowlby, 1969/1982; Cassidy, 2001). Empirical evidence has supported moderate continuity of attachment in the absence of significant life events (Allen, McElhaney, Kuperminc, & Jodl, 2004; Hamilton, 2000; Barnett, Ganiban, & Cicchetti, 1999). Changes in attachment security across the lifespan often involved negative, attachment-related life experiences, such as death of a caregiver, divorce, life-threatening illness of the child or caregiver, caregiver mental health problems, or abuse from a caregiver (Hamilton, 2000; Waters et al., 2000). Relative stability of infant attachment classification has been found through age six (Main & Cassidy, 1988), and in adolescence, with one longitudinal investigation reporting that 77% of adolescents assessed retained their same infant-attachment classification over time (Hamilton, 2000).

As children develop and acquire language and increased cognitive capacity, the attachment system expands from maintenance of physical proximity and meeting basic needs to a more complex system incorporating verbal communication, emotional expression, and caregiver availability, as well as internal representations of beliefs and expectations in relationships outside of the initial child-caregiver attachment relationship. As attachment theory and research extended beyond infancy, the concept of “felt security” (Sroufe & Waters, 1977) within the attachment relationship became an essential component in understanding later relationships. This concept highlights the transactional nature of attachment and development, incorporating the child’s appraisal and expectation of caregiver availability based on previous
experiences, as well as the subsequent behavior of the child and caregiver and new learning (Sroufe, 2005; Sroufe, Egeland, Carlson, & Collins, 2005).

Attachment in adolescence. Adolescence is a time of transition, given the onset of puberty, physical growth, and the changes within the social, emotional, and cognitive realms that accompany this time period. Along with the developmental task of identity formation (Erikson, 1968), adolescents have a need for increased autonomy and independence. There is a shift in attachment and relationship focus involving less time spent with family (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Moretti & Peled, 2004) and increased investment in peer relationships (Steinberg & Silk, 2002). Despite this shift in focus, parents remain a central part of an adolescent’s life, and teenagers remain attached to these important figures (Nada-Raja, McGee, & Stanton, 1992).

Research evidence exists regarding the relative continuity of attachment during adolescence (Allen et al., 2004; Higgins, Jennings, & Mahoney, 2010; Thompson, 2000). In a two-year longitudinal study examining attachment organization from middle to late adolescence, Allen et al. (2004) demonstrated a moderate to high level of continuity of attachment security during adolescence. Shifts in attachment security were predictable, and decreases in security were often linked with stressors that had the potential of overwhelming the adolescent and hindering their ability to seek attachment figures for support (i.e., enmeshed or overpersonalized interactions with parents, depressive symptomatology). Thompson (2000) also supported the stability of attachment quality during adolescence, as long as the caregiving environment remains fairly stable.

As stated, the context of adolescence is one of transition and a host of crucial developmental tasks (i.e., navigating autonomy and independence, exploring one’s identity
within a new social world but maintaining connections to necessary parental figures, etc.).

Although many of the underlying premises of attachment during adolescence remain similar to those of childhood (i.e., notions of a secure base, safe haven, etc.), given developmental gains in cognitive, social, and emotional realms, attachment organization becomes less about physical proximity and separation, and more about attachment representations, or internal working models of others and the self, sense of felt security, and emotional regulation. In fact, some researchers (Allen et al., 2004; Cooper, Shaver, & Collins, 1998; Cummings & Davies, 1996) have conceptualized attachment during this time period, in part, as a system of affect regulation in which internal working models help individuals navigate the social world and their relationships through expectations and behaviors that reduce anxiety and increase felt security.

Kobak et al. (1993) also provided support for the association of attachment security and emotion regulation during adolescence. Their findings revealed that securely attached adolescents tended to engage in more constructive emotion regulation strategies, were more assertive, and displayed less dysfunctional anger in problem-solving interactions with their mothers. Allen et al. (2003) asserted that secure parent-adolescent attachment is characterized by processes that support the development of autonomy, such as mutual respect during conflict, de-idealization of the parent, and consistent parental sensitivity, responsiveness, and supportiveness. On the other hand, insecure-ambivalent attachment has been linked with interactions that hinder autonomy and reflect enmeshment or over-personalization between the parent and adolescent (Allen & Hauser, 1996). Insecure-avoidant attachment has also been associated with excessive independence, mistrust, and difficulty seeking support from social networks in late adolescence and young adulthood (Wallace & Vaux, 1993).
Empirical evidence suggests there are differences in maternal versus paternal attachment in adolescence. Doyle, Lawford, and Markiewicz (2009) found that adolescents tended to be more securely attached to their mothers as opposed to their fathers, and attachment relationships with mothers had an influence on later quality of romantic attachment. Throughout adolescence and into young adulthood, individuals continue to rely on mothers as a secure base, more so than even fathers or peers (Markiewicz, Doyle, & Brendgen, 2001). Additionally, reviews of attachment literature also suggest that quality of attachment to mother continues to have a major influence on the development of later close relationships outside of the family context (Gorrese & Ruggieri, 2012). On the other hand, only quality of attachment to father was predictive of later peer attachments. Specifically, adolescents’ attachment insecurity in their relationships with their fathers was predictive of attachment insecurity in relationships with their best friends across time (Doyle et al., 2009).

