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A LONGITUDINAL STUDY OF THE BIDIRECTIONAL RELATIONS BETWEEN  
INTERNALIZING SYMPTOMS AND PEER VICITMIZATION IN URBAN  
ADOLESCENTS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of  
Science at Virginia Commonwealth University

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## **Abstract**

### **A LONGITUDINAL STUDY OF THE BIDIRECTIONAL RELATIONS BETWEEN INTERNALIZING SYMPTOMS AND PEER VICTIMIZATION IN URBAN ADOLESCENTS**

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

Virginia Commonwealth University, 2014.

Major Director: Wendy L. Kliewer, Ph.D.  
Professor and Chair of Psychology  
Department of Psychology

The purpose of this study was to examine the bidirectional relations between anxious and depressive symptoms and two forms of peer victimization (i.e., overt and relational) within a sample of 358 predominantly African-American adolescents living in low-income urban areas across four years. Longitudinal path analyses tested progressively complex models for each type of victimization. For both overt and relational victimization the autoregressive model where only previous levels of each construct predicted future levels of the construct was the most parsimonious explanation. The best fitting model for both types of peer victimization suggested that internalizing symptoms helped to further explain future victimization, but victimization did not help to further explain future internalizing symptoms. Additionally, anxious symptoms were more uniquely important in predicting future peer victimization than depressive symptoms. These findings suggest that the patterns between

peer victimization and internalizing symptoms may be missing an important predictor when anxiety is not considered.

## A Longitudinal Study of the Bidirectional Relations between Internalizing Symptoms and Peer Victimization in Urban Adolescents

Peer victimization is a common problem among adolescents and a large literature highlights that it is associated with many negative outcomes such as internalizing and externalizing behaviors (for reviews see Gini & Pozzoli, 2009; Klomek, Sourander, & Gould, 2010; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Reijntjes et al., 2011). This phenomenon has raised concern from parents, the school community, and legislators partly as a result of bullying-related suicides and other highly publicized incidents in schools (e.g., Curry, 2012), as well as a recent documentary “Bully” (Hirsch, 2012). These all have highlighted the topics of bullying and peer victimization as priority problems for today’s youth. In response to these reports, the United States federal government has created a website managed by the U.S. Department of Health & Human Services to help increase the country’s anti-bullying efforts (Calmes, 2011).

For victims, the negative consequences of peer victimization can be severe and can have long term impacts on their well-being, even into adulthood (Faith, Storch, Roberti, & Ledley, 2008; Meltzer, Vostanis, Ford, Bebbington, & Dennis, 2011). Researchers have established connections between being a victim of peer victimization and increased psychosomatic complaints (Gini & Pozzoli, 2009; Nixon, Linkie, Coleman, & Fitch, 2011) and poorer academic achievement (Eisenberg, Neumark-Sztainer, & Perry, 2003; Juvonen, Nishina, & Graham, 2000; Peguero, 2008) as compared to non-victims. Additionally, victimized youth exhibit more frequent externalizing behaviors, such as aggression, delinquency, and drug use (e.g., Reijntjes et al., 2011), more internalizing symptoms, such as anxiety and depression (for reviews see Prinstein, Boergers, & Vernberg, 2001; Reijntjes et

al., 2010; Storch, Brassard, & Masia-Warner, 2003), as well as more post-traumatic stress disorder (PTSD) symptoms (Idsoe, Dyregrov, & Idsoe, 2012) than their non-victimized peers. However, researchers have begun to focus more on the internalizing symptoms than the externalizing behaviors as victimized youth are at an increased risk for suicidal ideation and attempts, particularly if they are experiencing internalizing symptoms (for a review see Klomek et al., 2010). It is also important to focus on internalizing symptoms because these symptoms are easier for both parents and teachers to overlook because by their very nature they occur within the child and do not always present as easily observable problems in their environment, as is the case with externalizing behaviors. Therefore, these youth may be more at risk to not receive the help and support they need to learn better ways to cope with instances of victimization.

Researchers have distinguished between several types of peer victimization, with two key subtypes being overt and relational victimization. Overt victimization involves both non-physical and physical acts such as being physically assaulted. Alternatively relational victimization involves being excluded from a group, being deliberately ignored, and being the target of rumors or lies that damage the student's reputation and social relationships (Crick & Bigbee, 1998). Experiences and frequencies of overt and relational victimization vary according to gender, age, outcomes, and how they are perceived by parents and teachers (Buhs, McGinley, & Toland, 2010; W. M. Craig, Henderson, & Murphy, 2000; Crick & Grotpeter, 1995; Dempsey, Haden, Goldman, Sivinski, & Wiens, 2011; Hoglund, 2007; Werner, Senich, & Przepyszny, 2006; Yoon & Kerber, 2003) which provides support for considering these types of victimization as distinct constructs. Additionally, researchers investigating the measurement invariance and developmental change in different types of

victimization have found that a two-factor model consisting of overt and relational victimization items fit the data best when compared to a one factor model combining the two form of victimization, and a three factor model dividing overt victimization into separate categories of verbal and physical victimization (Rosen, Beron, & Underwood, 2012). Taken together the evidence supports that overt and relational victimization are unique constructs that should be studied separately. However, much of the previous work on this topic has not examined the unique roles of both overt and relational victimization as they relate to internalizing symptoms in youth. Though more recently researchers have begun to investigate overt and relational victimization separately (e.g., Tran, Cole, & Weiss, 2012), many researchers have combined overt and relational victimization into a single measure (e.g., Kochel, Ladd, & Rudolph, 2012).

Likewise it is important to consider the unique contributions of depression and anxiety in relation to peer victimization. Internalizing symptoms include both depressive and anxious symptoms, and as a result there has been inconsistent definition of internalizing symptoms as a construct in the peer victimization literature. For example, some researchers have combined measures of these symptoms in their analyses (e.g., Reijntjes et al., 2010), whereas other researchers have focused on either anxiety (e.g., Siegel, La Greca, & Harrison, 2009) or depression (e.g., Kochel et al., 2012). The majority of research examining relations between peer victimization and internalizing symptoms has focused on depressive symptoms. It is important to study depressive and anxious symptoms separately because they are unique psychological disorders, though highly comorbid (American Psychiatric Association, 2000; Brady & Kendall, 1992). Further, a meta-analysis conducted by (Hawker & Boulton, 2000) found that associations between peer victimization and depression differed from associations

between peer victimization and anxiety, indicating that these symptoms may manifest differently in victimized youth. There has yet to be a study that analyzes both anxiety and depression separately in relation to overt and relational peer victimization over time.

There is some evidence, albeit equivocal, that there is a bidirectional relationship between internalizing symptoms and peer victimization. Some researchers have concluded that there is a bidirectional relation such that internalizing symptoms predict peer victimization and vice versa (Boivin, Petitclerc, Feng, & Barker, 2010; Reijntjes et al., 2010), whereas other researchers have found that internalizing symptoms predicted peer victimization but peer victimization did not predict internalizing symptoms (Kochel et al., 2012; Tran et al., 2012). These contradictory results may be the result of samples drawn from populations that differ based on age and culture (e.g., race/ethnicity, country), or because the length of time between data collections of the studies vary. Also, as mentioned, the constructs of peer victimization and internalizing symptoms have been inconsistently defined and measured across studies.

Past research examining the bidirectional relations between peer victimization and internalizing symptoms has been limited in a variety of ways. For example, as noted there have been inconsistent definitions of both peer victimization and internalizing symptoms, and researchers have not always investigated the unique constructs that compose these domains (i.e., overt and relational victimization, anxious and depressive symptoms, respectively). Additionally, the youth included in these bidirectional studies tend to be in sixth grade or lower and most that are conducted in the United States consist of primarily Caucasian youth (e.g., Kochel et al., 2012). Also, almost all the research completed so far gathered data at only two time points across a one year or less time frame (e.g., Tran et al., 2012).

The current study contributes to the literature on peer victimization by addressing some of the limitations of past work. First, this study considered both anxious and depressive symptoms as unique constructs. Second, the study examined overt and relational victimization separately. Including both depressive and anxious symptoms, as well as different forms of peer victimization, in the analyses helped to understand if different types of peer victimization are associated with specific internalizing symptoms. Third, the relation between anxious and depressive symptoms and victimization was investigated across four years using four time points encompassing youth in fifth through eleventh grade. Using this research design and population captured a broader range of development than past studies and allowed for a more detailed understanding of the timing of these relations. Fourth, the potential bidirectional nature of the relations between anxious and depressive symptoms and peer victimization was investigated with path analyses using cross-lagged path models. These models determined the relative importance of anxious and depressive symptoms with overt and relational victimization separately, thus producing a more comprehensive understanding of this phenomenon. Lastly, the sample consisted of poor largely African American youth who are underrepresented in the literature on peer victimization.

## **Review of the Literature**

### **Definition and Prevalence of Peer Victimization**

Peer victimization has been defined as being maltreated by one's peers, including being exposed to such behaviors as hitting, name calling, being purposefully excluded from groups, etc. Recent student reports from nationally representative samples indicate that 20-32% of youth in the United States experience some form of victimization, though these rates vary by age, gender, ethnicity/race, and country (CDC, 2012; Craig et al., 2009; DeVoe &

Bauer, 2011; Robers, Zhang, & Truman, 2012). For example, for African-American youth, rates range from 12% to 29% in nationally representative samples, while rates range from 23% to 29% for Caucasian youth (CDC, 2012; Robers et al., 2012).

**Overt and relational peer victimization.** Operational definitions of peer victimization have not been consistent across studies. Researchers have now differentiated between two primary types of peer victimization: overt and relational victimization. Overt victimization includes both non-physical acts (e.g., being mocked, taunted, or threatened) and physical acts such as being physically assaulted (e.g., pushed, punched, kicked). Alternatively, relational victimization involves harm to a youth's social relationships including being excluded from a group, being deliberately ignored, and becoming the target of rumors or lies that damage the youth's reputation (Crick & Bigbee, 1998). Overt victimization targets the victim's instrumentality and is an expression of the perpetrator's need for physical dominance, while relational victimization targets the victims' social relationships and support networks (Crick & Grotpeter, 1995; Crick, Grotpeter, & Bigbee, 2002).

Researchers indeed have found that overt and relational victimization are reported and perceived in unique ways. Using a principal components factor analysis in a study of 491 third through sixth graders in public school, the majority of the children (73%) exhibited acts that were categorized through peer nomination as either relational aggression or overt aggression, but not both, thus indicating that overt and relational behaviors that lead to victimization are distinct constructs and should be studied separately (Crick & Grotpeter, 1995). Additionally, researchers have shown that teachers and parents perceive relational victimization as less harmful and less serious than overt victimization, and they are less



likely to intervene when they observe it (Craig et al., 2000; Werner et al., 2006). For example, teachers faced with hypothetical situations involving relational victimization were more likely to ignore the acts and were less sympathetic towards the victims compared to situations depicting overt victimization (Yoon & Kerber, 2003).

Researchers also have found that the negative outcomes related to peer victimization may differ depending on the type of victimization. For instance, Buhs and colleagues (2010) found different results for overt compared to relational victimization in their sample of 270 primarily Caucasian and Latino fifth and sixth graders. Their results indicated that relational, but not overt, victimization predicted heightened social anxiety in these youth. In a recent study with 1,352 middle and high school students, Dempsey and colleagues (2011) found that overt, but not relational victimization, was associated with increased suicidal ideation and attempts. Collectively these findings suggest that although they are correlated, distinct types of victimization may affect youth in unique ways or to varying degrees.

Further, researchers investigating the measurement invariance and developmental change in different types of victimization have found that a two-factor model consisting of overt and relational victimization items fit the data best when compared to a one-factor model combining the two forms of victimization, and a three-factor model dividing overt victimization into separate categories of verbal and physical victimization (Rosen et al., 2012). These findings are consistent for ethnically diverse samples of both middle- and high-school students over time (Buhs et al., 2010; Rosen et al., 2012). Therefore it is important to study overt and relational victimization separately not only because they are defined, reported, perceived, and related to outcomes in a distinctive way, but also because factor

analyses of peer victimization data indicate that studying overt and relational victimization fit the data best.

### **Outcomes of Victimized Youth**

Youth who have experienced peer victimization suffer from a variety of immediate and long-term negative outcomes. A commentary on the state of the literature written by Rigby (2003) grouped the research results on the negative outcomes of victimized youth into four major categories: (1) physical unwellness, including medically diagnosed illnesses and psychosomatic symptoms; (2) poor social adjustment, including dislike for school, manifest loneliness, isolation, and absenteeism; (3) low psychological well-being, including general unhappiness, low self-esteem, and feelings of anger and sadness; and (4) psychological distress or more serious distress, including high levels of anxiety, depression, and suicidal thinking. Recent studies examining these different domains are discussed in further detail.

**Psychosomatic symptoms and physical unwellness.** In terms of Rigby's (2003) category of "physical unwellness," a meta-analysis of 11 studies examined the relation between involvement in bullying – including both being bullied and bullying others – and psychosomatic complaints in youth from ages 7 to 16 years old (Gini & Pozzoli, 2009). Eight studies were excluded in the meta-analysis because they did not meet the inclusion criteria. All of the studies included needed to have reported enough information to calculate effect sizes, a control group (i.e., noninvolved peers), a separate scale for measuring psychosomatic symptoms, no duplicated data, explicitly report on analyses on the variables of interest, and include a sample of children. Of the remaining studies, psychosomatic complaints included headache, stomachache, backache, abdominal pain, dizziness, sleeping problems, poor appetite, bedwetting, skin problems, vomiting, feeling tired, and feeling tense. Only one of

the studies included had a sample entirely from the United States. Sample sizes from the studies ranged from 78 to 123,227 participants. Five of the studies were cross-sectional school surveys, four studies were observational retrospective cohort studies, and two studies were observational prospective studies – one over six months and the other over three years. Analyses were conducted to examine bullies (children who bully other youth), victims (children who are bullied by peers), and bully-victims (children who both bully and are bullied by peers). Though the authors defined bullying behaviors involving a power differential between the bully and victim, this was not an explicit requirement for each individual study included in the analyses. Results examining those children and adolescents who were identified as being victimized (victims or bully-victims) found similar trends. Across the 11 samples victimized youth were two times more likely to have psychosomatic problems than uninvolved peers. Using the five samples that collected information on bully-victims the authors found that these youth were 2.22 times more likely to have psychosomatic problems than uninvolved peers. The relations between being victimized and presenting with psychosomatic symptoms had larger effect sizes than the relation being a bully and reporting psychosomatic symptoms. This meta-analysis shows a clear connection between peer victimization and psychosomatic problems.

Since the meta-analysis by Gini and Pozzoli (2009) has been published additional research has further clarified this relation. For example, Nixon and colleagues (2011) found that in a sample of 1,595 primarily Caucasian fifth through eighth grade students relational victimization was a stronger predictor of somatic symptoms than overt victimization, and relational victimization predicted increased somatic symptoms even after controlling for adolescents' gender, grade level, initial somatic symptoms, previous victimization

experiences, and concurrent experiences with overt victimization. This study reinforces the importance of studying relational and overt victimization as separate constructs.

**Poor social adjustment.** Researchers also have identified associations between children and adolescents who are victims of bullying and poor social adjustment (Rigby, 2003); most assessments of poor social adjustment are conducted in reference to the school setting. Although Rigby (2003) did not include academic performance in this category of outcome, it will be discussed in this section because of its direct relation to the school context. Within a diverse sample of 4,746 students from 31 public junior high, middle, and high schools (grades 7 to 12) there was a connection among peer harassment (e.g., you are called names or insulted, people act as if they are better than you), school connectedness, and academic achievement (Eisenberg et al., 2003). Adolescents who reported being a victim of more peer harassment reported less school connectedness than their peers. Additionally, students with a “B” average were the least likely to report being victimized by their peers, followed by “A” and “C” average students, with poor functioning students (“D” and “F”) reporting the most peer harassment. These findings suggest that being a good student, but not performing “too well” may be more socially acceptable for adolescents. Also, the most harassed youth were the ones performing the worst in school, suggesting a link between peer harassment and poor school functioning. Similar findings between overt and relational victimization combined and GPA were reported in an ethnically diverse sample of 243 seventh and eighth graders, where GPA increased as self-perceived victimization decreased (Juvonen et al., 2000).

