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Peer Victimization and Adolescents' Academic Functioning

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UNIVERSITY OF MIAMI

PEER VICTIMIZATION AND ADOLESCENTS' ACADEMIC FUNCTIONING

By

Caroline Jane Ehrlich

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

December 2017

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PEER VICTIMIZATION AND ADOLESCENTS' ACADEMIC
FUNCTIONING

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Background. Peer victimization (PV) has been linked to poor psychological adjustment in adolescence. Research in younger populations has linked PV to poor academic functioning, but few studies have examined this relationship during the high school years. Low academic functioning (e.g., lower GPA, more school absences, and more disciplinary action brought against the student) has been linked to higher school dropout rates and poorer mental health in adulthood. The current study examined the trajectories of academic achievement across one year of high school for 9th, 10th, and 11th graders, and the extent to which PV was associated with those trajectories. Gender and internalized distress were examined as potential moderators and school disengagement was examined as a potential mediator of the relationship between PV and the trajectories of adolescents' academic achievement. **Method.** Participants were 692 adolescents aged 14-19 years ($M=15.62$ years; $SD=1.01$; 79.9% Hispanic, 20.1% Non-Hispanic; 84% White, 12% Black, 4% Asian) recruited from a high school in the southeastern United States. Adolescents completed the *Revised Peer Experiences Questionnaire*, *Cyber Peer Experiences Questionnaire*, *Center for Epidemiological Studies Depression Scale* and *Social Anxiety Scale for Adolescents*. Grade point average (GPA) data were collected from student records for all four quarters of the academic year in which PV was assessed, and one year after the assessment of PV. Data were analyzed separately by grade. For

each grade, a latent growth model (LGM) was specified in order to examine the trajectory of adolescents' GPA, and PV was examined as a predictor of the intercept and slope factors of the LGM (aim 1). Gender (aim 2) and internalized distress (aim 3) were examined as potential moderators and school disengagement was examined as a potential mediator (aim 4) of these relationships. Lastly, chronically victimized adolescents were compared to intermittently victimized and non-victimized adolescents on GPA one year after the assessment of PV (aim 5). All analyses controlled for gender and race, where appropriate. **Results.** Regarding Aim 1, when boys and girls were considered jointly, PV predicted the lowest GPA of the academic year (4th quarter for 9th graders, 3rd quarter for 10th and 11th graders) for all grades. PV did not predict the decline in GPA for any grade. Regarding Aim 2, gender differences revealed that all PV types predicted lower GPA for girls in 9th grade. No significant results emerged for boys in the 9th grade. In the 10th grade, only overt and cyber PV significantly predicted lower GPA for girls, whereas all types of PV predicted lower GPA in boys. In the 11th grade, reputational, over, and cyber PV continued to predict lower GPA for girls. For boys, however, PV predicted less severe decline in GPA. For aim 3, social anxiety and depression moderated the relationship between PV and GPA for 10th graders only. No significant results emerged for aims 4 and 5. **Conclusion.** In general, PV predicted lower GPA concurrently but did not predict change in academic functioning over the course of the school year. The relationship between PV and GPA differed significantly by gender, with girls more frequently affected than boys in the three grades. However, results for boys suggest the potential for academically-oriented (i.e., “nerdy”) students to be victimized, possibly due to their academic achievement. Some results pointed to moderation by social anxiety and

depressive symptoms, but only for in the 10th grade. Findings were limited by the potential for spurious findings due to the high number of analyses run on each grade, the nature of missing data in the sample, and the limiting nature of identifying only one GPA trajectory per grade. Future research should expand on these findings to include a history of PV in order to further prospectively examine whether PV predicts change in GPA over time. Additionally, other mechanisms, such as externalizing problems, parent and teacher support, and perceived social support, must be evaluated for their role in understanding the relationship between PV and academic functioning, as assessed by GPA.

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Chapter 1

Introduction

Peer victimization (PV) is a common stressor among adolescents, affecting approximately 20% of American youth (Williams & Veeh, 2012). PV has been strongly linked to poor adjustment in adolescence, predicting diverse negative outcomes such as internalizing and externalizing problems, somatic complaints, and substance use (e.g., Chan & La Greca, 2015; De Los Reyes & Prinstein, 2004, La Greca & Harrison, 2005; Luk, Wang, & Simons-Morton, 2010; Siegel, La Greca, & Harrison, 2009). Recently, PV has also been associated with problems in adult adjustment, including social anxiety, depression, and low self-esteem (Rosen, Underwood, Gentsch, Rahdar, & Wharton, 2012). Problems in academic achievement have also been linked to long-term maladjustment (e.g., Abbott-Chapman et al., 2014; Battin-Pearson et al., 2000; Dryfoos, 1990). Because academic learning during the high school years occurs within a social and peer context for adolescents, understanding the relationship between PV and youths' academic functioning is important.

Academic functioning is a broad construct encompassing students' overall adjustment and success in an academic setting (Nakamoto & Schwartz, 2010). Academic functioning typically includes grade point average (GPA), school attendance, disciplinary actions, and standardized test scores. As such, it is an important predictor of dropout rates, higher education matriculation, and mental health outcomes in adulthood (e.g., Battin-Pearson et al., 2000; Caspi, Elder, & Bem, 1987). A great deal of research has examined predictors of academic functioning, such as parental reaction to grades, teacher and school administrator attitudes, parent education level, family income, and time spent

on homework (e.g., Hernando, Oliva, & Pertegal, 2012; Morrissey, Hutchison, & Winsler, 2014; Schickedanz, 1995). However, peers represent another key influence on adolescents' lives. While a number of studies have examined PV and academic functioning in younger students (i.e., elementary and middle-school-aged), little research has focused on high school students despite the relatively high level of PV occurring during this period (Robers, Zhang, & Truman, 2011).

In addition, the current understanding of the relationship between PV and academic functioning is limited by several factors. Few studies have examined longitudinal relationships, and little focus has been given to mediating or moderating variables. To address these gaps in the literature, the current study examined the extent to which PV was related to the growth trajectory of adolescents' academic achievement (Aim 1). Several potential moderators were investigated, including gender (Aim 2) and internalized distress (Aim 3). School disengagement (specifically, absences) was examined as a potential mediator of the relationship between PV and academic achievement (Aim 4). Additionally, this study examined the association between chronic victimization over a three-month period and adolescents' academic functioning one year after the assessment of PV (during the third quarter of the following academic year) (Aim 5). The following text reviews relevant research on adolescent experiences of PV and academic functioning, and provides further explanation of each study aim.

Peer Victimization: Definition and Prevalence

PV is generally considered to be the recipient of intentional, aggressive behavior from a peer (Hampel, Manhal, & Hayer, 2009). Prevalence rates vary widely across studies, but are consistently high across the globe: 29.9% to 40% of school-aged children

report experiencing PV (Williams & Veeh, 2012). This common stressor has been conceptualized into three key types: overt, relational, and reputational (De Los Reyes & Prinstein, 2004). Overt PV occurs when an adolescent is the recipient of direct threats of or actual physical violence from peers (Prinstein, Boergers, & Vernberg, 2001). Relational PV, an indirect form, includes being the target of social exclusion and withdrawal of support (De Los Reyes & Prinstein, 2004). Another indirect form, reputational PV, occurs through having one's reputation damaged by a peer through embarrassment or rumor spreading (De Los Reyes & Prinstein, 2004). Distinguishing between PV types is imperative as research demonstrates that adolescent outcomes vary based on the type of PV experienced (La Greca & Harrison, 2005; La Greca, Lai, Chan, & Herge, 2013; Siegel et al., 2009). The most common forms of PV are relational and reputational. Instances of overt victimization and cyber victimization (aversive experiences occurring through electronic media), while less frequent, are also a concern (e.g., Siegel et al., 2009; Wang, Iannotti, & Nansel, 2009).

A growing body of research demonstrates the particularly harmful nature of cyber PV, which occurs via electronic means (i.e., text messaging, social networking platforms). In some instances, cyber PV has been linked to increased risk of suicide (e.g., Dempsey, Sulkowski, Nichols, & Storch, 2009; Lenhart, Purcell, Smith, & Zickuhr, 2010). Cyber PV is potentially more dangerous than face-to-face PV due to the perceived anonymity of electronic media (i.e., it may be unclear who the perpetrator is and thus the perpetrator may be more willing to inflict harm than when he/she is known to the victim), and because aggressors can reach a bigger audience, making these experiences very public (Dempsey et al., 2009; Patchin & Hinduja, 2006; Sticca & Perren, 2013). While

cyber PV may previously have been limited to adolescents while “online” at home, the high prevalence of smart phones now allows for constant access to potentially harmful peer interactions (Lenhart et al., 2010).

The present study examined all four PV types (overt, relational, reputational, and cyber) in evaluating the relationship between PV and adolescent academic functioning. This allowed for the examination of unique contributions from each PV type in predicting adolescents’ academic functioning.

Academic Functioning: Predictors and Risk Factors

A student’s overall success in school is an important predictor of later outcomes in life. For example, strong school engagement has been linked longitudinally to the odds of pursuing higher education and obtaining a higher status occupation (Abbott-Chapman et al., 2014). Further, low academic success has been consistently linked to increased dropout rates before reaching grade 12 (e.g., Battin-Pearson et al., 2000; Dryfoos, 1990). In turn, students who drop out of high school (i.e., those between the ages of 16 and 24, who are not enrolled in school and have not earned a high school diploma or equivalent credential) earn less than their graduate counterparts, hold lower-status jobs, and have poorer mental and physical health (e.g. Oakland, 1992; Stearns & Glennie, 2006; Witte, 1997). Although the national high-school dropout rate has been steadily decreasing over the past several decades, the current number holds strong at 6.6%, leaving some room for improvement (U.S. Department of Commerce Census Bureau, 2013).

Many studies have focused on academic trajectories in the context of the transition from middle to high school, which is generally considered a period of stress and upheaval (e.g., Barber & Olsen, 2004; Ding, 2008; Eccles et al., 1993; Gutman,

Sameroff, & Cole, 2003). In particular, research has shown that a decline in GPA during early adolescence can predict later academic failure and even school dropout (Eccles et al., 1993). One study examining trajectories of GPA and absences from 1st through 12th grade explored how early risk factors such as low socioeconomic status and low IQ predicted worse academic functioning (Gutman, Sameroff, & Cole, 2003). Results showed that more risk factors predicted lower grades as well as increased number of absences across 12 years, highlighting the importance of identifying risk factors that affect academic trajectories in high school. However, few studies have examined academic trajectories during high school alone. This study utilized data across four quarters of one academic year of high school in order to analyze changes in academic achievement, and the extent to which a particularly salient social stressor, PV, was related to that change.

Research has identified several predictors of academic functioning, including social class, previous academic performance, personality, intelligence, and teacher competence (e.g., Armitage, 2008; Mullola et al., 2011). Other predictors of academic achievement include parenting practices, family decision-making style, and peer group affiliation (e.g., Engerman & Bailey, 2006; Heaven, Ciarrochi, & Vialle, 2008). Given the social context within which learning occurs—especially during the high school years—social connectedness becomes an important factor to consider in relation to academic achievement. PV may lead to adolescents' negative perception of the school environment, thus leading to lower academic success, greater absences, and more disciplinary action. Thus, it is important to understand how the peer context, within which academic learning takes place affects overall academic success. This study

focused on the role of PV experiences in the overall interpersonal context of high school to better understand the effects of PV on academic functioning.

Conceptualization of Peer Victimization's Association with Academic Functioning

PV and academic functioning are potentially connected via a number of different mechanisms. For example, increased PV may result in decreased school engagement or school bonding, thus leading to lower academic functioning. Externalizing behavior may represent another possible pathway linking PV with poor academic functioning, given that PV has been both concurrently and prospectively linked to externalizing problems (Rosen, Milich, & Harris, 2012). Further, increased externalizing behaviors lead to lower academic functioning due to higher levels of disciplinary action and lower school bonding (Matsen et al., 2005). PV has also been consistently linked with internalizing problems, which in turn have been shown to affect academic performance (e.g., Beidel, Turner, & Morris, 1999; La Greca & Harrison, 2005; Klomek et al., 2008). To date, however, no research has examined a comprehensive conceptual model examining the complex relationship between PV and academic functioning.

The current study examined the trajectory of adolescents' academic achievement across four quarters of one academic high school year and the extent to which PV, occurring over a specific three-month period, was related to this trajectory. Adolescents were grouped based on when PV was assessed (in 9th, 10th, or 11th grades). In order to account for potential developmental differences between grade levels, each grade was examined separately. For example, adolescents who entered the study in the 9th grade just completed their first semester of high school. Research shows that these adolescents, often faced with a larger student body in a more competitive environment than they were

previously accustomed to, experience a drop in grades and regular attendance (e.g., Mizelle & Irvin, 2000; Reyes, Gillock, & Kobus, 1994). Adolescents in 10th grade may have acclimated to their new environment, while students who began the study in 11th grade were faced with the new and unique challenges inherent in applying to college and considering their future career aspirations. Given the potentially unique grade level characteristics, each grade level's academic trajectory across the year in which PV was assessed was modeled separately.

An overall conceptual model linking PV and academic functioning is lacking in the existing research. As depicted in Figure 1, the current study examined a model in which PV interacts with both gender and internalized distress to affect academic achievement. In addition, school disengagement, as indexed by school absences, was postulated as a mechanism of action explaining the relationship between PV and (poorer) academic functioning. The following text reviews current research relevant to each element of the proposed model.

This relationship between PV and academic functioning has not been well studied in the high school population. However, based on available research with children and early adolescents, evidence suggests that PV contributes to problems with academic functioning. Longitudinal studies of children demonstrate that chronic peer rejection and peer abuse (akin to relational and overt PV) predict poor academic outcomes (e.g., Buhs, Ladd, & Herald, 2006). Evidence also demonstrates that increased PV in early adolescents is associated with lower school functioning (Nishina, Juvonen, & Witkow, 2005). Further, a large-scale meta-analysis examined the association between PV and

academic achievement across 33 studies, finding that PV is concurrently related to difficulties in academic functioning (Nakamoto & Schwartz, 2010).

A limited body of research has examined the relationship between PV and academic functioning in older adolescents. To date, four studies examined PV and academic functioning in high school aged adolescents (Beran, 2009; Eisenberg, Neumark-Sztainer, & Perry, 2003; Greco, Freeman, & Dufton, 2007; Schwartz, Kelly, Duong, 2013). These studies have largely mixed findings, suggesting the need to further examine moderators and mediators of the PV-academic functioning association.

Beran (2009) examined the relationship between PV and school achievement among 4,293 Canadian youth ages 12 to 15 years and evaluated a multifactorial model of child, parent, and teacher characteristics that could explain these associations. Although the findings did not demonstrate a direct link between PV and academic functioning, victimized youth demonstrated lower academic achievement when they reported engaging in disruptive behaviors such as hyperactivity or inattention and when they reported low levels of teacher and parent support. Thus, disruptive behavior and low social support moderated the association between PV and academic functioning.

Another study examined the contribution of relational and overt PV to youths' (N = 120, grades 5 through 10) experience of frequent abdominal pain, and how these two factors affect school outcomes (Greco, Freeman, & Dufton, 2007). Results revealed that overt PV predicted lower academic competence. However, no link was found between relational PV and academic competence. Moderation analyses revealed that those with the highest levels of both pain and overt PV showed the worst academic outcomes.

Schwartz and colleagues (2013) followed 415 9th graders for a year to examine both prospective and reciprocal relationships between PV and academic functioning. Researchers considered two possible mediational pathways: (1) negative peer experiences would result in lower school engagement and thus in lower academic achievement, or (2) adolescents with high academic functioning would be ostracized and experience increased PV as a social sanction for their academic engagement. Interestingly, this study demonstrated positive relationships between peer difficulties and better academic achievement concurrently, diverging considerably from previous research with younger populations. The study also found that gender significantly moderated the relationship between peer difficulties and academic achievement. Specifically, higher academic achievement was more strongly linked to increased PV in boys than in girls.

In a study of both middle- and high-school-aged adolescents, Eisenberg, Neumark-Sztainer, and Perry (2003) examined the association between peer harassment and academic achievement, and whether gender, race, grade level, or socio-economic status moderated this association. Researchers found that those whose grades fell within the “B” range reported the lowest levels of PV on average, with slightly higher levels of PV reported by those with grades in the “A” and “C” ranges. In general, levels of PV increased as grades decreased. Researchers also found that adolescents who were oriented toward school (and thus, deemed “nerdy”) were marginalized by their peers and experienced higher levels of PV than those who were performing worse academically. Longitudinal results revealed that academic achievement was closely linked to peer

difficulties for boys, but not for girls. Further, no support was found for reciprocal relationships that posited academic achievement would predict later peer difficulties.

These four studies highlight the need for further examination of the association between PV and academic functioning among older adolescents, and point to the importance of considering moderating and mediating variables. The present study addressed this gap in the literature by evaluating internalized distress and gender as potential moderators and school disengagement as a potential mediator of this complex association (depicted in Figure 1).

In addition, several limitations of existing studies were addressed in the present investigation. To date, research has focused almost entirely on overt and relational PV. However, overt victimization is, in fact, the least frequent type reported by adolescents; both relational and reputational PV are more common (De Los Reyes & Prinstein, 2004; Siegel et al, 2009). In addition, none of the studies reviewed above examined cyber PV in relation to academic functioning. Additionally, some of the above studies (e.g., Greco et al., 2007) utilized teacher rating scales to capture academic competence rather than relying on school records or other objective indicators.

The current study addressed these gaps in the above literature in four ways. First, it examined academic data for 9th – 11th graders across a year of high school (i.e., GPA from all four quarters of one academic year) in order to examine the trajectory of achievement over a short period of time, and the nature in which PV related to poor academic achievement and change in academic achievement across a year. Second, it assessed all three types of traditional PV as well as cyber PV occurring in one spring semester in order to examine unique contributions of each type of PV to the trajectory of

adolescents' achievement. Third, it assessed the contribution that chronic PV of any kind makes to change in academic functioning. Lastly, it used school records to examine various aspects of academic functioning, including achievement and school disengagement.

Furthermore, as explained below, the current study used a conceptual model to address important variables—including internalized distress, gender, and school disengagement—that could moderate or mediate the association between PV and the trajectory of academic achievement. Taken together, this study offered a unique perspective on the relationship between adolescent peer relations and academic outcomes in high school students. For Aim 1, regarding the relationship between PV and the trajectory of adolescents' academic achievement, it was hypothesized that higher levels of PV would be associated with the lowest average GPA across one year of high school as well as the change in GPA from the beginning to the end of one year. The sections below describe the potential moderating and mediating pathways affecting this association.

Gender as a Potential Moderator of the Relationship Between PV and Academic Functioning

As depicted in Figure 1, gender was an important moderating variable that was examined in the current study. In general, the association between PV and poor academic functioning was expected to be stronger for girls than for boys. Unique associations of PV types were also predicted for gender moderation. In addition, gender main effects were expected for both PV and academic functioning.

Unique associations between PV types and academic functioning across genders may be related to several clear gender differences that have emerged in studies of adolescent PV. For example, girls tend to report higher levels of relational and cyber PV compared to boys (e.g., Siegel et al., 2009; Wright & Li, 2013) and boys report higher levels of overt victimization than girls (e.g., Crick & Bigbee, 1998).

In addition, several studies have examined gender differences in academic achievement and its correlates. Wasonga, Christman, and Kilmer (2003) examined 480 urban high school students, finding that girls had higher standardized test scores than boys, and girls also had a wider variety of protective factors that predicted higher academic achievement than boys. For example, girls' high expectations from peers and from family were positively associated with academic achievement. These findings are consistent with other research demonstrating that girls perform at higher academic levels than boys (e.g., Demie, 2001; Perreault & Hill, 2000).

In an attempt to tease apart the multifactorial relationships between PV, gender, ethnicity, maladjustment, and school engagement, Hoglund (2007) utilized a sample of 337 6th and 7th graders (capturing early adolescence). Interestingly, the findings indicated that relational PV was associated with lower achievement in boys, whereas overt PV was associated with lower achievement in girls. This study points to gender as a factor that moderates the association between PV and adolescents academic functioning. Some theories exist to explain this finding. Specifically, Crick (1997) demonstrated the damage associated with socially unexpected experiences. Since these PV subtypes are less common for a particular gender, they can be viewed as non-normative, and result in a higher psychosocial cost.

Based on the above, for Aim 2, the current study examined gender as a moderator of the relationship between PV and academic functioning. Several hypotheses were postulated. In general, the association between PV and the trajectory of academic achievement was predicted to be stronger for girls compared to boys. Further, given that girls tend to perform better academically than boys, and that certain PV experiences are more common and possibly more normative for girls, it was hypothesized that overt PV (a non-normative type for girls) would predict significantly lower academic functioning in girls over time compared to boys. Similarly, it was hypothesized that relational PV would predict lower academic functioning in boys compared to girls.

Internalized Distress as a Potential Moderator of the Relationship Between PV and Academic Functioning

As depicted in Figure 1, internalized distress was examined as another potential moderator of the relationship between PV and academic functioning. Studies have demonstrated that although PV is related to internalized distress, not all victimized adolescents experience distress (e.g., Salmivalli, Sainio, & Hodges, 2013). The relationship between PV and academic functioning may be stronger for adolescents with high levels of internalized distress.

Social withdrawal is frequently associated with depression and social anxiety in youth (e.g., Petersen et al., 1993). For those already experiencing internalized distress, the threat of social exclusion or reputation damaging via PV may be especially salient. Adolescents with already high levels of internalized distress who experience PV may withdraw from the setting of their victimization (school) or may become academically disengaged. As one study of children with social phobia showed, of the 50 children

interviewed, 50% stated that they did not like school, and 10% reported refusing to attend school regularly (Beidel, Turner, & Morris, 1999).

Characteristics of anxious or depressed adolescents may exacerbate the effects of PV on overall functioning in general and academic functioning specifically. For example, adolescents with social anxiety symptoms are more likely to interpret ambiguous social situations as threatening (e.g., Heinrichs & Hofmann, 2001). In the face of less ambiguous and more direct threats that occur during the course of PV experiences, these adolescents may resort to emotional or behavioral avoidance, putting them at risk for greater academic difficulties. For these reasons, anxious or depressed adolescents who experience PV may fare worse academically; thus, examining internalized distress as a potential moderator of associations between PV types and academic functioning is critical to building a full understanding of the complex interactional process at hand. To date, internalized distress has not been examined as moderating variable of the association between PV and academic functioning in any age group. However, as noted above, externalizing problems have been found to moderate this relationship (Rosen et al., 2012).

Based on the above, Aim 3 examined internalized distress as a moderator of the relationship between PV and academic achievement, hypothesizing that adolescents with higher levels of internalizing symptoms who experience PV will demonstrate lower academic achievement trajectories than adolescents without internalizing symptoms who experience PV.

School Disengagement as a Potential Mediator of the Relationship Between PV and Academic Functioning

Figure 1 depicts the predicted pathways that link PV and academic achievement. In addition to potential moderators of this relationship, the current study examined school disengagement as a potential mediator.

Previous research has consistently found a link between school engagement and academic achievement (e.g., Finn & Rock, 1997; Wang & Holcombe, 2010). In general, students who regularly attend school and avoid disruptive behaviors (i.e., engaged in school) achieve higher grades than those who engage in disruptive behaviors and are frequently absent (i.e., disengaged from school) (Finn & Rock, 1997). These findings are consistent with the model presented by Connell and colleagues, in which engagement in school predicts academic achievement, often measured with GPA (Caraway, Tucker, Reinke, & Hall, 2003; Connell, 1990; Skinner, Wellborn, & Connell, 1990).

One might also expect that PV would lead to adolescents' disengagement from school. One study of adolescents in middle school (Totura, Karver, & Gesten, 2014) found that increased levels of PV predicted increased symptoms of depression and anxiety, which in turn predicted lower school engagement and lower academic achievement. In this study, researchers utilized self-report measures to capture multidimensional aspects of school engagement. Specifically, participants completed questionnaires related to school bonding and school self-efficacy. The potential role of school engagement as a mediator of the relationship between PV and academic

achievement remains a largely unstudied pathway, especially in high school-aged adolescents.

The current study examined school disengagement as a mediator of the relationship between PV and the trajectory of academic achievement across high school (Aim 4). School absences were used as indicators of disengagement, consistent with the behavioral conceptualization of school disengagement in previous studies (e.g., Caraway et al., 2003; Skinner et al., 1990). It was hypothesized that higher levels of PV would predict increased number of absences, which would in turn be associated with a poorer academic trajectory.

Chronic PV and its Effects on Later Academic Functioning

In addition to Aims 1-4, which examined the conceptual model depicted in Figure 1, the current study addressed an additional key aim examining the relationship between chronic PV and subsequent academic outcomes in order to understand the contribution of more frequent PV on adolescent functioning. Frequent victimization of any type is particularly damaging to adolescents. Compared to youth who experience PV infrequently or intermittently, those who repeatedly experience PV report worse outcomes, including a more negative view of school, lower self-esteem, being more shy, increased levels of unhappiness, poorer sleep, and even difficulty concentrating (e.g., Esbensen & Carson, 2009; Scholte, Engles, Overbeek, de Kemp, & Haselager, 2007; Smokowski, Evans, & Cotter, 2014). One study examined non-victims, intermittent victims, and repeat victims of overt, relational and reputational PV in a sample of 6th through 9th graders, and found that repeat victims reported lower levels of self-esteem, self-efficacy, and perceived school safety compared to their less frequently victimized

counterparts (Esbensen & Carson, 2009). Similarly, Smokowski, Evans, and Cotter (2014) found that chronic physical, verbal, or cyber victimization over one year resulted in increased depression, anxiety, and aggression as well as decreased school satisfaction, self-esteem, and support from parents, teachers, and friends in a sample of 6th through 8th grade students.