Attachment and individual functioning. Attachment is related to mental health outcomes, and adolescents with more secure attachments tend to experience fewer mental health problems, such as depression, anxiety, conduct disorder, aggression, and delinquency (Cooper et al., 1998; Nada-Raja et al., 1992; Nakash-Eisikovits, Dutra, & Westen, 2002; Scott, Briskman, Woolgar, Humayun, & O’Connor, 2011; Sund & Wichstrom, 2002). They also tend to report higher levels of self-esteem (Armsden & Greenberg, 1987; Engels, Finkenauer, Meeus, & Deković, 2001) and higher overall life satisfaction (Armsden & Greenberg, 1987). Longitudinal research has demonstrated the impact infant-caregiver attachment relationships can play in the development of self-reliance and social competence, as well as the capacity for emotional regulation (Sroufe, 2005). These findings also indicated that quality of early attachment relationships can have an influence on risk for later psychopathology and disturbance (Sroufe, 2005).
In adolescence, Cooper et al. (1998) demonstrated a link between attachment styles and measures of overall adjustment in adolescence, specifically in regard to the capacity to express, experience, and cope with negative or distressing emotion. Adolescents classified as secure displayed better adjustment than their insecure counterparts in the areas of self-concept, levels of symptomatology, and problematic behavior. Attachment security has also been linked with style of coping with distressing emotions, with teenagers who are more securely attached to parents utilizing more positive coping methods (i.e., seeking and accepting interpersonal support; Howard & Medway, 2004). Securely attached adolescents also tend to report fewer depressive symptoms (Liu, 2006).

In another survey of adolescents, Nada-Raja et al. (1992) found that being more securely attached to one’s parents was associated with higher scores on a general measure of psychological well-being, as well as higher self-assessed strengths and positive qualities. Engels et al. (2001) replicated this link between parental attachment and emotional adjustment, with their results indicating that being more securely attached to one’s parents was significantly associated with higher reported self-esteem and lower levels of depressive symptoms. Additionally, Scott et al. (2011) demonstrated that security of attachment in adolescence was related to overall adjustment as assessed by behavioral, emotional, and peer problems.

On the other hand, insecure attachment has been associated with adjustment problems (Cooper et al., 1996; Nada-Raja et al., 1992; Pace & Zappulla, 2011). Cooper et al. (1996) found that adolescents classified as insecure-anxious tended to have the worst outcomes relative to securely or insecurely-avoidant attached adolescents regarding self-concept, level of symptoms, and high-risk or problematic behaviors. Although insecure-avoidant adolescents fared worse than their secure counterparts in self-concept and level of symptomatology, they tended to be
better adjusted than insecure-anxious adolescents in those same areas. Likewise, insecure attachment has been linked with increased internalizing and externalizing problems in adolescence (Pace & Zappulla, 2011).

Research evidence also suggests a link between insecure attachment and aggression in adolescence, although findings regarding which attachment figure wields the most influence on aggressive behaviors have been mixed (Gallarin & Alonso-Arbiol, 2012, Higgins et al., 2010; Simons, Paternite, & Shore, 2001). Higgins et al. (2010) reported that lower levels of security in attachments to both parents were associated with a higher likelihood of delinquent behavior over a four-year period of adolescence. In other investigations, attachment to fathers, but not to mothers, has been associated with aggressiveness and behavioral problems in adolescence, with adolescents who are less securely attached to their father self-reporting higher levels of aggression (Gallarin & Alonso-Arbiol, 2012). Conversely, Allen, Moore, Kuperminc, and Bell (1998) found that adolescent maternal attachment was a significant predictor of mother-reported aggression and delinquency, with those who were more insecure in their attachments with their mothers being more likely to engage in problematic behaviors. Simons et al. (2001) demonstrated a similar association between self-reported maternal attachment (but not paternal attachment) and self-reported aggression in adolescence.

*Psychosocial functioning and peer attachment.* Another important task of adolescence is the development of close and meaningful relationships with peers. Attachment theory asserts that attachment to parents sets the stage for developing and maintaining relationships outside of the family context (Armsden & Greenberg, 1987; Allen et al., 1998; Bowlby, 1973; Kerns & Stevens, 1996). Increased interaction and intimacy in friendships during adolescence, coupled with the increasing significance of reciprocal trust and self-disclosure, suggests that these
relationships may function similarly to attachment relationships with parents during this important developmental time period (Zimmermann, 2004). The internal working models of self and others that develop in the context of parent-child relationships often serve as a prototype for and are related to later working models of friendships in adolescence, providing expectations and understanding of how to interact with others and how to interpret the feelings of self and others in close relationships (Furman, Simon, Shaffer, & Bouchey, 2002; Kerns, 1996; Gorrese & Ruggieri, 2012). In their meta-analysis of peer attachment literature, Gorrese and Ruggieri (2012) suggested that there is a moderate association between attachment to parents and attachment to peers, and those with secure attachment histories tend to report secure relationships with their close friends.