This work has been extended to extracurricular activities. Using a national sample of 7,990 tenth grade public school students, Peguero (2008) found a relation between

extracurricular activities and being victimized. Interscholastic student athletes were less likely to be victimized than non-student athletes, but youth who participated in three or more classroom or intramural sports extracurricular activities were more likely to be victimized by their peers. The social norms of adolescents again appear to devalue youth who are considered “smart” or “weak,” as classroom extracurriculars tend to be academically focused, and intramural sports are not seen as competitive or demanding as involvement on interscholastic teams. The researchers also found that victimized youth were more likely to be engaged in misbehavior (i.e., skipping classes, getting into trouble for not following school rules), again providing evidence for poor social adjustment in these youth. Further, the results suggested that students who reported more victimization had lower standardized test scores, a variable for which they controlled in all analyses.

School avoidance is another indicator of poor social adjustment, and this negatively impacts youth’s academic achievement, as well as affects their decision to drop out of school, specifically in youth who are victimized (Glew, Fan, Katon, Rivara, & Kernic, 2005; Seeley, Tombari, Bennett, & Dunkle, 2009; Townsend, Flisher, Chikobvu, Lombard, & King, 2008). Hutzell and Payne (2012) used a nationally representative sample of 11,161 youth from the United States to investigate the effect of peer victimization on school avoidance. The researchers found that students ages 12 to 18 who reported more overall overt and relational peer victimization also reported more avoidance of school-related activities or other events/areas that involved student interactions than their non-involved peers. These analyses controlled for gender, age, race and ethnicity, academic achievement, and school type (public vs. private). Previous studies from the United States, using smaller sample sizes, less representative data, and fewer if any control variables, primarily have found similar results

regarding the relation between peer victimization and school avoidance (Juvonen et al., 2000; Meyer-Adams & Conner, 2008; Parault, Davis, & Pellegrini, 2007; Seeley et al., 2009; Storch et al., 2003; Townsend et al., 2008). One study conducted with elementary school age children did not find support for this relation (Glew et al., 2005; Wolke, Woods, Bloomfield, & Karstadt, 2001). These findings on school avoidance add to the growing evidence of how peer victimization can negatively impact youth's social adjustment.

**Psychological problems.** Hawker and Boulton (2000) conducted a meta-analysis on the relations between peer victimization (both overt and relational) and a variety of psychosocial problems from the years 1978-1997. The researchers found that peer victimization was related to all of the psychosocial problems investigated for 22 studies including youth ranging in ages five to 18. Specifically, the mean effect sizes were strongest for depression, followed by loneliness, global self-esteem, social self-concept, social anxiety, generalized anxiety, and anxiety overall (combined social and generalized). Prinstein and colleagues (2001) found similar results to the meta-analysis in a predominately Hispanic sample of ninth through twelfth graders such that overt and relational forms of victimization were associated with depressive symptoms, loneliness, and low self-esteem. However, because the research reviewed in the above studies was cross-sectional, all that can be concluded from this review is that the constructs of peer victimization and psychological problems are related to each other, but the directionality of the relations was still in question. Since this review, researchers have begun to focus on the question of directionality between peer victimization and psychosocial problems, which will be discussed in further detail later in the current's study literature review (e.g., Reijntjes et al., 2010).

Although the meta-analysis conducted by Hawker and Boulton (2000) reviewed a variety of youth adjustment problems, it did not investigate how externalizing behaviors may be related to peer victimization. Reijntjes and colleagues (2011) completed a meta-analysis of 14 longitudinal studies that researched different externalizing problems (e.g., aggression, delinquency, antisocial behaviors) in youth ranging from ages six to 13. Their results indicated that not only does peer victimization lead to more externalizing problems in youth, but youth who have exhibit externalizing behaviors are at risk for future victimization. The results from the two meta-analyses previously summarized indicate that youth who experience peer victimization are at risk for a variety of general psychosocial, internalizing, and externalizing problems.

Peer victimization also has been associated with more serious psychological problems, particularly PTSD and suicidal ideation and attempts, which have been emphasized in the media. In a national sample of 963 eighth and ninth graders in Norway, researchers found that victimization is a risk factor for PTSD symptoms. More specifically, 28% of boys and 41% of girls who reported being victimized had PTSD scores in the clinical range (Idsoe et al., 2012). Klomek and colleagues (2010) completed a review of the literature between suicidality and peer victimization. The researchers found that consistently across studies peer victimization was indeed a risk factor for later suicidality (odds ratios ranged from 1.4 to 10.0 in cross sectional studies, 1.7 to 11.8 in longitudinal studies), especially when there was comorbid psychopathology. This finding was stable across samples with youth in elementary, middle, and high school. Also, being involved in peer victimization was a risk factor above and beyond other suicide risk factors, such as depression, gender, socio-economic status (SES), and family structure. However, the researchers also noted that there

were few longitudinal studies that investigated this relation making robust conclusions difficult. A cross-sectional study not reviewed by Klomek and colleagues (2010) of a sample of 1,103 Australian adolescents found similar results; specifically that peer-victimized youth suffered from increased suicidal ideation after controlling for age.

Some of the negative outcomes related to peer victimization in youth persist into later developmental periods, even as far as adulthood. One longitudinal study completed in Finland found that children involved in bullying in early elementary school, particularly bully-victims, and youth who were victimized when they were 12, had more psychiatric symptoms (e.g., hyperactivity, internalizing symptoms, externalizing symptoms, psychosomatic symptoms, relationship difficulties) by the time they were 15 as compared to non-involved youth (Kumpulainen & Räsänen, 2000). In a different longitudinal nationwide cohort study of 5,038 Finnish youth, the researchers found that victimization at age eight predicted psychiatric hospital treatment and use of psychopharmacologic medications 15 years later in both boys and girls after controlling for baseline psychopathology (Sourander et al., 2009).

A retrospective study of 355 adults (non-college sample) from the United States found that memories of peer victimization in childhood (i.e., teasing about academics, social behavior, and appearance) were associated with higher levels of negative evaluation, depressive symptoms, and loneliness in adulthood (Faith et al., 2008). Further, a retrospective study of 7,461 adults in the United Kingdom found support for the relation between having been victimized by one's peers in childhood and suicides attempts in later life, even after controlling for sociodemographic characteristics (i.e., age, sex, marital status, education level, employment status, debt status), personal or health trauma, adult



victimization experiences (i.e., violence at work or home, periods of homelessness, something valued lost or stolen), child sexual abuse, and severe parental beatings (Meltzer et al., 2011). These adults who reported being victimized in childhood were twice as likely as other adults to have at least one suicidal attempt. Longstanding depression mediated this relation, suggesting that those individuals who have been victimized develop depression that persists over time, and that this places them at increased risk for suicide attempts. Overall these studies indicate that peer victimization is related to a variety of psychological problems, both during the experience of victimization and after.

***Anxiety versus depression.*** In response to the meta-analysis by Hawker and Boulton (2000) that found that depression has the strongest association with peer victimization, many researchers have chosen to focus on the relation between depression and peer victimization (e.g., Tran et al., 2012). Another reason why researchers have tended to focus on depressive symptoms in victimized youth is because, as noted previously, depression is risk factor for suicidal ideations, attempts, and completions (e.g., Meltzer et al., 2011). However, Hawker and Boulton (2000) also found significant associations between anxious symptoms and peer victimization.

Indeed, though anxious and depressive symptoms tend to be comorbid in youth (Brady & Kendall, 1992), they are unique constructs as defined as separate diagnoses in the DSM-IV-TR (American Psychiatric Association, 2000), and by the development of scales that assess these distinctive set of symptoms (e.g., Child Depression Inventory, Kovacs, 1992; Revised Children's Manifest Anxiety Scale, Reynolds & Richmond, 1985). This is because there are differences in the presentations between youth diagnosed with depression as compared to anxiety. For example, although both anxiety and depression involve an

element of threat, youth with anxiety see the threat in the future while youth with depression see the threat as imminent (Beck, Laude, & Bohnert, 1974). Also, cognitions are different such that the thoughts of youth with anxiety typically focus on anticipated harm or danger, while the thoughts of youth with depression revolve around loss and failure (Beck, Brown, Steer, Eidelson, & Riskind, 1987; Kendall & Watson, 1989). Another theorized difference between the disorders is that the key emotion experienced by youth with anxiety is fear, while for youth with depression it is distress or anguish (Blumberg & Izard, 1986). Further, although youth diagnosed with anxiety and depression are found to be high on negative affectivity, the self-reported negative emotions (e.g., anger, contempt, disgust, guilt, fear), only youth with depression are found to be consistently low on positive affectivity, the self-report of positive emotions (e.g., happy, joyous, excitement, curiosity; Kendall & Watson, 1989; Watson & Tellegen, 1985).

Further, factor-analytic models (Brown, Chorpita, & Barlow, 1998; Clark & Watson, 1991; Joiner, Catanzaro, & Laurent, 1996; Turner & Barrett, 2003; Watson et al., 1995), genetic studies (Mineka, Watson, & Clark, 1998; Thapar & McGuffin, 1997), and psychophysiological experiments (Bress, Meyer, & Hajcak, 2013) support that there are specific factors of each disorder that are separable (e.g., amount of hyperarousal, anhedonia, error-related negativity, feedback negativity) even across developmental levels and diverse samples. As a result of the differences in etiology and presentations effective evidence-based treatments for both disorders are typically different. For example, treatment for youth with depression focuses on intervening in their negative thoughts processes and internal evaluations (i.e., cognitive-behavioral therapy, CBT) and/or their interpersonal relationships (David-Ferdon & Kaslow, 2008). On the other hand, even though treatment for anxiety

typically includes teaching similar CBT skills, clinicians also use exposures where the individual is gradually introduced to their feared stimulus while learning coping techniques; a practice not usually advised in depression treatment (Silverman, Pina, & Viswesvaran, 2008). Therefore, it is important when studying peer victimization and internalizing symptoms to study depression and anxiety as separate constructs as they may manifest differently.

**Gender by age interaction in peer victimization.** There is increasing evidence that there may be an interaction between gender and age that occurs depending on the type of victimization studied. In general, ratings of relational *aggression* decrease with age for boys but increase with age for girls (e.g., Galen & Underwood, 1997; Smith, Rose, & Schwartz-Mette, 2010); however, Bjorkqvist, Osterman, and Kaukiainen, (1992) found a different trend in their cross-sectional sample of 8-, 11-, 15-, and 18-year old Finnish youth. The results indicated that both genders increased in their use of all aggression from age 8 to 11, leveled off from age 11 to 15, and then declined by age 18; however, girls used more relational aggression, whereas boys used more overt aggression across the majority of this developmental period. When investigating *victimization*, a longitudinal study that examined peer victimization over the transition from middle school to high school in an ethnically diverse sample of 206 students found that the mean levels of relational victimization increased from seventh through ninth grade, but then declined in tenth grade, while the levels of overt victimization remained stable (Rosen et al., 2012). The pattern for overt victimization was stable across genders; however, relational victimization followed this pattern only for girls. For boys, the levels of relational victimization did not increase or decrease from seventh to tenth grade. Xie, Farmer, and Cairns (2003) found in a sample of 489 African-American inner-city students in grades 1, 4, and 7 that overall overt

victimization developed first followed by relational victimization, and that girls started to use relational aggression earlier than boys within their same-gender peer conflicts.

### **Populations Less Studied in Peer Victimization**

**Ethnic minorities.** Few studies investigating peer victimization have included ethnic minorities, with the majority of the research on peer victimization making conclusions based on primarily Caucasian, middle class samples of children and adolescents (Hanish & Guerra, 2000). This gap in the literature reflects a general trend in psychological research to understudy ethnic minority populations (Sue, 1999). Prevalence rates for different ethnicities in a national sample of high school students found that Caucasian students reported being victimized more than African American students (CDC, 2012), which is opposite of the findings from Nansel and colleagues (2001) from a sample of sixth through tenth graders who found that African American youth reported being victimized by their peers more than Caucasian youth. Another study from a sample of fourth graders from 13 schools, some predominantly African American, some predominantly Caucasian, and some ethnically diverse, found no ethnic differences in prevalence rates of overt and relational victimization (Putallaz et al., 2007). Similar findings were reported in a study of an urban sample of 1,956 elementary school children that also found no ethnic differences reported in students' peer ratings of overt victimization (Hanish & Guerra, 2000). The researchers also found that African Americans were more likely to be victimized in predominantly African American schools, and Caucasians were less likely to be victimized in predominantly Caucasian schools, even after controlling for school-level poverty rates. The differences in prevalence rates could be the result of a shifting demographic trend, or a result of the different age groups being surveyed. Other researchers have also theorized that African American families

socialize their children differently than Caucasian families, specifically in terms of gender roles females are encouraged to be as assertive, independent, and as strong as males (Hill & Sprague, 1999), which may result in different reactions to being victimized by their peers.

Further complicating previous studies is that few researchers acknowledged SES, a significant confound when investigating ethnic differences in the United States. For example, the U.S. Census Bureau (2012) reported that in 2009, 35% of African American children were living below the poverty line, compared to 17% of Caucasian children. Furthermore, many urban areas and schools located in these areas are comprised primarily of ethnic minority youth. Aud, Fox, and Kewal Ramani (2010) reported that in 2007 to 2008 47% of African American students attended schools in urban areas whereas only 17% of Caucasian students attended schools in urban areas. These youth also have additional stressors that are not common in more suburban areas where the residents are primarily Caucasian youth. Adolescents in urban, low SES areas are exposed to much higher levels of crime, drugs, and gang activity and are more likely to witness violence than are adolescents in suburban or rural areas (Cauce, Stewart, Rodriguez, Cochran, & Ginzler, 2003). These youth are also exposed to other risk factors associated with living in urban, low SES areas including low quality school districts, crowded neighborhoods, and poor nutrition (Cauce et al., 2003).

These findings make it problematic to conclude whether SES or ethnicity is responsible for the observed relations. Nevertheless, few studies control for SES, because adolescents typically lack of knowledge about household income (Ensminger & Fothergill, 2003), though research indicates that older adolescents' reports may be more valid, especially if they are asked about multiple and material indicators of SES (Ridolfo & Maitland, 2011). Therefore, it is important to acknowledge SES as a potential confound when investigating the

role of ethnicity in the United States, it is still valuable to study how ethnicity relates to the prevalence and outcomes of victimization. It has been argued that research on diverse ethnic groups is necessary to increase generalizability of current findings and to promote better science (Sue, 1999).

**Country comparisons.** Research on peer victimization has been conducted around the globe with a majority of studies using samples from countries other than the United States (e.g., Reijntjes et al., 2010). As with ethnicity, country is an important variable to consider when conducting research on peer victimization because different countries may have different norms and beliefs in reference to this topic which may affect prevalence rates and reactions to victimization. Though aggregate data across 25 countries including the United States showed evidence that all youth who are victimized report poorer emotional adjustment, relationships with their classmates, school adjustment and more health problems than their non-victimized peers, rates of victimization across countries vary substantially (current study, 5% to 20%; Nansel, Craig, Overpeck, Saluja, & Ruan, 2004). Indeed, other researchers who have investigated the prevalence rates of peer victimization more recently across countries have found striking differences. Specifically Craig and colleagues (2009), looked at the prevalence of overt and relational victimization across 40 countries in a large sample of 29,127 11-, 13-, and 15-year-old students, and found a five-fold difference across countries for reports of bullying and victimization for boys and a seven-fold difference for girls. The percentage of youth reporting victimization in the United States (boys, 22%; girls 17%) fell within the middle of the range for reported victimization across all countries (9% - 45%, boys; 5% - 36%, girls). Due and colleagues (2005) also found similar rates of variation in the prevalence of peer victimization across 28 countries, including the United States. Of

note, these researchers also found that although there was an overall trend within countries that as youth reported more victimization they also reported more negative physical and psychological problems, differences in the prevalence rates across countries did not account for the differences in symptoms levels between countries. This finding indicates that youth from different countries may respond differently to peer victimization.

### **Bidirectional Influences of Internalizing Symptoms and Peer Victimization**

Some researchers have theorized that although some internalizing symptoms may exist before a youth is victimization by his/her peers, other symptoms might develop as a result of the peer victimization (Bernstein & Watson, 1997). Since youth who are experiencing symptoms of depression and anxiety in social situations are more likely to be teased or left-out by their peers (e.g., La Greca & Lopez, 1998), these experiences may further reinforce their negative beliefs (e.g., “I am no good,” “I am awkward,” “I always embarrass myself”). These experiences could lead to the maintenance or increase in youths’ internalizing symptoms. Conversely, youth who are victimized by their peers might develop beliefs that interactions with their peers are not safe or out of their control that may again lead to internalizing symptoms like helplessness and worrying. As a result, youth in all of these situations may then avoid social situations to reduce these negative feelings, which can then lead to more victimization because they are missing out on social interactions where they can potentially improve their social skills and experience positive interactions to dispel their negative beliefs (Craig, 1998; Grills & Ollendick, 2002; Hodges & Perry, 1999; Hodges, Boivin, Vitaro, & Bukowski, 1999; Olweus, 1993; Roth, Coles, & Heimberg, 2002).