The current study examined chronic victimization over a three-month period as a predictor of academic functioning one year after the assessment of PV (using GPA from the third quarter of the following academic year) in order to identify adolescents who were likely to experience the worst academic outcomes (Aim 5). It was hypothesized that, even over a three-month period, chronically victimized adolescents would demonstrate worse academic functioning over the following school year compared to intermittently victimized and non-victimized adolescents.

Ethnicity and Academic Achievement

One strength of the current study was its inclusion of an understudied ethnic population of adolescents. The study utilized a sample of predominantly Hispanic youth, reflective of the broader community. As the largest ethnic minority in the United States, the Hispanic population represents an important group for continued study. In addition, although the average dropout rate is 6.6% of high school students each year, this number is nearly twice as high for Hispanic youth (12.7%; U.S. Department of Commerce Census Bureau, 2013).

Research has demonstrated stark differences in academic achievement between racial and ethnic groups (e.g., Blair, Blair, & Madamba, 1999; Perie & Moran, 2005). For example, Hispanic, Black, and Native American students achieve lower grades, drop out

more often, and attain less education than White or Asian Americans in the United States (Perie & Moran, 2005). Another study examined the association between social acceptance and academic achievement in ethnic minorities (Fuller-Rowell & Doan, 2010). Despite finding that high achieving African American and Native American students experienced the least social acceptance, no significant findings emerged for Hispanic students. Given the evidence for racial differences (i.e., Black vs. White) in academic achievement, differences in academic functioning variables were examined based on race and controlled for as appropriate.

Study Overview and Hypotheses

The current study addressed gaps in the literature by examining the relationship between the trajectory of academic achievement and PV in a sample of older adolescents (grades 9-11). Adolescents in this grade range were studied in order to examine the full academic trajectory of students for at least a year after PV data were collected (during the spring of 2011). This study also examined internalized distress and gender as potential moderators, and school disengagement as a potential mediator, of the relationship between PV and academic functioning.

To address the study aims, a short-term prospective design was used. Adolescents were assessed on their levels of PV at two time points (January and May) over the course of a spring semester (2011) and also were evaluated with respect to their academic achievement across one high school year (using overall GPA from four quarters of one academic year) in order to examine academic trajectories during high school. The specific aims and hypotheses of the study are summarized below:

Aim 1: To examine the latent growth trajectory of academic achievement in adolescents across one year of high school and the extent to which PV relates to that change

Hypothesis 1: Higher levels of all types of PV (relational, reputational, overt, and cyber) were expected to predict with the lowest GPA across one year of high school as well as the change in GPA from the beginning to the end of one academic year.

Aim 2: To examine gender as a potential moderator of the relationship between certain types of PV and GPA across one year of high school.

Hypothesis 2: The association between overall PV and lower GPA was predicted to be stronger for girls than for boys. Higher levels of overt PV were expected to predict lower GPA in girls, compared to boys. Higher levels of relational PV were expected to predict lower GPA in boys compared to girls.

Aim 3: To examine internalized distress as a potential moderator of the relationship between PV and academic functioning across one year of high school.

Hypothesis 3: Internalized distress, including social anxiety and depressive symptoms, was expected to moderate the relationship between PV and the trajectory of academic achievement, such that the association between PV and a lower GPA would be stronger for adolescents with higher levels of internalized distress (i.e., social anxiety, depressive symptoms) than those with lower levels.

Aim 4 To examine school disengagement as a potential mediator of the relationship between PV and lower GPA

Hypothesis 4: Higher levels of PV were expected to predict increased school disengagement (i.e., school absences), which would in turn predict lower GPA.

Aim 5: To compare chronically victimized adolescents to intermittently victimized and non-victimized adolescents on GPA

Hypothesis 5: Chronically victimized adolescents were predicted to demonstrate lower GPA over time, compared to intermittently victimized and non-victimized adolescents.

Chapter 2

Method

Participants

This study was based, in part, on data from an existing data set of high school students who participated in a study of peer relationships (Herge, La Greca, & Chan, 2016; Landoll et al., 2015). Original participants were 1162 adolescents (57.3% female), 13 to 19 years of age ($M = 15.79$ years; $SD = 1.20$), recruited from two high schools in the Miami-Dade County Public Schools (M-DCPS). The sample was predominantly Hispanic (79.9% Hispanic, 20.1% Non-Hispanic), with the following racial breakdown: 84% White, 12% Black, 4% Asian, consistent with the composition of the larger community (United States Census Bureau, 2015). Participants were distributed as follows: 30.8% in grade 9, 27.4% in grade 10, 19.3% in grade 11 and 12.2% in grade 12.

The current study utilized data from participants in the 9th through 11th grades in order to obtain academic data for at least one semester after PV data were collected (i.e., during the following school year). Data from one of the two original high schools that participated in the study were used; one school declined to participate in the academic functioning portion of the current study. The participating school had an approximate student body of 2,100, with more than 50% of students qualifying for free lunch (an indicator of low socioeconomic status). The student body was predominantly Hispanic (86%) (National Center for Education Statistics, 2014).

Of the 767 9th-11th graders from the participating school, academic data were obtained for 90% of participants. (See Figure 2 for a flowchart illustrating data collection issues leading to the current sample.) This subsample consisted of 692 adolescents

(55.1% female), 14 to 19 years of age ($M = 15.62$ years; $SD = 1.01$), distributed across grade as follows: 33.7% in 9th grade, 38% in 10th grade, and 28.3% in 11th grade. The sample was predominantly Hispanic (88.6% Hispanic, 11.4% Non-Hispanic), with the following racial breakdown: 85.7% White, 10.9% Black, 3.4% Asian). Table 1 presents means and standard deviations of the full sample assessed in 2011 and the sample of 9th through 11th graders for whom academic data was collected retrospectively.

Independent samples t-tests revealed that eligible 9th-11th grade adolescents for whom no academic data were collected ($n = 75$; due to missing school ID numbers, dates of birth, or missing all Time 2 data) reported higher levels of Time 2 relational PV ($t(657) = 1.95, p < .05$) than those included in analyses. No other significant differences emerged; see Table 2 for means, standard deviations, and t scores. Data collected in February 2011 (Time 1) and May 2011 (Time 2) were used in this study. Additional data pertaining to students' academic achievement during each year of high school were collected via retrospective record review, to allow for the examination of the adolescents' latent trajectory of academic achievement.

After obtaining the sample of 692 9th-11th graders, questionnaire data from 2011 was examined for missingness (separately by grade). See Table 3 for a complete comparison of means and standard deviations for the study variables. The amount of missing questionnaire data for 9th graders was 39.1%; 142 (60.9%) adolescents completed data on all study variables. T-tests revealed that adolescents with missing questionnaire data reported higher levels of Time 2 PV, lower GPA at all four quarters, and higher absences than adolescents with complete data (see Table 3). Tenth graders had 27.4% missing questionnaire data; 191 (72.6%) adolescents completed data on all study

variables. T-tests revealed that adolescents with missing data reported higher levels of depression, lower GPA at the second, third, and fourth quarters of 10th grade, and higher absences than adolescents with complete data. Lastly, the amount of missing questionnaire data for 11th graders was 28.1%; 141 (71.9%) adolescents completed data on all study variables. T-tests revealed that adolescents with missing data achieved lower GPA during the second and third quarters of 11th grade than those with complete data. No other differences emerged.

All study analyses were conducted using structural equation modeling in Mplus version 7 (Muthén & Muthén, 1998-2012), and full information maximum likelihood (FIML) estimation was used to handle missing data. This procedure uses all available information and has been demonstrated to provide accurate parameter estimates (Baraldi & Enders, 2010; Kline, 2011; Muthén & Muthén, 2011) under the assumption of missing at random (MAR). Variables on which participants with missing data differed from those without missing data were included in the analysis models in an attempt to meet the MAR assumption.

Procedure

Original data were collected as part of a larger multi-wave study of adolescents' peer relations (La Greca, 2010; Herge et al., 2016; Landoll et al., 2015). Prior to the initiation of the original data collection, Institutional Review Board and M-DCPS approval was obtained. Subsequently, school principals were contacted to recruit school participation. Once principal and teacher permission was obtained to recruit students directly, letters and parental consent forms were distributed. Students were recruited from psychology and science classes. Teachers encouraged students to return consent forms,

and all participating principals and teachers were compensated with \$20 gift cards. At each high school, participating students were entered in a raffle to receive a \$50 gift card or one of two \$20 gift cards. Parental consent forms were provided in both English and Spanish. However, student assent/consent forms and study questionnaires were given in English only, as most M-DCPS high school students demonstrate reasonable English proficiency (e.g., La Greca & Harrison, 2005; Siegel et al., 2009).

During the original data collection, participating students signed assent forms (or consent forms if they were 18 years of age or older). Study questionnaires were completed during class time, supervised by trained research assistants and doctoral graduate students. Questionnaires took about 30 to 45 minutes to complete.

Subsequently, in May 2016, academic data were collected retrospectively for students in grades 9 through 11 for each quarter of their four years in high school (or until a student dropped out of school). Institutional Review Board and M-DCPS approval was obtained in order access student records. Once approval was obtained, school personnel from the one consenting high school were contacted in order to arrange for access to academic records; the other school declined to participate. Student records are stored electronically by the M-DCPS and accessible by student name as well as the student's unique school identification number. Where possible, school identification numbers were used to access student records to ensure confidentiality.

Measures

Demographic variables (Appendix A). This questionnaire included items regarding the participants' gender, age, race, ethnicity, and perception of socio-economic status. Participants indicated ethnicity by specifying if they identified as Hispanic or

Non-Hispanic (coded as 1 vs. 0) and indicated race using the following choices: White, Black, Asian, Other. After examining differences in outcome variables based on both ethnicity (Hispanic vs. Non-Hispanic) and race (White vs. Black, White vs. Asian, Black vs. Asian), a dummy coded variable was created (White = 0; Minority Status = 1) in order to control for racial differences between White and non-White (e.g., Black and Asian) adolescents in the current sample.

Peer victimization (Appendix B). The *Revised Peer Experiences Questionnaire (R-PEQ)*; De Los Reyes & Prinstein, 2004) assesses three types of PV (overt, relational, and reputational) over the prior two months. Each subscale has three items. Sample items include: “A teen hit, kicked, or pushed me in a mean way” (overt), “A teen did not invite me to a party or social event even though they knew that I wanted to go” (relational), and “A teen said mean things about me so that people would think I was a loser” (reputational). Ratings were provided on a 5-point Likert scale (1 = *Never*, 2 = *Once or twice*, 3 = *A few times*, 4 = *About once a week*, 5 = *A few times a week*), with higher scores reflecting greater victimization. Individual item scores from both Time 1 (January 2011) and Time 2 (May 2011) of the original data collection were used to create latent variables. Scores for each subscale were obtained by averaging items within subscales (range = 1 to 5).

To capture the chronicity of PV, three groups were created: a) chronically victimized youth, b) intermittently victimized youth, and c) non-victimized youth. Chronically victimized adolescents were classified as such if they reported a mean score at least two or higher on any type of PV at both time points. Adolescents who reported a mean score of at least two on any type of PV at only one time point were classified as

intermittently victimized. Adolescents who reported a mean score below 2 on all PV types at both time points were classified as non-victimized. These empirically derived cutoffs allowed for the comparison of adolescents victimized at different frequencies across the two assessment points, and are consistent with previous research in which adolescents who reported experiencing any PV type once or twice over the course of at least two months at several time points were considered chronically victimized (e.g., Esbensen & Carson, 2009; Smokowski et al., 2014).

The *R-PEQ* has acceptable reliability and validity with ethnically diverse adolescents (e.g. De Los Reyes & Prinstein, 2004; La Greca & Harrison, 2005); internal consistency for each subscale has been satisfactory: overt PV .59 to .78, relational PV .75 to .84, reputational PV .80 to .87 (De Los Reyes & Prinstein, 2004; Siegel et al., 2009). In the current sample at Time 1, internal consistencies for PV, measured via Cronbach's alpha, were .74 (relational), .79 (reputational), and .69 (overt). At Time 2, internal consistencies were .78 (relational), .79 (reputational), and .75 (overt).

Cyber Peer Victimization (Appendix C). The *Cyber – Peer Experiences Questionnaire (C-PEQ)*; Landoll et al., 2015) assesses both positive and negative peer experiences that have occurred via electronic media in the past two months. The measure contains 9 items that assess negative peer experiences across a wide array of electronic media, including social networking sites, texting, and instant messaging. Items are rated using a 5-point scale (1 = *Never*, 2 = *Once or twice*, 3 = *A few times*, 4 = *About once a week*, 5 = *A few times a week*), and include statements like “A peer posted pictures of me that made me look bad via electronic media,” and “A peer posted mean things about me

publicly via electronic media.” Individual item scores from both Time 1 and Time 2 of the original data collection were used to create latent variables.

The *C-PEQ* has demonstrated acceptable levels of reliability among adolescents ($\alpha = .81-.91$ for cyber victimization items) (Landoll, et al., 2015). The measure demonstrated satisfactory internal consistencies in the current sample (Time 1 $\alpha = .77$; Time 2 $\alpha = .85$).

Academic Functioning. Academic functioning was obtained from adolescents’ academic records retrospectively and assessed comprehensively by several indicators, collected from the 2011-2012 and 2012-2013 academic years. First, the study calculated a grade point average (GPA) (A = 4; B = 3; C = 2; D = 1; F = 0) for each participant. As per M-DCPS policy, GPAs are calculated using any class in which the student is enrolled (Miami-Dade County Public School System, 2014). GPAs were calculated for each of the four quarters of the academic year in which PV was assessed. Second, the study examined the total number of excused and unexcused absences (an indicator of lower academic functioning) in order to approximate school disengagement, a potential mediator.

Social Anxiety (Appendix D). The *Social Anxiety Scale for Adolescents (SAS-A*; La Greca & Lopez, 1998) assessed adolescents’ social anxiety regarding peers. It consists of 18 items that evaluate fear of negative evaluation (FNE), social avoidance or distress around new peers or situations (SADN), and generalized social avoidance (SADG). Items are scored from 1 (*not at all*) to 5 (*all of the time*). Individual item scores from Time 1 (January 2011) were used for moderation analyses. Strong support for the measurement model has been established, as well as good reliability and validity (La Greca & Harrison,

2005; Siegel et al., 2009). In the current sample at Time 1, internal consistency for the subscales was as follows: FNE $\alpha = .91$; SADN $\alpha = .85$; SADG $\alpha = .73$.

Depression (Appendix E). The *Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977; Radloff & Locke, 2008)* is a 20 item self-report measure used to assess depressed affect (DA), positive affect (PA), and somatic complaints (SOM) associated with depressive symptomatology. Items are scored on a scale from 0 (*rarely*) to 3 (*most or all of the time*). Individual item scores from Time 1 (January 2011) were used for moderation analyses. The CES-D is widely used and well-validated (Weissman et al., 1977). In the current sample at Time 1, the subscales demonstrated the following internal consistency: DA $\alpha = .85$; PA $\alpha = .76$; SOM $\alpha = .74$.

Data Analytic Plan

Preliminary Analyses

All data were examined separately by grade to consider potential developmental differences between grade levels. Data were initially examined in SPSS Version 24 for normality, outliers, and linear relationships between variables. Preliminary analyses also obtained means, standard deviations, and internal consistency for all study variables. No outliers were identified, and both skewness and kurtosis were acceptable (< 3 and < 7 , respectively). Tolerance values did not indicate any problems with multicollinearity. Bivariate correlations were also conducted for all variables of interest. Gender and racial differences (i.e., White vs. Black) in academic functioning outcomes were evaluated and controlled for in subsequent analyses where appropriate. Each grade had more than 195 adolescents, offering adequate sample sizes for the models analyzed (Boomsma, 1985).

The model chi-square, the Root Mean Square Error of Approximation (RMSEA), and Bentler Comparative Fit Index (CFI), and the Standardized Root Mean Square Residual (SRMR) assessed model fit. The following guidelines were used (Kline, 2011; Hu & Bentler, 1998, 1999): RMSEA <.06; CFI >.90; SRMR <.08. Study aims were evaluated as follows.

Specific Aims

Aim 1: Latent growth trajectory of academic achievement (i.e., GPA) in adolescents and the extent to which PV relates to that change

To evaluate the longitudinal change of GPA during the academic year in which PV was measured, longitudinal modeling was used to plot the trajectory of GPA using data from each quarter of the academic year. Variables of interest were the lowest average GPA of the year (intercept) and the decline in GPA from the beginning to the end of the year (slope). It was expected that a linear trajectory would satisfactorily capture the data. However, non-linear possibilities were explored as well, and utilized for 10th graders.

For 9th grade, a linear LGM model was specified. The model fit the data: $\chi^2(7) = 4.83, p = .68, CFI = 1.00, SRMR = .05, RMSEA = .00$ (Wu, West, & Taylor, 2009). The residual variances of each term's GPA were constrained equal (Muthén & Muthén, 2004). Figure 3 shows the structural model capturing the latent growth curve examined in subsequent aims. The latent variables in this LGM characterize the pattern of change in GPA across one year. The intercept latent variable was defined as the fourth term's GPA, capturing the lowest point of the line. As required by the LGM, loadings for the intercept variable were set to 1. The slope variable represents change in GPA from the first to the

fourth quarter of 9th grade. Loadings for the slope variable were used to specify the time structure of the data in quarters. The loadings for the slope variable at the third quarter time point was estimated in the model, indicated by an asterisk in Figure 3. All p values reported represent the significance level for unstandardized coefficients.

For 10th grade, visual examination revealed a non-linear relationship where a steady decline was noted from the first to the third quarters, and a slight increase was noted from the third to the fourth quarters. A piece-wise two-slope model was specified, and the model fit the data according to all fit indices: $\chi^2(4) = 6.86, p = .14, CFI = 1.00, SRMR = .06, RMSEA = .05$ (Wu, West, & Taylor, 2009). Consistent with the default settings of Mplus, the intercepts of each of the four GPA time points were set to zero and the residual variances of each term's GPA were constrained equal (Muthén & Muthén, 2004).

Figure 8 shows the structural model capturing the latent growth curve examined in subsequent aims. The latent variables in this LGM characterize the pattern of change in GPA across one year. The intercept latent variable was defined as the third term's GPA, capturing the lowest point of the line. The first slope variable represents change in GPA from the first to the third quarters of 10th grade, while a slight increase in GPA between the third and fourth quarters is captured by the second slope. All p values reported represent the significance level for unstandardized coefficients. The covariance between the intercept and first slope (S1) was .04 (SE = .01, $p < .001$), and the second slope (S2) was .02 (SE = .02, $p > .05$). The covariance between S1 and S2 was .01 (SE = .01, $p > .05$).

Finally, for 11th grade, Aim 1 specified a latent growth curve model (LGM) similar to those completed for 9th and 10th graders. Visual examination demonstrated a non-linear relationship, and thus a non-linear approach was used, similar to that used for 10th graders. The LGM specified a quadratic function to capture the non-linear change in GPA over time, but the model did not fit the data: $\chi^2(6) = 20.35, p < .01, CFI = .98, SRMR = .11, RMSEA = .11$ (Wu, West, & Taylor, 2009). Ultimately, an LGM using all four GPA time points could not be specified to fit the data. A simple linear model was successfully specified using the first three time points, capturing the lowest point on the line as the intercept (third quarter GPA), and the change from the first to third quarters as the slope. This model fit the data according to all fit indices: $\chi^2(3) = 5.49, p = .14, CFI = 1.00, SRMR = .08, RMSEA = .06$ (Wu, West, & Taylor, 2009). As with 9th and 10th graders, the loadings for the slope variable were used to specify the time structure of the data in quarters. All p values reported represent the significance level for unstandardized coefficients. The covariance between the slope and the intercept latent variables was .06 ($SE = .01, p < .001$).

Next, a measurement model consisting of PV latent variables was specified. Categorical PV items from Time 1 and Time 2 served as indicators for each type of PV. Traditional PV (e.g., relational, reputational, overt) latent variables consisted of 6 indicators (3 items each at two time points), and cyber PV utilized 14 indicators (7 items at two time points). Although some studies found success using 9 items from the *CPEQ*, a data-driven approach lead to the retention of only the 7 items at each time point with the best loadings. After examining correlations between first order latent variables (ranging from .52 to .79), the current study used only factors capturing individual types

of PV (e.g., relational, overt, etc.) rather than an overall PV factor to predict academic outcomes of interest. Model fit and loadings for each grade level are presented in Table 4. Latent variables served as predictors of the slope and intercept of the LGM for subsequent aims. Gender, and race were controlled for in the model as appropriate. Each grade was modeled separately.

Aim 2: Gender as a moderator of the relationship between PV and academic achievement trajectories

Multiple group analyses tested moderation by gender. Two nested models, with gender as a grouping variable, were compared for the association of PV and the trajectory of academic achievement (i.e., GPA). The first model specified the paths of interest to be estimated freely, while the second model constrained these paths to be equal between groups; comparing the two models via chi-square difference tests evaluated whether or not differences between the genders were significant and interpretable. A chi-square difference test was used to examine whether the association between PV and academic achievement trajectories was similar for boys and girls. Each grade was modeled separately controlling for race (i.e., White vs. Black), and individual model fit was assessed using the RMSEA, CFI, and SRMR.

Aim 3: Internalized distress as a moderator of the relationship between PV and academic functioning outcomes

Separate models for social anxiety and depression were specified for each grade based on a data-driven approach, which indicated that a combined measurement model capturing one internalized distress variable did not fit the data. Previous research has identified a three-factor structure of social anxiety measured by the *SAS-A* (La Greca &

Lopez, 1998). Therefore, first-order factors of Fear of Negative Evaluation (FNE; eight items), Generalized Social Avoidance and Distress (SADG; four items) and Social Avoidance Specific to New Situations or Unfamiliar Peers (SADN; six items) were specified, with a second-order factor of Social Anxiety capturing the full construct. The anxiety measurement model fit the data based on some indices. Model fit and loadings for each grade are presented in Table 5. A separate interaction variable was created in Mplus using the XWITH command (which allows for interaction between latent variables) between each PV latent variable and the second order Social Anxiety factor (e.g., Relational x Social). The XWITH command required a specification of TYPE = RANDOM within the ANALYSIS domain, which allowed for variance/covariance matrices for each value of the dependent variable.

Next, a measurement model using items from the *CES-D* was specified. Based on recommendations from Kim et al. (2011) and due to the ethnic composition in the current sample, the current study found that a three-factor model fit the current data the best. Factors for Depressed Affect (DA; seven items), Positive Affect (PA; four items) and Somatic Complaints (SOM; four items) were specified, with a second-order factor capturing depression. This model fit the data according to fit indices provided. Model fit and loadings for each grade are presented in Table 6. A separate interaction variable was created in Mplus using the XWITH command consistent with procedures for the Social Anxiety factor discussed above, which allows for interactions between latent variables, between each PV latent variable and the second order depression factor (e.g., Relational x Depression).

Aim 4: School disengagement as a mediator of the relationship between PV and academic achievement trajectories

PV factors were assessed as predictors of absences (i.e., school disengagement) at any time during or after the PV assessment. When this relationship was found to be significant such that higher levels of PV predict higher number of absences, absences were assessed as a mediator of the prospective relationship between PV and academic achievement trajectories. The significance of this indirect path was assessed. Each grade was modeled separately controlling for gender and race, and individual model fit was assessed using the RMSEA, CFI, and SRMR.

Aim 5: To compare the chronically victimized adolescents to intermittently victimized and non-victimized adolescents on later academic functioning

Regression analyses examined whether degree of PV predicted academic achievement (GPA) one year after the occurrence of PV. Analyses were run separately by grade to examine developmental differences. Race and gender were controlled for as appropriate.

Chapter 3

Results

Preliminary Analyses

Descriptive statistics. Means and standard deviations for all variables of interest are presented in Table 7. Consistent with the literature (e.g., La Greca & Harrison, 2005; Siegel et al., 2009), relational PV had the highest mean and overt PV had the lowest mean. Mean cyber PV scores were similar to mean scores for overt PV. Also consistent with previous research (Siegel et al., 2009), Time 2 means were lower than Time 1. The average score for the SAS-A fell below the accepted clinical cutoff (50; Garcia-Lopez, et al., 2015). Similarly, the average score for the CES-D fell below the clinical cutoff (16; Choi, Schalet, Cook, & Cella, 2014).

Bivariate correlations. Correlations among all study variables were examined for the full sample as well as separately by grade (see Tables 8-11). Notably, reputational, overt, and cyber PV at Time 1 were negatively correlated with all four GPAs. Depression was also significantly related to lower GPA. Interestingly, in the 10th and 11th grades, overt and cyber PV at both time points related to GPA, while few other significant relationships appeared between PV types and GPA. Absences related positively to relational and reputational PV in grade 10, and negatively with all GPA variables across all grades.

Demographic differences. There were significant differences in both academic and PV variables by gender (described below for Aim 2), race, and grade. In order to control for differences by grade, each grade level was analyzed separately. The majority of the sample identified as Hispanic/Latino, and preliminary analyses found no

differences between Hispanic and non-Hispanic youth. However, differences emerged between White and Black youth (regardless of Hispanic ethnicity). Further, all analyses controlled for race (White vs. Black). The following findings are presented separately by grade.