While attachment to parents still fulfills an important role in an adolescent’s life, evidence suggests that certain attachment behaviors become more directed towards peers and friendships during this time period, and peers become a key source of support in social and emotional realms (Laible, 2007; Wilkinson, 2004, 2010). In surveys of adolescents and young adults, Markiewicz et al. (2001) reported that mothers continue to be utilized as a secure base well into adulthood, and close friends are increasingly turned to for needs of proximity and a safe haven. This latter finding has also been supported by additional investigation (Nickerson & Nagle, 2005), including meta-analytic reviews of the literature (Gorrese & Ruggieri, 2012). Close friends increasingly provide an important source of disclosure and intimacy during adolescence (Wilkinson, 2004).

Links between parent-adolescent attachment and general psychosocial functioning have been well documented in the literature (Allen et al., 1998; Boling, Barry, Kotchick, & Lowry, 2011; Ducharme, Doyle, Markiewicz, 2002; Dykas, Ziv, & Cassidy, 2008; Kenny & Donaldson,
Additional evidence exists regarding the link between attachment to parents and social competence during adolescence (Boling et al., 2011; Cooper et al., 1998; Ducharme et al., 2002; Dykas et al., 2008). Findings from Allen and colleagues (1998) supported the important role of attachment experiences with parents during adolescence regarding overall social functioning and important psychosocial outcomes. Specifically, secure adolescents were not only more likely to be accepted by their peers than insecure adolescents, but they were also less likely to engage in problematic behaviors or endorse internalizing symptoms such as depression, anxiety, or social withdrawal. Evidence suggests that securely attached adolescents tend to be perceived as more prosocial and socially accepted by their peers than insecurely attached adolescents, and they are also rated as less aggressive, less shy or withdrawn, and less victimized by other peers (Dykas et al., 2008). Conversely, secure adolescents tend to report higher levels of perceived peer support and fewer negative expectations of their peers (Liu, 2006). The association between parental attachment and social skills has also received empirical support (Engels et al., 2001).

Specifically, adolescents who perceived themselves as being more securely attached to their parents (i.e., high levels of communication and trust in relationships to parents) reported being less anxious when performing social skills, performing these skills more frequently, and feeling more competent in social relationships than those who reported less secure attachment to parents.

Cooper et al. (1998) documented the link between insecure attachment in adolescence and deficits in social competency. Their findings suggested that insecure-ambivalent and insecure-avoidant adolescents differ in regards to their social functioning in important ways. Specifically, insecure-ambivalent adolescents were more compromised by emotional dysregulation and increased hostility despite possessing adequate social skills, whereas insecure-avoidant exhibited greater social skills deficits. Larose and Bernier (2001) found that attachment
insecurity was related to difficulty seeking or anticipating support from others, increased stress during transition from high school to college, and increased loneliness. It appears that the negative expectations of their peers that result from their negative internal working models serve to either inhibit the social behavior of insecure adolescents, rendering them more withdrawn and vulnerable to victimization, or make them more prone to hostile behavior in peer interactions. Additionally, results from Allen et al. (1998) supported the premise that negative internal working models of the self as unworthy may underlie insecure attachment organizations.

To investigate adolescent internal working models and attachments to parents and peers, Armsden and Greenberg (1987) established three important dimensions or constructs to consider within these relationships: trust, communication, and alienation. Trust refers to the adolescent’s belief that these important figures understand them and will respect their needs and wishes. The communication dimension refers to the adolescent’s perception of whether these important people will be available, sensitive, and responsive to their emotional needs. Alienation refers to adolescent feelings of isolation, anger, and disconnection within their relationships with these important others. According to these researchers, relationships characterized by high trust and communication, and low alienation, represent secure attachments, while those characterized by low trust and communication, coupled with high alienation, represent insecure attachments. Although criticized for not utilizing the attachment patterns set forth by Ainsworth et al. (1978), research has supported the use of these dimensions in assessing attachment relationships given their foundation in the theory of attachment (Gorrese & Ruggieri, 2012; Vivona, 2000).