Using a narrative review format, Storch and Ledley (2005) discussed the variety of studies that had examined the cross-sectional, longitudinal, and retrospective relations

between peer victimization and psychological adjustment through 2004 in an attempt to draw conclusions about the nature of the relation between internalizing symptoms and peer victimization. The authors focused mainly on the findings that victimization leads to more internalizing problems, but did conclude that the internalizing problems created may lead to more victimization in the future. However, this study was a systematic review, not a meta-analysis so the conclusions drawn must be interpreted with caution. Also, the majority of the studies discussed were based on cross-sectional designs.

A meta-analysis conducted by Reijntjes and colleagues (2010) investigated peer victimization and internalizing problems in 18 longitudinal studies to determine if the relation between the two constructs was bidirectional. The mean ages in the studies ranged from 4.4 to 13.9 years old, with the majority of mean ages indicating late childhood and early adolescence as the focus of study. The largest time range between data collections was 24 months. The results indicated that across studies, peer victimization significantly predicted changes in internalizing problems over time, and internalizing problems significantly predicted changes in peer victimization over time. Though the effect size of peer victimization predicting internalizing problems was larger than the reverse relation, the difference was not statistically significant; indicating that based on the samples in this meta-analysis the relation between peer victimization and internalizing problems is symmetrically bidirectional. However, depressive and anxious symptoms were not analyzed separately, and the studies included in the meta-analysis varied from combining anxious and depressive symptoms, or only looking at one construct, primarily depression.

Reijntjes and colleagues (2010) offered some recommendations for further research in this area based on the limitations of current work. First, they suggested that researchers



should be specific in their conceptualization and measurement of peer victimization, including distinguishing overt from relational victimization and assessing each separately. They also stressed the need for studies over longer periods of time, and work focusing both on early childhood and later adolescence. Next, the authors recommended gathering data at three or more assessment points to get more information on the pattern of change in this relation. The last recommendation was to include assessments of both risk and protective factors that may serve as moderators that either increase a youth's risk or resiliency to peer victimization.

Limited recent work has followed some of these suggestions. One example is a longitudinal study with a sample of 1,035 Canadian students in grades 3 through 6 across four years investigated the relations between peer victimization (combined overt and relational) and internalizing symptoms (i.e., social withdrawal and emotional vulnerability) over time (Boivin et al., 2010). The researchers found that previous levels of victimization predicted future levels of victimization across the internalizing symptoms studies, and also that previous internalizing symptoms predicted future internalizing symptoms. They also found significant bidirectional predictions over each year of the study using cross-lagged models, with the exceptions between Grade 4 victimization and Grade 5 emotional vulnerability, and Grade 5 victimization and Grade 6 withdrawal. Results also indicated that the associations between social withdrawal and peer victimization increased each year as the students got older. These findings indicated that a bidirectional relation is present in middle to late childhood between peer victimization in general and depressive- and anxious-like symptoms.

Another study focused on the relation between victimization and depression in students in middle adolescence across a longer time span (Kaltiala Heino et al., 2010). These researchers investigated whether overt and relational peer victimization predicted depression and vice versa from self-reports in a population of 2,070 Finnish ninth grade students (mean age = 15.5 years, 56% female) followed over two years. Using logistic regression run separately by gender in an exploratory fashion, the researchers controlled for family structure, parental education, and age, as well as Time 1 levels of the dependent variable. Focusing on results related to the prediction of overt peer victimization, victimization at age 15 predicted depression at age 17 for boys; but depression did not predict future victimization. For girls, baseline depression was more important in future depression than involvement in victimization, and depression at age 15 was “borderline predictive” of victimization at age 17. The researchers measure of relational victimization found that it was not related to later depression in either sex, but depression at age 15 did predict later relational victimization at age 17 for both sexes.

However, these results need to be interpreted with caution as each type of victimization only consisted of one item (i.e., overt: “How frequently have you been bullied during the ongoing school term?”; relational: “How frequently have other pupils not wanted to be with you and you had to be by yourself during the ongoing school term?”). These researchers also used these data to investigate the bidirectional relations between peer victimization (both overt and relational) and social phobia overtime while controlling for depression (Ranta et al., 2012). The regression analyses from this study found a bidirectional relation between overt victimization and social phobia for boys. For girls, relational victimization predicted social phobia, but social phobia did not predict peer victimization.

The differences in the relations when investigating overt as compared to relational victimization supports the recommendation by Reijntjes and colleagues (2010) that future research should also investigate these constructs separately.

Another study that focused on the bidirectional relations between peer victimization and social anxiety in 228 adolescents in tenth through twelfth grade (majority Hispanic) also analyzed the results according to type of victimization (overt and relational; Siegel et al., 2009). The researchers collected data across two-months in an effort to help understand the direction of these relations using regression analyses. Concurrently, peer victimization predicted social anxiety, with relational victimization uniquely predicting higher levels of social anxiety above and beyond the other types of victimization while controlling for gender and ethnicity. When investigating the prospective relation of victimization predicting social anxiety, the authors found differences based on type of victimization and gender, such that relational victimization only (not overt victimization) predicted increases in social anxiety over time for girls, but not for boys. Finally, when analyzing the prediction of victimization by social anxiety, the results indicated that social anxiety only predicted relational victimization. Therefore, this study shows that social anxiety and relational victimization appear to be longitudinally related, but the bidirectional relation for social anxiety and overt victimization was not supported.

Kochel and colleagues (2012) used three different theoretical approaches to develop models to further understand the dynamic relation between depressive symptoms and peer victimization (overt and relational combined). The three models were: 1) an interpersonal risk model (peer difficulties contribute to the development of depressive symptoms), 2) a symptoms-driven model (depressive symptoms predict future peer difficulties), and 3) a

transactional model (depressive symptoms and peer difficulties are reciprocally related). These researchers focused on 486 American youth transitioning from preadolescence to early adolescence (mean age = 9.93 years, 50% female, 80% Caucasian) across two years from grades four through six. The researchers used structural equation models (SEMs) combining multiple reporter information (self, parent, teacher, peer) to create the depression and victimization variables and discovered that the symptoms-driven model fit their data the best. Specifically, the results revealed that fourth grade depressive symptoms predicted subsequent fifth grade peer victimization (which predicted sixth grade low peer acceptance). There was no support for the other two models. This study calls into question the bidirectional nature of this relation as no support for the transactional model was found. It supports other studies that have found some support that depressive symptoms are more important in predicting peer victimization than vice versa (Kaltiala Heino et al., 2010; Sweeting et al., 2006).

A recent study investigating the bidirectional relation between peer victimization and depressive symptoms found a similar pattern (Tran et al., 2012). U.S. students ( $N = 598$ ) in third through sixth grade (51% female, 90% Caucasian) self-reported on their depressive symptoms and self-reported and used peer nomination to assess overt and relational peer victimization two times across one year. Using SEM the results indicated that depressive symptoms predicted both overt and relational victimization, but neither type of victimization predicted depressive symptoms. This study did find that the results were moderated by gender and type of victimization, such that depressive symptoms explained more variation in overt victimization for boys than for girls. Additionally, although not highlighted, all previous constructs were found to predict all future constructs (e.g., Time 1 depression

predicted Time 2 depression, Time 1 relational victimization predicted Time 2 relational victimization, etc.).

Some researchers also have begun to investigate why and how peer victimization increases youth's depressive symptoms. One such study examined a predominantly Caucasian sample of 478 youth in grades 3 through 6 at two time points one year apart (Sinclair et al., 2012). The results supported the hypotheses that over time peer victimization overall (both self-reported and peer nominated) predicted increases in negative cognitions and decreases in positive cognitions for youth who were victimized. The results were moderated by type of victimization, such that relational victimization was more consistently related to changes in depressive cognitions than was overt victimization after controlling for the common co-occurrence of the two types in their sample.

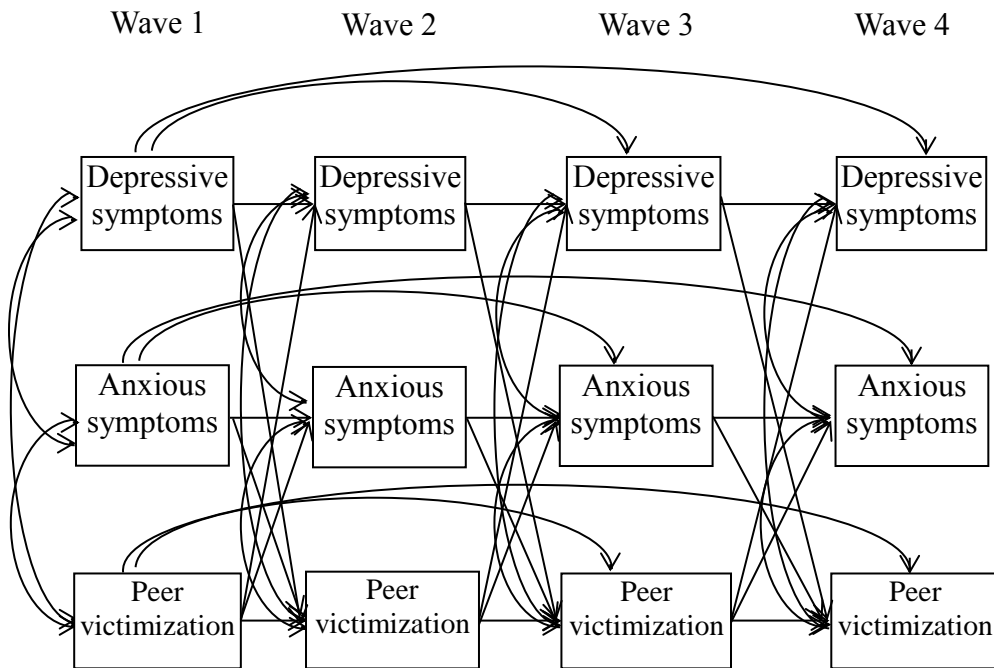
Although many of the studies that have looked at the bidirectional relations between internalizing symptoms and peer victimization have investigated overt and relational victimization separately (Kaltiala Heino et al., 2010; Ranta et al., 2012; Siegel et al., 2009; Sinclair et al., 2012; Tran et al., 2012), other studies have combined the types of victimization (Boivin et al., 2010; Kochel et al., 2012). Also, few of these studies included youth past grade 7 (Kaltiala Heino et al., 2010; Ranta et al., 2012; Siegel et al., 2009) and all but one of the studies conducted in the United States included a sample that was not primarily Caucasian (Siegel et al., 2009). Additionally, although some studies used more advanced statistics in their work, primarily path analyses or SEM (Boivin et al., 2010; Kochel et al., 2012; Tran et al., 2012), others used regression analyses (Kaltiala Heino et al., 2010; Ranta et al., 2012; Siegel et al., 2009; Sinclair et al., 2012). Researchers often encourage the use of more advanced statistics, like path analyses, over the more traditional

regression analyses because it separates the indirect and spurious effects from regression coefficients by estimating all relations simultaneously, therefore providing more information than regression alone (e.g., Asher, 1976). Finally, the studies investigating the bidirectional relations between internalizing symptoms and peer victimization have been limited in their longitudinal designs. To establish temporal order, several researchers advocate for at least three time points for statistical power considerations (e.g., see Venter, Maxwell, & Bolig, 2002) as well as for having the capability to test true mediational models (e.g., Hayes, 2009). Only two of the existing studies gathered data at more than two time points (Boivin et al., 2010; Kochel et al., 2012), and most of the studies collected data one year later or less (Siegel et al., 2009; Sinclair et al., 2012; Tran et al., 2012).

### **Present Study**

The present study contributes to the literature on peer victimization by addressing some of the limitations in previous research investigating the relations between depression, anxiety, and peer victimization. First, this study furthered the current understanding of relations between peer victimization and internalizing symptoms because it considered both anxious and depressive symptoms as unique constructs. Second, this study examined overt and relational victimization as separate constructs in the analyses to clarify how these unique types of peer victimization were associated with adjustment. Third, the relation between internalizing symptoms and victimization was investigated within both early and middle adolescence, including youth from fifth through eleventh grade, and across four years using four time points, as recommended by Reijntjes and colleagues (2010). Fourth, path analyses were conducted using cross-lagged models, allowing the researcher to determine the relative importance of anxious and depressive symptoms with overt and relational victimization

separately, as well as the potential bidirectional nature of the relations, making for a more comprehensive understanding of this phenomenon (see Figure 1). Lastly, the sample consisted of low SES, largely African American youth, a sample not well represented in the previous research. Results from this study can help inform prevention and intervention efforts focused on both reducing peer victimization as well as anxious and depressive symptoms in youth. It also has the potential to help school counselors understand the nature and cycle of how depression, anxiety, and peer victimization are interrelated.



*Figure 1.* Full model examining the bidirectional relation between depressive and anxious symptoms and peer victimization. The same model will be used for overt and relational victimization.

### **Statement of the Hypotheses**

The present study tested the following hypotheses based on previous research and theory.

**Hypothesis 1.** Youth who endorse more depressive and anxious symptoms will be more likely to experience overt victimization over time.

**Hypothesis 2.** Youth who endorse more overt victimization will be more likely to experience depressive and anxious symptoms over time.

**Hypothesis 3.** Youth who endorse more depressive and anxious symptoms will be more likely to experience relational victimization over time.

**Hypothesis 4.** Youth who endorse more relational victimization will be more likely to experience depressive and anxious symptoms over time.

**Hypothesis 5.** Depressive symptoms will have stronger relations with both overt and relational victimization, as compared to anxious symptoms.

## **Method**

### **Participants**

The sample consisted of 358 urban youth (mean age in years = 12.10,  $SD = 1.63$ ;  $n = 192$ , 56% female) from a larger longitudinal study focusing on youth violence exposure, physiology, and drug use. Youth were in either fifth grade (younger cohort:  $n = 191$ , 56%) or eighth grade (older cohort:  $n = 167$ , 44%) at Wave 1 of the study. Most (91%) identified themselves as African-American, 3% as European American, 3% as American Indian, and 3% endorsed other racial/ethnic groups. A variety of family structures were represented including 40% of maternal caregivers who never married, 26% married, 26% separated or divorced, 6% cohabitating, and 2% widowed. The median household income for the sample fell between \$300 and \$400 per week, with 34% of the sample earning \$300 or less per week and 29% earning a weekly income of \$500 or more. Additionally, caregivers' level of education varied with 9% holding a bachelor's or advanced degree, 13% holding an



associate's degree or completed vocational training, 24% who pursued, but did not complete some form of education beyond high school, 31% holding a high school or general education diploma, and 23% who did not complete high school. Participants in the current study lived in neighborhoods in a large city in the Southeastern United States that was characterized by high violence and/or poverty rates (e.g., neighborhoods with low income housing and high crime rates). Based on U.S. Census data for this city from 2000, a third of youth lived in poverty.

## **Measures**

**Demographics Questionnaire.** The Demographics Questionnaire is a parent-report measure that assesses the gender, age, and race/ethnicity of the caregiver and adolescent, current grade of the adolescent, caregiver marital status, family income, and caregiver level of education.

**Child Depression Inventory (CDI; Kovacs, 1992).** The CDI is a 27-item self-report measure of cognitive, affective, and behavioral symptoms of depression in school-aged children and adolescents. Each item consists of three statements graded in order of increasing severity (0 = *absence of symptoms* to 2 = *definite symptoms*). Youth select the sentence that best describes them for the past two weeks. It includes a total depression scale and subscales that assess negative mood, interpersonal difficulties, negative self-esteem, ineffectiveness, and anhedonia. The total depression score is calculated by summation of all the items. Higher scores indicate higher levels of depressive symptoms. The CDI has good sensitivity and specificity as well as relatively high estimated temporal stability and internal consistency (alphas ranging from 0.71 to 0.89; Kovacs, 1992). The alphas for the total score in the current study were: Wave 1:  $\alpha = .85$ ; Wave 2:  $\alpha = .85$ ; Wave 3:  $\alpha = .85$ ; Wave 4:  $\alpha = .83$ .

**Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985).** The RCMAS is a 37-item self-report scale designed to measure manifest or trait anxiety in youth. Youth are requested to respond to items with a "yes" or "no" to indicate whether they feel that the statement is true for them. Higher scores indicate higher anxiety levels. The original study only collected data on the 28 items that make up the total anxiety score. Using these items a modified scoring for this measure recommended by White and Farrell (2001) based on a theoretically-derived structure generated by experts in child anxiety was used. This scoring excludes seven items that reflect dysphoric mood and low self-concept and are believed to overlap with the construct of depression. Therefore, the final scale for the current study will consist of 21 items. Table 1 lists the original 28 items from the total anxiety and denotes which seven items will not be included in the current study. The alphas for the revised total anxiety score in the current study were: Wave 1:  $\alpha = .85$ ; Wave 2:  $\alpha = .87$ ; Wave 3:  $\alpha = .87$ ; Wave 4:  $\alpha = .84$ .