Study Aims for Adolescents in the 9th Grade (n = 233)

Aim 1: Relationship between PV and academic functioning trajectory. Results from the LGM revealed that the estimated mean values of the intercept and slope were 2.55 ($SE = .06, p < .001$) and $-.08$ ($SE = .01, p < .001$), respectively. The former value represents the average GPA during the final term of students' ninth grade year, while the latter denotes that students experienced, on average, a .08 decrease on a 4.0 scale in their GPA in each consecutive term. Results indicated significant differences between students' fourth quarter GPA, as seen in the variance of the intercept ($\beta = .59, SE = .07, p < .001$). Students also demonstrated significant differences in the rate of decrease in their GPA across all four quarters, as seen in the variance of the slope ($\beta = .01, SE = .004, p < .001$). The covariance between the slope and the intercept latent variables was $.05$ ($SE = .01, p < .001$).

Next, the fourth quarter GPA (intercept) and the change in GPA (slope) of the LGM were regressed onto individual PV latent variables. Controlling for sex and race, PV predicted lower GPA at the end of the academic year. Specifically, increased relational, reputational, overt, and cyber PV all predicted lower fourth quarter GPA (intercept). Results from these analyses are presented in Table 12, using p values of unstandardized coefficients.

However, PV did not predict declines in GPA. Specifically, no significant results emerged regressing the slope onto PV latent variables (see Table 12). Controlling for sex and race, relational, reputational, overt, and cyber PV all yielded nonsignificant results. In summary, as hypothesized, all PV types predicted a lower fourth quarter GPA (intercept). However, the hypothesized longitudinal relationship between PV and academic performance over time (slope) was not supported.

Aim 2. Multiple group analyses compared the model fit for girls and boys. Coefficients regressing victimization on the intercept and slope factors were constrained equal across groups, and chi-square difference tests revealed that models in which coefficients were freely estimated for each group fit the data significantly better than models where paths were constrained equal ($p < .05$ for all model comparisons; see Table 13). For girls, relational, reputational, overt, and cyber PV all predicted a lower fourth quarter GPA. PV did not predict the decline in GPA from the first to the fourth quarter (slope). No significant relationships emerged for boys. Table 14 contains detailed results from all four models.

In summary, the association between PV and academic differed for boys and girls. As hypothesized, all PV types predicted a lower GPA for girls, lending support for the hypothesis that PV would predict worse academic functioning for girls compared to boys. It was further hypothesized that higher levels of relational PV would predict worse academic functioning in boys compared to girls, which was not supported.

Aim 3. The intercept and slope factors were regressed onto the social anxiety moderator. Several main effects emerged (see Table 15). As already discussed above, gender (i.e., girls) predicted a higher fourth quarter GPA as well as less decline in GPA

from the first to fourth quarters of the academic year, such that girls performed better academically. No main effects emerged for social anxiety, and no evidence of moderation emerged.

Next, the intercept and slope factors were regressed onto depression. (See Table 16). In most of the models, greater depression significantly predicted a lower fourth quarter GPA. However, contrary to hypotheses, no significant interactions emerged between PV types and depression. In summary, neither social anxiety nor depression moderated the relationship between PV types and GPA.

Aim 4. Potential mediation was examined through direct and indirect effects of PV on GPA through school disengagement (as assessed by total absences). All results, including direct and indirect effects, are reported in Table 17 and displayed in Figures 4-6. In general, increased absences predicted lower fourth quarter GPA and a steeper decline from the first to the fourth quarter of the academic year across all models. However, as seen in Table 16, no direct effects of PV on GPA or change in GPA emerged, and no indirect effects were found. Thus, no evidence of mediation was found.

Aim 5. The effect of level of victimization (i.e., whether a student was chronically or intermittently victimized, or uninvolved in victimization) on academic performance one year later was examined using simple longitudinal regressions. Of the 233 9th graders analyzed, 92 fell within the uninvolved group, 88 were classified as intermittently victimized, and 53 were classified chronically victimized. Controlling for race and gender and using non-victimized adolescents as the referent group, intermittent and chronically victimized adolescents did not achieve significantly different GPA one year after the assessment of victimization (see Table 18).

Study Aims for Adolescents in the 10th Grade (n = 263)

Aim 1: Relationship between PV and academic functioning trajectory. Regarding the LGM, the estimated mean value of the intercept was 2.71 ($SE = .04, p < .001$), while the slopes had mean values of $-.12$ ($SE = .01, p < .001$) and $.05$ ($SE = .02, p < .05$), respectively. As described above, a piece-wise two-slope solution was used to capture the trajectory of GPA in 10th graders. The intercept's mean represents the average GPA during the third quarter of the students' tenth grade year. The mean of S1 denotes that students experienced, on average, a $.12$ decrease on a 4.0 scale in their GPA from the start of the academic year until their third quarter. Results indicated significant differences between students' third quarter GPA, as seen in the variance of the intercept ($\beta = .37, SE = .04, p < .001$). Results also demonstrated significantly different rates of change in students' GPA across the year, as seen in the variance of S1 ($\beta = .01, SE = .01, p < .01$). The variance of S2 was negative ($\beta = .003, SE = .02, p = .85$) but nonsignificant. Therefore, the variance of S2 was fixed to 0 for subsequent analyses. The covariance between the intercept and first slope (S1) was $.04$ ($SE = .01, p < .001$), and the second slope (S2) was $.02$ ($SE = .02, p > .05$). The covariance between S1 and S2 was $.01$ ($SE = .01, p > .05$).

Next, to evaluate Aim 1, the third quarter GPA (intercept) and the change in GPA (slopes) were regressed onto individual PV latent variables in separate models. See Table 19. Controlling for race, increased reputational, overt, and cyber PV predicted a significantly lower third quarter GPA (intercept), providing partial support for Aim 1.

However, contrary to hypotheses, PV did not significantly predict the change in GPA over time (see Table 19).

Aim 2. Multiple group analyses compared PV types as predictors of the intercept and slope factors between girls and boys. As with 9th graders, coefficients regressing victimization on the intercept and slope factors were constrained equal across groups, and chi-square difference tests revealed that models in which coefficients were freely estimated for each group fit the data significantly better ($p < .05$ for all model comparisons; see Table 20). Thus, boys and girls were analyzed separately.

For girls, overt and cyber PV predicted a significantly lower third quarter GPA (see Table 21a). Relational and reputational PV did not significantly predict third quarter GPA. Further, PV did not significantly predict change in GPA for girls (see Table 21b). For boys, however, all types of PV significantly predicted a lower third quarter GPA. As seen in Table 21b, overt PV further predicted a more mild decrease in GPA from first to third quarter. No other significant results emerged regarding change in GPA for boys (see Tables 21a and 21b).

In summary, results differed from 9th graders. The association between PV and academic functioning was, again, different for boys and girls. However, for girls, only overt and cyber PV predicted a lower intercept, supporting a hypothesis stating that overt PV would predict lower academic functioning in girls compared to boys. Further, it was hypothesized that relational PV would predict lower academic functioning for boys, which was supported. Relational, reputational, overt and cyber PV also predicted a lower intercept, and overt PV further predicted fewer declines in GPA over time for boys.

Aim 3. Analyses of social anxiety as a moderator of the relationship between PV and academic functioning appear in Table 22. As hypothesized, social anxiety moderated the relationship between relational, reputational, and overt PV and the change in GPA from the third to the fourth quarter of 10th grade. Specifically, students reporting higher levels of PV and more social anxiety symptoms showed decline in GPA from the third to fourth quarter, compared to those with higher levels of PV and lower social anxiety symptoms, whose GPA went up slightly from third to fourth quarters (see Figure 9 for an example of the interaction plot). A few main effects for social anxiety were observed (see Table 22). Social anxiety predicted a higher third quarter GPA.

Analyses of depression as a moderator of the relationship between PV and academic functioning appear in Table 23; only one significant result emerged. Specifically, depression moderated the relationship between relational PV and change in GPA from the third to the fourth quarter such that students reporting higher levels of PV and more depressive symptoms showed decline in GPA (whereas those with higher PV and lower depressive symptoms showed increase in GPA from the third to fourth quarter) (see Figure 10). No other evidence of moderation emerged.

In summary, consistent with hypotheses, social anxiety moderated the relationship between relational, reputational, and overt PV and change in GPA, such that students reporting higher levels of PV and more social anxiety symptoms showed decline in GPA from the third to the fourth quarters compared to those with higher PV and lower social anxiety symptoms (whose GPA increased from the third to the fourth quarter). Also consistent with hypotheses, depression moderated the relationship between relational PV and GPA such that students experiencing increased PV and reporting higher depressive

symptoms showed a decline in their GPA, compared to those with higher PV and lower depressive symptoms, whose GPA increased slightly. Therefore, the hypothesis that internalized distress would intensify the relationship between increased PV and poorer academic functioning is partially supported in 10th graders.

Aim 4. Potential mediation was examined with direct and indirect effects of PV on GPA through school disengagement (i.e., total absences). All results are reported in Table 24 and displayed in Figures 11-14). In general, higher absences predicted lower third quarter GPA in all models controlling for gender, race, and PV type. Cyber PV trended toward predicting fewer absences. However, no evidence of mediation was found in direct or indirect effects in any model.

Aim 5. The effect of level of chronicity of victimization (i.e., whether a student was chronically or intermittently victimized, or not victimized) on later academic performance was examined using simple longitudinal regressions, consistent with 9th graders. Of the 263 10th graders, 154 were classified as uninvolved, 61 were classified as intermittently victimized, and 47 were classified as chronically victimized. Controlling for gender and race and using non-victimized adolescents as the referent group, intermittent and chronically victimized adolescents did not differ in their GPA one year after the assessment of peer victimization (see Table 25).

Study Aims for Adolescents in the 11th Grade (n=196)

Aim 1: Relationship between PV and academic functioning trajectory. The LGM revealed estimated mean values of the third quarter GPA (intercept) and decline in GPA (slope), which were 2.63 ($SE = .05, p < .001$) and $-.08 (SE = .02, p < .001)$, respectively. The former value represents the average GPA during the third quarter of students'

eleventh grade year, while the latter denotes that students experienced an average of .08 decline on a 4.0 scale in their GPA from the first to the third quarters. Results indicated significant differences between students' third quarter GPA, as seen in the variance of the intercept ($\beta = .48, SE = .06, p < .001$). No significant differences were detected in the rate of decrease in GPA across three quarters modeled, as seen in the nonsignificant variance of the slope ($\beta = .01, SE = .01, p > .05$). The covariance between the slope and the intercept latent variables was .06 ($SE = .01, p < .001$).

To evaluate Aim 1, the factors capturing third quarter GPA and decline in GPA of the LGM were regressed onto individual PV latent variables (see Table 26). Controlling for gender and race, increased reputational and cyber PV all predicted lower third quarter GPA; however, relational and overt PV did not significantly predict third quarter GPA. Further, no significant results emerged for PV predicting the decline in GPA over the school year.

Consistent with findings in 9th and 10th graders, other than relational PV, all other types of PV predicted a lower third quarter GPA, but no significant results emerged predicting the change in GPA over time.

Aim 2. Multiple group analyses compared the relationship between PV types and academic achievement factors for boys and girls. Consistent with analyses for the 9th and 10th graders, coefficients regressing the intercept and slope factors on victimization were constrained equal across groups. Chi-square difference tests revealed that all models in which coefficients were freely estimated for each group fit the data significantly better, with the exception of relational PV ($p < .05$ for all other model comparisons; see Table

27). Due to the nonsignificant chi-square difference test for the relational PV model ($\Delta\chi^2(7) = 6.28, p = .51$), no differences are reported between genders for that model.

For girls, greater reputational, overt, and cyber PV all predicted a lower third quarter GPA (see Table 28). However, no PV type significantly predicted the decline in GPA for girls. For boys, significant relationships emerged in an unexpected direction. Greater reputational and overt PV predicted less decline in GPA from the first to the third quarter.

In summary, the association between PV and academic functioning was different for boys and girls. Findings support the hypothesis that PV would predict worse academic functioning for girls compared to boys. Additionally, the hypothesis that higher levels of overt PV would predict worse academic functioning in girls compared to boys was supported. However, for boys, the hypothesis that higher levels of relational PV would predict academic functioning was not supported, and some unexpected findings emerged.

Aim 3. Analyses of social anxiety as a moderator of the relationship between PV and academic functioning appear in Table 29. No evidence of moderation emerged, and social anxiety did not significantly predict academic functioning in any model.

Similarly, no evidence of moderation by depression emerged (see Table 30). Depression predicted a lower third quarter GPA. In summary, the hypothesis that internalized distress would intensify the relationship between increased PV and poor academic functioning was not supported in the 11th grade.

Aim 4. Mediation was examined through direct and indirect effects of PV on GPA through school disengagement, as measured by total absences. See Table 31 and Figures 16-19. PV did not significantly predict absences in any model. In general, absences

predicted lower third quarter GPA as well as steeper decline in GPA from first to third quarters. No other significant direct or indirect effects emerged (see Table 31 for detailed results). The hypothesis that higher levels of PV would predict increased school disengagement, which would in turn predict lower academic achievement, was not supported.

Aim 5. The effect of level of chronicity of victimization on later academic achievement was examined using simple longitudinal regressions, as described above. Of the 196 11th graders, 88 were classified as uninvolved, 66 were classified as intermittently victimized, and 42 were classified as chronically victimized. Compared to those who were not victimized, intermittent and chronically victimized adolescents did not achieve a significantly different GPA one year after the assessment of PV (see Table 32).

Before discussing the above findings, the reader is referred to the chart, below, which provides a framework for understanding the results.

Aims and Hypotheses	9 th	10 th	11 th
1. Higher levels of PV related to lower GPA	✓	✓	✓
a. Higher PV related to lowest GPA of academic year (intercept)	✓	✓	✓
b. Higher PV related to decline in GPA across year (slope)	X	X	X
2. Moderation by gender	✓	✓	✓
a. Higher overt PV related to lower GPA for girls	✓	✓	✓
b. Higher relational PV related to lower GPA for boys	X	✓	X
3. Moderation by internalized distress			
a. Social anxiety	X	✓	X
b. Depression	X	✓	X
4. Mediation by absences	X	X	X
5. Chronically victimized group related to lower GPA 1 year later	X	X	X

Note: Check mark indicates hypothesis was fully or partially supported; X indicates hypothesis was unsupported by results.

Chapter 4

Discussion

Academic achievement is a close proxy of overall adolescent adjustment, and is an important predictor of later outcomes in life (e.g., Abbott-Chapman et al., 2014; Battin-Pearson et al., 2000; Dryfoos, 1990). It is therefore critical to determine how the frequent and potentially damaging experience of PV in adolescence can affect youths' academic functioning. The current study examined academic functioning in 9th, 10th, and 11th graders across one year of high school, how PV related to that functioning, and what additional factors may contribute to that relationship.

Overall, the current study obtained at least partial support for Aims 1 and 2. Aims 3, 4, and 5, which examined internalized distress, school disengagement, and chronicity of PV, were largely unsupported, with some notable exceptions. The following sections discuss the findings offering support for the first two aims, as well as potential explanations for the lack of support for other study aims.

Aim 1: Association of PV with Academic Functioning (GPA)

Across all grades, the first study aim was generally supported. For all three grades (9th to 11th), PV types significantly predicted the lowest GPA in each year, with the exception of relational PV. Previous research has found that GPA tends to decrease over the course of high school, dropping significantly in the transition from 8th to 9th grade, and continuing to decline across subsequent years (e.g., Benner & Graham, 2009). PV may further exacerbate this expected decrease in GPA. Additionally, the lowest GPA in each year occurred in the second half of the school year (3rd quarter for 10th and 11th graders, 4th quarter for 9th graders). It is possible that common stressors, such as final

exams, projects, and standardized testing, associated with adolescents' end of school year responsibilities, may potentially contribute to the effect of PV.

Across all grades, the current study found that reputational, overt, and cyber PV predicted the lowest GPA of the year. Broadly, these findings support and extend those from previous studies in which PV concurrently predicts lower academic achievement (Nakamoto & Schwartz, 2010). Further, the current study offers novel contributions by testing individual subtypes of PV and their differential relationship with GPA.

Also consistent with previous research, the current study found that PV did not predict the change in GPA (i.e., the slope). Few studies have examined the effect of PV on academic achievement over time, and the rare exceptions have focused on much younger populations (e.g., Buhs et al., 2006; Schwartz, Gorman, Nakamoto, & Toblin, 2005). One possible explanation for the nonsignificant relationship between PV and decline in GPA is that adolescents may not experience an academic problem immediately following their PV experience, but rather may suffer the consequences more gradually (examined later in Aim 5). Another possibility is that PV does not predict the overall trajectory of GPA on average, but rather might predict discrete types of trajectories (e.g., consistent low achievers but not consistent high academic achievers – patterns that might be identified via a latent class analysis). Lastly, the current study does not have information about the nature of adolescents' PV experiences prior to the first assessment of PV. It is possible that the PV examined here was not newly occurring; earlier PV may have already exerted its effect on academic functioning. All explanations represent important areas for future research.

In general, findings highlight the importance of examining PV types separately. While reputational, overt, and cyber significantly predicted lower GPA, relational PV was only significant for 9th graders. Relational PV, by definition, occurs among friends while other forms are perpetrated among the larger peer group (including acquaintances). It is possible that for 9th graders, the loss of social support from friends inherent in relational PV during the transition from middle to high school, already a stressful time, leads to worse outcomes (especially for girls; e.g. Benner & Graham, 2009; Li & Lerner, 2011; Wallis & Barrett, 1998). As noted, relational PV was not a significant predictor of lower GPA for 10th or 11th grades. Notably, 11th graders in the current sample reported significantly higher levels of relational PV than did 10th graders, so the nonsignificant relationship between relational PV and GPA is puzzling. It is possible that adolescents beyond the transition period are more settled in their friendship groups, and thus while still experiencing relational PV, are less affected by it academically.

Other forms of PV, namely reputational, overt, and cyber, have all been strongly linked to depressive symptoms in youth (e.g., De Los Reyes & Prinstein, 2004; La Greca & Harrison, 2005; Landoll et al., 2015; Siegel et al., 2009). Further, consistent with previous research, the current study found that depressive symptoms predicted lower GPA (see Aim 3; Jaycox et al., 2009). Perhaps these more public and embarrassing forms of PV (i.e., reputational, overt, or cyber) have a greater impact on academic functioning than those that occur subtly (i.e., relational) within a friendship group, and even might be associated with GPA via depression as a mediating pathway. In contrast, relational PV has been closely linked to increased social anxiety (La Greca & Harrison, 2005; Siegel et al., 2009; Storch & Masia-Warner, 2004), which in the current study was not associated

with lower GPA. As discussed further below, initial findings from Aim 1 suggest that depressive symptoms may be better understood as a mediator, rather than a moderator, of the PV-GPA relationship; future research should examine the mediating role of depression on the relationship between reputational, overt, and cyber PV and GPA.

Aim 2: Gender Differences in the PV-Academic Functioning Relationship

Findings similar across grades. Aim 2 examined gender differences in the relationship between PV and academic functioning, expecting that the association between increased PV and lower GPA would be stronger for girls than boys, that relational PV would impact boys' GPA more than girls' GPA, and that overt PV would impact girls' GPA more than boys' GPA. In general, significant gender differences emerged across all three grades. PV predicted lower GPA far more often for girls than for boys. This was true for overt PV, as hypothesized, but also for relational, reputational, and cyber PV. For boys, all PV types (including relational, as hypothesized) predicted a lower GPA for 10th graders only.

There are several potential explanations for girls' GPA to be more significantly impacted by PV than boys'. First, previous research has found that girls have higher expectations from their peers and family members to succeed academically than do boys. These higher expectations are linked with better academic achievement (Wasonga et al, 2003). Girls experiencing PV may experience a decrease in perceived social support, which in turn may lead to the loss of these aforementioned high expectations to succeed. Second, girls may be more personally distressed, especially by overt and cyber PV and, this distress may interfere with GPA. Further research is needed to examine whether psychological distress, such as depression, serves as a mediator for girls. Third, and

consistent with the theory of non-normative experiences resulting in worse outcomes (Crick, 1997), increased levels of overt PV predicted lower GPA for girls in all three grades. Therefore, it appears that the type of PV may interact with the gender of the victim in understanding PV effects on academic functioning; what is considered non-normative for that gender may result in worse outcomes.

However, because the effects of PV were not limited to overt for girls, and to relational for boys, perhaps a broader perspective is needed. Girls had significantly higher GPAs in all three grades, and reported higher levels of relational, reputational, and cyber PV, and lower levels of overt PV than boys. These gender differences in GPA and PV are consistent with previous research (e.g., Demie, 2001; Herge et al., 2016; La Greca & Harrison, 2005; Landoll et al., 2015; Perreault & Hill, 2000; Siegel et al., 2009; Vasquez-Salgado & Chavira, 2014). Regarding the relationship between PV and GPA, it is possible that girls, typically more socially oriented than boys, are more sensitive to any kind of disruptions in their social functioning. Further research on gender differences in the impact of PV on youths' academic functioning would be important and desirable.

Findings specific to certain grades. For Aim 2, several gender differences emerged in the way PV related to GPA across the three grades. In 9th grade, no significant results were found for boys (in contrast to the significant results for girls, discussed above). It is possible that factors contributing to this well-established gender gap, such as parental expectations or cultural values, may overpower any effects from PV. Additionally, it is possible that PV affects boys in other areas of functioning, such as their externalizing and impulsive behaviors or their romantic relationships (Leadbeater, Banister, Ellis, & Yeung, 2008; Yang & McCloyd, 2015).

Unexpectedly, the current study found that all types of PV predicted the lowest GPA of 10th grade for boys. These findings are consistent with previous research demonstrating that gender non-normative experiences are particularly damaging (Crick, 1997). However, the current study demonstrates that more attention must be paid to boys' experiences of PV beyond those considered non-normative. Findings also support research that found that academic achievement was closely linked to peer difficulties for boys, but not for girls (Eisenberg et al., 2003). Therefore, the current study continues to contribute to the fact that gender differences for PV and GPA tend to be mixed.

The current study also found, counter-intuitively, that reputational and overt PV predicted a more modest decline in GPA over time for boys in the 11th grade. These findings are puzzling and could potentially be spurious, given the number of analyses that were conducted. However, these results are in line with previous research demonstrating that adolescents who value high academic achievement (i.e., “brains” or “nerds”; La Greca, Prinstein, & Fetter, 2001) often suffer social consequences in the form of aggression from peers (Schwartz et al., 2013). It is possible that adolescent boys are targets of peer aggression when they are perceived as being “nerdy.” Interestingly, Schwartz and colleagues found academic functioning to be more strongly related to peer difficulties for boys than girls. Of course, further research is needed to understand the temporal relationship between academic functioning and PV, specifically to tease apart gender differences. Future studies should examine whether GPA predicts PV for boys.

Aim 3: Social Anxiety and Depressive Symptoms as Moderators

Social Anxiety. Aim 3 examined both social anxiety and depression as potential moderators of the relationship between PV and academic achievement. It was

hypothesized that the association between increased PV and lower GPA would be stronger for adolescents with higher (versus lower) levels of internalized distress.

However, only for 10th graders did significant results emerge that were consistent with the study hypotheses.

Specifically, for 10th graders, social anxiety moderated the relationship between traditional PV (relational, reputational, and overt) and the change in GPA such that, for those with higher levels of social anxiety, increased PV was associated with decrease in GPA from the 3rd to the 4th quarter of 10th grade compared to those with higher levels of PV for whom GPA increased. (The 10th graders' GPA increased slightly from the 3rd to the 4th quarter.) Social anxiety can lead to a disruption in academic functioning (Masia-Warner, et al., 2005) due to school avoidance and difficulty with interpersonal relationships. This study's findings suggest that face-to-face experiences with PV may exacerbate the effects that social anxiety can have on academic performance for 10th graders. For example, a socially anxious adolescent who experiences social rejection (i.e., relational PV) may feel that his or her social fear was reasonable, and avoid further social situations. He or she may also begin to avoid other situations that contain the possibility of negative evaluation, like asking a question in class or completing a class presentation.

Results from the 9th and 11th grades, however, offered no support for the study hypothesis, as social anxiety did not moderate the relationship between PV and GPA. The reasons for these findings are unclear and warrant further study.

Depressive Symptoms. Aim 3 also examined depressive symptoms as a moderator, and again only found significant results in the 10th grade, where adolescents with more relational PV and increased depressive symptoms experienced a decline in

GPA from the 3rd to the 4th quarter (compared to those who with higher PV and lower depressive symptoms, for whom GPA increased slightly during the same time period). This finding extends previous research that demonstrated that the severity of depression is linked to worse academic outcomes (Jaycox et al., 2009). Depression appears to exacerbate the effect of PV on academic functioning, at least for 10th graders. It is possible that for adolescents with more depressive symptoms, PV heightens the feelings of depression, such as worthlessness and low self-esteem, and thus further interferes with adolescents' academic functioning.

Despite findings for the 10th graders, no significant moderation emerged within the 9th or 11th grades, although higher levels of depression were related to lower GPA for both these grades. The reason for the lack of moderation in these other grades is unclear. It is possible that depressive symptoms may be better conceptualized as a mediator for the relationship between PV and GPA, given previous research linking reputational and cyber PV to depression and current findings that demonstrate depression predicting lower GPA. Further research is needed to better understand how depression impacts academic functioning, especially for those students experiencing PV.

Aim 4: Absences as a Mediator

Across all grades, no support was obtained for aim 4, which examined whether school absences served as a potential mechanism explaining the relationship between increased PV and lower academic achievement. Although the results demonstrated that, as expected, increased absences were linked to lower GPA, no association emerged between PV and school absences for any of the grades.