Consistent evidence suggests that females tend to report greater attachment to their peers than males (e.g., Gullone & Robinson, 2005; Nada-Raja et al., 1992; Richards et al., 2010). Specifically, relative to males, females report higher levels of two core dimensions of attachment
within their friendships: trust and deeper communication (Gullone & Robinson, 2005; Nada-Raja et al., 1992). Regarding alienation, results have been inconsistent, with some research pointing to increased alienation among males (Gullone & Robinson, 2005), but the majority of the evidence suggests no major gender differences (Guarnieri, Ponti, & Tani, 2010; Nada-Raja et al., 1992).

**Bullying**

Bullying and victimization and their impact on children and adolescents have been a major focus of research literature in recent years. Survey data from a nationally representative sample of 9-12th graders indicated that 20% of adolescents reported being bullied on school property and 16% reported being bullied electronically during the preceding year (CDC, 2011). In a more recent investigation, Turner, Exum, Brame, and Holt (2013) reported that almost 54% of adolescents surveyed experienced some form of bullying (physical, verbal, or cyber) within the past year. Given the magnitude of adolescents impacted by this phenomenon, it continues to be a worthwhile area for further research.

**Terminology.** Before reviewing the empirical and theoretical literature regarding bullying and victimization, understanding of the relevant terminology is necessary. Olweus (1993), one of the first investigators to explore bullying, provided a central foundation for the understanding of traditional bullying. Olweus described bullying as behavior that renders an individual “exposed, repeatedly and over time, to negative actions on the part of one or more others students,” which “intentionally inflicts, or attempts to afflict, injury or discomfort upon another” and can be verbal (e.g., teasing, taunting, threatening, name calling) or physical (e.g., hitting, pushing, making gestures; p. 9). Bullying is further distinguished into separate types or forms of bullying: direct bullying refers to overt physically or verbally aggressive behaviors.
towards a victim, and indirect bullying refers to more covert and manipulative behaviors, often relational in nature, such as in social exclusion, spreading rumors, or disclosing personal information (Whitney & Smith, 1993). According to Olweus, prevalence of direct, overt bullying increases in elementary, peaks during middle school, and declines during high school years. Nansel et al. (2001) indicated that three characteristics are required for behaviors to be labeled as bullying: intent to harm, imbalance of power or strength between bully and victim, and repetition of negative behaviors.

Another important distinction regarding bullying and victimization involves whether an individual is a bully, a victim, or a bully-victim (Andreou, 2000). The latter group has received less empirical attention than the former two, but evidence suggests they comprise an important group to consider separate from those who are only bullies or victims (Craig, 1998; Marini, Dane, Bosacki, & YLC-CURA, 2006), and they may constitute up to one third of the individuals involved (Marini et al., 2006). Also labeled provocative or aggressive-victims (Pellegrini, Bartini, & Brooks, 1999; Salmivalli, 2001; Schwartz, 2000), bully-victim is the most frequently used term for those individuals who are involved in both ends of the bullying dynamic; they are both perpetrators and victims of bullying.

An aspect of bullying and a new form of victimization that has received increasing attention among researchers is that of cyberbullying and cybervictimization (Belsey, 2006; Kowalski & Kimber, 2007). This relatively new form of bullying refers to behaviors delivered electronically, such as through email, social networking websites (e.g., MySpace, Facebook), text messaging, instant messaging, or chat rooms. Willard (2007) acknowledged the different forms that cyberbullying can take, including, but not limited to, more overt aggression such as harassment, as well as relational aggression through denigration, impersonation, outing/trickery,
and exclusion. Tokunaga (2010) provided a comprehensive definition, stating that “cyberbullying is 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 on others” (p.278).

According to recent investigation, prevalence rates of cybervictimization in adolescence range from 6% to 35% (Beran & Li, 2005; Li, 2006; Patchin & Hinduja, 2006; Smith et al., 2006; Ybarra & Mitchell, 2004). Rates have often varied due to methodological differences and assessment of cyberbullying, with little uniformity in population, type of bullying, severity, or frequency of behaviors surveyed and lack of an established measure of cyberbullying or cybervictimization. With advancing technology and increased usage of technology by adolescents, the risk of participating in and/or becoming the victim of cyberbullying has also increased for teenagers worldwide. Surveys of teenagers in the U.S. reveal that up to 90% of adolescents utilize the internet, with at least 50% indicating daily use (Lenhart, Madden, & Hitlin, 2005). With roughly half of all adolescents reporting that they regularly communicate with their friends and meet new people through social networking sites, cyber communication is established as a popular avenue for social interaction (Lenhart & Madden, 2007). Additionally, close to half of U.S. teens have cellular telephones, giving them quick and easy access to text messaging (Lenhart et al., 2005).