**Problem Behavior Frequency Scales - Revised (PBFS-R; Farrell, Kung, White, & Valois, 2000).** The PBFS-R is a self-report measure that consists of seven subscales that assess the frequency of problem behaviors in youth. Only the overt and relational peer victimization subscales will be used in the current study. In Wave 1 a modified version of the PBFS-R was used to determine lifetime frequency of peer victimization. Youth were asked how many times they experienced a particular incidence of peer victimization on a nine-point scale: 0 = *Never*, 1 = *Once*, 2 = *Twice*, 3 = *3 or 4 times*, 4 = *5 or 6 times*, 5 = *7 or 8 times*, 6 = *at least once a month*, 7 = *at least once a week*, and 8 = *almost every day*. For Waves 2 to 4, the original structure of the PBFS-R was used where respondents were asked how frequently they experience different forms of victimization (e.g., "get hit by another kid") in the past 30

days on a six-point scale: 0 = *never*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6-9 times*, 4 = *10-19 times*, and 5 = *20 times or more*. The relational victimization items are partially based on the Social Experiences Questionnaire (SEQ-S) developed by Crick and Grotpeter (1996). Higher scores indicate higher frequencies of peer victimization. The PBFS-R has been used in previous evaluations of violence prevention programs with adolescents, and has been found to have high internal consistency and a well-established factor structure (e.g., Miller-Johnson, Sullivan, Simon, & MVPP, 2004; Sullivan, Farrell, & Kliewer, 2006). The six items corresponding to the overt victimization subscale and the six items corresponding with the relational victimization subscale were used in the current study (overt victimization, Wave 1:  $\alpha = .78$ ; Wave 2:  $\alpha = .85$ ; Wave 3:  $\alpha = .83$ ; Wave 4:  $\alpha = .85$ ; relational victimization, Wave 1:  $\alpha = .79$ ; Wave 2:  $\alpha = .82$ ; Wave 3:  $\alpha = .83$ ; Wave 4:  $\alpha = .86$ ).

Table 1.

*Revised Children's Manifest Anxiety Scale (RCMAS) Original Study Items and Items Excluded for Current Study*

Item	
1. I have trouble making up my mind.	17. I worry about what is going to happen to me.
2. I get nervous when things do not go the right way.	
3. <i>Others seem to do things easier than I can.</i> †	18. <i>Other children are happier than I am.</i> †
4. Often I have trouble getting my breath.	19. I have bad dreams.
5. I worry a lot of the time.	20. My feelings get hurt easily when I am fussed at.
6. I am afraid of a lot of things.	
7. <i>I get mad easily.</i> †	21. I fear someone will tell me I do things the wrong way.
8. I worry about what my parents will say to me.	
9. I feel like others do not like the way I do things.	22. I wake up scared some of the time.
10. It is hard for me to sleep at night.	23. I worry when I go to bed at night.
11. I worry about what other people think of me.	24. <i>It is hard for me to keep my mind on my schoolwork.</i> †
12. <i>I feel alone even when there are people with me.</i> †	
13. Often I feel sick to my stomach.	25. I wiggle in my seat a lot.
14. My feelings get hurt easily.	26. I am nervous.
15. My hands feel sweaty.	27. <i>A lot of people are against me.</i> †
16. <i>I am tired a lot.</i> †	28. I often worry about something bad happening to me.

Note. † and italics denote item was excluded in the current study.

## Procedures

Based on the aims of the larger study, participants were recruited from neighborhoods within a midsized southeastern city and the neighboring counties with high levels of violence and/or poverty according to police statistics and 2000 census data. The study was advertised through community agencies and events, and by canvassing qualifying neighborhoods via flyers posted door-to-door. To be eligible, both a female caregiver and her adolescent youth had to live in the target neighborhoods and the adolescent had to be enrolled in either the fifth or eighth grade at the first wave. Eligible and interested families were scheduled for initial interviews, which took place in the Fall of 2003 and Spring of 2004, with follow-up interviews occurring annually for three years. Interviews were conducted face-to-face and in separate rooms for caregivers and adolescents primarily in participants' homes. Sixty-three percent of eligible participants agreed to be in the study. Interviewers thoroughly reviewed the caregiver consent and youth assent forms with the family. After the maternal caregiver provided written consent, the caregiver and youth separated for the interviews. A Certificate of Confidentiality was obtained from the National Institutes of Health (NIH) to protect families' responses. The interviewers hired to conduct these sessions were of various racial/ethnic backgrounds and genders. Tests for interviewer race and gender effects revealed no systematic biases,  $ps > .10$ . Interviews with the caregiver and youth lasted approximately two and a half hours and participants received \$50 in gift cards per family at each wave. At the end of the study, names of families who finished all four interviews were put in a drawing for \$300, \$200, and \$100 prizes. Retention rates were good across the four waves, with 69% of the original sample retained across the entire study. The present study was completed

through secondary data analyses using de-identified data from this previously IRB approved study (IRB# B-HM3768).

### **Data Analysis**

First, descriptive statistics were calculated to examine the distribution properties of each scale and to detect any outliers. Next, an attrition analysis was conducted using *t*-tests to see if the youth who completed all four waves of data differed significantly from those youth who dropped out of the study on baseline levels (Wave 1) on the study's measures. Any differences discovered, were either statistically controlled for in the analyses or the results of the study were interpreted within the context of those findings. This was followed by a test to determine if the missing data was missing completely at random (MCAR). Then, correlations between depressive symptoms, anxious symptoms, overt victimization, and relational victimization were calculated to examine the relations within each of the four waves of data using MPlus Version 6.1 (Muthén & Muthén, 2012) and full-information maximum likelihood (FIML, Schafer & Graham, 2002). Significance for all tests was established at an alpha level of .05, two-tailed.

Next, path models were then used to examine the bidirectional relations between anxious and depressive symptoms and peer victimization. Two conceptual longitudinal cross-lagged path models were tested: (1) Model 1 investigated the relations between anxious and depressive symptoms and *overt victimization* and, (2) Model 2 investigated the relations between anxious and depressive symptoms and *relational victimization* (see Figure 1 for full model). In each model Wave 1 scores of each variable predicted all future waves of that variable. To reduce the likelihood of committing a Type I error, or incorrectly rejecting a true null hypothesis, each model was successively built from the least to most complex model resulting in six progressively more complex models. Then, each model was compared using

the fit indices described below as well as the Satorra-Bentler Scaled Chi-Square which takes into account the scaling correction factor for the MLR estimator used to accurately conduct chi-square difference testing.

Below are descriptions and figures for each model type.

Model a. Autoregressive model: Previous levels of each variable predicts future levels of the same variable (see Figure 2).

Model b. Anxiety predicting victimization: Previous waves of anxiety were added to the autoregressive model to predict future waves of victimization (see Figure 3).

Model c. Depression predicting victimization: Previous waves of depression were added to the autoregressive model to predict future waves of victimization (see Figure 4).

Model d. Anxiety and depression predicting victimization: Previous waves of anxiety and depression were added to the autoregressive model to predict future waves of victimization (see Figure 5).

Model e. Victimization predicting anxiety and depression: Previous waves of victimization were added to the autoregressive model to predict future waves of anxiety and depression (see Figure 6).

Model f. Full model: Previous waves of victimization were added to the autoregressive model to predict future waves of anxiety and depression, while previous waves of anxiety and depression were added to the autoregressive model to predict future waves of victimization (see Figure 1).