It is unclear why this was the case. Perhaps students who avoid school (via absences) also limit the possibility of being victimized. This line of reasoning is consistent with prior research that suggested that youth who are peer victimized may disengage from school to avoid further victimization (Siegel et al., 2009; Storch, Masia-Warner, Crisp, & Klein, 2005). It is also possible that school records of absences are somewhat unreliable; students in local high schools have been known to check into class to be marked as present, but then skip the remainder of the class and wander around the school. School absences can also be due to health, financial, or family problems. Future research should obtain a more comprehensive measure of school engagement, including adolescent-rated feelings of emotional engagement, as well as objective measures of behavioral engagement such as participation in school-based activities and class participation, in addition to school absences.

Aim 5: Chronic and Intermittent PV

The final study aim compared chronically victimized adolescents with intermittently victimized and non-victimized adolescents on academic achievement one year later, and found that chronic victimization did not predict worse academic outcomes over time. This was true across all grades.

Results from earlier aims in the current study suggest that the effects of PV appear to be more immediate (i.e., within the specific academic year). Another potential reason why the expected findings did not emerge is because the group of chronically victimized adolescents in each grade was relatively small ($n < 55$ for all three grades). Larger studies may be able to more effectively examine the effects of chronic victimization over time. Further, gender may be an important factor to consider. As seen above, girls appear to be

more affected by PV than boys. However, the already small sample of chronically victimized adolescents made examining the group by gender prohibitive. Future studies should examine whether chronic PV is related to poor academic functioning in girls.

Lastly, it is possible that the study analyses were not sufficient to detect differences among the victimization groups. In the future, it may be useful to examine PV by individual subtype (i.e. relational, cyber) rather than an overall latent construct. The groups examined in aim 5 combined across all types of PV to assess chronicity, but future studies may benefit from examining the chronicity of individual types of PV. For example, based on current findings, it may be most prudent to focus on students who report chronic reputational or cyber PV.

Developmental differences

Although the current study evaluated the grades separately to understand potential developmental differences among adolescents across the high school grades, only a small number of grade-related differences emerged. In general, all PV types significantly predicted lower GPA.

One exception was that, for 9th graders only, relational PV was also a significant predictor of low GPA, and these findings only remained true for girls when gender differences were examined. Ninth grade represents an important and stressful time for adolescents as they transition from middle to high school. Perhaps girls' loss of social support from friends, inherent in relational PV, during that transition leads to worse outcomes. The only other grade-related differences emerged for 10th graders, where social anxiety and depression were significant moderators of the PV-GPA relationship. While these findings offer some limited insight into how internalized distress may

interact with PV, a clearer picture may emerge by examining a sample of high school students combined across grade but separated by gender. Further, while some studies control for age (e.g., Chan & La Greca, 2015), few analyze grades separately when examining high school samples (e.g., Caraway et al., 2003; La Greca & Harrison, 2005; Siegel et al., 2009). Future research will benefit from combining data across all high school grades, thus increasing sample size and allowing for a more detailed picture of gender differences in potential mechanisms that explain the relationship between PV and GPA.

Chapter 5

Overview and Synthesis

Overall, the current study found that PV predicted adolescents' GPA shortly after the negative peer experience, but did not predict the downward trend in GPA from the beginning to the end of the school year. These findings lend additional support to the growing literature that demonstrates a concurrent relationship between PV and academic functioning (see Nakamoto & Schwartz, 2010 for a comprehensive review). The current study adds to this knowledge by highlighting several important factors. First, few developmental differences emerged when analyzing data separately by grade. Second, although the consensus appears to support only a concurrent relationship, lessons from the current study may serve to inform much needed future research into a longitudinal relationship between PV and academics. Finally, given the factors analyzed here as moderators and mediators, the current study helps to identify a number of additional variables that could be explored.

This study identified several further gaps in our understanding of the relationship between PV and GPA that would be useful to investigate in future research. First, the gender differences identified require further exploration. In lieu of examining adolescents separately by grade, future studies would benefit from examining the relationship between specific types of PV and GPA separately by gender. Second, well-planned longitudinal studies with baseline assessments of both PV and GPA can aid the understanding of whether PV impacts GPA over time. Third, future research should continue to examine individual subtypes of PV to gain additional understanding of their unique contributions to adolescent functioning. Lastly, future research should synthesize

the current findings regarding gender differences and the examination of internalized distress.

Future research should examine PV and GPA within a sample combined across all high school grades rather than examining each grade separately. The current study expected to find variations among grades, capturing unique grade level characteristics and dealing sensitively with potential developmental differences. However, few significant results differed between grades—PV predicted lower GPA for all three grades. Further, those results that differed by grade related to gender, which emerged as an important moderator. Given these findings, researchers should focus their efforts on examining genders separately to better understand differences that the current study was unable to expand upon.

Future research should address the question of whether PV affects academic functioning over time. Several aspects of the current study made it challenging to assess a longitudinal relationship, including the timing of the PV assessment. PV was assessed during only one academic year, and was completed in the middle and end of the academic year. No assessments were completed at the start of the year, and no follow up assessments were done. It will be important to obtain a true baseline of PV that coincides with the 1st quarter of the school year, as well as later assessments of PV throughout the subsequent school years.

The current study found additional support that PV is best conceptualized as having specific components (i.e., relational, cyber, etc.) rather than as an overall construct (La Greca & Harrison, 2005; La Greca et al., 2013; Siegel et al., 2009). Researchers should specifically assess each type of PV and approach analyses with consideration for

the various correlates of each type of PV. Despite the growing research that supports the examination of PV subtypes individually, few studies have focused attention on the unique contributions of each PV type to adolescent outcomes. Further, research should synthesize knowledge of how each PV type contributes to adolescent functioning with the current findings highlighting gender differences.

In addition to further examining individual PV types by gender and their relationship to GPA, future research should expand on analyses of social anxiety and depression completed here. First, it will be important to determine whether social anxiety and depression interact with gender to better explain the relationship between PV and GPA. The current study, limited by number of participants in each grade, could not examine social anxiety and depression moderators separately by gender, but research suggests this is an important next step. For example, it is possible that social anxiety moderates the relationship between PV and GPA only for girls, given findings that PV predicted internalizing problems more strongly for girls compared to boys (Ledwell & King, 2013).

Second, literature points to a link between PV, internalizing symptoms, and absences. Specifically, one study of younger adolescents found that higher levels of PV predicted increased internalizing symptoms, which in turn predicted lower school engagement and lower academic achievement (Totura et al., 2014). The current study evaluated absences as a mediator of PV and GPA, but more research is needed to understand whether internalized distress mediates the relationship between PV and absences. Additionally, further research of a prospective nature, including other potential

mechanisms such as externalizing problems and discipline, would be useful to better understand the potential interplay of PV and school absences.

Several other factors are important to evaluate, including externalizing problems, parent and teacher support, and perceived social support from friends, to name a few. For example, previous research found that PV was linked to externalizing problems, which often lead to disciplinary action and low school attendance (e.g., Matsen et al., 2005; Rosen et al., 2012). Externalizing problems by definition include peer aggression, another factor that should be examined as it relates to PV and GPA. Future studies should examine bully-victims, or those adolescents who are both the recipients and perpetrators of PV, who may be at risk for even worse academic functioning.

Chapter 6

Limitations

Despite its strengths, the current study contains several limitations. First, although the sample of adolescents analyzed was large, each grade contained approximately 200 students, and many analyses were conducted within each grade level, raising the possibility of spurious findings. Further, gender emerged as an important factor, with differential impacts on moderators and mediators. However, the sample size of each grade did not allow for further analyses by gender within Aims 3, 4, and 5. Despite the strengths of the study design, including utilizing latent variables with multiple indicators to decrease bias, caution is warranted when interpreting the findings.

Second, and related, the current study had high levels of missing survey data within each grade (ranging from approximately 27-39%). Although analyses had the benefit of a robust estimator in FIML, the nature of missing data may affect the relationships found, or the generalizability of those relationships. For example, those with missing survey data in 2011 had lower GPAs and higher absences; it is possible that the adolescents whose academic functioning was most impacted by PV did not have complete data.

Third, the current study is limited in that data were collected from only one of the two schools that participated in the original study (completed in 2011). Therefore, unique factors of the school from which adolescent data was collected may contribute to the results and make the findings less broadly representative of the larger community. For example, the percentage of economically disadvantaged students at the school currently analyzed is 75%, which is high on a national basis (Miami-Dade County Public School

System, 2016). Additional limitations arose related to the sample analyzed. For example, significant differences emerged between adolescents included in the study and those for whom no academic data was collected (due to missing student ID numbers or dates of birth). The inclusion of those adolescents, who reported higher levels of PV than those analyzed, represent an important and unstudied group that may more clearly link PV to academic functioning and offer insights that may generalize better to the larger population.

Fourth, although the current study analyzed some longitudinal relationships, the majority of analyses examined concurrent associations between PV and GPA. Therefore, the directionality of the associations is unknown and warrants further research. Without a proper baseline of PV, and a more prospective design, the current study was unable to determine conclusively that PV affected GPA or vice versa. More attention must be paid to potential reciprocal relationships, in addition to the longitudinal associations hypothesized here.

Fifth, and related, the current study was unable to examine other pertinent factors that may affect students' academic functioning, such as socioeconomic status or parent education level. These variables, among others, have been shown to significantly impact an adolescent's academic functioning (e.g., Armitage, 2008; Engerman & Bailey, 2006; Heaven et al., 2008; Mullola et al., 2011). Future research should examine these important factors, as well as obtain a more socioeconomically diverse sample, in order to evaluate their potentially strong effects.

Sixth, due to the generally low levels of PV reported by the current sample and the overall sample size, the group of adolescents in each grade that could be categorized

as chronically victimized was very small. Therefore, although theory would support worse outcomes for chronically victimized compared to less victimized adolescents, results did not support this hypothesis. Future research might target victimized adolescents with more elevated levels of PV, as well as examine specific subtypes of PV separately, in order to examine the effects of negative peer experiences on academic functioning in a more targeted sample.

Seventh, the current study identified only one academic trajectory per grade using a latent growth model. However, it is possible (and even likely) that a diverse amount of detail was overlooked by not identifying unique trajectories of academic functioning within each grade. For example, although PV was not related to the overall trajectory of adolescents' GPA across the academic year, it may have been related to different classes of GPA trajectory (e.g., consistently high group, consistently low group, variable group) identified through a latent class analysis. Future research should determine the unique academic trajectories in each sample, and then determine if PV relates differentially to those classes of functioning.

Seventh, although the current study contributes to the extant literature on Hispanic/Latino adolescents and their PV experiences (since the sample was predominantly from a Hispanic/Latino background), it cannot be generalized to the larger U.S. population of high school-aged adolescents. Further complicating matters, the Hispanic population in Miami is widely diverse. According to 2013 U.S. Census data, 65% of the population of Miami identified as Hispanic. Of those individuals, 34.3% were Cuban, 3.7% were Puerto Rican, 2.1% were Mexican, and 25.0% identified with backgrounds from other Hispanic countries. Cities with large Hispanic/Latino

populations across the country tend to be more homogenous (e.g., Los Angeles, CA, in which nearly 75% of the Hispanic population identifies as Mexican) (U.S. Census Bureau, 2013). Future studies would benefit from a more ethnically diverse sample to obtain representative results.

Finally, the current study relied on adolescent self-report data for information regarding PV and internalizing problems. Although the use of self-report data for PV experiences is standard practice, future studies should examine additional sources of information. These may include teacher or parent reports of PV as well as the use of peer network ratings, in which peers report perceived PV about one another. However, it is important to note that previous research has found that few adolescents who experience PV disclose their experiences to someone else (Völlink, Bolman, Dehue, & Jacobs, 2013). Further, the current study utilized only two assessments of PV approximately six weeks apart. Future research should assess PV throughout the high school experience, and would even benefit from an assessment of PV prior to the transition from middle to high school. With comprehensive assessments of PV throughout high school, researchers can examine the interplay between PV and academic achievement across an important developmental time.

Chapter 7

Summary and Implications

This study provides insight into the relationship between PV and academic functioning in high school. Comprehensive retrospective academic records linked to multiple assessments of PV and psychosocial functioning served to inform this innovative examination of adolescent functioning. The current study utilized data-driven latent growth trajectories and unique factors that allowed for the assessment of four unique types of PV, thus creating a more complex understanding of the interplay between peer relations and GPA.

Results contribute to the limited literature examining high school-aged academic trajectories and PV; academic functioning has almost exclusively been studied in populations younger than 13 or older than 18 years of age. Similarly, the breadth of knowledge on PV has come primarily from studies of young children and those in middle school, neglecting high school-aged adolescents. Examining the short-term interplay of PV and academic functioning furthers the understanding of the widespread effects of peer victimization in adolescence.

The current study points to a growing need for preventive interventions for high school students or those transitioning to high school. Based on results from 9th grade, girls appear to be in need of additional support during the transition to high school, specifically with regard to their peer support and academic achievement. Further, the current study highlights that declining academic achievement may serve as an indicator of increased PV, thus warranting further evaluation or support.

Results from the current study also support emerging research on the need for preventive interventions for adolescents at risk for social anxiety or depression (La Greca, Ehrenreich-May, Mufson, & Chan, 2016), both of which served as moderators of the relationship between PV and GPA at least for 10th graders. Interventions similar to that in the cited study may benefit from incorporating an academic focus into the prevention of social anxiety or depression in order to address both a warning sign of PV, but also potentially a contributing factor to increased PV.

While the current study contributes significantly to the available literature on PV and academic functioning, it proves to be merely the tip of the iceberg. Future studies should begin by extending the current study and examining the long-term relationship between earlier PV and academic achievement across all four years of high school in one cohort of adolescents. Similarly, future research should examine the potentially cyclical relationship of PV and academic achievement in order to evaluate how earlier academic achievement predicts later PV, and vice versa.

More attention must be paid to potentially important mechanisms of change not assessed in the current study. One such factor is perceived social support, which may play an especially important role during an adolescent's transition from middle to high school. The perception of social support may serve as a protective factor for those experiencing PV. Some research supports this examination. For example, Song et al. found perceived peer support to predict lower self-reported test anxiety in a large group of adolescents followed from 7th to 9th grades (2015). In addition, previous research has established a strong link between depression and perceived social support, which further highlights the

need to examine depression as a mediator of the relationship between PV and GPA (Rueger, Malecki, Pyun, Aycock, & Coyle, 2016).

Beyond potential mechanisms, future research should examine additional academic functioning outcomes, such as drop-out rate. Researchers have examined the relationship between early childhood peer relations and later adjustment, including later school dropout, and found support for the association between elementary and middle school peer difficulties and high school non-completion (e.g., Parker & Asher, 1987). Further, several studies have linked PV with school disengagement. Dropping out of school can be viewed as a final step in the process of school disengagement, which begins with school avoidance and academic disengagement, and ends with the decision to leave school before graduation (Cornell, Gregory, Huang, & Fan, 2013). Further, researchers found that student and teacher report of bullying and teasing separately and uniquely predicted cumulative dropout rates by the time the studied cohort reached 12th grade (Cornell et al., 2013).

In sum, the present study represents an innovative examination of high school academic achievement, how PV relates to that achievement, and the factors that serve to explain that relationship. The current study also serves to highlight several areas of future examination that will further clarify this important area of adolescent functioning, and proposes important facets to potentially include in preventive interventions targeting PV, academic functioning, and internalizing symptoms.

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Figure 1. Conceptual model depicting peer victimization's association with academic functioning and potential contributing factors

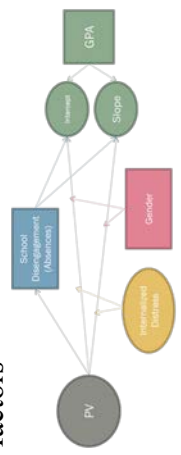


Figure 2. Flow chart of study participants

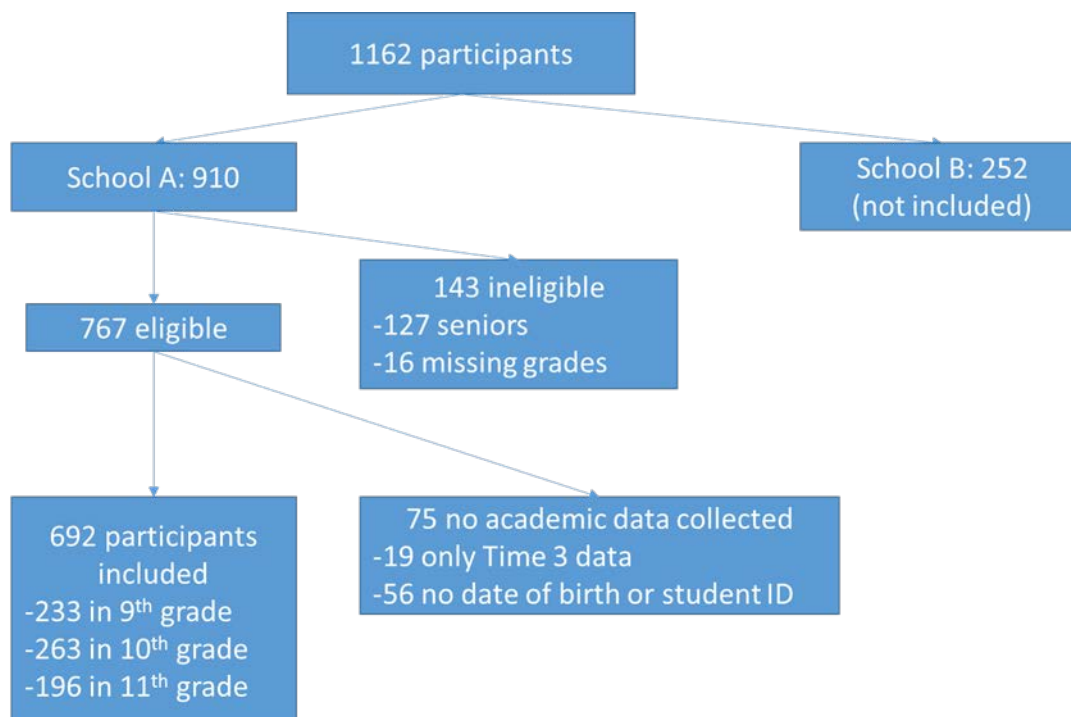
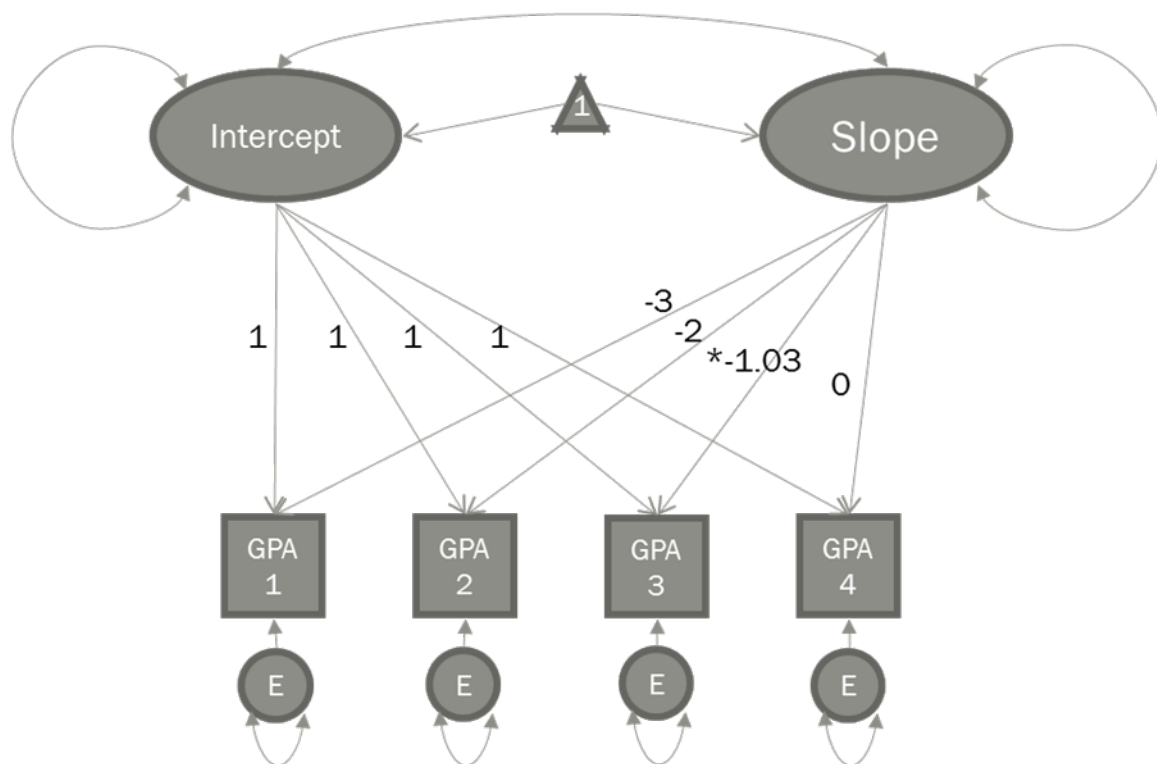


Figure 3. Latent growth model depicting solution for 9th grade academic achievement



Figures 4-7. Models examining absences as a mediator of the relationship between PV and latent growth factors for 9th graders, controlling for sex and race

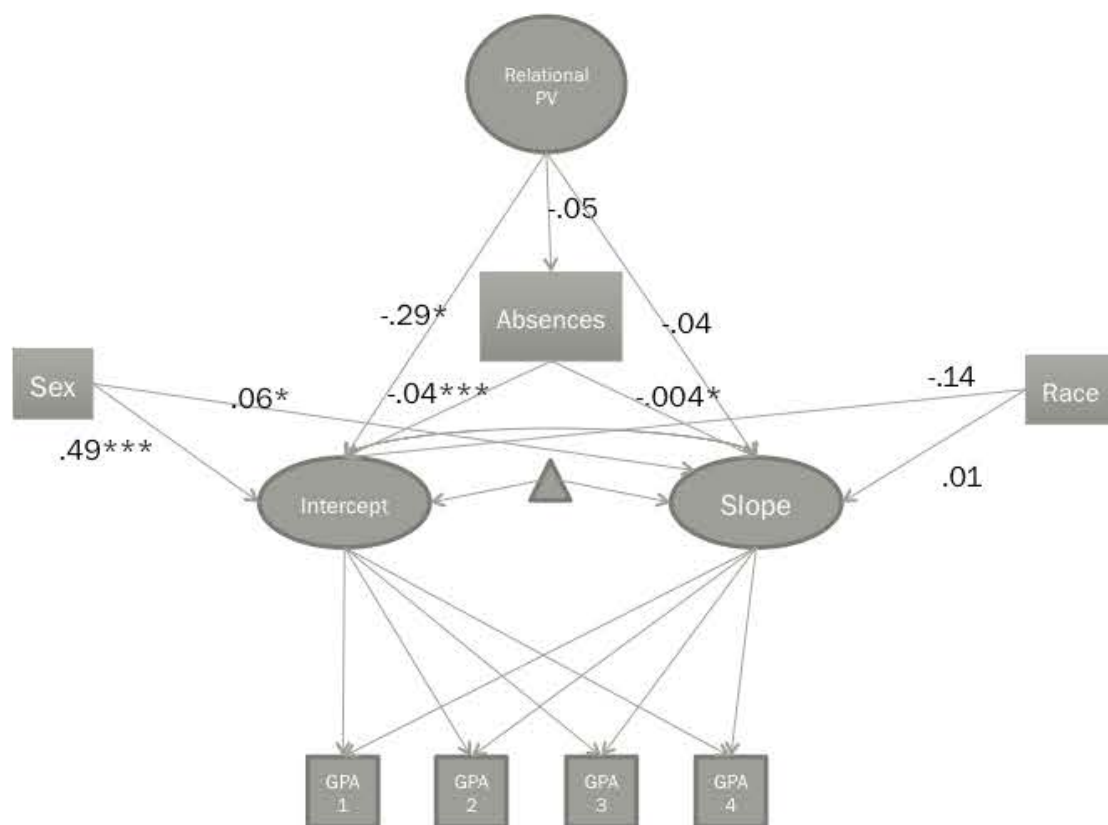


Figure 5.