Although some researchers have treated cyberbullying as an extension of traditional bullying given correlations between the two (Li, 2005), most are in favor of examining cyberbullying as a unique and separate construct (Dempsey, Sulkowski, Nichols, & Storch, 2009; Erdur-Baker, 2010; Wang et al., 2009). In their confirmatory factor analysis of different forms of victimization, Dempsey et al. provided support for investigating cyber victimization as a
construct distinct and separate from relational and overt victimization. With bullying and victimization no longer being confined by limitations of the school day and location of the school grounds (Greene, 2006), many have regarded cyberbullying as a widespread and universal issue affecting children and adolescents (Erdur-Baker, 2010; Kowalski & Limber, 2007). Additionally, the perceived anonymity of the cyber environment may lend itself to cyber bullies acting more aggressively or with increased volatility than they might express in face to face situations (Patchin & Hinduja, 2006). Several studies indicate that cyberbullying victims are often unaware of the identity of their perpetrators (Greene, 2006; Ybarra, Diener-West, & Leaf, 2007). People no longer need be physically present to observe cyberbullying as it can occur anytime, anywhere, to anyone, and in front of a much larger audience over an electronic medium (Kowalski & Limber, 2007). Greene (2006) also highlighted the absence of power imbalance between victim and bully in the cyber world that is typically assumed or noted in traditional bullying contexts. Coupled with limited supervision of adolescent online behavior (Patchin, & Hinduja, 2006; Wang, Bianchi, & Raley, 2005) and later peak of prevalence than traditional forms of bullying (10th grade; Turner et al., 2013), many adolescents engage in or are the victims of cyberbullying without the awareness of adults.

**Gender differences.** Although some research investigations have reported that males are more frequently involved in both bullying and victimization (Cook et al., 2010; Erdur-Baker, 2010), gender differences remain less clear and more complicated in recent investigation given the multiple contexts and levels of involvement considered (Ayas & Pişkin, 2011; Hinduja & Patchin, 2008; Turner et al., 2013; Wang et al., 2009). Response to bullying also presents complicated gender differences, with some evidence suggesting females are more negatively impacted by any form or level of bullying, and males are only negatively impacted by recurrent
bullying (Klomek et al., 2007; Klomek et al., 2009). Gender differences regarding impact of victimization, coupled with the inconsistent findings regarding gender and involvement in bullying/victimization, suggest that more research is needed to determine whether gender may be a significant factor in understanding the experiences of bullying and victimization in both traditional and cyber contexts.

In both traditional and cyber contexts, individuals can be bullies, victims, or bully-victims. Regarding bully status, Ayas and Pişkin (2011) reported that adolescent males tend to endorse higher rates of bullying behaviors than females with the exception of isolative behaviors. Other researchers have indicated that males are more frequently involved in direct, physical bullying, while females are more frequently involved in indirect, relational bullying (Hinduja & Patchin, 2008). Gender differences regarding cyberbullying are also complicated. Although some researchers reported that adolescent males tend to be the bullies in the cyber realm (Aricak et al., 2008; Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Erdur-Baker, 2010; Li, 2006; Wang et al., 2009), others cite no significant gender differences (Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012; Patchin & Hinduja, 2006; Turner et al., 2013; Williams & Guerra, 2007). Still others have reported that females are the more likely perpetrators of cyberbullying behaviors given that it is a more relational form of aggression (Keith & Martin, 2005; Kowalski & Limber, 2007; Wade & Beran, 2011).

Regarding victim status, Dempsey et al. (2009) noted that females tend to self-report higher levels of cyber and relational victimization than males. In more recent investigation, Turner et al. (2013) failed to find gender differences in regards to cyber victimization. Results regarding traditional relational victimization have also been mixed, with some research noting similar rates being reported by adolescent males and females (Nansel et al., 2001; Prinstein et al.,
and others citing slightly higher rates of relational victimization among girls in early to late childhood (Banks, 1997; Crick & Grotpeter, 1995). Historically, research has indicated that males tend to self-report being the recipients of overt forms of traditional bullying more frequently than females (Ayas & Piskin, 2011; Dempsey et al., 2009; Li, 2006; Nansel et al., 2001; Prinstein, Boergers, & Vernberg, 2001; Turner et al., 2013; Whitney & Smith, 1993).

Other researchers have failed to find consistent gender differences in victim status (Veenstra et al., 2005), including reviews of the victimization literature (Tokunaga, 2010).

Risk factors and outcomes associated with bullying. Identifying the antecedents and consequences of involvement in bullying and victimization has been emphasized in previous literature and is an important avenue for continued investigation. Research evidence exists regarding the association between attachment and bullying, suggesting the important role parent-child relationships can play in potentially predisposing children to engage in bullying behaviors towards their peers (Eliot & Cornell, 2009; Lafreniere & Sroufe, 1985; Stevens et al., 2002; Troy & Sroufe, 1985; Walden & Beran, 2010). Early attachment theory provides a foundation for understanding this association. Crittenden and Ainsworth (1989) hypothesized a link between attachment security and views of the world and social interactions, suggesting that children who are insecurely attached will view the world as more precarious than securely attached children, and they will be more likely to attend to negative or hostile elements of social interactions. Research has documented the link between insecure parental attachments and risks of lower social competence and problematic peer relationships (e.g., Schneider et al., 2001), factors which could also predispose individuals to either bullying or victimization (Marini et al., 2006). In line with this, early indices of childhood attachment have been found to influence bullying behavior, as well as victimization, of preschool children (LaFreniere & Sroufe, 1985; Troy & Sroufe,
1985). This finding was replicated by Walden and Beran (2010) in a sample of elementary and junior high school participants, with results indicating that those with poor attachment relationships to primary caregivers were more likely to be involved as perpetrators of bullying and experience victimization than those with more secure attachment relationships.