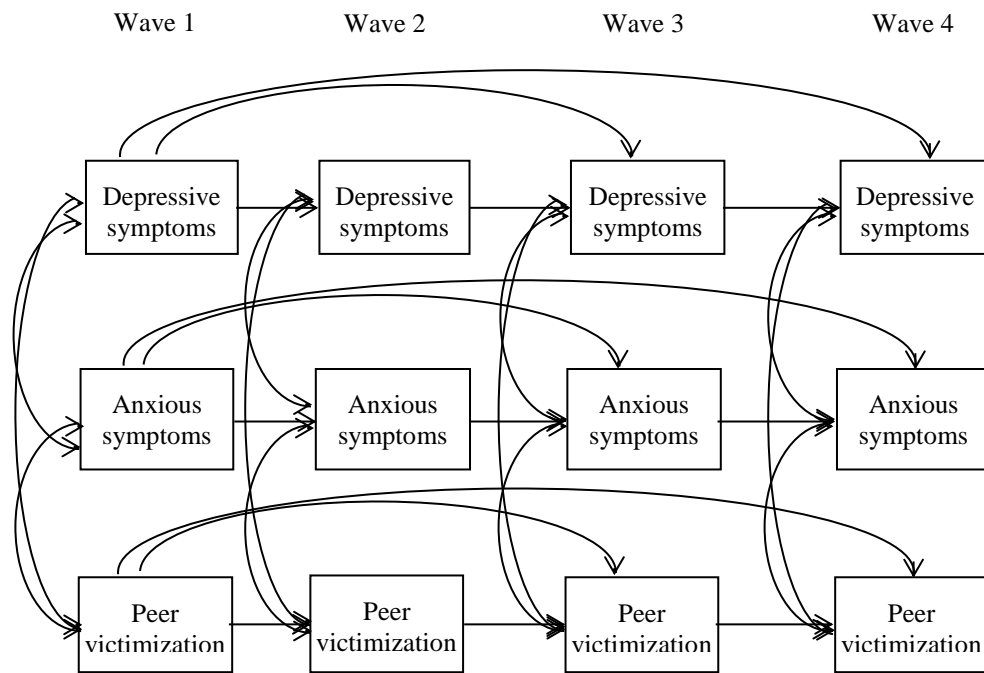


Figure 2. Model a. Autoregressive model

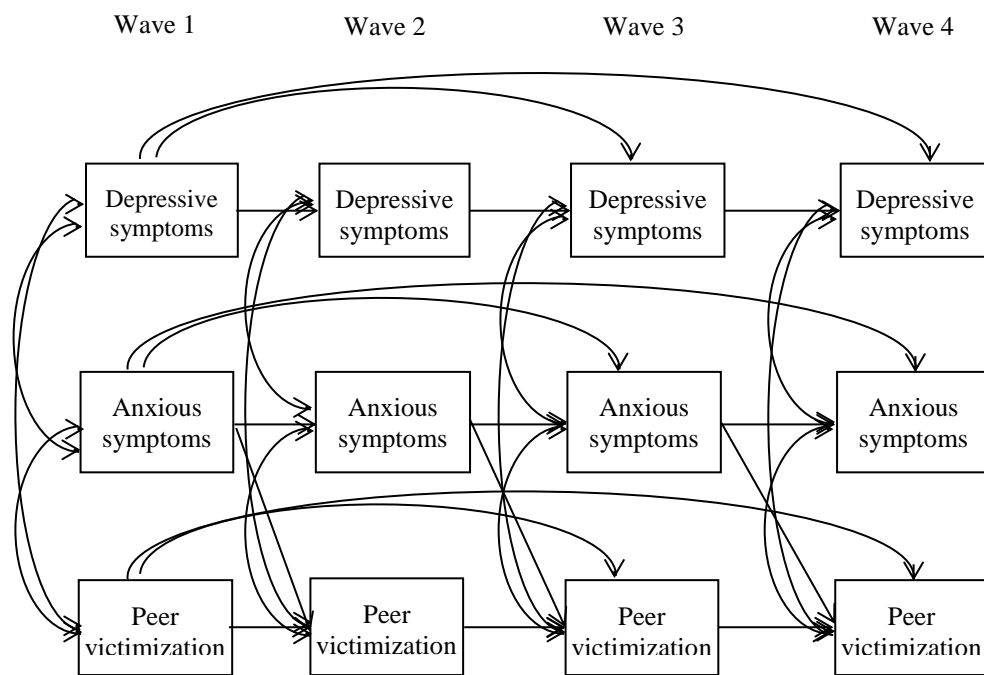


Figure 3. Model b. Anxiety predicting victimization



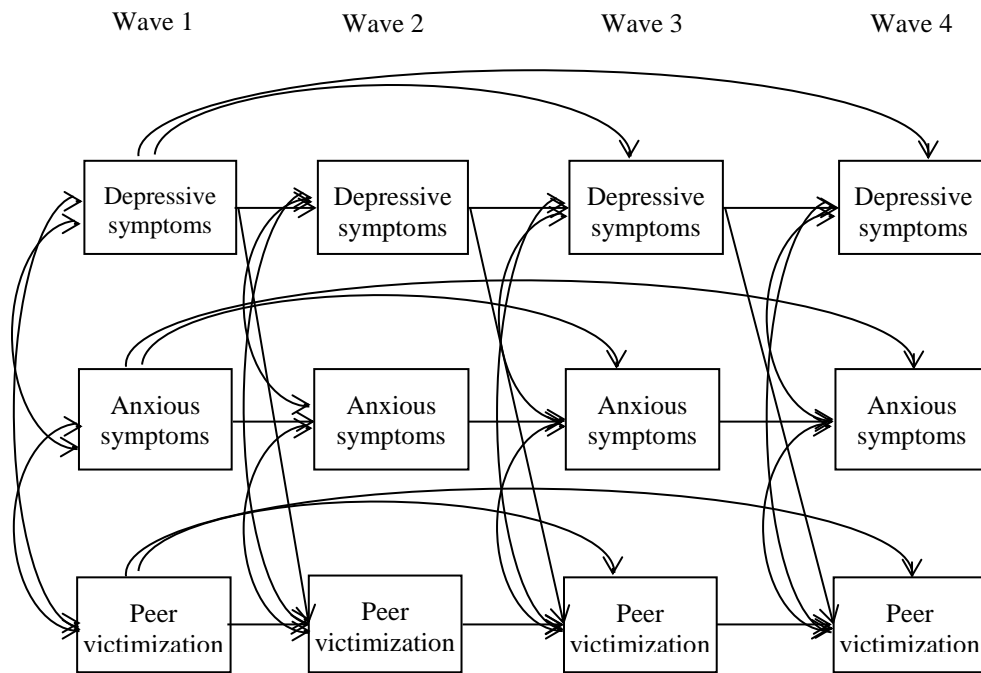


Figure 4. Model c. Depression predicting victimization

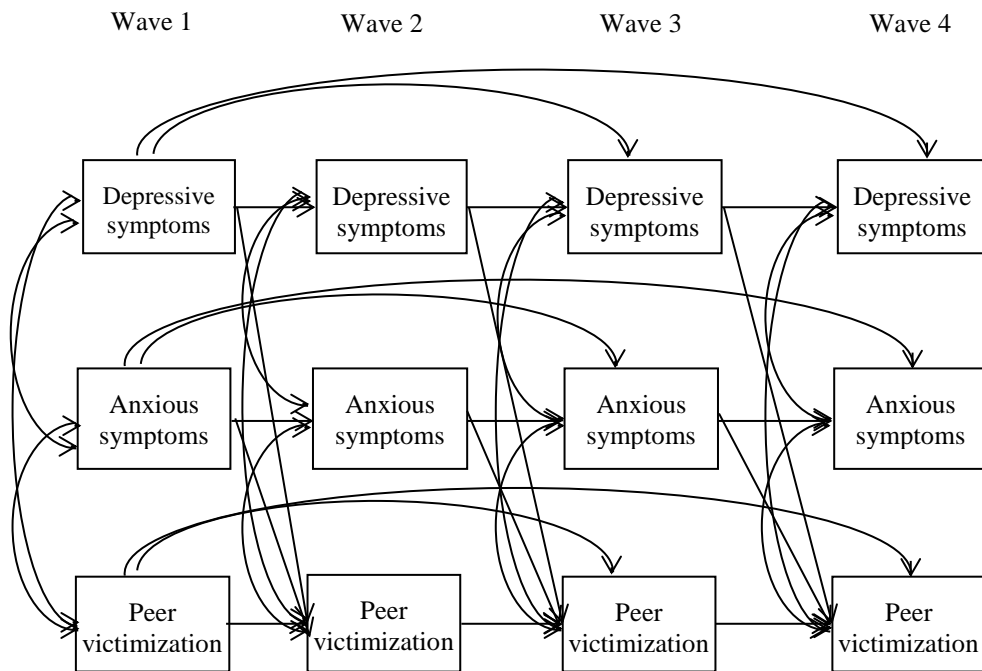


Figure 5. Model d. Anxiety and depression predicting victimization

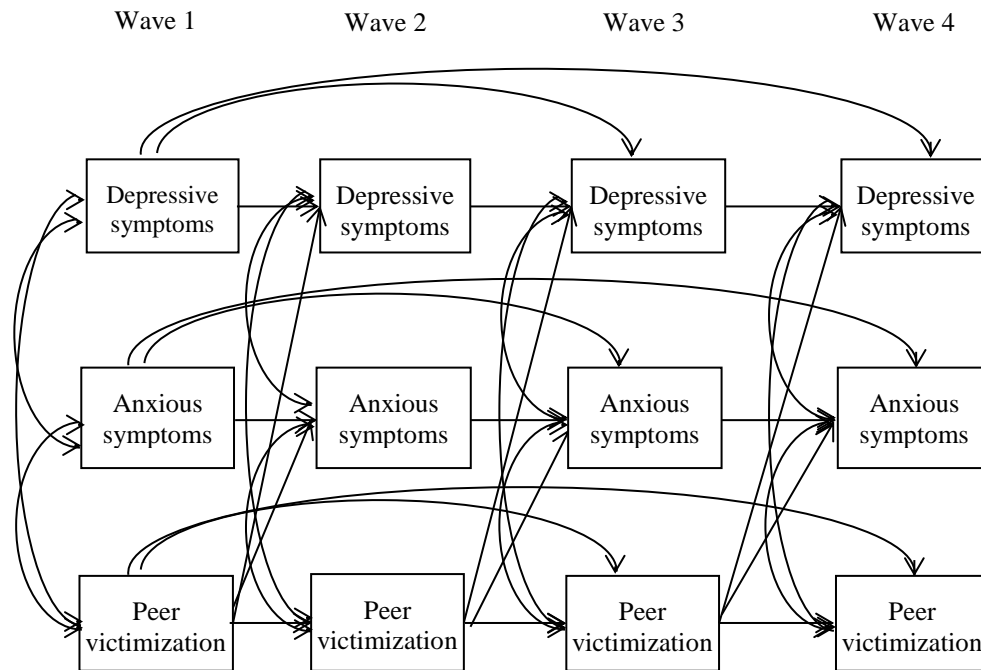


Figure 6. Model e. Victimization predicting anxiety and depression

The following criteria was used to assess a good fit for the models: (a) chi-square to degrees of freedom ratio less than 2.0; (b) the comparative fit index (CFI; Bentler, 1990) of more than .90 (and, ideally, greater than .95; Hu & Bentler, 1999); and (c) the root mean squared error of approximation (RMSEA) of .08 or less (the RMSEA uses errors of prediction and measurement to assess the degree of match between the hypothesized and true models; Tabachnick & Fidell, 2001). The Bayesian information criterion (BIC) was used to compare competing models based on how well each predicted the observed data. The BIC tends to favor simpler, more parsimonious models, with lower values reflecting a closer fit (Nylund, Asparouhov, & Muthén, 2007). Raftery (1993) suggested that BIC differences of 5 indicate strong evidence and differences of 10 indicate conclusive evidence for differences between models.

Though adequate sample size is difficult to determine in advance for path analyses models (Norman & Streiner, 2003), Kline (1998) suggests a sample size of 10 times as many cases as parameters and at least 200 participants. Given that there are approximately 36 parameters in the given model (typically three parameters for every variable) an ideal sample size would be 360 participants.

## **Results**

### **Descriptive Statistics**

Sample size, means, standard deviations, skewness, kurtosis, and range for Waves 1 through 4 for all study variables (i.e., depression, anxiety, overt victimization, and relational victimization) are reported in Table 2. The following variables were found to be skewed, kurtotic, or both: Wave 1 depression, relational victimization; Wave 2 depression, overt victimization, relational victimization; Wave 3 overt victimization, relational victimization; and Wave 4 overt victimization, relational victimization. Next, the data were checked for outliers. The following variables were found to have extreme scores (more than three standard deviations above or below the mean): Wave 1 depression, overt victimization, relational victimization; Wave 2 depression, overt victimization, relational victimization; Wave 3 depression, overt victimization, relational victimization; and Wave 4 depression, anxiety, overt victimization, relational victimization. Therefore, each variable was winsorised based on procedures by Tabachnick and Fidell (2001), which limits the extreme values to reduce the effect of possible spurious outliers. This involved recoding scores that exceeded a  $z$ -score of 3.29 to a score equivalent to a  $z$ -score of 3.29. The descriptive statistics for the winsorised data is presented in Table 3. The winsorised data was used in all of the following analyses. Since some of the winsorised data was still skewed and/or kurtotic, the

correlational data needs to be interpreted with caution because these variables violate the assumption of normality. Additionally, the MLR estimator was used for the path analysis models which is robust to non-normality.

Table 2.

*Waves 1, 2, 3, and 4 Sample Size, Means, Standard Deviations, Range, Skewness, and Kurtosis for All Study Variables*

Variable	N	Mean (SD)	Range	Skewness	Kurtosis
Wave 1					
Depression	355	8.96 (6.84)	0 - 43.00	1.22	2.20
Anxiety	355	7.40 (4.86)	0 - 19.00	0.57	-0.57
Overt Victimization	358	8.35 (8.04)	0 - 46.00	1.28	1.61
Relational Victimization	358	7.04 (7.59)	0 - 48.00	1.74	3.81
Wave 2					
Depression	319	7.64 (6.36)	0 - 35.00	1.27	2.21
Anxiety	318	5.48 (4.72)	0 - 21.00	0.94	0.33
Overt Victimization	317	3.44 (4.55)	0 - 30.00	2.36	7.22
Relational Victimization	317	3.11 (4.34)	0 - 25.00	2.47	7.31
Wave 3					
Depression	270	7.28 (6.39)	0 - 29.00	1.03	0.65
Anxiety	270	5.02 (4.49)	0 - 18.00	0.98	0.15
Overt Victimization	271	2.91 (4.03)	0 - 23.00	2.21	5.95
Relational Victimization	271	2.60 (3.87)	0 - 23.00	2.31	5.95
Wave 4					
Depression	242	6.83 (5.75)	0 - 28.04	1.33	1.98
Anxiety	245	5.09 (4.25)	0 - 19.95	1.08	0.82
Overt Victimization	247	2.49 (3.79)	0 - 23.00	2.48	7.56
Relational Victimization	247	2.53 (4.00)	0 - 30.00	2.86	11.86

Table 3.

*Waves 1, 2, 3, and 4 Means, Standard Deviations, Range, Skewness, and Kurtosis for All Winsorised Study Variables*

Variable	Mean (SD)	Range	Skewness	Kurtosis
Wave 1				
Depression	8.91 (6.63)	0 - 31.46	0.96	0.62
Overt Victimization	8.31 (7.88)	0 - 34.80	1.13	0.69
Relational Victimization	6.96 (7.27)	0 - 32.01	1.41	1.49
Wave 2				
Depression	7.59 (6.17)	0 - 28.56	1.04	0.95
Overt Victimization	3.35 (4.17)	0 - 18.41	1.81	3.24
Relational Victimization	3.02 (3.95)	0 - 17.39	1.97	3.80
Wave 3				
Depression	7.28 (6.38)	0 - 28.30	1.02	0.61
Overt Victimization	2.84 (3.71)	0 - 16.17	1.75	2.85
Relational Victimization	2.55 (3.66)	0 - 15.33	1.99	3.60
Wave 4				
Depression	6.81 (5.68)	0 - 25.75	1.26	1.62
Anxiety	5.08 (4.23)	0 - 19.07	1.06	0.73
Overt Victimization	2.40 (3.44)	0 - 14.96	1.93	3.57
Relational Victimization	2.43 (3.52)	0 - 15.69	1.89	3.45

## Attrition Analyses

To determine if the youth who completed all four waves of data differed significantly from those youth who dropped out of the study on baseline levels (Wave 1) on the study's measures *t*-tests were conducted and are presented in Table 3. No significant differences were found between those participants who completed all of the study measures at all waves and those who did not on any variables.

Table 4.

*T-tests Comparing Study Participants Who Completed All Four Waves of Data to Those Who Did Not on Wave 1 Study Variables*

Measure	<i>t</i>	<i>df</i>	<i>p</i>
Depression	1.13	291.76	.258
Anxiety	0.72	353	.470
Overt Victimization	-1.03	356	.305
Relational Victimization	0.18	356	.854

## Missing Data Analysis

According to Little's chi-square statistic (Little, 1988) data was missing completely at random (MCAR),  $\chi^2 = 161.82$ ,  $df = 139$ ,  $p = .090$ .

## Correlations Among Measures at Each Wave

Table 5 reports the Pearson correlations among the study variables within each wave for Waves 1 through 4 using FIML. Most study variables were significantly positively correlated to each other, with the exception of Wave 1 anxiety and Wave 4 relational victimization ( $r = .10$ , *ns*).

Table 5.

*Correlations Between Study Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Depression – Wave 1	--															
2. Depression – Wave 2	.59***	--														
3. Depression – Wave 3	.51***	.64***	--													
4. Depression – Wave 4	.48***	.53***	.60***	--												
5. Anxiety – Wave 1	.65***	.41***	.39***	.39***	--											
6. Anxiety – Wave 2	.53***	.68***	.50***	.46***	.59***	--										
7. Anxiety – Wave 3	.46***	.54***	.73***	.57***	.53***	.68***	--									
8. Anxiety – Wave 4	.39***	.34***	.47***	.66***	.45***	.53***	.70***	--								
9. Overt Victimization – Wave 1	.37***	.22***	.13*	.11	.35***	.23***	.13*	.13*	--							
10. Overt Victimization – Wave 2	.37***	.41***	.29***	.24***	.32***	.43***	.29***	.17*	.45***	--						
11. Overt Victimization – Wave 3	.26***	.24***	.32***	.20**	.20**	.32***	.31***	.13*	.31***	.46***	--					
12. Overt Victimization – Wave 4	.16***	.14***	.17**	.18**	.13*	.26***	.23**	.22***	.18**	.36***	.49***	--				
13. Relational Victimization – Wave 1	.44***	.29***	.20**	.24***	.43***	.37***	.22***	.22***	.62***	.41***	.27***	.18**	--			
14. Relational Victimization – Wave 2	.38***	.43***	.26***	.24**	.35***	.51***	.31***	.25***	.37***	.68***	.37***	.25***	.49***	--		
15. Relational Victimization – Wave 3	.27*	.27*	.35***	.28***	.26***	.42***	.46***	.29***	.17**	.35***	.66***	.33***	.32***	.48***	--	
16. Relational Victimization – Wave 4	.14*	.12*	.23***	.29***	.10	.26***	.25***	.38***	.14*	.17*	.28***	.64***	.24***	.21**	.35***	--

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



## Path Analyses Models

**Model 1: Relations between anxious and depressive symptoms and overt victimization.** Table 6 reports the fit statistics for Model 1a through 1f which investigated the bidirectional relations between internalizing symptoms and overt peer victimization. Table 7 reports the standardized estimates and significance values for all paths tested in all models for overt peer victimization. Based on these results Model a, the autoregressive model, was the most parsimonious based on the BIC. However, in support of Hypothesis 1, Model 1d, where both anxiety and depression predicted peer victimization, was the best fitting model for the data. Figure 7 illustrates the significant paths in this model (all other figures for models referencing overt peer victimization can be found in Appendix A). On the other hand, Hypothesis 2 was not supported because neither Model 1e nor Model 1f, in which victimization predicted future internalizing symptoms, was found to significantly improve the fit of the model. Most notably, and consistent with correlational analyses, all previous wave levels of either depressive symptoms, anxious symptoms, or overt victimization predicted the following year's levels of the same construct (e.g., Wave 1 depressive symptoms predicted Wave 2 depressive symptoms, Wave 2 depressive symptoms predicted Wave 3 depressive symptoms, etc.) across all models tested.

When the significant betas were compared between Models 1b, 1c, and 1d, the significant paths of Wave 1 anxiety to Wave 2 overt peer victimization (Model 1b) and Wave 1 depression to Wave 2 overt peer victimization (Model 1c) were no longer uniquely significant in Model 1d. This is likely a result of the high correlation between anxiety and depression at Wave 1 ( $r = .65, p < .001$ ); and indicates that although each is important independently they appear to be redundant when investigated together. Moreover, although

Model 1d's fit improved from Model 1c, which only investigated the predictive relations between depression and overt peer victimization, Model 1d's fit was not improved from Model 1b, which only investigated the predictive relations between anxiety and overt peer victimization. These findings suggest that anxiety may be relatively more important in understanding the relation between internalizing symptoms and overt peer victimization. Indeed, although not significant in the overall model, when looking at the betas of anxiety predicting future overt peer victimization at Wave 2 ( $\beta = 0.15$ ) and Wave 3 ( $\beta = 0.10$ ), they are greater than the betas of depression predicting future overt peer victimization at Wave 2 ( $\beta = -0.05$ ) and Wave 3 ( $\beta = -0.05$ ). These findings are contrary to Hypothesis 5.

Table 6.

*Model Fit and Chi-Square Difference Testing for Models Investigating the Bidirectional**Relations between Internalizing Symptoms and Overt Peer Victimization*

Model 1	$\chi^2$ Value	df	CFI	RMSEA	BIC	Satorra-Bentler Scaled $\chi^2$	Comparison Models
a. Autoregressive Model	87.08***	39	.96	.06	20336		
b. Anxiety Predicting Victimization	74.51***	36	.97	.06	20338	12.95**	a vs. b
c. Depression Predicting Victimization	78.07***	36	.96	.06	20343	9.21*	a vs. c
<b>d. Anxiety and Depression Predicting Victimization</b>	70.39***	33	.97	.06	20352	3.65	d vs. b
						7.91*	d vs. c
e. Victimization Predicting Anxiety and Depression	82.44***	33	.96	.07	20365	4.94	e vs. a
f. Full Model	66.08***	27	.97	.06	20382	4.49	f vs. d

Note. Bolded model is the one determined to best fit the data.

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

Table 7.

*Standardized Estimates of All Paths from All Models for Overt Victimization (Model 1)*

Model a. Autoregressive model			
Path	Beta	Path	Beta
Depression W1 → Depression W2	0.49 <sup>***</sup>	Anxiety W1 → Anxiety W4	0.12 <sup>*</sup>
Depression W1 → Depression W3	0.21 <sup>***</sup>	Anxiety W3 → Anxiety W4	0.59 <sup>***</sup>
Depression W2 → Depression W3	0.45 <sup>***</sup>	Victimization W1 → Victimization W2	0.43 <sup>***</sup>
Depression W1 → Depression W4	0.20 <sup>**</sup>	Victimization W1 → Victimization W3	0.14
Depression W3 → Depression W4	0.49 <sup>***</sup>	Victimization W2 → Victimization W3	0.39 <sup>***</sup>
Anxiety W1 → Anxiety W2	0.53 <sup>***</sup>	Victimization W1 → Victimization W4	0.02
Anxiety W1 → Anxiety W3	0.18 <sup>**</sup>	Victimization W3 → Victimization W4	0.49 <sup>***</sup>
Anxiety W2 → Anxiety W3	0.53 <sup>***</sup>		
Model b. Anxiety predicting victimization			
Path	Beta	Path	Beta
Depression W1 → Depression W2	0.50 <sup>***</sup>	Anxiety W3 → Anxiety W4	0.60 <sup>***</sup>
Depression W1 → Depression W3	0.21 <sup>***</sup>	Victimization W1 → Victimization W2	0.38 <sup>***</sup>
Depression W2 → Depression W3	0.46 <sup>***</sup>	Victimization W1 → Victimization W3	0.13
Depression W1 → Depression W4	0.20 <sup>**</sup>	Victimization W2 → Victimization W3	0.34 <sup>***</sup>
Depression W3 → Depression W4	0.49 <sup>***</sup>	Victimization W1 → Victimization W4	0.02
Anxiety W1 → Anxiety W2	0.55 <sup>***</sup>	Victimization W3 → Victimization W4	0.47 <sup>***</sup>
Anxiety W1 → Anxiety W3	0.18 <sup>**</sup>	Anxiety W1 → Victimization W2	0.17 <sup>**</sup>
Anxiety W2 → Anxiety W3	0.54 <sup>***</sup>	Anxiety W2 → Victimization W3	0.12
Anxiety W1 → Anxiety W4	0.12 <sup>*</sup>	Anxiety W3 → Victimization W4	0.06