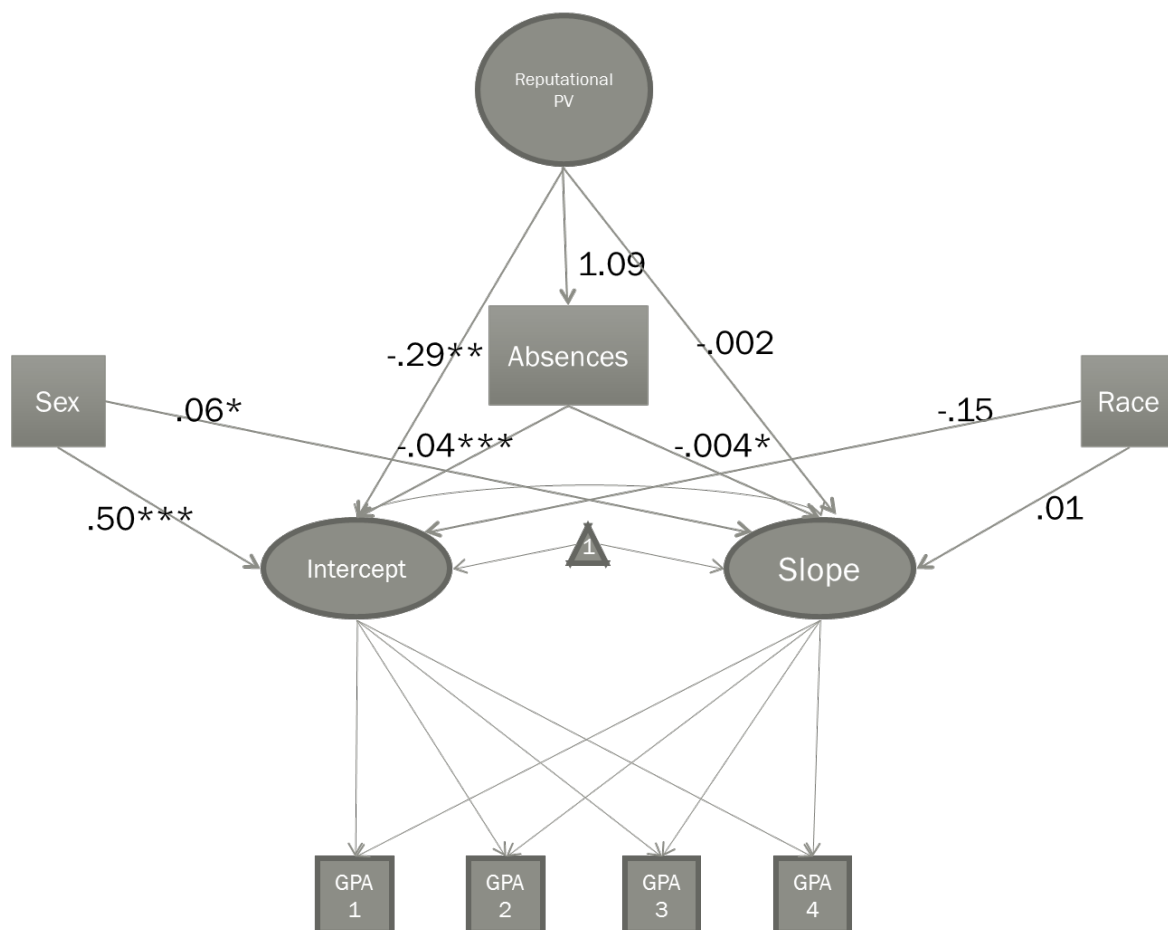


Figure 6.

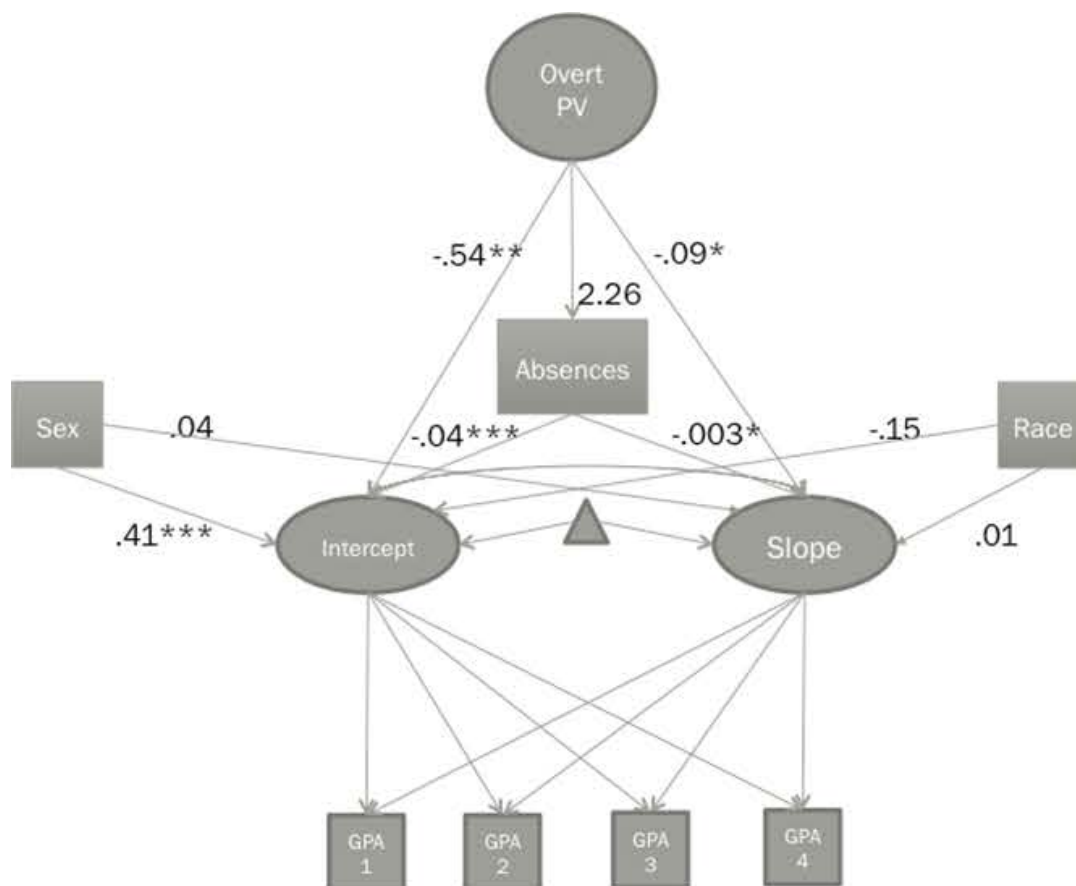


Figure 7.

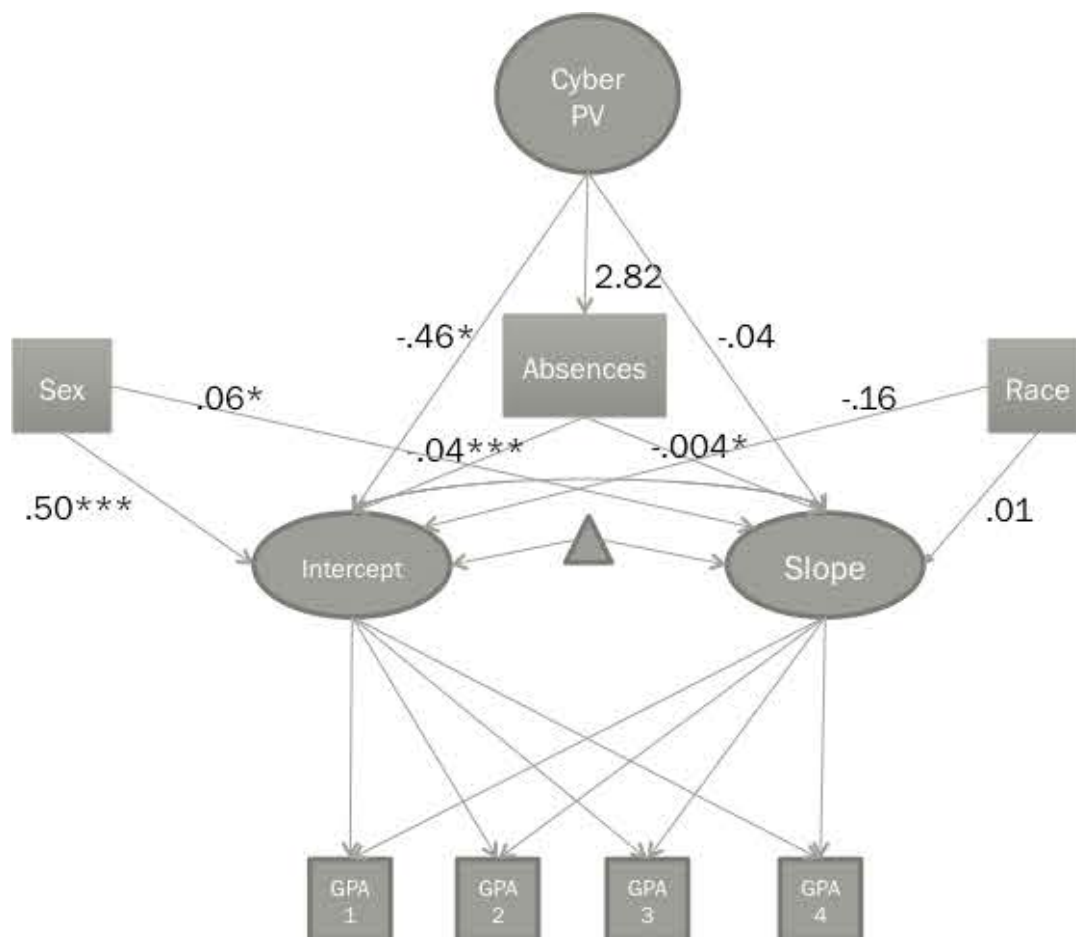


Figure 8. Latent growth model depicting solution for 10th grade academic achievement

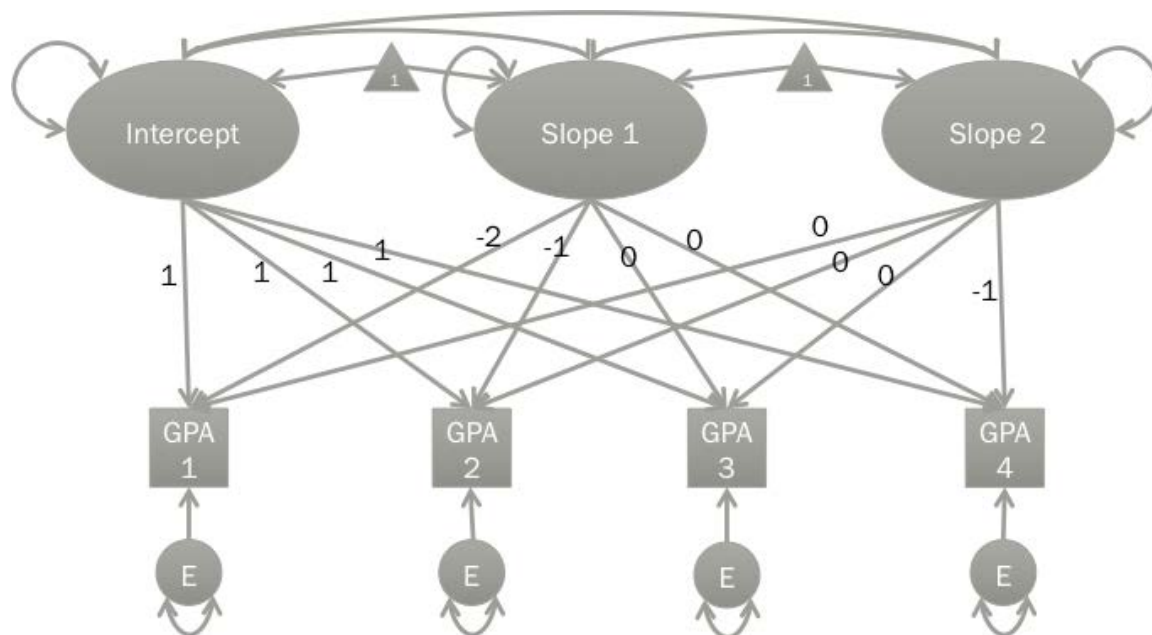
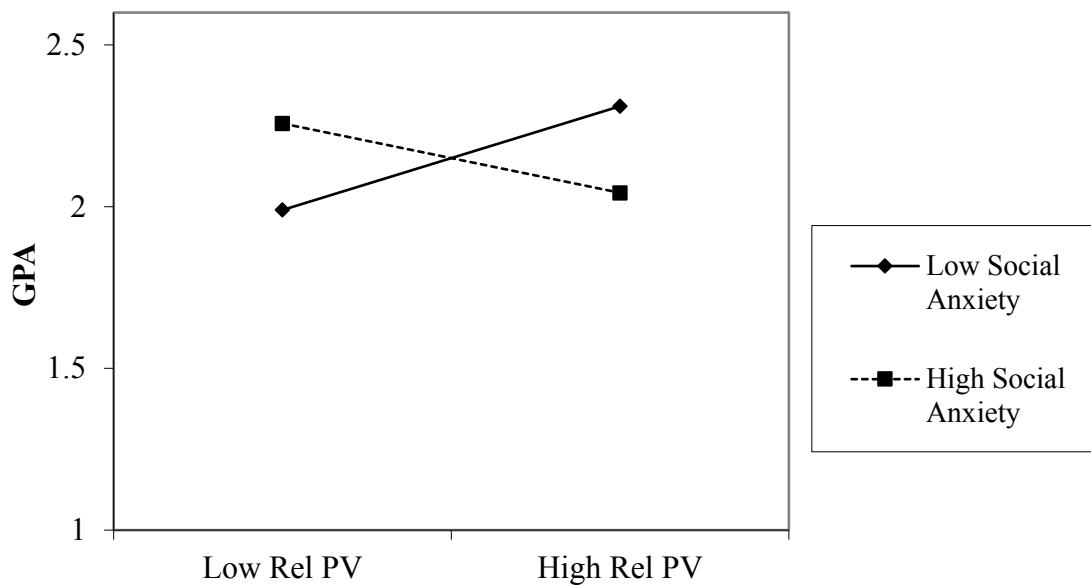
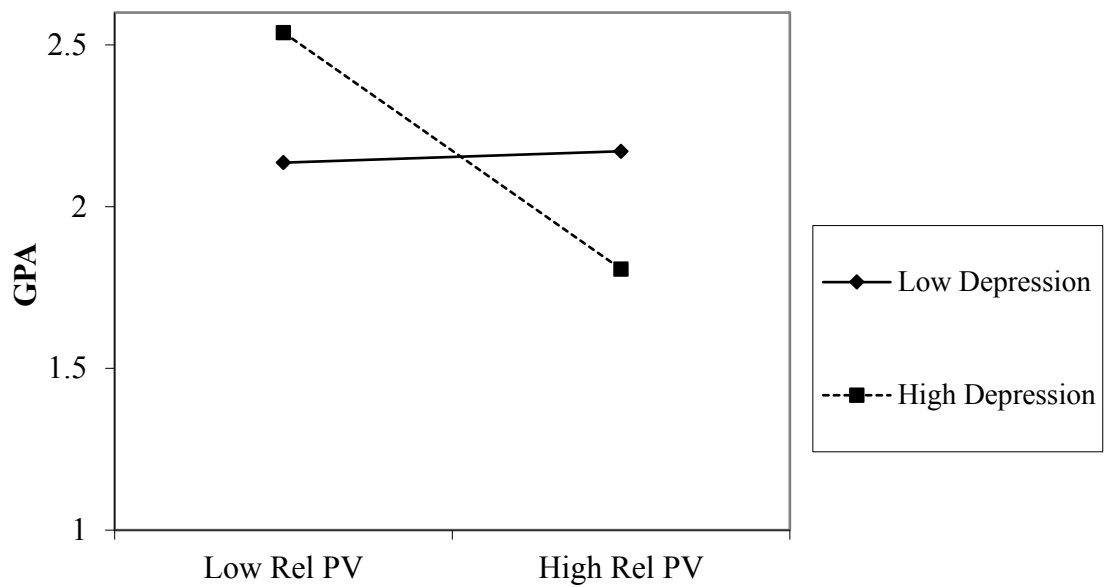


Figure 9. Plot depicting interaction effects of social anxiety and relational PV on GPA.



Note. Similar patterns emerged for interactions with reputational and overt PV and Social Anxiety.

Figure 10. Plot depicting interaction effects of social anxiety and relational PV on GPA.



Figures 11-14. Models examining absences as a mediator of the relationship between PV and latent growth factors for 10th graders

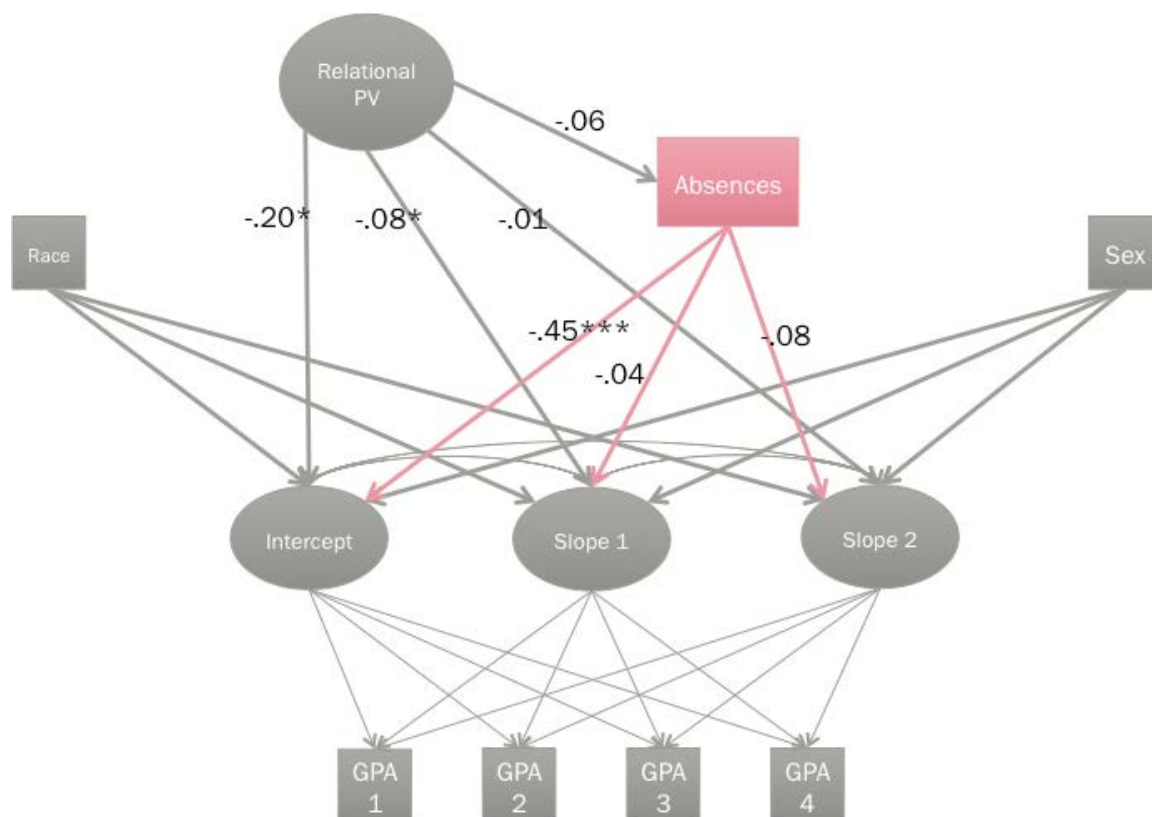


Figure 12.

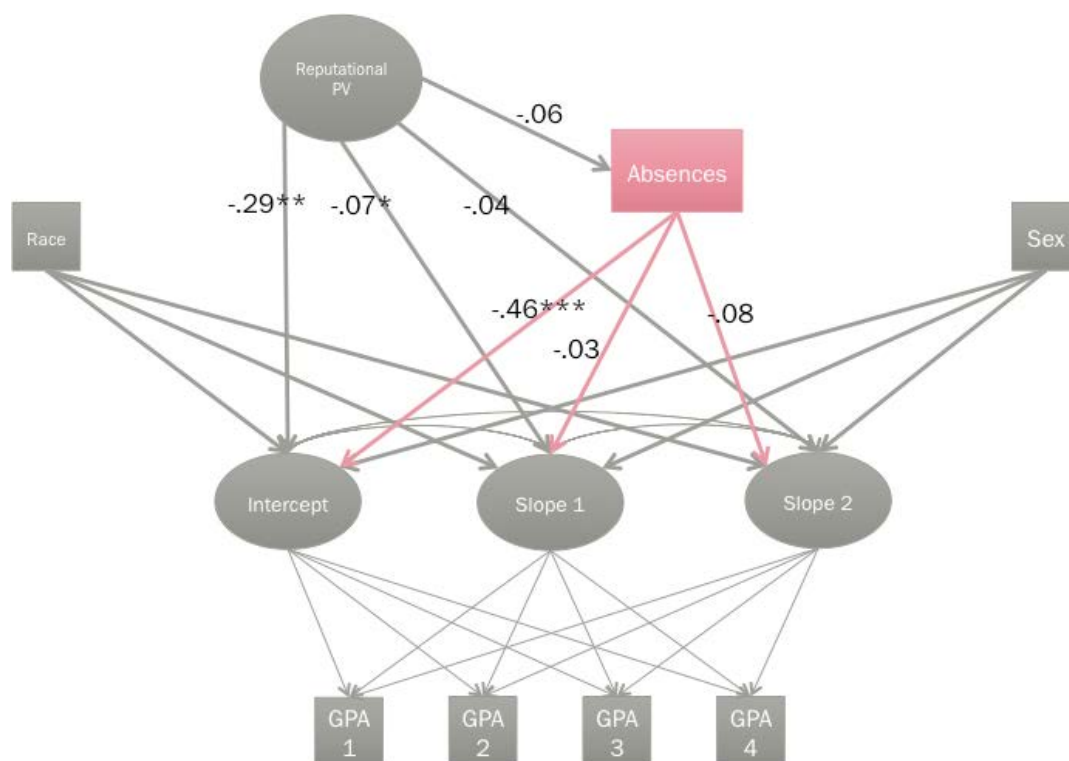


Figure 13.

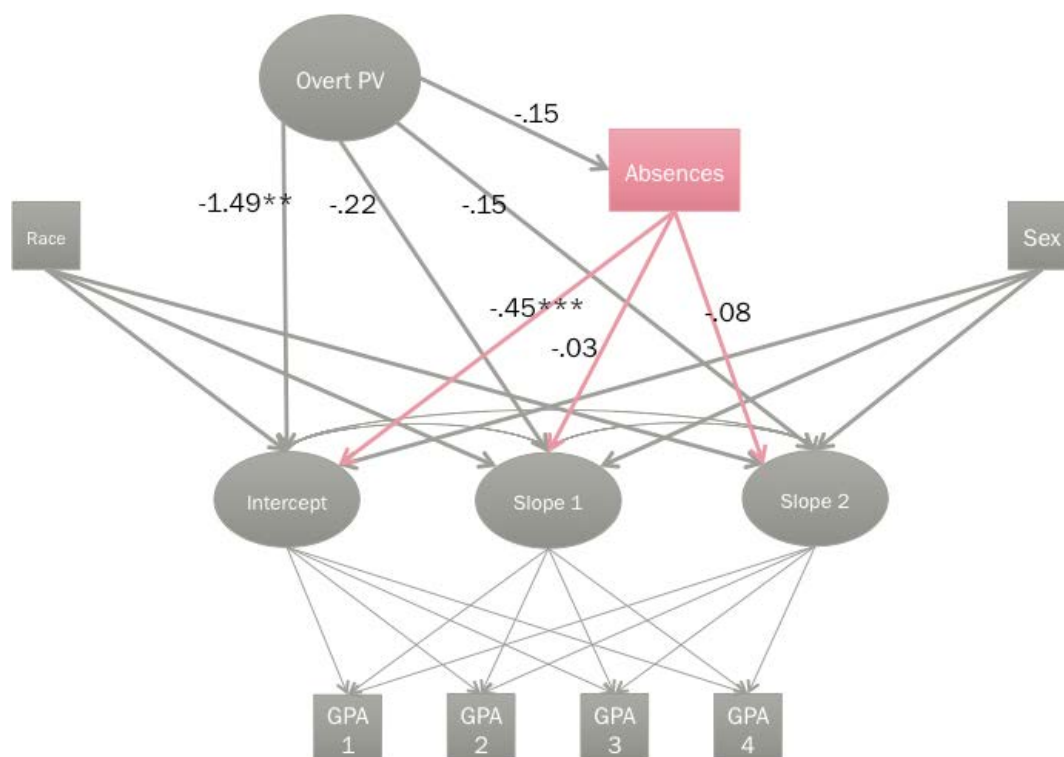


Figure 14.