Additionally, in a sample of 6th graders, Eliot and Cornell (2009) found that insecure attachment to parents was significantly correlated with higher self-reported aggressive attitudes towards peers and bullying behavior, as well as higher peer-reported bullying behaviors. Their results suggested a model by which attachment to parents was indirectly associated with bullying behavior through the mediating variable of aggressive attitudes. Eliot and Cornell also purported that these aggressive attitudes are related to insecure attachment to parents and negative internal working models of others (i.e., perceived hostility in social interactions).

Other elements of parent-child relationships have also been linked with bullying behavior. Children and adolescents involved in direct bullying (as bullies, bully-victims, or victims) self-report lower levels of parental involvement and support than those uninvolved (Cook, Williams, Guerra, Kim, & Sadek, 2010; Haynie et al., 2001). Spriggs et al. (2007) also identified an association between difficulties in parental communication and bullying behaviors.

Research suggests that bullies are often characterized by higher levels of anger and impulsivity than those who are not involved in bullying (Bosworth, Espelage, & Simon, 1999), and they often hold beliefs that legitimatize or support violence (Bosworth et al., 1999; Williams & Guerra, 2007). A meta-analytic review regarding predictors of bullying behaviors suggested that bullies are typically characterized by externalizing behavioral problems, negative attitudes regarding others, problematic conflict resolution styles, academic difficulties, and a tendency to be negatively influenced by their peers (Cook et al., 2010). Spriggs et al. (2007) demonstrated
that those who engage in bullying behaviors often self-report problems in peer relationship and academic difficulties. Bullies tend to be more aggressive, more disliked, and engage in less prosocial behaviors than adolescents who are not involved in bullying (Veenstra, Lindenberg, Oldehinkel, Winter, Verhulst, & Ormel, 2005). Recent evidence suggests that those involved in cyberbullying behaviors perceive less social support from their friends and peers than those who are not involved (Calvete et al., 2010), which is consistent with previous research indicating that lower levels of social support are associated with all types of bullying behaviors (Williams & Guerra, 2007).

Engagement in bullying behavior has also been linked with long-term negative consequences, such as increased risks for continued problematic behaviors (Haynie et al., 2001; Nansel et al., 2001) and adult criminal behavior (Alude et al., 2008; Olweus, 1991). Research has demonstrated associations between bullying and low levels of self-control, as well as higher levels of delinquent behavior and acceptance of antisocial behaviors (Haynie et al., 2001; Nansel et al., 2001; Olweus, 2001; Rigby, 2001). Additional negative outcomes of being a bully can include problems within romantic relationships (Craig & Pepler, 2003; Nuzzi, 2010) and substance abuse (Hourbe, Targuinio, Thuillier, & Hergott, 2006).

*Risk factors and outcomes associated with victimization.* As noted previously, quality of parent-child attachment has been linked with likelihood of victimization (Lafreniere & Sroufe, 1985; Troy & Sroufe, 1987; Walden & Beran, 2010). Overall, individuals who exhibit less secure attachments seem to be at increased risk for being bullied by others than their securely attached peers. This is understandable given that insecurely attached individuals often seem to be lacking in social competency and peer acceptance (Allen et al., 1998; Cooper et al., 1998; Dykas et al., 2008), and they often hold negative expectations of social interactions (Renken,
Egeland, Marvinney, Sroufe, & Mangelsdorf, 1989), factors that may influence their becoming prime targets of bullies.

Other individual characteristics such as unpopularity, physical weakness, withdrawal, and anxiety have also been associated with individuals victimized by bullying (Guerra, Williams, & Sadek, 2011; Olweus, 1993; Schwartz, Chang, & Farver, 2001). A meta-analytic review regarding predictors of bullying victimization suggested that victims are typically characterized by internalizing symptoms, social skills deficits, negative attitudes about themselves, problem-solving difficulties (Cook et al., 2010), and significant peer rejection and isolation (Cook et al., 2010; Spriggs et al., 2007; Veenstra et al., 2005). Other researchers have also highlighted factors that seem to predispose individuals to being victimized by their peers, such as anxiety, feelings of inadequacy, high levels of social stress (D’Esposito, Blake, & Riccio, 2011), as well as impulsive or disruptive behaviors (Beran, 2009).