---

Model c. Depression predicting victimization

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Path	Beta	Path	Beta
Depression W1 → Depression W2	0.51 <sup>***</sup>	Anxiety W3 → Anxiety W4	0.59 <sup>***</sup>
Depression W1 → Depression W3	0.21 <sup>***</sup>	Victimization W1 → Victimization W2	0.38 <sup>***</sup>
Depression W2 → Depression W3	0.45 <sup>***</sup>	Victimization W1 → Victimization W3	0.14
Depression W1 → Depression W4	0.20 <sup>**</sup>	Victimization W2 → Victimization W3	0.37 <sup>***</sup>
Depression W3 → Depression W4	0.49 <sup>***</sup>	Victimization W1 → Victimization W4	0.02
Anxiety W1 → Anxiety W2	0.55 <sup>***</sup>	Victimization W3 → Victimization W4	0.48 <sup>***</sup>
Anxiety W1 → Anxiety W3	0.18 <sup>**</sup>	Depression W1 → Victimization W2	0.17 <sup>**</sup>
Anxiety W2 → Anxiety W3	0.54 <sup>***</sup>	Depression W2 → Victimization W3	0.04
Anxiety W1 → Anxiety W4	0.12 <sup>*</sup>	Depression W3 → Victimization W4	0.02

---

Model d. Anxiety and depression predicting victimization

---

Path	Beta	Path	Beta
Depression W1 → Depression W2	0.51 <sup>***</sup>	Victimization W1 → Victimization W3	0.14
Depression W1 → Depression W3	0.21 <sup>***</sup>	Victimization W2 → Victimization W3	0.35 <sup>***</sup>
Depression W2 → Depression W3	0.45 <sup>***</sup>	Victimization W1 → Victimization W4	0.02
Depression W1 → Depression W4	0.20 <sup>**</sup>	Victimization W3 → Victimization W4	0.47 <sup>***</sup>
Depression W3 → Depression W4	0.49 <sup>***</sup>	Anxiety W1 → Victimization W2	0.10
Anxiety W1 → Anxiety W2	0.55 <sup>***</sup>	Anxiety W2 → Victimization W3	0.15
Anxiety W1 → Anxiety W3	0.18 <sup>**</sup>	Anxiety W3 → Victimization W4	0.10
Anxiety W2 → Anxiety W3	0.54 <sup>***</sup>	Depression W1 → Victimization W2	0.11
Anxiety W1 → Anxiety W4	0.12 <sup>*</sup>	Depression W2 → Victimization W3	-0.05
Anxiety W3 → Anxiety W4	0.60 <sup>***</sup>	Depression W3 → Victimization W4	-0.05
Victimization W1 → Victimization W2	0.36 <sup>***</sup>		

---

Model e. Victimization predicting anxiety and depression

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Path	Beta	Path	Beta
Depression W1 → Depression W2	.47***	Victimization W1 → Victimization W3	.14
Depression W1 → Depression W3	.20***	Victimization W2 → Victimization W3	.40***
Depression W2 → Depression W3	.44***	Victimization W1 → Victimization W4	.02
Depression W1 → Depression W4	.20**	Victimization W3 → Victimization W4	.48***
Depression W3 → Depression W4	.49***	Victimization W1 → Anxiety W2	.06
Anxiety W1 → Anxiety W2	.51***	Victimization W2 → Anxiety W3	.01
Anxiety W1 → Anxiety W3	.18**	Victimization W3 → Anxiety W4	-.09
Anxiety W2 → Anxiety W3	.53***	Victimization W1 → Depression W2	.06
Anxiety W1 → Anxiety W4	.13*	Victimization W2 → Depression W3	.06
Anxiety W3 → Anxiety W4	.62***	Victimization W3 → Depression W4	-.03
Victimization W1 → Victimization W2	.45***		

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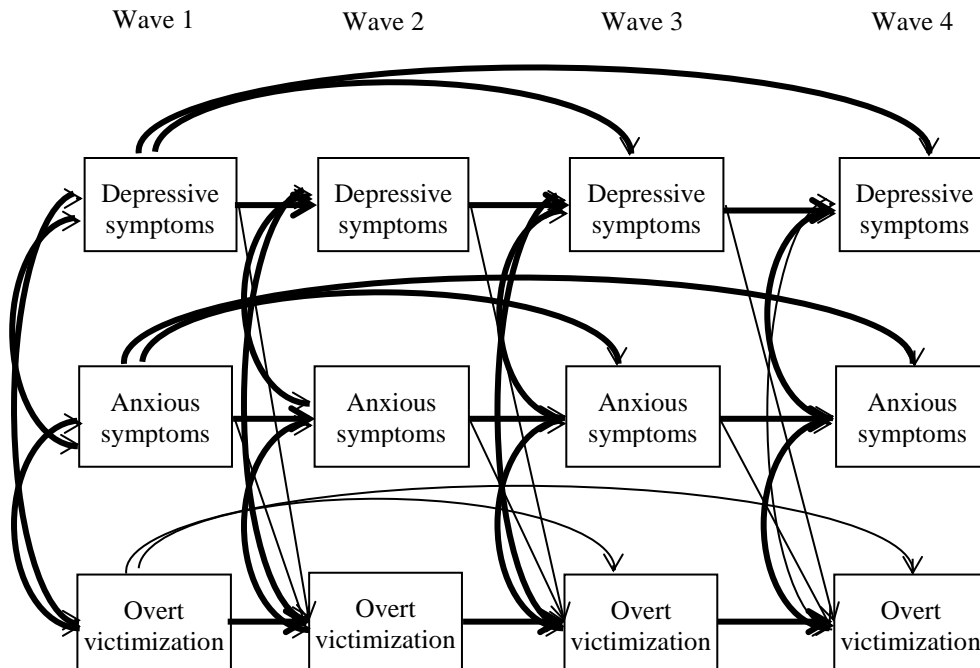
Model f. Full model

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Path	Beta	Path	Beta
Depression W1 → Depression W2	.50***	Victimization W3 → Victimization W4	.46***
Depression W1 → Depression W3	.20***	Anxiety W1 → Victimization W2	.10
Depression W2 → Depression W3	.44***	Anxiety W2 → Victimization W3	.15
Depression W1 → Depression W4	.20**	Anxiety W3 → Victimization W4	.10
Depression W3 → Depression W4	.50***	Depression W1 → Victimization W2	.11
Anxiety W1 → Anxiety W2	.54***	Depression W2 → Victimization W3	-.06
Anxiety W1 → Anxiety W3	.18**	Depression W3 → Victimization W4	-.05
Anxiety W2 → Anxiety W3	.54***	Victimization W1 → Anxiety W2	.05
Anxiety W1 → Anxiety W4	.12*	Victimization W2 → Anxiety W3	.01
Anxiety W3 → Anxiety W4	.63***	Victimization W3 → Anxiety W4	-.10
Victimization W1 → Victimization W2	.38***	Victimization W1 → Depression W2	.04
Victimization W1 → Victimization W3	.13	Victimization W2 → Depression W3	.05
Victimization W2 → Victimization W3	.36***	Victimization W3 → Depression W4	-.03
Victimization W1 → Victimization W4	.02		

---

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



*Figure 7. Model 1d. Anxiety and depression predicting overt peer victimization. Bolded paths represent significant betas for  $p < .05$ .*

**Model 2: Relations between anxious and depressive symptoms and relational victimization.** Table 8 reports the fit statistics for Model 2a through 2f which investigated the bidirectional relations between internalizing symptoms and relational peer victimization. Table 9 reports the standardized estimates and significance values for all paths tested in all models for relational peer victimization. Similar to the findings from overt peer victimization, Model 2a, the autoregressive model, was the most parsimonious based on the BIC. While Model 2d, where both more anxiety and more depression predicted more peer victimization, was the best fitting model for the relational peer victimization data. These findings provided evidence in support for Hypothesis 3. Figure 8 illustrates the significant paths in this model (all other figures for models referencing relational peer victimization can be found in Appendix B). Parallel to the results found with overt victimization, Hypothesis 4

was not supported because neither Model 2e nor Model 2f, in which relational victimization predicted future internalizing symptoms, was found to significantly improve the fit of the model. Once more all previous wave levels of either depressive symptoms, anxious symptoms, or relational victimization predicted the following year's levels of the same construct (e.g., Wave 1 depressive symptoms predicted Wave 2 depressive symptoms, Wave 2 depressive symptoms predicted Wave 3 depressive symptoms, etc.).

Again when comparing the significant betas between Models 2b, 2c, and 2d, the significant paths of Wave 1 anxiety to Wave 2 relational peer victimization (Model 2b) and Wave 1 depression to Wave 2 relational peer victimization (Model 2c) were no longer uniquely significant in Model 2d. Yet again this may be the result of the high positive correlation between anxiety and depression at Wave 1 suggesting redundancy with the two constructs. Likewise, although Model 2d's fit improved from Model 2c, which only investigated the predictive relations between depression and relational peer victimization, Model 2d's fit was not improved from Model 2b, which only investigated the predictive relations between anxiety and relational peer victimization. These findings suggest that anxiety may be relatively more important in understanding the relation between internalizing symptoms and relational peer victimization as well. However, unique to the relational victimization model both depressive symptoms and anxious symptoms at Wave 2 significantly predicted relational peer victimization at Wave 3. Specifically, more anxiety at Wave 2 predicted more relational peer victimization at Wave 3 ( $\beta = .26, p < .01$ ), which was consistent with the zero-order correlation ( $r = .42, p < .001$ ). However, in the model less depression at Wave 2 predicted more relational peer victimization at Wave 3 ( $\beta = -.13, p <$



.001), contrary to the zero-order correlation ( $r = .27, p < .05$ ). These findings again provide no support for Hypothesis 5.

Table 8.

*Model Fit and Chi-Square Difference Testing for Models Investigating the Bidirectional Relations between Internalizing Symptoms and Relational Peer Victimization*

Model 2	$\chi^2$ Value	df	CFI	RMSEA	BIC	Satorra-Bentler Scaled $\chi^2$	Comparison Models
a. Autoregressive Model	90.69***	39	.95	.06	20166		
b. Anxiety Predicting Victimization	74.71***	36	.97	.06	20162	16.25**	a vs. b
c. Depression Predicting Victimization	81.77***	36	.96	.06	20172	8.98*	a vs. c
<b>d. Anxiety and Depression Predicting Victimization</b>	68.00***	33	.97	.05	20172	6.75 14.31**	d vs. b d vs. c
e. Victimization Predicting Anxiety and Depression	80.04***	33	.96	.06	20184	11.11	e vs. a
f. Full Model	58.95***	27	.97	.06	20193	9.52	f vs. d

Note. Bolded model is the one determined to best fit the data.

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

Table 9.

*Standardized Estimates of All Paths from All Models for Relational Victimization (Model 2)*

Model a. Autoregressive model			
Path	Beta	Path	Beta
Depression W1 → Depression W2	.48***	Anxiety W1 → Anxiety W4	.14*
Depression W1 → Depression W3	.22***	Anxiety W3 → Anxiety W4	.57***
Depression W2 → Depression W3	.44***	Victimization W1 → Victimization W2	.44***
Depression W1 → Depression W4	.22**	Victimization W1 → Victimization W3	.13*
Depression W3 → Depression W4	.48***	Victimization W2 → Victimization W3	.41***
Anxiety W1 → Anxiety W2	.52***	Victimization W1 → Victimization W4	.12
Anxiety W1 → Anxiety W3	.19***	Victimization W3 → Victimization W4	.31***
Anxiety W2 → Anxiety W3	.52***		
Model b. Anxiety predicting victimization			
Path	Beta	Path	Beta
Depression W1 → Depression W2	.51***	Anxiety W3 → Anxiety W4	.59***
Depression W1 → Depression W3	.22***	Victimization W1 → Victimization W2	.37***
Depression W2 → Depression W3	.45***	Victimization W1 → Victimization W3	.10
Depression W1 → Depression W4	.21**	Victimization W2 → Victimization W3	.34***
Depression W3 → Depression W4	.48***	Victimization W1 → Victimization W4	.11
Anxiety W1 → Anxiety W2	.55***	Victimization W3 → Victimization W4	.27***
Anxiety W1 → Anxiety W3	.19***	Anxiety W1 → Victimization W2	.14**
Anxiety W2 → Anxiety W3	.54***	Anxiety W2 → Victimization W3	.18*
Anxiety W1 → Anxiety W4	.14*	Anxiety W3 → Victimization W4	.08

Model c. Depression predicting victimization

Path	Beta	Path	Beta
Depression W1 → Depression W2	.50***	Anxiety W3 → Anxiety W4	.59***
Depression W1 → Depression W3	.22***	Victimization W1 → Victimization W2	.38***
Depression W2 → Depression W3	.44***	Victimization W1 → Victimization W3	.13**
Depression W1 → Depression W4	.22**	Victimization W2 → Victimization W3	.41***
Depression W3 → Depression W4	.48***	Victimization W1 → Victimization W4	.11
Anxiety W1 → Anxiety W2	.54***	Victimization W3 → Victimization W4	.27**
Anxiety W1 → Anxiety W3	.19***	Depression W1 → Victimization W2	.15*
Anxiety W2 → Anxiety W3	.52***	Depression W2 → Victimization W3	.01
Anxiety W1 → Anxiety W4	.14*	Depression W3 → Victimization W4	.11

Model d. Anxiety and depression predicting victimization

Path	Beta	Path	Beta
Depression W1 → Depression W2	.51***	Victimization W1 → Victimization W3	.10
Depression W1 → Depression W3	.22***	Victimization W2 → Victimization W3	.36***
Depression W2 → Depression W3	.45***	Victimization W1 → Victimization W4	.11
Depression W1 → Depression W4	.21**	Victimization W3 → Victimization W4	.27***
Depression W3 → Depression W4	.48***	Anxiety W1 → Victimization W2	.13
Anxiety W1 → Anxiety W2	.55***	Anxiety W2 → Victimization W3	.26**
Anxiety W1 → Anxiety W3	.19***	Anxiety W3 → Victimization W4	-.01
Anxiety W2 → Anxiety W3	.54***	Depression W1 → Victimization W2	.08
Anxiety W1 → Anxiety W4	.14*	Depression W2 → Victimization W3	-.13***
Anxiety W3 → Anxiety W4	.59***	Depression W3 → Victimization W4	.12
Victimization W1 → Victimization W2	.36***		

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Model e. Victimization predicting anxiety and depression

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Path	Beta	Path	Beta
Depression W1 → Depression W2	.46 <sup>***</sup>	Victimization W1 → Victimization W3	.13 <sup>*</sup>
Depression W1 → Depression W3	.22 <sup>***</sup>	Victimization W2 → Victimization W3	.42 <sup>***</sup>
Depression W2 → Depression W3	.44 <sup>***</sup>	Victimization W1 → Victimization W4	.12
Depression W1 → Depression W4	.21 <sup>**</sup>	Victimization W3 → Victimization W4	.31 <sup>***</sup>
Depression W3 → Depression W4	.46 <sup>***</sup>	Victimization W1 → Anxiety W2	.19 <sup>**</sup>
Anxiety W1 → Anxiety W2	.45 <sup>***</sup>	Victimization W2 → Anxiety W3	.00
Anxiety W1 → Anxiety W3	.19 <sup>**</sup>	Victimization W3 → Anxiety W4	-.01
Anxiety W2 → Anxiety W3	.52 <sup>***</sup>	Victimization W1 → Depression W2	.10
Anxiety W1 → Anxiety W4	.14 <sup>*</sup>	Victimization W2 → Depression W3	-.00
Anxiety W3 → Anxiety W4	.58 <sup>***</sup>	Victimization W3 → Depression W4	.06
Victimization W1 → Victimization W2	.49 <sup>***</sup>		

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Model f. Full model

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Path	Beta	Path	Beta
Depression W1 → Depression W2	.48 <sup>***</sup>	Victimization W3 → Victimization W4	.27 <sup>**</sup>
Depression W1 → Depression W3	.22 <sup>***</sup>	Anxiety W1 → Victimization W2	.10
Depression W2 → Depression W3	.45 <sup>***</sup>	Anxiety W2 → Victimization W3	.26 <sup>**</sup>
Depression W1 → Depression W4	.21 <sup>**</sup>	Anxiety W3 → Victimization W4	-.01
Depression W3 → Depression W4	.47 <sup>***</sup>	Depression W1 → Victimization W2	.08
Anxiety W1 → Anxiety W2	.49 <sup>***</sup>	Depression W2 → Victimization W3	-.13 <sup>**</sup>
Anxiety W1 → Anxiety W3	.19 <sup>***</sup>	Depression W3 → Victimization W4	.12
Anxiety W2 → Anxiety W3	.55 <sup>***</sup>	Victimization W1 → Anxiety W2	.17 <sup>**</sup>
Anxiety W1 → Anxiety W4	.14 <sup>*</sup>	Victimization W2 → Anxiety W3	-.02
Anxiety W3 → Anxiety W4	.60 <sup>***</sup>	Victimization W3 → Anxiety W4	-.02
Victimization W1 → Victimization W2	.41 <sup>***</sup>	Victimization W1 → Depression W2	.09
Victimization W1 → Victimization W3	.10	Victimization W2 → Depression W3	-.01
Victimization W2 → Victimization W3	.35 <sup>***</sup>	Victimization W3 → Depression W4	.05
Victimization W1 → Victimization W4	.11		