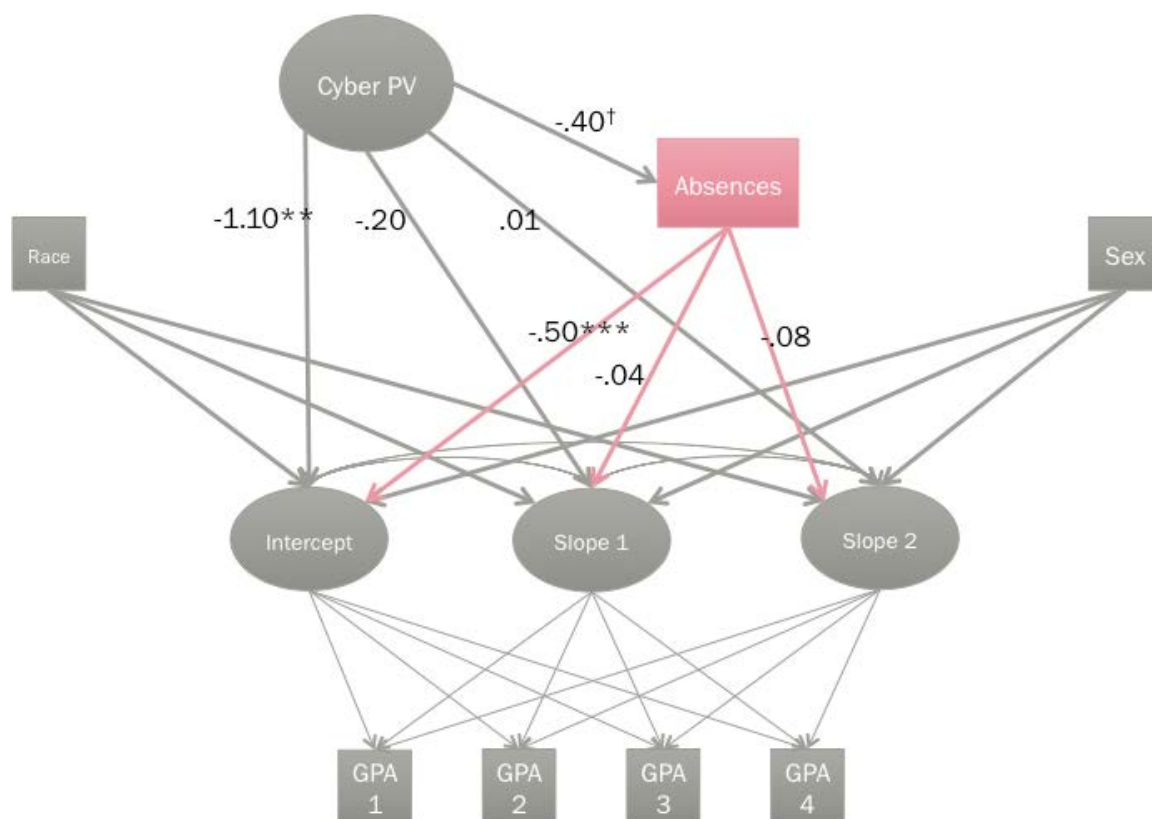
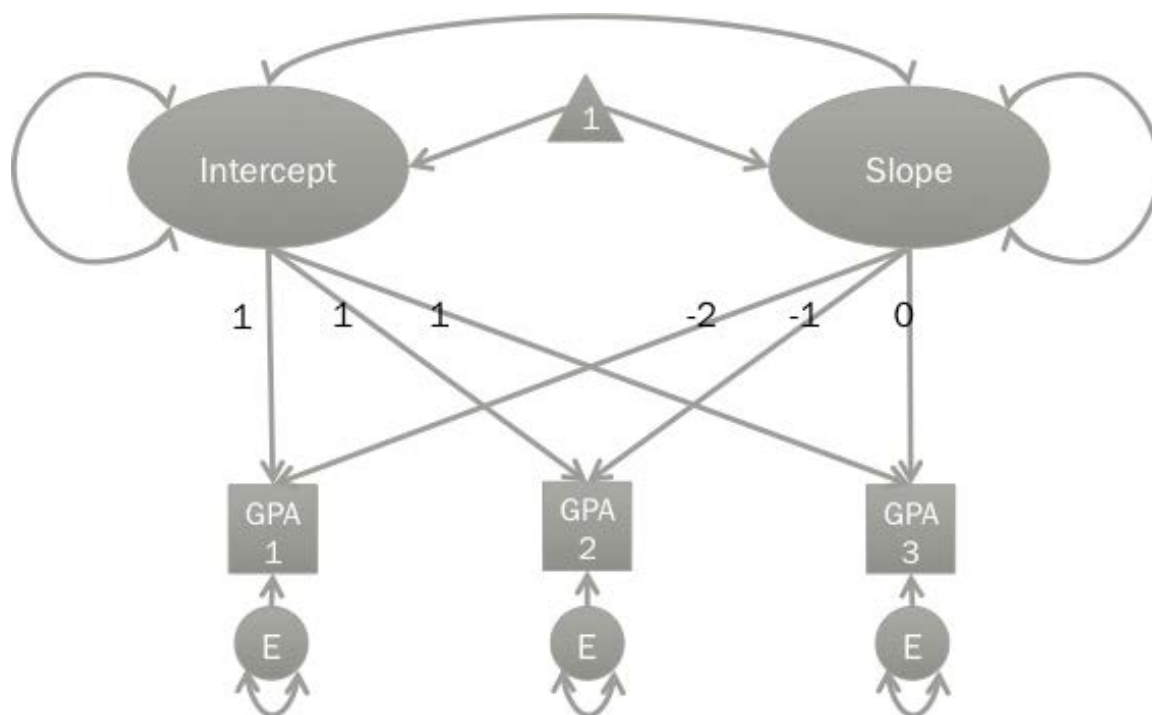


Figure 15. Latent growth model depicting solution for 11th grade academic achievement



Figures 16-19. Models examining absences as a mediator of the relationship between PV and latent growth factors for 11th graders

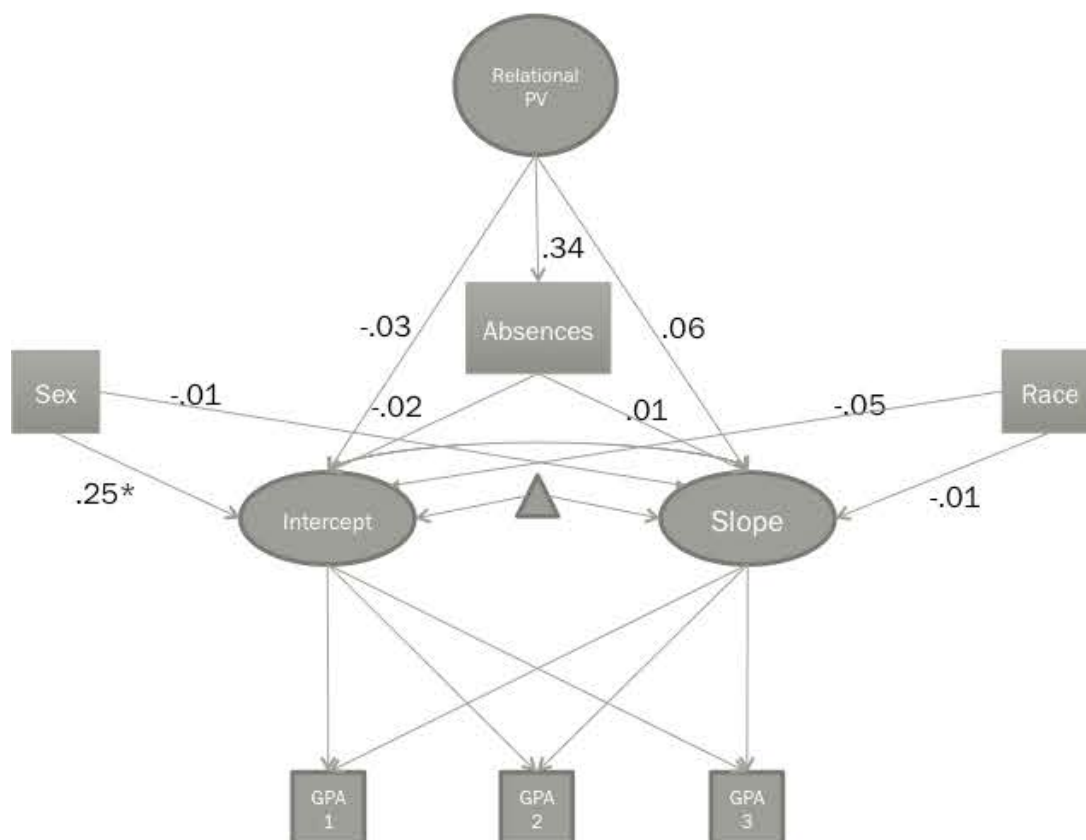


Figure 17.

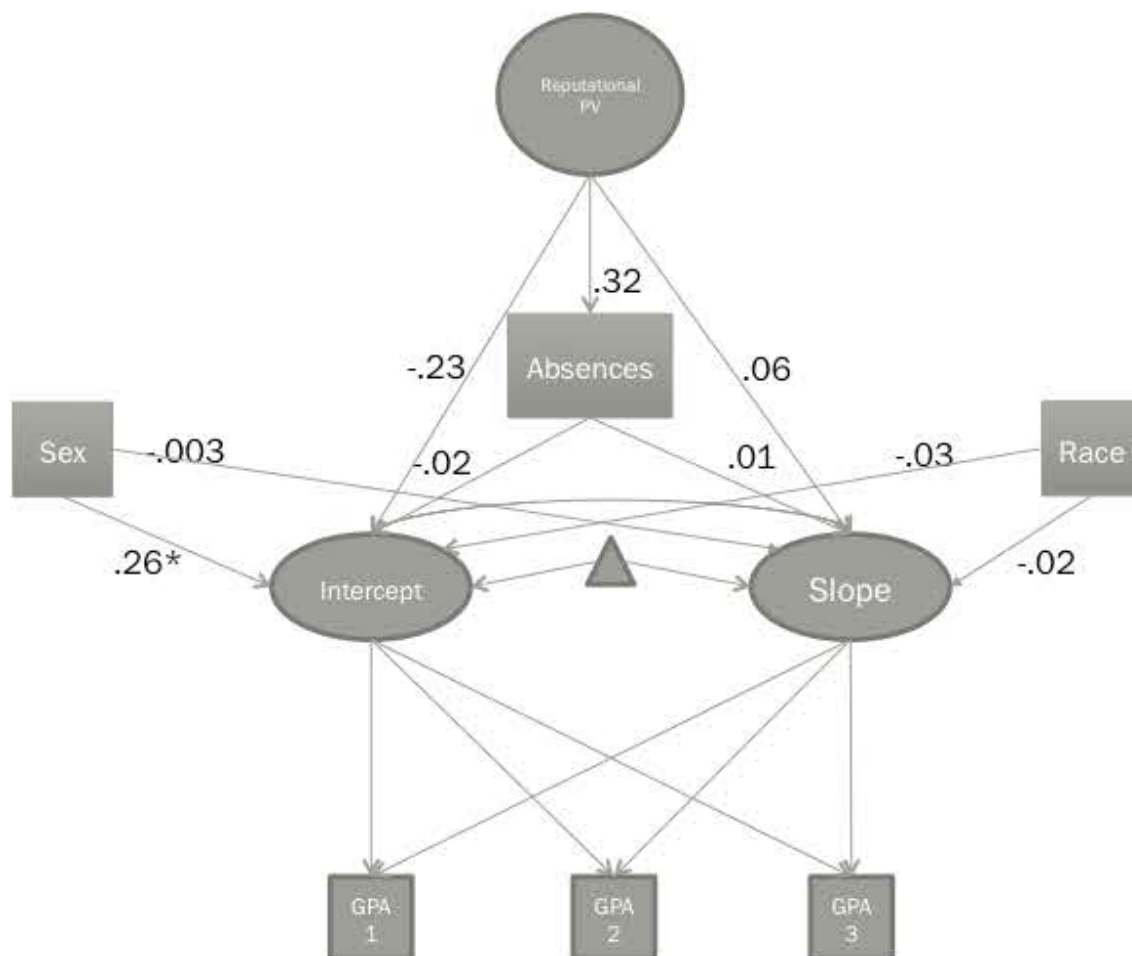


Figure 18.

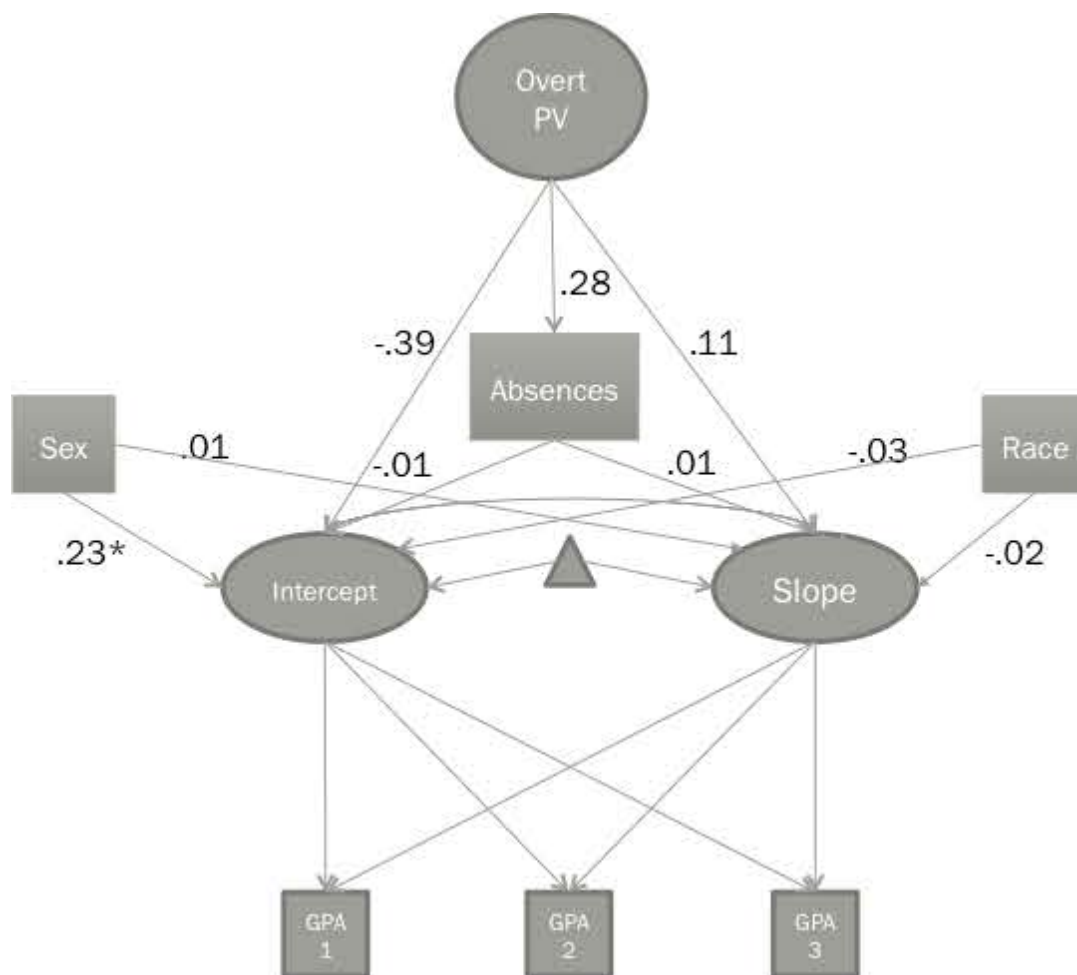


Figure 19.

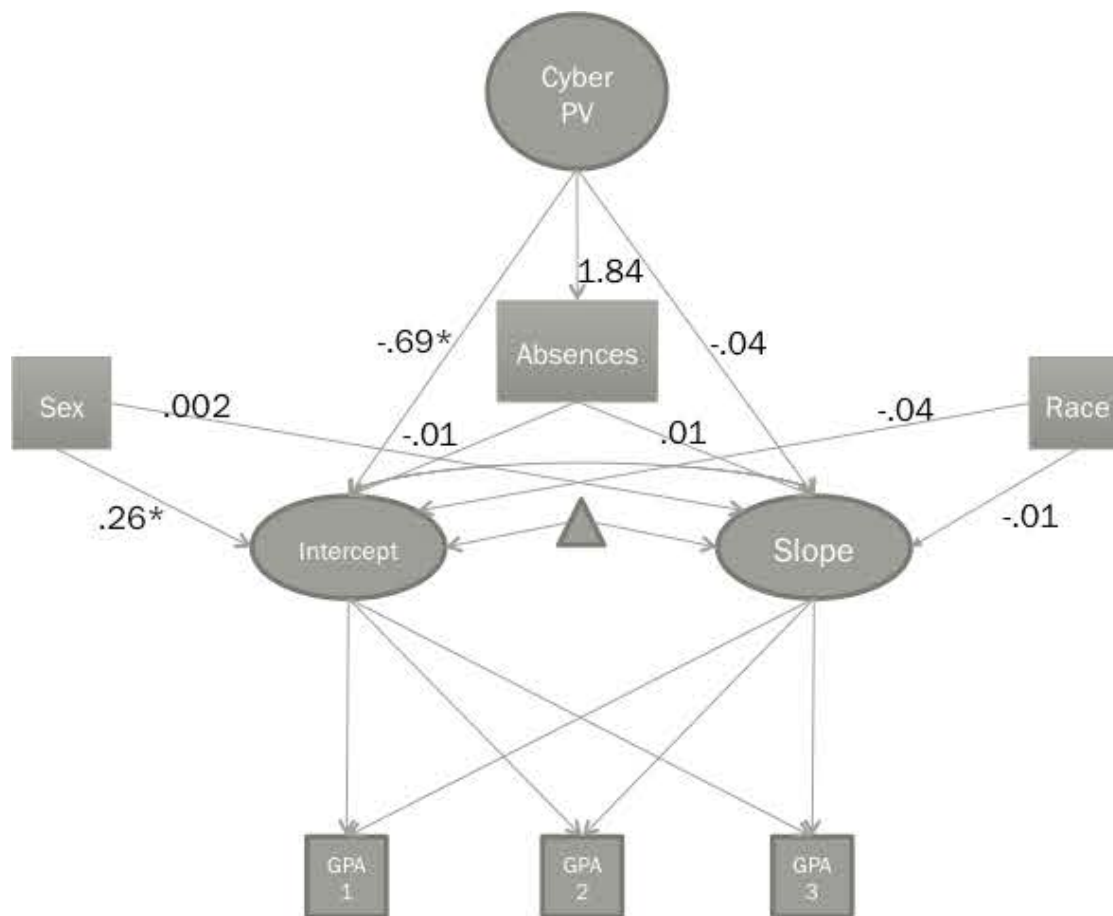


Table 1. Descriptive statistics for key study variables: Initial sample and current study subsample

Variable	Mean (SD) for Initial Sample <i>n</i> = 1162	Mean (SD) for Subsample <i>n</i> = 692	Ranges
Age (years)	15.80 (1.21)	15.62 (1.01)	14-19
Peer Victimization			
Time 1			
Overt	1.32 (.50)	1.33 (.52)	1-4
Relational	1.63 (.63)	1.58 (.62)	1-5
Reputational	1.51 (.70)	1.47 (.68)	1-5
Cyber	1.35 (.39)	1.31 (.37)	1-5
Time 2			
Overt	1.26 (.51)	1.28 (.51)	1-4
Relational	1.47 (.62)	1.43 (.64)	1-5
Reputational	1.38 (.64)	1.38 (.66)	1-5
Cyber	1.33 (.46)	1.33 (.51)	1-4.50
Social Anxiety	37.66 (13.30)	37.28 (13.30)	18-90
Depression	13.76 (9.72)	13.25 (9.68)	0-54
GPA ¹			
Term 1	n/a	2.83 (.61)	.17-4.00
Term 2	n/a	2.74 (.70)	.00-4.00
Term 3	n/a	2.63 (.71)	.50-4.00
Term 4	n/a	2.65 (.76)	.00-4.00
Absences ¹	n/a	10.02 (9.61)	0-73

¹Academic data (GPA and absences) collected retrospectively only for subsample.

Table 2. Comparisons between participants included in analyses versus those eligible but for whom academic data could not be obtained

	Academic Data Collected <i>n</i> = 692	No Academic Data Collected <i>n</i> = 75	<i>t</i> (<i>df</i>)
Peer Victimization			
Time 1			
Overt	1.33 (.51)	1.26 (.45)	-.99(701)
Relational	1.58 (.62)	1.69 (.57)	1.35(702)
Reputational	1.47 (.68)	1.46 (.73)	-.07(701)
Cyber	1.32 (.36)	1.37 (.34)	.88(692)
Time 2			
Overt	1.28 (.51)	1.23 (.46)	-.61(657)
Relational	1.43 (.64)	1.60 (.64)	1.95(657)*
Reputational	1.38 (.66)	1.37 (.61)	-.13(657)
Cyber	1.32 (.36)	1.37 (.34)	-1.29(653)
Social Anxiety	36.95 (13.28)	39.76 (11.51)	1.47(668)
Depression	13.30 (9.55)	15.23 (9.99)	1.28(560)

**p* < .05.

Table 3. Comparisons between participants with missing versus complete data

	9 th Grade; n = 233			10 th Grade; n = 263			11 th Grade; n = 196		
	Complete M (SD);n	Missing M (SD);n	t(df)	Complete M (SD);n	Missing M (SD);n	t(df)	Complete M (SD);n	Missing M (SD);n	t(df)
PV									
Time 1									
Overt	1.39 (.56);142	1.54 (.67);91	1.65(120.9)	1.26 (.42);191	1.23 (.38);72	-48(249)	1.33 (.52);153	1.29 (.48);43	-34(182)
Rel.	1.62 (.59);142	1.63 (.56);91	.22(211)	1.47 (.54);191	1.59 (.72);72	1.46(249)	1.62 (.67);153	1.65 (.73);43	.26(182)
Rep.	1.51 (.74);142	1.54 (.67);91	.32(211)	1.38 (.61);191	1.41 (.65);72	.37(249)	1.50 (.67);153	1.57 (.79);43	.55(182)
Cyber	1.36 (.39);138	1.43 (.43);95	1.06(205)	1.26 (.33);191	1.32 (.36);72	1.31(249)	1.30 (.31);153	1.42 (.41);43	2.09(182)
Time 2									
Overt	1.26 (.46);137	1.67 (.83);96	5.12(51.51)**	1.24 (.49);214	1.33 (.58);49	1.11(238)	1.22 (.43);164	1.22 (.36);32	.02(171)
Rel.	1.39 (.53);137	1.83 (.95);96	2.94(51.48)**	1.33 (.59);214	1.50 (.77);49	1.66(238)	1.46 (.61);164	1.42 (.59);32	-29(171)
Rep.	1.42 (.68);137	1.81 (1.08);96	2.23(53.83)*	1.31 (.57);214	1.35 (.63);49	.43(238)	1.34 (.60);164	1.32 (.50);32	-1.5(171)
Cyber	1.38 (.50);140	1.60 (.60);93	2.24(62.49)*	1.30 (.48);191	1.37 (.62);72	.80(237)	1.29 (.43);140	1.30 (.42);56	.02(170)
S.A.	37.07 (13.30);134	34.65 (13.57);99	-1.10(184)	36.21 (12.49);220	39.72 (12.49);43	1.66(223)	37.85 (13.59);157	42.11 (15.62);37	1.63(167)
Dep.	13.76 (9.46);142	12.30 (10.82);91	-.78(173)	12.74 (9.32);238	16.72 (10.97);25	1.96(214)*	13.28 (10.23);172	11.71 (7.13);24	-72(163)
GPA									
Term 1	2.92 (.64);145	2.48 (.65);88	-5.06(226)***	2.97 (.58);192	2.85 (.50);71	-1.58(258)	2.81 (.60);141	2.74 (.55);55	-.74(194)
Term 2	2.80 (.71);144	2.38 (.72);89	-4.33(227)***	2.88 (.65);192	2.71 (.57);71	-2.01(259)*	2.79 (.70);141	2.55 (.73);55	-2.13(194)*
Term 3	2.67 (.74);147	2.32 (.72);86	-3.47(224)***	2.77 (.63);192	2.53 (.69);71	-2.68(259)**	2.70 (.72);141	2.44 (.74);55	-2.29(194)*
Term 4	2.67 (.80);147	2.20 (.73);86	-4.49(224)***	2.85 (.66);192	2.52 (.77);71	-3.36(259)***	2.75 (.76);141	2.54 (.77);55	-1.74(194)
Absences	9.16 (7.71);143	11.41 (9.71);90	1.95(229)*	8.44 (8.10);193	11.60 (11.96);70	2.43(258)*	10.21 (10.87);137	12.95 (11.00);59	1.57(190)

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4. Model fit and loadings for peer victimization (PV) measurement models by grade

Cohort	χ^2	<i>df</i>	CFI	RMSEA	WRMR	Standardized loadings range
9 th grade	951.51***	458	.91	.06	1.43	
Relational PV						.55 - .85
Reputational PV						.72 - .92
Overt PV						.72 - .93
Cyber PV						.53 - .91
10 th grade	881.52***	458	.93	.06	1.32	
Relational PV						.65 - .92
Reputational PV						.77 - .86
Overt PV						.56 - .91
Cyber PV						.45 - .97
11 th grade	814.90***	458	.90	.06	1.31	
Relational PV						.68 - .91
Reputational PV						.73 - .81
Overt PV						.69 - .84
Cyber PV						.48 - .81

*** $p < .001$.

Table 5. Model fit and loadings for social anxiety measurement models by grade

Cohort	χ^2	df	CFI	RMSEA	SRMR	Standardized loadings range
9 th grade	320.18***	114	.90	.09	.06	
FNE						.46 - .73
SADN						.53 - .84
SADG						.40 - .83
10 th grade	321.87***	114	.90	.09	.07	
FNE						.43 - .84
SADN						.53 - .87
SADG						.42 - .79
11 th grade	268.85***	114	.92	.08	.06	
FNE						.59 - .86
SADN						.55 - .80
SADG						.52 - .78

Note. FNE = fear of negative evaluation; SADN = social avoidance specific to new situations or unfamiliar peers; SADG = generalized social avoidance and distress.

*** $p < .001$

Table 6. Model fit and loadings for depressive symptoms measurement models by grade

Cohort	χ^2	<i>df</i>	CFI	RMSEA	WRMR	Standardized loadings range
9 th grade	196.52***	117	.96	.06	.86	
DA						.63 - .89
PA						.52 - .94
SOM						.54 - .74
10 th grade	225.63***	117	.96	.06	.90	
DA						.68 - .86
PA						.50 - .94
SOM						.53 - .87
11 th grade	145.05***	117	.99	.04	.69	
DA						.48 - .94
PA						.41 - .99
SOM						.55 - .85

Note. DA = depressed affect; PA = positive affect; SOM = somatic complaints.

*** $p < .001$.

Table 7. Descriptive statistics for key study variables by grade

Variable	Mean (SD) 9 th Grade n = 233	Mean (SD) 10 th Grade n = 263	Mean (SD) 11 th Grade n = 196
Age (years)	14.72 (.68)	15.62 (.62)	16.69 (.62)
Peer Victimization			
Time 1			
Overt	1.44 (.60)	1.25 (.41)	1.32 (.51)
Relational	1.62 (.58)	1.50 (.59)	1.63 (.69)
Reputational	1.52 (.72)	1.39 (.62)	1.51 (.70)
Cyber	1.36 (.40)	1.26 (.35)	1.31 (.34)
Time 2			
Overt	1.36 (.59)	1.25 (.51)	1.22 (.41)
Relational	1.50 (.67)	1.37 (.63)	1.45 (.60)
Reputational	1.52 (.81)	1.32 (.58)	1.34 (.58)
Cyber	1.45 (.55)	1.29 (.51)	1.29 (.45)
Social Anxiety	36.39 (13.38)	36.88 (12.54)	38.78 (14.12)
Depression	13.49 (9.71)	13.20 (9.58)	13.05 (9.83)
GPA ¹			
Term 1	2.75 (.67)	2.94 (.57)	2.79 (.59)
Term 2	2.64 (.74)	2.84 (.64)	2.72 (.71)
Term 3	2.54 (.75)	2.70 (.65)	2.63 (.73)
Term 4	2.49 (.81)	2.76 (.70)	2.69 (.77)
Absences ¹	10.04 (8.60)	9.29 (9.38)	10.99 (10.95)

¹Academic data (GPA and absences) collected retrospectively only for subsample.