Being a victim of bullying is associated with numerous negative outcomes. Victims of bullying have reported lower levels of both physical (Nishina, Juvonen, & Witkow, 2005; Smokowski & Kopasz, 2005) and psychological well-being (Smokowski & Kopasz, 2005). Along with the parent-adolescent relationship difficulties experienced by all involved in the bullying situation (Haynie et al., 2001), victims often report increased internalizing problems such as depression, anxiety, loneliness, and low self-esteem (Grills & Ollendick, 2002; Guerra et al., 2011; Marini et al., 2006). All forms of victimization (i.e., physical, verbal, and cyber) have been associated with higher levels of depressive symptoms and suicidal ideation for both genders, but female cyber victims seem to be more negatively impacted than male cyber victims (i.e., higher levels of depression; Turner et al., 2013). Victims of indirect bullying also demonstrate increased odds for difficulties within peer relationships than either bullies or uninvolved
adolescents (Marini et al., 2006). Additional outcomes of victimization are more negative perceptions of their academic achievement (Nansel et al., 2001) and increased truancy and absenteeism (Fried & Fried, 1996).

Risk factors and outcomes associated with bully-victims. Although often overlooked or not researched directly, it is also important to understand the risk factors and outcomes associated with bully-victims, or those who are simultaneously involved in both sides of the bullying situation (Marini et al., 2006). Research has suggested that this group may comprise up to one third of the individuals who self-report involvement in bullying or victimization (Marini et al., 2006), and they are typically the least well-liked and most isolated of those involved in bullying (Haynie et al., 2001; Veenstra et al., 2005). Meta-analytic reviews of risk factors and predictors of bullying and victimization have demonstrated that this group faces the most severe challenges, exhibiting comorbid internalizing and externalizing symptoms, negative beliefs about self and others, deficits in social competency, academic difficulties, peer rejection, and a tendency to be negatively influenced by peers (Cook et al., 2010).

In the realm of indirect bullying behavior, Marini et al. (2006) demonstrated that bully-victims experience risks and negative outcomes beyond those of being just a bully or just a victim, including more internalizing difficulties, such as low self-esteem and depression, increased problems within peer relationships, and more beliefs legitimizing antisocial and aggressive behaviors. Given the cross-sectional nature of this data, these risk factors may represent the negative outcomes associated with being victimized or aspects that predispose an individual to being an easy target for bullying. Although all participants in bullying and victimization (bullies, victims, and bully-victims) reported higher levels of alienation in their relationships with their mothers than uninvolved adolescents, bully-victims demonstrated the
highest level of self-reported alienation within their attachments to their mothers (Marini et al., 2006). Bully-victims also tended to perceive the most rejection at home than bullies, victims, and uninvolved adolescents (Veenstra et al., 2005). In their investigation of cyberbullying, Katzer, Fetchenhauer, and Belschak (2009) indicated that those who experience cyber victimization also tend to engage in cyberbullying behavior. Other researchers have replicated the frequency of bully-victims in the cyber realm, citing that out of approximately 30% of the adolescents involved in cyberbullying, one in four had been involved as both a bully and a victim during the past three months (Mishna et al., 2012).

In the realm of direct bullying behavior, being a bully-victim has also been associated with internalizing and externalizing problems, peer rejection, and lack of closeness, support, and trust in relationships with peers and parents (Craig, 1998; Haynie et al., 2001; Kumpulainen et al., 1999; Marini et al., 2006; Pellegrini et al., 1999; Salmivalli & Nieminen, 2002; Schwartz, 2000), suggesting that their overlap with both bullies and victims leads to amplified risks and negative outcomes.

The Proposed Study

The current study seeks to extend research on the phenomena of bullying and victimization by investigating the associations between attachment, various forms of bullying/victimization (traditional and cyber), peer relationships (both peer attachment and perceived social support), and mental health outcomes. It is hoped that increased understanding of these phenomena, including identification of important risk factors and consequences, will serve to improve prevention and intervention efforts.

Although cyberbullying and cybervictimization have received increased attention and been identified as a widespread problem, a literature search revealed no studies involving
attachment to parents and this “emerging universal issue” (Erdur-Baker, 2010, p. 110).

Additionally, given the increased salience of peer relationships during this developmental time period, it is reasonable to assume that peers may also play an important role in the potential association between parental attachment and bullying/victimization. Although evidence exists regarding links between peer relationships and bullying/victimization (e.g., Marini et al., 2006; Spriggs et al., 2007), no studies have investigated the possible associations between attachment and peer relationships in this age group in relation to the newer construct of cyberbullying. Preliminary data indicate a relationship between cybervictimization and problems with psychosocial adjustment (Dempsey et al., 2009). However, the scarce existing research is limited by a range of measurement limitations (e.g., dichotomous items measuring the construct, no established measure of cyberbullying) and scope and breadth of investigation.