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

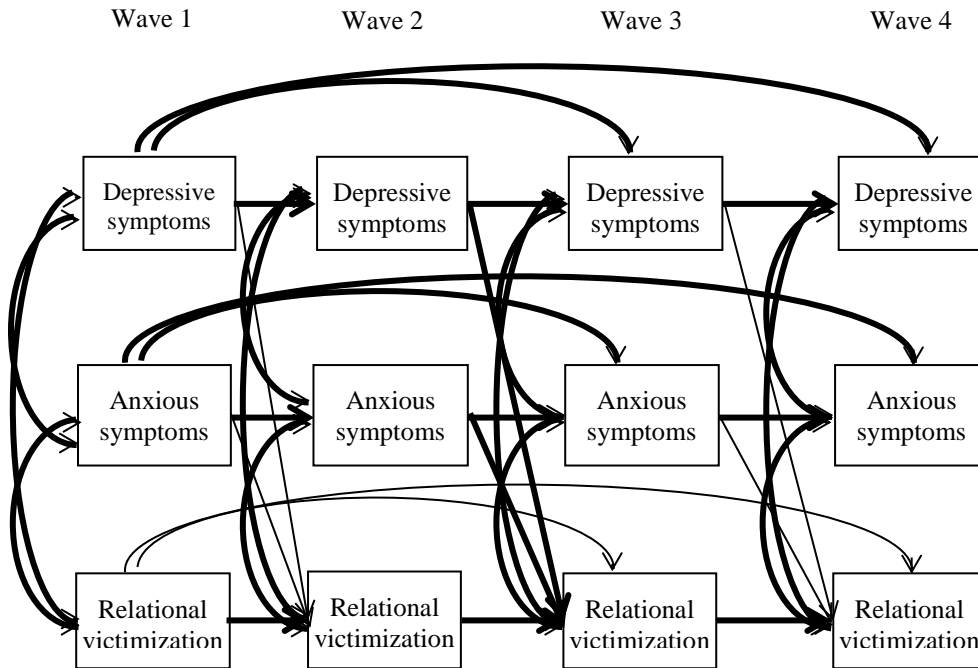


Figure 8. Model 2d. Anxiety and depression predicting relational peer victimization. Bolded paths represent significant betas for  $p < .05$ .

## Discussion

The purpose of the current study was to examine the bidirectional relations between anxious and depressive symptoms and two forms of peer victimization (i.e., overt and relational) within a sample of predominantly African-American adolescents living in low-income urban areas across four waves of data collected annually. Longitudinal path analyses tested five hypotheses based on theory and past research. Data analyses were expected to evidence a bidirectional relation between depressive and anxious symptoms and overt victimization over time, such that youth who endorsed more depressive and anxious symptoms would be more likely to experience overt victimization over time and that youth who endorsed higher levels of overt victimization would experience more depressive and anxious symptoms over time. Similarly, it was predicted that youth who endorsed more depressive and anxious symptoms would be more likely to experience relational

victimization over time and that youth who endorsed experiencing more relational victimization would experience increased levels of depressive and anxious symptoms over time. For both overt and relational victimization, depressive and anxious symptoms predicted future victimization above and beyond previous reports of internalizing symptoms and peer victimization experiences. However, although previous levels of victimization and future internalizing symptoms were positively correlated over time, victimization did not significantly predict changes in depressive or anxious symptoms when previous internalizing symptoms and peer victimization were included in the models. Therefore, the overall bidirectional relation theory was not supported. Also contrary to expectations, there was evidence that anxious symptoms are more uniquely important in explaining risk of future overt and relational peer victimization as compared to depressive symptoms.

### **Relations between Internalizing Symptoms and Peer Victimization**

A key focus of the study was to examine the potential bidirectional relations between depressive and anxious symptoms and two forms of peer victimization: overt and relational, as it has been theorized that victimized peers experience more internalizing symptoms since it negatively affects their self-esteem and can interfere in their peer relationships (e.g., Rigby, 2003), and youth that are perceived as “weak” (e.g., cry more, get upset easily) are more likely to be victimized by their peers (e.g., Peguero, 2008). Although support was found for this relation (e.g., Reijntjes et al., 2010), albeit inconsistently (Kaltiala Heino et al., 2010; Ranta et al., 2012; Siegel et al., 2009), it was predicted that youth who endorsed more depressive and anxious symptoms would be more likely to experience peer victimization over time and vice versa. However, the findings in this study did not find evidence of this bidirectional relationship.

Results from the present study suggested that youths' levels of depressive and anxious symptoms predicted future overt and relational victimization above and beyond previous reports of internalizing symptoms and peer victimization experiences. On the other hand, although positively correlated over time, experiences of peer victimization predicting future internalizing symptoms did not significantly explain the remaining variation once previous levels of internalizing symptoms and peer victimization were included in the models. These findings are similar to results suggesting depressive symptoms in particular predicted peer victimization but not vice versa (Kochel et al., 2012; Tran et al., 2012). This study expands on these prior studies by including anxious as well as depressive symptoms in these relations, and the results show that anxious symptoms work in a similar fashion to depressive symptoms. Therefore, these findings suggest that internalizing symptoms maybe more important in explaining future victimization compared to peer victimization explaining future internalizing symptoms.

On the other hand, these findings are counter to prior research that found evidence for the bidirectional relations between internalizing symptoms and peer victimization (Boivin et al., 2010; Reijntjes et al., 2010). The findings may be contradictory because Boivin and colleagues (2010) in particular combined types of victimization while the present study investigated them separately. This suggests that when victimization reports are combined there may be stronger bidirectional relations observed. Also, while the present study investigated a range of depressive and anxious symptoms, Boivin and colleagues (2010) investigated specific internalizing symptoms (i.e., social withdrawal and emotional vulnerability). Therefore, peer victimization may increase the specific symptoms that Boivin and colleagues (2010) researched over time, but it does not further explain broader

internalizing symptom profiles above and beyond what internalizing symptoms predicting peer victimization explains. Finally, the differences in findings may be a result of sample as Boivin and colleagues' (2010) sample consisted of third through sixth grade Canadian students, and the present study consisted of fifth through eighth grade primarily urban African American youth. Therefore an age or cultural difference may account for the contradictory findings.

Similar reasons may explain the differences between the present study and the meta-analysis conducted by Reijntjes and colleagues (2010), including that many studies combined overt and relational peer victimization, focused on early and middle adolescence, and consisted of samples from different populations compared to the present study. Further, previous studies have not considered such a complex picture of these bidirectional relations. Including both anxiety and depression as unique constructs and assessing youth annually across four years were methodological strengths of this study compared to previous work. However, these differences may help to explain the contradictory results. By failing to include either anxious or depressive symptoms previous work may have found victimization predicted future internalizing symptoms because the variance accounted for by the symptoms not assessed was missing. Another explanation may be that assessing across a one-year time period may be too long to observe changes, as the relations may have a more immediate effect as observed in studies with shorter time frames (e.g., Siegel et al., 2009; Sinclair et al., 2012). Finally, the current sample was a community sample, and not a school-recruited sample like most other studies (Boivin et al., 2010; Bond, Carlin, Thomas, Rubin, & Patton, 2001; Kaltiala Heino et al., 2010; Kim, Leventhal, Koh, Hubbard, & Boyce, 2006; Kochel et al., 2012; Ranta et al., 2012; Siegel et al., 2009; Snyder et al., 2003; Storch, Masia-Warner,



Crisp, & Klein, 2005; Sweeting et al., 2006; Tran et al., 2012). Consequently, the timing of the annual data collection may have affected the results. For example, students may have reported less peer victimization if they were interviewed during summer vacation if most of the victimization occurred in the school setting. Therefore, future studies should include more frequent assessment points to get a better understanding of the timing of the relations between internalizing symptoms and peer victimization. They should also compare whether youths' reports of peer victimization or internalizing symptoms are systematically different during the school year as compared to when they are on summer vacation.

Also, although not a main focus of the study it is important to note that previous levels of each construct (i.e., depressive symptoms, anxious symptoms, peer victimization) consistently predicted the following year's levels of the construct across all models tested. Further, the model that only included these predictors (i.e., the autoregressive model) was the most parsimonious (i.e., Model 1a and 2a). Researchers who have included analogous paths in their investigations also have found that previous levels of internalizing symptoms and peer victimization significantly and consistently predicted future levels of each construct respectively (Boivin et al., 2010; Kochel et al., 2012; Tran et al., 2012).

### **Importance of Depressive versus Anxious Symptoms in Predicting Victimization**

This study also examined the relative importance of depressive versus anxious symptoms in predicting future overt and relational peer victimization. Much of the previous literature on the bidirectional relations between internalizing symptoms and peer victimization was limited in that they only assessed depressive symptoms (Kaltiala Heino et al., 2010; Kochel et al., 2012; Snyder et al., 2003; Tran et al., 2012), anxious symptoms (Ranta et al., 2012; Siegel et al., 2009; Storch et al., 2005), or a combination of depressive

and anxious symptoms (Bond et al., 2001; Hodges & Perry, 1999; Hodges et al., 1999; Kim et al., 2006). Based on previous findings which compared the concurrent relations between depression, anxiety, and peer victimization across many studies (Hawker & Boulton, 2000), it was hypothesized that depressive symptoms would be more important than anxious symptoms in predicting peer victimization over time. Contrary to the hypothesis, the addition of prospective symptoms of anxiety significantly improved the fit of the models from ones that only included prospective symptoms of depression, but the addition of prospective depressive symptoms did not significantly improved the fit of the models from ones that only included prospective anxious symptoms. In other words, the addition of paths where anxious symptoms predicted victimization provided unique information when depressive symptoms were already accounted for, but depressive symptoms did not add significant information beyond what was already explained in future victimization by anxious symptoms. This was true for both the overt and relational victimization models.

Given that none of the extant literature specifically has looked at the respective importance of anxious versus depressive symptoms predicting future peer victimization these results expand our knowledge in this area. There are several reasons for why youth reporting anxious symptoms may be at more risk for future victimization as compared to youth with depressive symptoms, even after accounting for previous levels of internalizing symptoms and peer victimization experiences. According to parents, teachers, and self-reports, youth with anxiety disorders have been rated as less socially competent (e.g., Chansky & Kendall, 1997), lacking support positive interactions with friends and classmates (La Greca & Lopez, 1998), and avoiding social interactions with peers (Gazelle & Rudolph, 2004); all which may put these youth at greater risk for victimization. Additionally, since youth with anxiety are

fearful and their thoughts focus on anticipated harm or danger they may be more responsive to peer victimization (e.g., get visibly afraid or upset), as compared to youth with depression who typically experience anguish and think about loss and failure and as a result may inhibit their emotional expressions to their peers (Beck et al., 1987; Blumberg & Izard, 1986; Kendall & Watson, 1989). More empirical work needs to be completed in this area.

Nevertheless, since past work investigating cross-sectional studies found that depressive symptoms were more important than anxious symptoms across studies (Hawker & Boulton, 2000); this result should be interpreted with caution. One possible explanation for this discrepancy is that this could be an isolated finding that is unique as a result of sample (i.e., primarily low-income African American youth). Another explanation could be the result of measurement. As noted earlier, due to the overlapping construct of anxiety and depression in some commonly used measures of internalizing disorders (e.g., White & Farrell, 2001), previous studies' findings may not have been measuring purely depressive or purely anxious symptoms. Though replications of this finding are needed, there is support that anxious symptoms are better at predicting future victimization as compared to depressive symptoms.

Given this finding it is important to consider what current peer victimization programs tend to offer to youth and if this is sufficient for reducing instances of peer victimization. Programs that focus on reducing peer victimization, as well as bullying, are found to reduce peer victimization by 17-20% on average (Ttofi & Farrington, 2011). However, although most programs used in the United States include assertiveness and social skills training (e.g., Olweus Bullying Prevention Program (OBPP), Melton et al., 1998; Steps to Respect, Frey et al., 2005; Youth Matter, Jenson & Dieterich, 2007, few program directly address anxious symptoms although there are there are some exceptions (e.g., Social Skills

Group Intervention (S. S. GRIN), DeRosier & Marcus, 2005; School Psychiatric Consultation (SPC), Fonagy et al., 2009). By not focusing the anxious or depressive symptoms which put youth at greater risk for peer victimization, the current programs appear to focus more on intervening on the perpetrator side of the situation as compared to the victim side. Given that the majority of youth involved in peer victimization report both being a perpetrator and a victim, commonly called “bully-victims,” (e.g., Nansel et al., 2001, 2001; Schwartz, 2000), creators and schools that implement these programs should consider adding components that target coping with internalizing symptoms, specifically anxious symptoms.

### **Study Limitations and Directions for Future Research**

While the study had many methodological strengths, it is important to note the limitations that may have impacted the results. First, all of the data was collected from adolescents’ self-reports of internalizing symptoms and peer victimization, which raises concerns of shared method variance and socially desirable responding (Kazdin, 2003). Using more than one reporter for variables would have made it possible to investigate relations using latent variables, which could have reduced these concerns. However, several studies have demonstrated the reliability of self-report measures of peer victimization (e.g., Crick & Grotpeter, 1996; Crick & Bigbee, 1998; Prinstein et al., 2001), and the scales used in the current study were based on measures that are comparable to peer-nomination measures of victimization (Crick & Bigbee, 1998). Additionally, other research has found support that adolescents are more accurate reporters of their internalizing symptoms than other reporters (e.g., Holmbeck, Li, Schurman, Friedman, & Coakley, 2002). Therefore, youth report may be appropriate to use in the present study’s context.

Second, gender was not examined as a moderator. Since parameters double when unconstrained multiple group analyses are conducted (e.g., estimating parameters separately for boys and girls; Kline, 1998) it was determined that the present study would likely be unpowered to conduct these types of analyses. Therefore given the concerns about statistical power, no moderation analyses were conducted. Further, examination of the zero-order correlations across gender revealed few differences.

Third, gender and non-focal type of peer victimization were not controlled in the current analyses to reduce the number of paths, thereby increasing the statistical power. Given the variability of findings across age and gender, future studies with larger samples should test for moderation or control for these potential differences. Ideally, a study with a large enough sample size would be able to create an even more comprehensive model that includes both types of victimization and internalizing symptoms that can then be tested for moderation by age and gender through multiple group analyses.

Fourth, this study considered anxious symptoms broadly. However, anxiety presents in a variety of ways in youth, and these may lead to differential diagnoses (e.g., generalized anxiety, social phobia, separation anxiety, panic; American Psychiatric Association, 2000). Past work which has focused on a specific presentation primarily has investigated social phobia (e.g., Ranta et al., 2012; Siegel et al., 2009; Storch et al., 2003) because one of the theorized goals of peer victimization is to affect a youth's social network (Crick et al., 2002). Future studies should investigate how different presentations of anxiety in youth may explain varying levels of peer victimization over time, particularly in samples not yet investigated (e.g., low income urban youth).

Fifth, the timing of this study's assessments needs to be taken into consideration. All constructs were assessed one year apart. Upon closer examination of the correlations, youths' reports of internalizing symptoms were much more stable across time than their reports of peer victimization. Given that youth's social relationships and identity development are frequently changing during the developmental stages investigated (i.e., middle and late adolescence, Lerner & Steinberg, 2004), which included the transition to middle school or high school, a one year time gap may not accurately assess the changes occurring between these constructs. More specifically, given the instability of peer victimization across time, it can be hypothesized that this construct is much more varied, and how close the assessment was to an incident of peer victimization may have influenced the results. For example, within a year, parents or teachers could have intervened in a peer victimization situation, a school could have been involved in a bullying prevention program, or a student could have changed peer groups; all which may affect a youth's likelihood to be victimized, and potentially the negative effects of such experiences. Therefore, future studies should consider more frequent assessment time points to gain a better understanding of how the timing of peer victimization affects a youth's feelings of anxiety and depression.