Table 8. Bivariate correlations among key study variables for full sample (grades combined); $n = 692$

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	--																
2	-.06	--															
3	.09*	-.08*	--														
4	.00	.12**	-.01	--													
5	-.01	.15***	.02	.41***	--												
6	-.10*	-.17***	.05	.27***	.44***	--											
7	-.07	.11**	-.02	.47***	.55***	.39***	--										
8	-.03	-.01	.04	.45***	.27***	.24***	.32***	--									
9	-.11**	.01	.01	.27***	.40***	.31***	.35***	.56***	--								
10	-.11**	-.25***	.09*	.13***	.17***	.51***	.23***	.49***	.52***	--							
11	-.11**	-.02	.01	.22***	.25***	.24***	.40***	.52***	.56***	.48***	--						
12	.07	.11**	.06	.38**	.26***	.16***	.20***	.22***	.15**	.05	.03	--					
13	-.02	.06	.09*	.34***	.38***	.30***	.28***	.24***	.24***	.18***	.15**	.45***	--				
14	.03	.21***	-.04	.02	-.12**	-.18***	-.11**	-.07	-.14**	-.22***	-.14***	.05	-.15***	--			
15	.05	.19***	-.04	-.01	-.15***	-.21***	-.12**	-.11*	-.16***	-.24***	-.18***	.05	-.18***	.84***	--		
16	.05	.18***	-.04	.02	-.11**	-.16***	-.10*	-.06	-.12**	-.20***	-.16***	.07	-.20***	.79***	.84***	--	
17	.11**	.19***	-.01	-.01	-.12**	-.17***	-.11**	-.10*	-.15***	-.24***	-.18**	.07	-.18***	.76***	.82***	.86***	--
18	.04	.06	.00	.05	.11**	.06	.09*	-.03	.04	.03	.08	-.01	.12**	-.36***	-.48***	-.45***	-.48***

1) Grade 2) Sex 3) Race 4) Relational PV 5) Reputational PV 6) Overt PV 7) Cyber PV 8)T2 Relational PV 9)T2 Reputational PV 10)T2 Overt PV 11)T2 Cyber PV 12) Social Anxiety 13) Depression 14)

Term 1 GPA 15) Term 2 GPA 16) Term 3 GPA 17) Term 4 GPA 18) Absences

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 9. Bivariate correlations among key study variables for 9th grade; $n = 233$

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Sex	--															
2. Race	.10	--														
3. Rel. PV	.18*	-.05	--													
4. Rep. PV	-.24**	.37***	-.02	--												
5. Overt PV	.13	.46***	.38***	.54***	--											
6. Cyber PV	-.15*	.39***	.12	.33***	.21***	--										
7. T2 Rel. PV	-.07	.30***	.34***	.34***	.31***	.33***	--									
8. T2 Rep. PV	-.38***	-.06	.10	.05	.56***	.18*	.52***	--								
9. T2 Overt PV	-.05	-.03	.26**	.28***	.23**	.42***	.62***	.44***	--							
10. T2 Cyber PV	-.17*	.03	.23**	.26***	.22**	.08	.10	.07	.01	.03	--					
11. Social Anxiety	.05	-.01	.23**	.46***	.36***	.21**	.26**	.27**	.20*	.30***	.49***	--				
12. Depression	.26***	-.04	.05	-.15*	-.18**	-.15*	-.08	-.14*	-.25**	-.15*	.13	-.16*	--			
13. Term 1 GPA	.30***	-.02	.01	-.15*	-.24***	-.14*	-.10	-.18*	-.25**	-.19*	.16*	-.18*	.87***	--		
14. Term 2 GPA	.25***	.05	-.002	-.20**	-.24***	-.19**	-.08	-.11	-.25***	-.16*	.08	-.26**	.81***	.88***	--	
15. Term 3 GPA	.28***	-.06	-.002	-.12	-.23**	-.14*	-.16*	-.15*	-.33***	-.24**	.11	-.22**	-.80***	.84***	.85***	--
16. Term 4 GPA	-.01	-.06	-.03	.05	.08	.06	-.11	-.03	.01	.06	-.12	-.002	-.35***	-.40***	-.37***	-.39***

1) Sex 2) Race 3) Relational PV 4) Reputational PV 5) Overt PV 6) Cyber PV 7) T2 Relational PV 8) T2 Reputational PV 9) T2 Overt PV 10) T2 Cyber PV 11) Social Anxiety 12) Depression 13) Term 1 GPA 14) Term 2 GPA 15) Term 3 GPA 16) Term 4 GPA 17) Absences

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 10. Bivariate correlations among key study variables for 10th grade; $n = 263$

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Sex	---															
2. Race	-.10	--														
3. Rel. PV	.06	-.03	--													
4. Rep. PV	.17*	-.01	.46***	--												
5. Overt PV	-.15*	.04	.23***	.44***	--											
6. Cyber PV	.07	-.05	.55***	.59***	.41***	--										
7. T2 Rel. PV	-.01	.05	.53***	.38***	.19**	.48***	--									
8. T2 Rep. PV	.02	-.05	.31***	.47***	.24***	.38***	.54***	--								
9. T2 Overt PV	-.24***	.10	.16*	.26***	.45***	.29***	.51***	.48***	--							
10. T2 Cyber PV	-.06	.04	.23**	.26***	.23**	.39***	.53***	.54***	.52***	--						
11. Social Anxiety	.03	.10	.39***	.20**	.13*	.21**	.26***	.18**	.10	.03	--					
12. Depression	.09	.06	.42***	.31***	.29***	.35***	.25***	.21**	.18*	.07	.43***	--				
13. Term 1 GPA	.17**	-.03	-.01	-.01	-.14*	-.02	.01	-.05	-.21**	-.12†	.03	-.11	--			
14. Term 2 GPA	.11	.02	-.03	-.10	-.16*	-.08	-.11	-.10	-.26***	-.15*	.01	-.20*	.81***	--		
15. Term 3 GPA	.11*	.02	-.02	-.05	-.08	-.03	-.04	-.07	-.21**	-.15*	.04	-.19**	.75***	.80***	--	
16. Term 4 GPA	.14*	.05	-.08	-.11	.12	-.07	-.05	-.07	-.20**	-.11	.01	-.17*	.71***	.79***	.86***	--
17. Absences	.11	-.004	.14*	.19**	.07	.14*	-.04	-.001	.05	.04	-.02	.16*	-.32***	-.47***	-.42***	-.49***

1) Sex 2) Race 3) Relational PV 4) Reputational PV 5) Overt PV 6) Cyber PV 7) T2 Relational PV 8) T2 Reputational PV 9) T2 Overt PV 10) T2 Cyber PV 11) Social Anxiety 12)

Depression

13) Term 1 GPA 14) Term 2 GPA 15) Term 3 GPA 16) Term 4 GPA 17) Absences

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 11. Bivariate correlations among key study variables for 11th grade; $n = 196$

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Sex	--															
2. Race	-.15*	--														
3. Rel. PV	.20**	.04	--													
4. Rep. PV	.11	.07	.38***	--												
5. Overt PV	-.13	.13	.31***	.51***	--											
6. Cyber PV	.12	.07	.38***	.50***	.41***	--										
7. T2 Rel. PV	.11	-.05	.40***	.20***	.17*	.19*	--									
8. T2 Rep. PV	.07	-.05	.17*	.40***	.34***	.30***	.48***	--								
9. T2 Overt PV	-.14 [†]	.10	.11	.21**	.53***	.18*	.27***	.56***	--							
10. T2 Cyber PV	.04	.002	.17*	.21**	.24**	.38***	.39***	.46***	.42***	--						
11. Social Anxiety	.15 [†]	.02	.51***	.32***	.13	.35***	.27**	.22**	.04	.06	--					
12. Depression	.03	.06	.34***	.37***	.26**	.27**	.21*	.25**	.17*	.14	.43***	--				
13. Term 1 GPA	.23**	-.06	.06	-.18*	-.18*	-.11	-.12	-.23**	-.19*	-.17*	.002	-.19*	--			
14. Term 2 GPA	.17*	-.07	.04	-.18*	-.18*	-.11	-.09	-.18*	-.22**	-.20**	-.01	-.16*	.82***	--		
15. Term 3 GPA	.20**	-.06	.11	-.05	-.09	-.04	-.02	-.17*	-.11	-.18*	.09	-.16*	.79***	.83***	--	
16. Term 4 GPA	.18*	-.01	.09	-.11	-.10	-.05	-.03	-.17	-.11	-.18*	.10	-.14	.74***	.83***	.86***	--
17. Absences	.07	.02	.002	.07	.04	.05	.03	.16*	.04	.15 [†]	.07	.16*	-.42***	-.54***	-.56***	-.58***

1) Sex 2) Race 3) Relational PV 4) Reputational PV 5) Overt PV 6) Cyber PV 7) T2 Relational PV 8) T2 Reputational PV 9) T2 Overt PV 10) T2 Cyber PV 11) Social Anxiety 12) Depression

13) Term 1 GPA 14) Term 2 GPA 15) Term 3 GPA 16) Term 4 GPA 17) Absences

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 12. Latent growth trajectory and results from models using individual PV factors to predict Term 4 GPA (intercept) and decline in GPA over time (slope): 9th grade

Aim 1	95% confidence intervals			
	Unstandardized coefficients	S.E.	Lower	Upper
<i>Mean structure</i>				
Intercept	2.55***	.06		
Slope	-.08***	.01		
<i>Variance and covariance structure</i>				
Intercept	.59***	.07		
Slope	.01**	.00		
Intercept and Slope	.05***	.01		
<i>Slope structure</i>				
Term 1 GPA	-3.00	--		
Term 2 GPA	-2.00	--		
Term 3 GPA	-1.03	.28		
Term 4 GPA	.00	--		
<i>Predicting Term 4 GPA (intercept)</i>				
Relational PV	-.38**	.13	-.59	-.17
Reputational PV	-.24**	.07	-.37	-.12
Overt PV	-.34**	.10	-.51	-.17
Cyber PV	-.29**	.09	-.43	-.14
<i>Predicting decline in GPA (slope)</i>				
Relational PV	-.02	.03	-.06	.03
Reputational PV	-.01	.07	-.04	.02
Overt PV	-.02	.02	-.06	.02
Cyber PV	-.01	.02	-.04	.03
<i>Covariates predicting Term 4 GPA</i>				
Gender	.49***	.11	.31	.68
Race	-.15	.13	-.36	.06
<i>Covariates predicting decline in GPA</i>				
Gender	.05	.03	.004	.10
Race	.01	.03	-.04	.05

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 13. Chi-Square difference tests: Comparison of models with paths constrained equal between genders to those estimated separately between genders (9th grade)

	$\Delta\chi^2$	<i>df</i>
Relational PV	14.24*	7
Reputational PV	20.84**	7
Overt PV	28.19***	7
Cyber PV	21.11***	7

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 15. Moderation analyses examining each PV factor and social anxiety: 9th grade

9 th Graders	Predicting Term 4 GPA (intercept)				Predicting decline in GPA (slope)			
	U.C.	S.E.	Lower	Upper	U.C.	S.E.	Lower	Upper
Aim 3; Social Anxiety								
Model 1								
Relational PV	-.23	.16	-.49	.03	-.05	.04	-.12	.01
Social Anxiety	.14	.12	-.06	.34	.02	.03	-.02	.07
Relational x Social	-.35	.33	-.90	.20	.06	.08	-.07	.19
Model 2								
Reputational PV	-.32*	.14	-.55	-.09	.01	.03	-.05	.06
Social Anxiety	.19	.12	-.02	.39	.01	.03	-.04	.06
Rep. x Social	-.07	.19	-.39	.25	.03	.05	-.05	.11
Model 3								
Overt PV	-.78**	.23	1.16	-.39	-.16**	.06	-.25	-.07
Social Anxiety	.22	.12	.02	.42	.02	.03	-.02	.07
Overt x Social	-.12	.31	-.63	.39	.15	.08	.02	.27
Model 4								
Cyber PV	-.62**	.22	-.98	-.26	-.06	.05	-.15	.02
Social Anxiety	.16	.12	-.04	.35	.02	.03	-.02	.07
Cyber x Social	-.57	.41	-1.24	.11	.03	.10	-.14	.20

Note. Gender and race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 16. Moderation analyses examining each PV factor and depression: 9th grade

9 th Graders	Predicting Term 4 GPA (intercept)				Predicting decline in GPA (slope)			
	U.C.	S.E.	Lower	Upper	U.C.	S.E.	Lower	Upper
Aim 3; Depression								
Model 1								
Relational PV	.14	.18	-.05	.31	.03	.04	-.04	.11
Depression	-.15**	.04	-.23	-.06	-.02	.01	-.13	.01
Rel. x Depression	-.06	.09	-.37	.33	-.03	.02	-.16	.07
Model 2								
Reputational PV	-.21	.12	-.47	.04	.04	.03	-.05	.10
Depression	-.09	.05	-.16	.02	-.02*	.01	-.11	-.01
Rep. x Depression	.06	.04	-.07	.16	-.003	.01	-.05	.06
Model 3								
Overt PV	-.48	.27	-.64	.21	-.09	.07	-.51	.32
Depression	-.10*	.05	-.25	-.02	-.01	.01	-.06	.04
Overt x Depression	.06	.11	-.11	.24	-.01	.03	-.07	.06
Model 4								
Cyber PV	-.32	.23	-.56	.07	.02	.06	-.03	.08
Depression	-.43*	.17	-.62	-.05	-.05	.04	-.29	.31
Cyber x Depression	-.36	.56	-.61	.10	-.26	.17	-.45	.18

Note. Gender and race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 17. Mediation effects of absences on the relationship between PV types and GPA factors: 9th grade

9 th Graders	Predicting Term 4 GPA (intercept)			Predicting change in GPA (slope)		
	U.C.	S.E.	95% CI	U.C.	S.E.	95% CI
Aim 4						
Relational PV						
Total						
Direct						
Indirect						
Reputational PV						
Total						
Direct						
Indirect						
Overt PV						
Total						
Direct						
Indirect						
Cyber PV						
Total						
Direct						
Indirect						

Note: Gender and race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 18. Regression examining chronic, intermittent, and no PV on adolescents' GPA one year later: 9th grade

9 th Graders	<i>Predicting Grade 10 Term 4 GPA</i>			
	U.C.	S.E.	95% CI	
Aim 5			Lower	Upper
Race	.04	.13	-.17	.25
Gender	.45***	.11	.28	.63
Intermittent Dummy (coded 1 vs. 0)	.15	.13	-.07	.37
Chronic Dummy (coded 1 vs. 0)	-.16	.14	-.39	.06

*** $p < .001$.

Table 19. Latent growth trajectory and results from models using individual PV factors to predict Term 3 GPA (intercept) and change in GPA over time (slopes 1 and 2): 10th grade

10 th Graders				
Aim 1	Unstandardized coefficients	S.E.	95% CI	
			Lower	Upper
<i>Mean structure</i>				
Intercept	2.71***	.04		
Slope 1	-.12***	.01		
Slope 2	.05*	.02		
<i>Variance and covariance structure</i>				
Intercept	.37***	.04		
Slope 1	.01**	.01		
Slope 2	-.003	.02		
Intercept and Slope 1	.04***	.01		
Intercept and Slope 2	.03*	.02		
Slope 1 and Slope 2	.02**	.01		
<i>Slope 1 structure</i>				
Term 1 GPA	-2.00	--		
Term 2 GPA	-1.00	--		
Term 3 GPA	.00	--		
Term 4 GPA	.00	--		
<i>Slope 2 structure</i>				
Term 1 GPA	.00	--		
Term 2 GPA	.00	--		
Term 3 GPA	.00	--		
Term 4 GPA	1.00	--		
<i>Predicting Term 4 GPA (intercept)</i>				
Relational PV	-.17	.10	-.33	-.01
Reputational PV	-.21*	.10	-.38	-.05
Overt PV	.89**	.30	-1.38	-.40
Cyber PV	-.83*	.37	-1.43	-.22
<i>Predicting decline in GPA (slope 1)</i>				
Relational PV	-.05	.06	-.10	.001
Reputational PV	-.04	.03	-.09	.02
Overt PV	-.03	.09	-.18	.12
Cyber PV	-.10	.10	-.27	.07
<i>Predicting change in GPA (slope 2)</i>				
Relational PV	-.02	.07	-.11	.07
Reputational PV	-.01	.06	-.11	.08
Overt PV	-.04	.16	-.30	.22
Cyber PV	.18	.19	-.13	.48
<i>Covariates predicting Term 4 GPA</i>				
Gender	.10	.08	-.04	.23
Race	.03	.09	-.12	.19

<i>Covariates predicting change in GPA</i>				
Slope 1				
Gender	-.02	.03	-.06	.03
Race	.03	.03	-.02	.08
Slope 2				
Gender	.03	.05	-.05	.11
Race	.02	.06	-.08	.11

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 20. Chi-Square difference tests: Comparison of models with paths constrained equal between genders to those estimated separately between genders (10th grade)

	$\Delta\chi^2$	<i>df</i>
Relational PV	29.24***	9
Reputational PV	22.42**	9
Overt PV	30.64***	9
Cyber PV	30.47***	9

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 21a. Multiple group analyses comparing genders on relationship between PV and latent growth intercept factor: 10th grade 10th Graders
Predicting Term 3 GPA (intercept)

	Males				Females			
	Unstandardized coefficients	S.E.	Lower	Upper	Unstandardized coefficients	S.E.	Lower	Upper
Aim 2								
Model 1								
Relational PV	-1.86*	.88	-3.30	-.42	-.05	.15	-.29	.19
Model 2								
Reputational PV	-1.36	1.30	-3.49	.77	-.17	.13	-.39	.05
Model 3								
Overt PV	-6.01***	1.59	-8.62	-3.39	-.92*	.44	-1.64	-.19
Model 4								
Cyber PV	-7.37**	2.79	-11.96	-2.78	-.92*	.46	-1.67	-.17

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X). * $p < .05$ ** $p < .01$ *** $p < .001$.

Table 21b. Multiple group analyses comparing genders on relationship between PV and latent growth slope factors: 10th grade
Predicting change in GPA (slope 1)

	Males						Females						
	U.C.	S.E.	95% CI		U.C.	S.E.	U.C.	S.E.	95% CI		U.C.	S.E.	
			Lower	Upper					Lower	Upper			
Model 1													
Relational PV	.03	.06	-.06	.12	-.07	.05	-.07	.05	-.15	.02			
Model 2													
Reputational PV	.03	.07	-.09	.14	-.05	.05	-.05	.05	-.13	.03			
Model 3													
Overt PV	.24*	.10	.07	.41	-.11	.16	-.11	.16	-.37	.15			
Model 4													
Cyber PV	.27	.16	.01	.53	-.20	.15	-.20	.15	-.45	.05			
	<i>Predicting change in GPA (slope 2)</i>												
	Males						Females						
	U.C.	S.E.	95% CI		U.C.	S.E.	U.C.	S.E.	95% CI		U.C.	S.E.	
			Lower	Upper					Lower	Upper			
Model 1													
Relational PV	-.05	.06	-.15	.06	-.01	.10	-.01	.10	-.16	.15			
Model 2													
Reputational PV	-.09	.08	-.22	.04	.02	.09	.02	.09	-.12	.16			
Model 3													
Overt PV	-.08	.15	-.33	.16	.003	.27	.003	.27	-.44	.44			
Model 4													
Cyber PV	-.03	.20	-.37	.31	.32	.27	.32	.27	-.13	.76			

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 22. Moderation analyses examining each PV factor and social anxiety: 10th grade

	Predicting Term 4 GPA (intercept)				Predicting change in GPA (slope 1)				Predicting change in GPA (slope 2)			
	U.C.	S.E.	95% CI		U.C.	S.E.	95% CI		U.C.	S.E.	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Social Anxiety												
Model 1												
Relational PV	-.36**	.12	-.78	-.01	-.13**	.04	-.62	-.01	.44***	.11	.31	.68
Social Anxiety	.23*	.09	.05	.51	.08**	.03	.01	.43	-.08	.07	-.26	.18
Relational x Social	.30	.23	-.11	.70	.08	.07	-.17	.26	-1.40***	.26	-1.74	-.36
Model 2												
Reputational PV	-.36**	.11	-.76	-.02	-.08*	.04	-.31	-.01	.27*	.09	.04	.43
Social Anxiety	.18*	.09	.02	.34	.05	.03	-.01	.12	-.02	.07	-.38	.27
Rep. x Social	.28	.19	-.25	.47	.06	.06	-.24	.31	-1.04***	.20	-1.45	-.23
Model 3												
Overt PV	-1.27**	.37	-2.14	-.20	-.10	.10	-.37	.04	.85*	.29	1.13	.46
Social Anxiety	.19*	.09	.03	.41	.05	.03	-.07	.06	-.07	.07	-.24	.18
Overt x Social	.82	.60	-.01	1.31	.29	.21	-.03	.47	-3.35***	.94	-4.01	-1.68
Model 4												
Cyber PV	-.79*	.34	-1.51	-.23	-.14	.10	-.34	.06	.20	.22	-.05	.31
Social Anxiety	.11	.08	-.16	.29	.03	.03	.27	-.38	.01	.06	-.21	.27
Cyber x Social	.41	.52	-.30	.64	.26	.20	-.04	.41	.18	.38	-.01	.34

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 23. Moderation analyses examining each PV factor and depression: 10th grade

	Predicting Term 4 GPA (intercept)				Predicting change in GPA (slope 1)				Predicting change in GPA (slope 2)			
	U.C.	S.E.	95% CI		U.C.	S.E.	95% CI		U.C.	S.E.	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Social Anxiety												
Model 1												
Relational PV	.03	.13	-.06	.17	-.02	.04	-.31	.14	.09	.09	-.26	.18
Depression	-.10*	.05	-.21	-.01	-.003	.02	-.11	.21	.001	.03	-.19	.18
Relational x Depression	-.06	.06	-.12	.70	-.04	.02	-.10	.01	-.09*	.04	-.26	-.01
Model 2												
Reputational PV	-.08	.12	-.26	.17	-.01	.04	-.18	.21	.01	.09	-.20	.09
Depression	-.09*	.04	-.19	-.01	-.01	.01	-.17	.12	.01	.03	-.19	.08
Rep. x Depression	-.03	.07	-.09	.15	-.03	.02	-.21	.26	-.07	.05	-.10	.20
Model 3												
Overt PV	-.81*	.32	-1.14	-.30	.01	.10	-.21	.15	.36	.23	-.21	.52
Depression	-.07	.04	-.13	.02	-.02	.01	-.18	.16	-.01	.03	-.24	.18
Overt x Depression	.10	.24	-.04	.21	.02	.08	-.15	.18	-.22	.15	-.41	.24
Model 4												
Cyber PV	-.75*	.36	-1.21	-.23	-.11	.11	-.24	.13	.29	.26	-.10	.37
Depression	-.10*	.04	-.21	-.03	-.02	.01	-.18	.17	-.002	.03	-.18	.21
Cyber x Depression	.21	.34	-.38	.41	.07	.12	-.04	.20	.17	.28	-.04	.34

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 24. Mediation effects of absences on the relationship between PV types and GPA factors: 10th grade

Cohort 2	Predicting Term 4 GPA (intercept)						Predicting Change in GPA						
	Slope 1			Slope 2			Slope 1			Slope 2			
	U.C.	S.E.	95% CI Lower Upper	U.C.	S.E.	95% CI Lower Upper	U.C.	S.E.	95% CI Lower Upper	U.C.	S.E.	95% CI Lower Upper	
Aim 4													
Relational PV													
Total	-.18	.10	-.33 -.02	-.05	.03	-.10 .00	-.03	.05	-.11 .07				
Direct	-.12	.09	-.26 .03	-.05	.03	-.10 .01	-.03	.06	-.12 .07				
Indirect	-.06	.04	-.12 .002	-.01	.01	-.01 .002	.00	.01	-.01 .01				
Reputational PV													
Total	-.21*	.10	-.38 -.05	-.04	.03	-.09 .02	-.02	.06	-.11 .08				
Direct	-.14	.10	-.30 .01	-.03	.03	-.09 .02	-.02	.06	-.11 .08				
Indirect	-.07	.04	-.13 -.01	-.01	.01	-.02 .002	.00	.01	-.01 .01				
Overt PV													
Total	-.87**	.30	-1.36 -.37	-.03	.09	-.18 .12	-.04	.15	-.29 .21				
Direct	-.69**	.27	-1.14 -.24	-.01	.09	-.16 .14	-.04	.16	-.30 .21				
Indirect	-.18	.10	-.34 -.01	-.02	.02	-.05 .01	.001	.02	-.03 .03				
Cyber PV													
Total	-.75*	.33	-1.29 -.21	-.10	.01	-.26 .06	.14	.16	-.13 .41				
Direct	-.69*	.30	-1.18 -.19	-.09	.09	-.25 .06	.14	.16	-.13 .41				
Indirect	-.07	.11	-.24 .11	-.01	.01	-.03 .01	.00	.01	-.01 .01				

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 25. Regression examining chronic, intermittent, and no PV on adolescents' GPA one year later: 10th grade

10 th Graders	<i>Predicting Grade 11 Term 4 GPA</i>			
	U.C.	S.E.	95% CI	
Lower			Upper	
Aim 5				
Race	.10	.11	-.07	.27
Gender	.21*	.09	.06	.36
Intermittent Dummy (coded 1 vs. 0)	.02	.11	-.16	.21
Chronic Dummy (coded 1 vs. 0)	-.06	.13	-.28	.16

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 26. Latent growth trajectory and results from models using individual PV factors to predict Term 3 GPA (intercept) and decline in GPA over time (slope) 11th grade

11 th Graders				
Aim 1	Unstandardized coefficients	S.E.	95% CI	
			Lower	Upper
<i>Mean structure</i>				
Intercept	2.63***	.05		
Slope	-.08***	.02		
<i>Variance and covariance structure</i>				
Intercept	.48***	.06		
Slope	.01	.01		
Intercept and Slope	.06***	.01		
<i>Slope structure</i>				
Term 1 GPA	-2.00	--		
Term 2 GPA	-1.00	--		
Term 3 GPA	.00	--		
<i>Predicting Term 3 GPA (intercept)</i>				
Relational PV	-.03	.12	-.22	.16
Reputational PV	-.23*	.12	-.43	-.03
Overt PV	-.40	.23	-.77	-.03
Cyber PV	-.69*	.30	-1.18	-.20
<i>Predicting decline in GPA (slope)</i>				
Relational PV	.06	.04	-.001	.11
Reputational PV	.06	.04	.01	.12
Overt PV	.11	.07	.002	.22
Cyber PV	-.03	.08	-.16	.10
<i>Covariates predicting Term 3 GPA</i>				
Gender	.22*	.10	.06	.38
Race	-.05	.10	-.21	.10
<i>Covariates predicting decline in GPA</i>				
Gender	.01	.03	-.04	.06
Race	-.01	.03	-.06	.04

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 27. Chi-Square difference tests: Comparison of models with paths constrained equal between genders to those estimated separately between genders (11th grade)

	$\Delta\chi^2$	<i>df</i>
Relational PV	4.78	6
Reputational PV	16.73*	6
Overt PV	20.23**	6
Cyber PV	12.87**	6

* $p < .05$ ** $p < .01$.