Furthermore, while correlational links between attachment and involvement in bullying and victimization have been reported with a sample of elementary and junior high school students (Walden & Beran, 2010), Kowalski and Limber (2007) indicated that cyberbullying has shown a trend towards increasing with age and grade level. The current study extends the literature by incorporating improved measurement of these constructs with a high school population.

The central aims and research questions of the proposed study are: a) to examine the prevalence and nature of bullying and victimization among high school students, with an emphasis on cyberbullying and cybervictimization; b) to investigate the associations between parent attachment, peer relationships, involvement in bullying/victimization (both traditional and cyber forms), and psychological health; c) to determine if there are similar processes involved in traditional and cyber bullying/victimization, and d) to determine potential risk factors related to
bullying and victimization (both traditional and cyber forms). Another aim of the current study is to conduct exploratory analysis on characteristics associated with the cyber bully-victim group. Overall, it is assumed that quality of peer relationships and involvement in bullying and victimization are related to the internal working models (Ainsworth et al., 1978; Bowlby, 1969/1982) developed within the parent-child attachment relationship, and these processes will be involved in the model linking parental attachment and mental health outcomes in adolescence. Theoretically, adolescents who are securely attached to their parents should also be securely attached to their peers, perceive support from their friends and peers, and be less involved in either bullying or victimization of all forms. All of these elements should contribute to more positive mental health outcomes when compared to adolescents who are insecurely attached to their parents (see Figures 1 and 2).

Hypotheses

The proposed study will examine the relative contributions of parental attachment, peer attachment, perceived social support, and involvement in bullying and victimization to adolescent psychological well-being. The following hypotheses and analyses are proposed, following the theoretical models proposed in Figures 1 and 2. One model will address traditional bullying and victimization, and one model will address cyberbullying and cybervictimization. It is anticipated that:

1. Higher levels of secure parental attachment will be associated with more positive peer relations (e.g., higher levels of secure peer attachment, perceived social support from friends, and more positive interpersonal relations).

2. Positive peer relations will be negatively related to involvement in both traditional and cyber bullying and victimization.
3. Involvement in traditional and cyber bullying and victimization will be negatively related to measures of psychological well-being (e.g., higher levels of depression and anxiety) and positively related to positive indicators of well-being (e.g., lower levels of self-esteem).

4. Higher levels of secure parental attachment will be positively associated with psychological well-being (e.g., lower levels of depression and anxiety, and higher levels of self-esteem).

To test the above stated hypotheses, two structural models will be developed, one addressing the processes involved in traditional bullying and victimization, and one addressing processes involved in cyber bullying and victimization. The first model, focused on traditional bullying and victimization, will be developed relating parental attachment, peer relations, involvement in bullying and victimization, and psychological well-being on the basis of theoretical assumptions in which there is (a) a pathway between the latent variables of maternal and paternal attachment (as measured by IPPA scales of Trust, Communication, and Alienation for both parents) and the latent variable of peer relations (as measured by IPPA Peer Attachment [if sufficient reliability]; MSPSS Friends subscale; and BASC Interpersonal Relations scales); (b) pathways between peer relations and the latent variables of involvement in bullying (as measured by RAPRI-BT Bully subscales: Traditional Physical, Traditional Verbal, Traditional Social) and involvement in victimization (as measured by RAPRI-BT Target subscales: Traditional Physical, Traditional Verbal, Traditional Social); and (c) pathways between involvement in bullying and victimization and the latent variable of psychological well-being (as measured by BASC-2 Depression, Anxiety, and Self-Esteem). Additionally, a direct pathway between maternal
attachment and psychological well-being, as well as paternal attachment and psychological well-being, will be included in this model.

Similarly, the second model, focused on cyber bullying and victimization, will be developed relating parental attachment, peer relations, involvement in bullying and victimization, and psychological well-being on the basis of theoretical assumptions in which there is (a) a pathway between the latent variables of maternal and paternal attachment (as measured by IPPA scales of Trust, Communication, and Alienation for both parents) and the latent variable of peer relations (as measured by IPPA Peer Attachment; MSPSS Friends subscale; and BASC Interpersonal Relations scales); (b) pathways between peer relations and the latent variables of involvement in cyberbullying (as measured by parsing the RAPRI-BT Bully Cyber items into 3 indicators) and involvement in cybervictimization (as measured by parsing the RAPRI-BT Target Cyber items into 3 indicators); and (c) pathways between involvement in bullying and victimization and the latent variable of psychological well-being (as measured by BASC-2 Depression, Anxiety, and Self-Esteem). Additionally, a direct pathway between maternal attachment and psychological well-being, as well as paternal attachment and psychological well-being, will be included in this model.

If possible given sufficient group size, the proposed study will also conduct exploratory analyses on characteristics associated with the cyber bully-victim group, specifically related to attachment, peer relations, and psychological well-being, and how this group compares to peers not involved in cyberbullying or cybervictimization.
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