Table 28. Multiple group analyses comparing genders on relationship between PV and latent growth factors: 11th grade

Aim 2	Predicting Term 3 GPA (intercept)						Predicting decline in GPA (slope)									
	Males			Females			Males			Females						
	U. C.	S.E.	95% CI	U. C.	S.E.	95% CI	U. C.	S.E.	95% CI	U. C.	S.E.	95% CI				
Model 1			Lower	Upper					Lower	Upper						
Relational PV	-.002	.18	-.29	.29	-.04	.17	-.31	.23	.10	.06	.001	.19	.03	.04	-.04	.10
Model 2			Lower	Upper												
Reputational PV	.01	.19	-.29	.32	-.53**	.19	-.85	-.22	.15*	.06	.05	.25	-.03	.05	-.11	.06
Model 3			Lower	Upper												
Overt PV	.02	.29	-.46	.50	-1.01**	.37	-1.62	-.40	.26**	.10	.10	.41	-.10	.10	-.26	.06
Model 4			Lower	Upper												
Cyber PV	-.37	.43	-1.07	.34	-1.55**	.62	-2.56	-.53	.09	.14	-.14	.31	-.24	.15	-.48	.00

Note: Race (White vs. Minority Status) controlled for in all models (see Appendix X).

* $p < .05$ ** $p < .01$.

Table 29. Moderation analyses examining each PV factor and social anxiety: 11th grade

11 th Graders	Predicting Term 4 GPA (intercept)				Predicting decline in GPA (slope)			
	U.C.	S.E.	Lower	Upper	U.C.	S.E.	Lower	Upper
Model 1								
Relational PV	.07	.13	-.15	.28	.02	.04	-.05	.09
Social Anxiety	.00	.12	-.19	.19	.01	.04	-.05	.06
Relational x Social	-.04	.17	-.32	.24	.06	.05	-.02	.15
Model 2								
Reputational PV	-.20	.12	-.40	.01	.08	.04	.01	.15
Social Anxiety	-.33	.21	-.68	.02	-.11	.07	-.22	.01
Rep. x Social	.44	.23	.06	.82	.06	.08	-.06	.19
Model 3								
Overt PV	-.39	.24	-.78	-.01	.09	.09	-.05	.24
Social Anxiety	.05	.10	-.12	.22	.02	.03	-.02	.07
Overt x Social	.43	.37	-.18	1.04	.14	.12	-.05	.33
Model 4								
Cyber PV	-.78*	.34	-1.34	-.23	-.11	.09	-.26	.05
Social Anxiety	.07	.10	-.10	.24	.04	.03	-.01	.09
Cyber x Social	.39	.52	-.47	1.24	.35	.17	.08	.62

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X). * $p < .05$ ** $p < .01$.

Table 30. Moderation analyses examining each PV factor and depression: 11th grade

11 th Graders	Predicting Term 4 GPA (intercept)				Predicting decline in GPA (slope)			
	U.C.	S.E.	Lower	Upper	U.C.	S.E.	Lower	Upper
Aim 3; Depression								
Model 1								
Relational PV	.18	.12	-.01	.37	.07*	.03	.02	.12
Depression	-.47*	.22	-.84	-.11	-.05	.06	-.15	.04
Relational x Depression	.11	.19	-.20	.42	-.05	.08	-.18	.08
Model 2								
Reputational PV	-.20	.12	-.40	.01	.08	.04	.01	.15
Depression	-.33	.21	-.68	.02	-.11	.07	-.22	.01
Rep. x Depression	.44	.23	.06	.82	.06	.08	-.06	.19
Model 3								
Overt PV	-.28	.25	-.69	.13	.15	.08	.01	.29
Depression	-.29	.18	-.58	.01	-.05	.05	-.14	.03
Overt x Depression	.31	.34	-.26	.87	-.07	.21	-.42	.28
Model 4								
Cyber PV	-.68*	.34	-1.25	-.12	-.06	.10	-.23	.10
Depression	-.27	.17	-.54	.01	-.02	.05	-.10	.06
Cyber x Depression	-.14	.09	-1.78	1.50	.07	.34	-.50	.63

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X). * $p < .05$ ** $p < .01$.

Table 31. Mediation effects of absences on the relationship between PV types and GPA factors: 11th grade.

Aim 4	Predicting Term 3 GPA (intercept)			Predicting change in GPA (slope)			
	Unstandardized Coefficients	S.E.	95% CI	Unstandardized Coefficients	S.E.	95% CI	
			Lower	Upper		Lower	Upper
Relational PV							
Total	-.04	.12	-.23	.16	.06	.002	.12
Direct	-.03	.12	-.23	.16	.06	-.001	.12
Indirect	-.01	.01	-.02	.01	.003	-.004	.01
Reputational PV							
Total	-.23*	.12	-.43	-.04	.07	.01	.13
Direct	-.23*	.12	-.43	-.03	.06	.004	.12
Indirect	-.01	.01	-.02	.01	.003	-.004	.01
Overt PV							
Total	-.39	.23	-.76	-.02	.11	.00	.22
Direct	-.39	.23	-.76	-.02	.11	-.002	.22
Indirect	-.004	.01	-.02	.02	.002	-.01	.01
Cyber PV							
Total	-.71*	.30	-1.20	-.21	-.02	-.16	.14
Direct	-.69*	.30	-1.19	-.19	-.04	-.18	.10
Indirect	-.02	.05	-.09	.06	.02	-.01	.05

Note. Race (White vs. Minority Status) controlled for in all models (see Appendix X). * $p < .05$.

Table 32. Regression examining chronic, intermittent, and no PV on adolescents' GPA one year later: 11th grade

11 th Graders	<i>Predicting Grade 12 Term 4 GPA</i>			
	U.C.	S.E.	95% CI	
			Lower	Upper
Aim 5				
Race	.003	.10	-.16	.16
Gender	.43***	.10	.26	.59
Intermittent Dummy (coded 1 vs. 0)	.11	.15	-.13	.35
Chronic Dummy (coded 1 vs. 0)	-.14	.15	-.39	.11

*** $p < .001$.

Appendix A: Demographic Variables

1. Sex Boy (Male) Girl (Female)
2. Grade 9 10 11 12
3. Date of Birth (Month/Day/Year) / / Age:
- 4a. Are you of Hispanic/Latino descent? Yes No
- 4b. Are you of Caribbean descent? Yes No
- 4c. What is your racial background? Check the one that BEST fits your background.
 White Black Asian
5. From the above descriptions (questions 4a-4c), which race/ethnicity do you identify with the most?

6. What language did you FIRST speak as a child? (circle)
 English Spanish Other (explain)

7. Who do you currently live with?
 Mom only
 Dad only
 Both parents
 Mom and her significant other (e.g. step-parent)
 Dad and his significant other (e.g. step-parent)
 Other relatives
 Other (explain) _____
8. How many brothers and sisters do you live with at home? _____

Appendix B: R-PEQ

These questions ask about some things that often happen between teens. Please rate how often you have done these things to others and how often these things have happened to you in the past two months.

How often has this happened to you?

1. Some teens left me out of an activity or conversation that I really wanted to be included in.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

2. A teen chased me like he or she was really trying to hurt me.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

3. A teen helped me when I was having a problem

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

4. A teen I wanted to be with would not sit near me at lunch or in class.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

5. A teen tried to damage my social reputation by spreading rumors about me.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

6. A teen was nice and friendly to me when I needed help.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

How often have you done this to another teen?

I left another teen out of an activity or conversation that they really wanted to be included in.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

I chased a teen like I was really trying to hurt him or her.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

I helped a teen when they were having a problem.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

I would not sit near another teen who wanted to be with me at lunch or in class.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

I tried to damage another teen's social reputation by spreading rumors about them.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

I was nice and friendly to a teen when they needed help.

- Never
- Once or twice
- A few times
- About once a week
- A few times a week

7. A teen did not invite me to a party or social event even though they knew that I wanted to go.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I did not invite a teen to a party or other social event even though I knew the teen wanted to go.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
8. A teen left me out of what they were doing.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I left another teen out of what I was doing.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
9. To get back at me, a teen told me that s/he would not be friends with me anymore.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I told a teen that I would not be friends with them anymore to get back at them.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
10. A teen stuck up for me when I was being picked on or excluded.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I stuck up for a teen who was being picked on or excluded.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
11. A teen gossiped about me so others would not like me.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I gossiped about a teen so others would not like him/her.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
12. A teen threatened to hurt or beat me up.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I threatened to hurt or beat up a teen.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
13. A teen gave me the silent treatment (did not talk to me on purpose).
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I gave a teen the silent treatment (did not talk to the teen on purpose).
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week

14. A teen said mean things about me so that people would think I was a loser.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I said mean things about a teen so that people would think s/he was a loser.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
15. A teen helped me join into a group or conversation.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I helped a teen join into a group or conversation.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
16. A teen hit, kicked, or pushed me in a mean way.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I hit, kicked, or pushed a teen in a mean way.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
17. A teen teased me in a mean way, by saying rude things or calling me bad names.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I teased a teen in a mean way, by saying rude things or calling him or her bad names.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
18. A teen spent time with me when I had no one else to hang out with.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week
- I spent time with a teen when they had no one else to hang out with.
- Never
 - Once or twice
 - A few times
 - About once a week
 - A few times a week

Appendix C: C-PEQ

Using this scale, **rate how often these peer experiences have happened to you. Then also circle whether or not you have done these things to another peer.**

For each item, “electronic media” refers to any internet site, Social Networking Site (SNS), text messaging, email, instant messaging and picture messaging accessed via a computer, cell phone or other mobile device.

In the past month...	Never	Once or twice	A few times	About once a week	A few times a week		Did you do this to another peer?	
							Yes	No
1. A peer I wanted to be friends with via electronic media ignored my friend request.	1	2	3	4	5		Yes	No
2. A peer removed me from his/her list of friends via electronic media.	1	2	3	4	5		Yes	No
3. A peer made me feel bad by not listing me in his/her “Top 8” or “Top Friends” list.	1	2	3	4	5		Yes	No
4. A peer that I liked became my “friend” via electronic media.	1	2	3	4	5		Yes	No
5. A peer posted mean things about me publicly via electronic media.	1	2	3	4	5		Yes	No
6. A peer posted mean things about me anonymously via electronic media.	1	2	3	4	5		Yes	No
7. A peer posted pictures of me that made me look bad via electronic media.	1	2	3	4	5		Yes	No
8. A peer sent embarrassing pictures or videos of me to others via electronic media.	1	2	3	4	5		Yes	No
9. A peer tried to get me in trouble with parents, teachers or others by posting pictures or comments about me via electronic media.	1	2	3	4	5		Yes	No
10. A peer sent me a nice message via electronic media.	1	2	3	4	5		Yes	No
11. A peer publicly spread rumors about me or revealed secrets I had told them via electronic media.	1	2	3	4	5		Yes	No
12. A peer sent me a mean message via electronic media.	1	2	3	4	5		Yes	No
13. A peer pretended to be me via electronic media and did things to make me look bad/damage my friendships.	1	2	3	4	5		Yes	No
14. A peer prevented me from joining a group via electronic media that I really wanted to join.	1	2	3	4	5		Yes	No

15. A peer posted pictures of me having fun and spending time with them via electronic media.	1	2	3	4	5		Yes	No
16. A peer created a group via electronic media to be mean and hurt my feelings.	1	2	3	4	5		Yes	No
17. I found out that I was excluded from a party or social event via electronic media.	1	2	3	4	5		Yes	No
18. A peer I was dating broke up with me using electronic media.	1	2	3	4	5		Yes	No
19. A peer made me feel jealous by "messing" with my girlfriend/boyfriend via electronic media.	1	2	3	4	5		Yes	No
20. A peer complimented me publicly via electronic media.	1	2	3	4	5		Yes	No

*Note: items 3, 4, 8, 9, 10, 13, 14, 15, 16, 18 and 20 were not included in the analyses.

Appendix D: SAS-A

Use these numbers to show **HOW MUCH YOU FEEL** something has been true for you *in the past 2 months*:

	Not at all	Hardly ever	Sometimes	Most of the time	All of the time
1. I worry about doing something new in front of others.	1	2	3	4	5
2. I like to do things with my friends.	1	2	3	4	5
3. I worry about being teased.	1	2	3	4	5
4. I feel shy around people I don't know.	1	2	3	4	5
5. I only talk to people I know really well.	1	2	3	4	5
6. I feel that peers talk about me behind my back.	1	2	3	4	5
7. I like to read.	1	2	3	4	5
8. I worry about what others think of me.	1	2	3	4	5
9. I'm afraid that others will not like me.	1	2	3	4	5
10. I get nervous when I talk to peers I don't know very well.	1	2	3	4	5
11. I like to play sports.	1	2	3	4	5
12. I worry about what others say about me.	1	2	3	4	5
13. I get nervous when I meet new people.	1	2	3	4	5
14. I worry that others don't like me.	1	2	3	4	5
15. I'm quiet when I'm with a group of people.	1	2	3	4	5
16. I like to do things by myself.	1	2	3	4	5
17. I feel that others make fun of me.	1	2	3	4	5
18. If I get into an argument, I worry that the other person will not like me.	1	2	3	4	5
19. I'm afraid to invite others to do things with me because they might say no.	1	2	3	4	5
20. I feel nervous when I'm around certain people	1	2	3	4	5
21. I feel shy even with peers I know well.	1	2	3	4	5
22. It's hard for me to ask others to do things with me.	1	2	3	4	5

Appendix E: CES-D Self

For each of the following descriptions, circle the number that corresponds to how often you have felt this way during the past week.

	Rarely or none of the time (< 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I couldn't shake off the blues even with help from my family or friends.	0	1	2	3
4. I felt that I was just as good as other people.	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything I did was an effort.	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3
14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people dislike me.	0	1	2	3
20. I could not get "going."	0	1	2	3

Appendix F: Results from control variables

Table 1. Control variables from multiple group analyses comparing genders on relationship between PV and latent growth factor: 9th grade

Aim 2	Predicting Term 4 GPA (number)				Predicting decline in GPA (slope)											
	Males		Females		Males				Females							
	U.C.	S.E.	95% CI Lower	Upper	U.C.	S.E.	95% CI Lower	Upper	U.C.	S.E.	95% CI Lower	Upper	U.C.	S.E.	95% CI Lower	Upper
Model 1																
Race	-.17	.22	-.53	.19	-.10	.16	-.36	.16	.01	.06	-.08	.11	.01	.04	-.05	.07
Model 2																
Race	-.17	.22	-.53	.19	-.13	.16	-.38	.13	.01	.06	-.09	.11	.01	.04	-.05	.07
Model 3																
Race	-.16	.22	-.52	.19	-.12	.15	-.37	.14	.02	.06	-.08	.11	.01	.04	-.05	.07
Model 4																
Race	-.17	.22	-.53	.19	-.15	.16	-.41	.11	.01	.06	-.09	.11	.01	.04	-.05	.07

Table 2. Control variables from moderation analyses examining PV and internalizing symptoms: 9th grade

9 th Graders	Predicting Term 4 GPA (intercept)				Predicting decline in GPA (slope)			
	U.C.	S.E.	Lower	Upper	U.C.	S.E.	Lower	Upper
Aim 3; Social Anxiety								
Model 1								
Gender	.48***	.11	.30	.66	.06*	.03	.01	.10
Race	-.12	.13	-.33	.10	.01	.03	-.05	.06
Model 2								
Gender	.48***	.11	.31	.66	.06*	.03	.01	.10
Race	-.14	.13	-.35	.07	.01	.03	-.05	.06
Model 3								
Gender	.34**	.11	.16	.53	.03	.03	-.01	.08
Race	-.14	.13	-.35	.06	.01	.03	-.04	.06
Model 4								
Gender	.47***	.11	.29	.65	.05*	.03	.01	.10
Race	-.15	.13	-.36	.06	.01	.03	-.05	.06
Aim 3; Depression								
Model 1								
Gender	.54***	.11	.32	.76	.06*	.03	.02	.14
Race	-.07	.13	-.31	.42	.02	.03	-.02	.08
Model 2								
Gender	.58***	.11	.34	.77	.06*	.03	.02	.15
Race	-.11	.13	-.43	.29	.02	.03	-.02	.07
Model 3								
Gender	.45***	.11	.23	.66	.05	.03	-.03	.18
Race	-.09	.13	-.21	.06	.02	.03	-.02	.07
Model 4								
Gender	.52***	.10	.31	.72	.06*	.03	.02	.16
Race	-.09	.13	-.49	.34	.01	.03	-.05	.06

Table 3. Control variables from multiple group analyses comparing genders on relationship between PV and latent growth intercept factor: 10th grade

10 th Graders		Predicting Term 3 GPA (intercept)							
		Males				Females			
Aim 2		Unstandardized coefficients	S.E.	Lower	Upper	Unstandardized coefficients	S.E.	Lower	Upper
Model 1									
Race		1.80***	.44	1.08	2.52	-.19	.15	-.43	.05
Model 2									
Race		1.82***	.45	1.08	2.55	-.19	.15	-.42	.05
Model 3									
Race		1.65***	.47	.88	2.42	-.16	.27	-.39	.09
Model 4									
Race		1.78	.44	1.07	2.50	-.19	.15	-.43	.05

Table 4. Control variables from multiple group analyses comparing genders on relationship between PV and latent growth slope factors: 10th grade

	<i>Predicting change in GPA (slope 1)</i>												
	Males					Females							
	U.C.	S.E.	95% CI		U.C.	S.E.	95% CI		U.C.	Upper			
Model 1													
Race	-.02	.04	-.08	.04	.01	.05	-.08	.09					
Model 2													
Race	-.02	.04	-.08	.04	.01	.05	-.08	.10					
Model 3													
Race	-.02	.04	-.08	.05	.01	.05	-.08	.10					
Model 4													
Race	-.02	.04	-.08	.04	.01	.05	-.08	.10					
	<i>Predicting change in GPA (slope 2)</i>												
	Males					Females							
	U.C.	S.E.	95% CI		U.C.	S.E.	95% CI		U.C.	Upper			
Model 1													
Race	.03	.06	-.07	.12	.02	.10	-.14	.18					
Model 2													
Race	.02	.06	-.08	.12	.02	.10	-.14	.18					
Model 3													
Race	.03	.06	-.07	.12	.02	.10	-.14	.18					
Model 4													
Race	.03	.06	-.07	.13	.03	.10	-.13	.18					

Table 4. Control variables from moderation analyses examining each PV factor and social anxiety: 10th grade

	Predicting Term 4 GPA (intercept)			Predicting change in GPA (slope 1)			Predicting change in GPA (slope 2)		
	U.C.	S.E.	95% CI	U.C.	S.E.	95% CI	U.C.	S.E.	95% CI
Social Anxiety									
Model 1									
Gender	.11	.08	-.13 .36	-.02	.08	-.41 .29	.01	.05	-.34 .45
Race	.02	.09	-.15 .17	.02	.03	-.14 .19	.05	.06	-.52 .38
Model 2									
Gender	.12	.08	-.14 .32	-.02	.03	-.38 .41	.04	.05	-.45 .37
Race	.02	.09	-.14 .18	.02	.03	-.14 .19	.04	.06	-.48 .37
Model 3									
Gender	.02	.08	-.14 .17	-.03	.03	-.41 .29	.08	.06	-.09 .20
Race	.06	.09	-.21 .52	.06	.09	-.22 .34	-.01	.06	-.11 .17
Model 4									
Gender	.09	.08	-.24 .61	-.02	.03	-.38 .27	.07	.06	-.05 .18
Race	.02	.09	-.15 .18	.02	.03	-.14 .19	.08	.06	-.09 .20

Table 5. Control variables from moderation analyses examining each PV factor and depression: 10th grade

	Predicting Term 4 GPA (intercept)				Predicting change in GPA (slope 1)				Predicting change in GPA (slope 2)			
	U.C.	S.E.	95% CI		U.C.	S.E.	95% CI		U.C.	S.E.	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Depression												
Model 1												
Gender	.12	.08	-.13	.36	-.03	.03	-.23	.07	.06	.06	-.05	.17
Race	.02	.09	-.14	.17	.02	.03	-.13	.18	.07	.06	-.08	.21
Model 2												
Gender	.12	.08	-.14	.32	-.02	.03	-.19	.13	.06	.06	-.07	.19
Race	.03	.09	-.15	.18	.02	.03	-.14	.19	.08	.06	-.10	.17
Model 3												
Gender	.06	.09	-.17	.21	-.02	.03	-.19	.14	.10	.06	-.09	.20
Race	.06	.09	-.17	.19	.03	.03	-.16	.15	.07	.06	-.09	.19
Model 4												
Gender	.13	.08	-.24	.41	-.02	.03	-.19	.13	.07	.06	-.09	.18
Race	.05	.09	-.13	.18	.03	.03	-.16	.15	.08	.06	-.07	.16

Table 6. Control variables from multiple group analyses comparing genders on relationship between PV and GPA: 11th grade

Aim 2	Predicting Term 3 GPA (intercept)						Predicting decline in GPA (slope)							
	Males			Females			Males			Females				
	U.C.	S.E.	95% CI	U.C.	S.E.	95% CI	U.C.	S.E.	95% CI	U.C.	S.E.	95% CI		
Model 1			Lower	Upper					Lower	Upper				
Race	-0.06	.13	-0.27	.15	-0.10	.16	-0.30	.22	-0.03	.04	-0.10	.04	-0.05	.09
Model 2			Lower	Upper					Lower	Upper				
Race	-0.06	.13	-0.27	.15	-0.004	.15	-0.25	.24	-0.04	.04	-0.11	.02	.04	.09
Model 3			Lower	Upper					Lower	Upper				
Race	-0.06	.13	-0.27	.15	-0.01	.15	-0.25	.24	-0.05	.04	-0.12	.02	.04	.10
Model 4			Lower	Upper					Lower	Upper				
Race	-0.06	.13	-0.27	.15	-0.02	.15	-0.27	.22	-0.03	.04	-0.10	.03	.04	.09

Table 7. Control variables from moderation analyses examining PV and internalizing symptoms: 9th grade

11 th Graders	Predicting Term 4 GPA (intercept)				Predicting decline in GPA (slope)			
	U.C.	S.E.	Lower	Upper	U.C.	S.E.	Lower	Upper
Aim 3; Social Anxiety								
Model 1								
Gender	.20*	.09	.06	.35	.01	.03	-.04	.06
Race	-.06	.09	-.20	.09	-.01	.03	-.06	.03
Model 2								
Gender	.25**	.09	.10	.39	.01	.03	-.04	.06
Race	-.04	.09	-.18	.10	-.01	.03	-.06	.03
Model 3								
Gender	.19*	.03	.03	.34	.02	.03	-.03	.07
Race	-.04	.12	-.18	.11	-.04	.09	-.06	.03
Model 4								
Gender	.24**	.09	.09	.38	.02	.03	-.03	.06
Race	-.05	.09	-.20	.10	-.01	.03	-.06	.03
Aim 3; Depression								
Model 1								
Gender	.21*	.09	.06	.35	.01	.03	-.04	.06
Race	-.05	.08	-.19	.09	-.01	.03	-.06	.03
Model 2								
Gender	.25**	.09	.10	.39	.01	.03	-.04	.06
Race	-.04	.09	-.18	.10	-.01	.03	-.06	.03
Model 3								
Gender	.21*	.09	.06	.36	.03	.03	-.02	.08
Race	-.04	.09	-.18	.11	-.01	.03	-.06	.03
Model 4								
Gender	.25**	.09	.10	.40	.02	.03	-.03	.07
Race	-.04	.09	-.19	.11	-.01	.03	-.05	.04