Other limitations of the present study are concerns about generalizability. Given the limited amount of previous research that has assessed multiple forms of peer victimization or internalizing symptoms separately, and is not focused on one construct or uses composites, the ability to which the findings of the current study can be generalized to past work is restricted. Nevertheless, the differential findings from this study highlight the importance of investigating the unique constructs of internalizing symptoms separately paying attention to the measurement of each construct. Furthermore, more research is needed to assess the

generalizability of the current study's findings to adolescents from different contexts (e.g., rural, suburban), ethnic/racial backgrounds, or SES levels, as the sample for this study was predominately African American urban adolescents from low-income families.

### **Summary**

This study contributed to our understanding of the prospective relations between anxiety and depressive symptoms and overt and relational peer victimization in a commonly underrepresented population in the current research. Similar to past research which has included analogous paths in their investigations (Boivin et al., 2010; Kochel et al., 2012; Tran et al., 2012), this study found that previous levels of internalizing symptoms and peer victimization significantly and consistently predict future levels of each construct respectively. Consequently, intervention and prevention programs which want to reduce a specific problem should start by targeting the symptom/behavior of interest. Further, since anxious symptoms were more important in explaining future peer victimization, regardless of type of victimization, interventions that target anxious thoughts and feelings should be a priority. Such interventions should be created from evidence-based treatments which have been found to be effective in reducing anxiety symptoms in this population (e.g., cognitive behavioral therapy; Huey & Polo, 2008; Silverman et al., 2008).

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## **Appendix A**

### Structural Equation Models for Overt Victimization – Full Sample

*Note.* All bolded paths indicate  $p < .05$ .

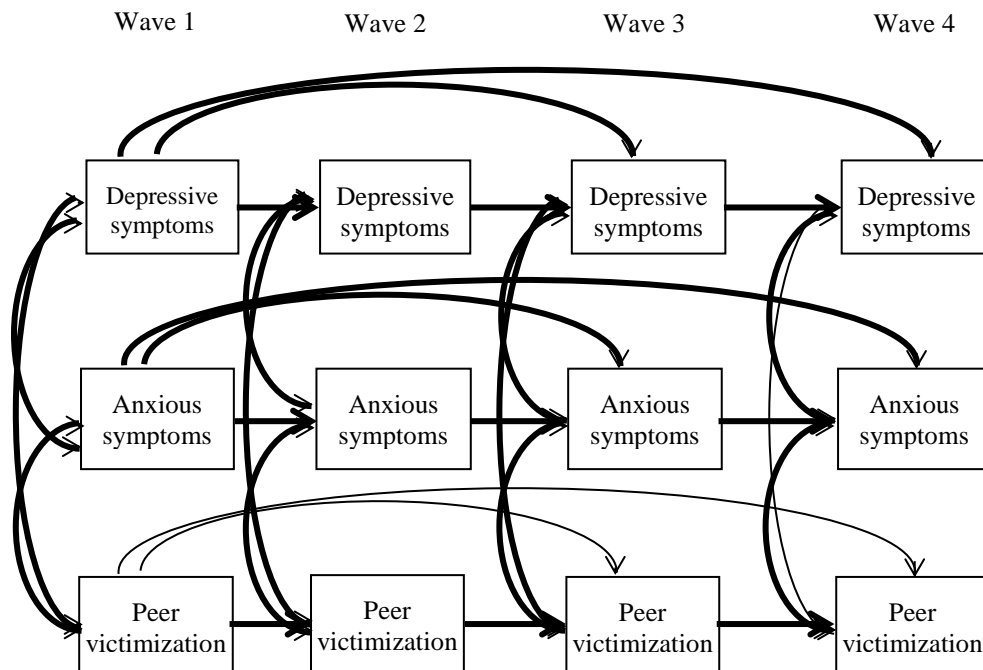


Figure 1. Model a. Autoregressive model

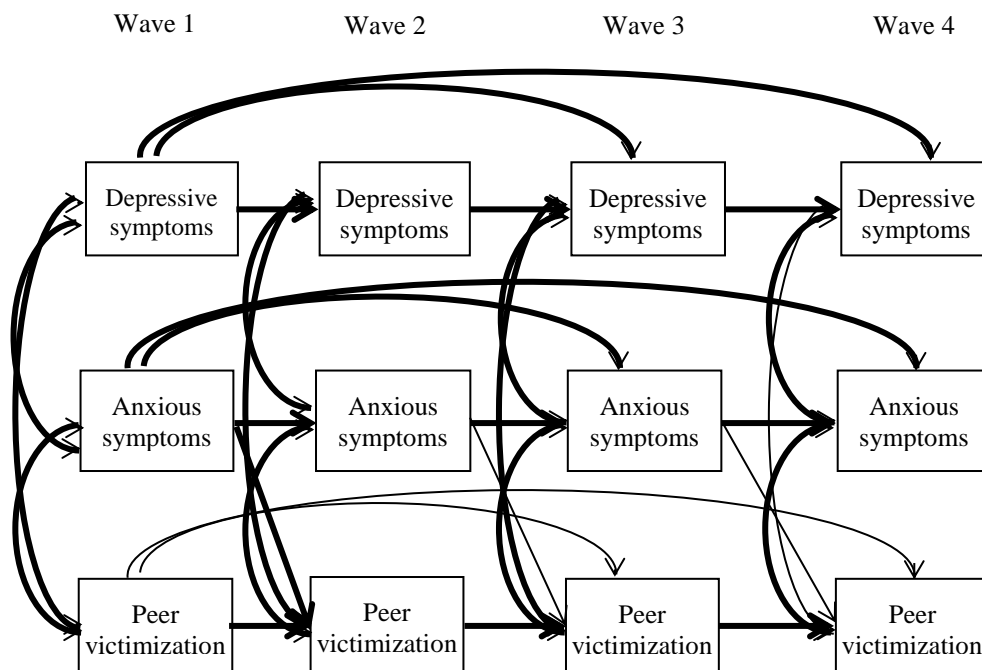


Figure 2. Model b. Anxiety predicting victimization

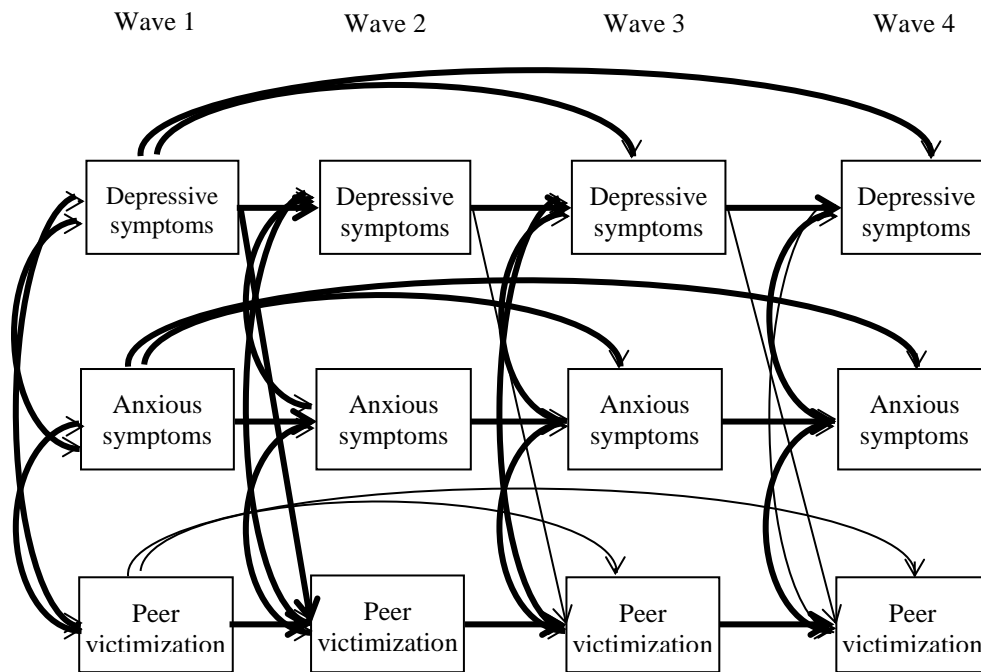


Figure 3. Model c. Depression predicting victimization

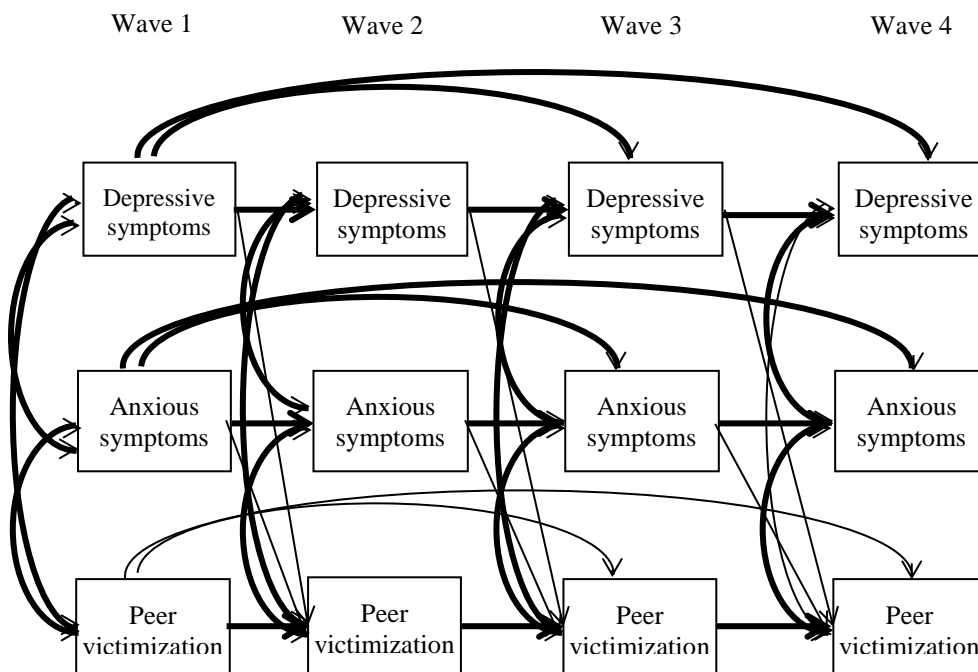


Figure 4. Model d. Anxiety and depression predicting victimization

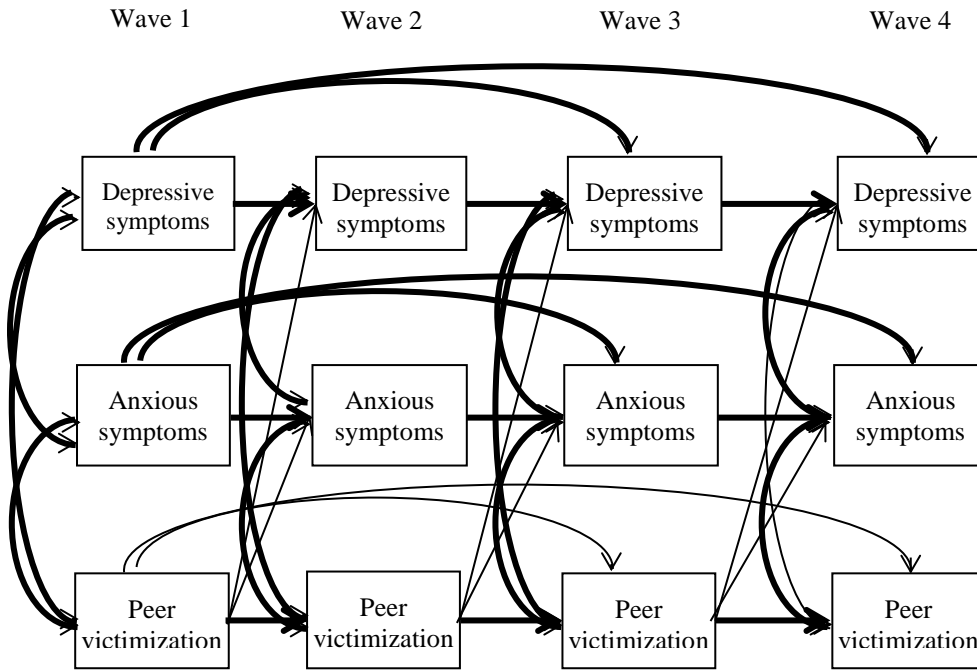


Figure 5. Model e. Victimization predicting anxiety and depression

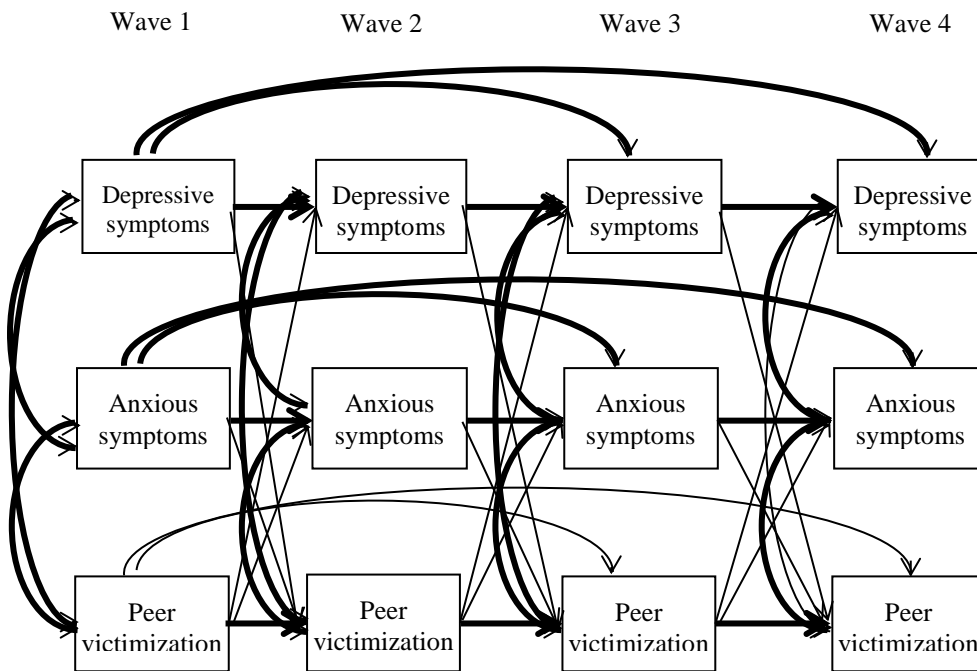


Figure 6. Model f. Full model

## **Appendix B**

### Structural Equation Models for Relational Victimization – Full Sample

*Note.* All bolded paths indicate  $p < .05$ .

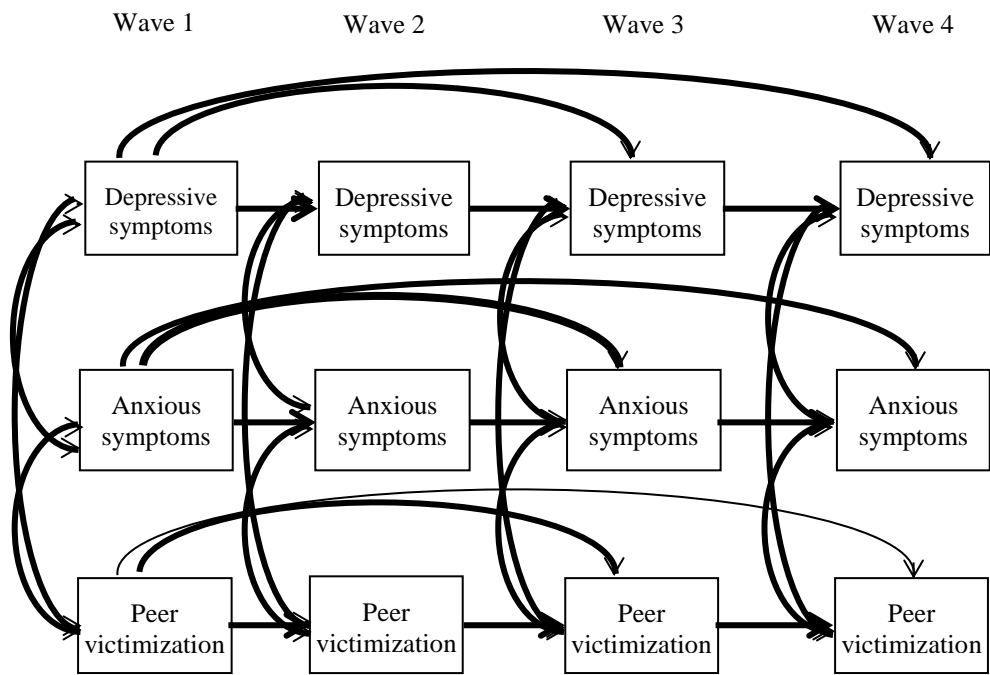


Figure 1. Model a. Autoregressive model

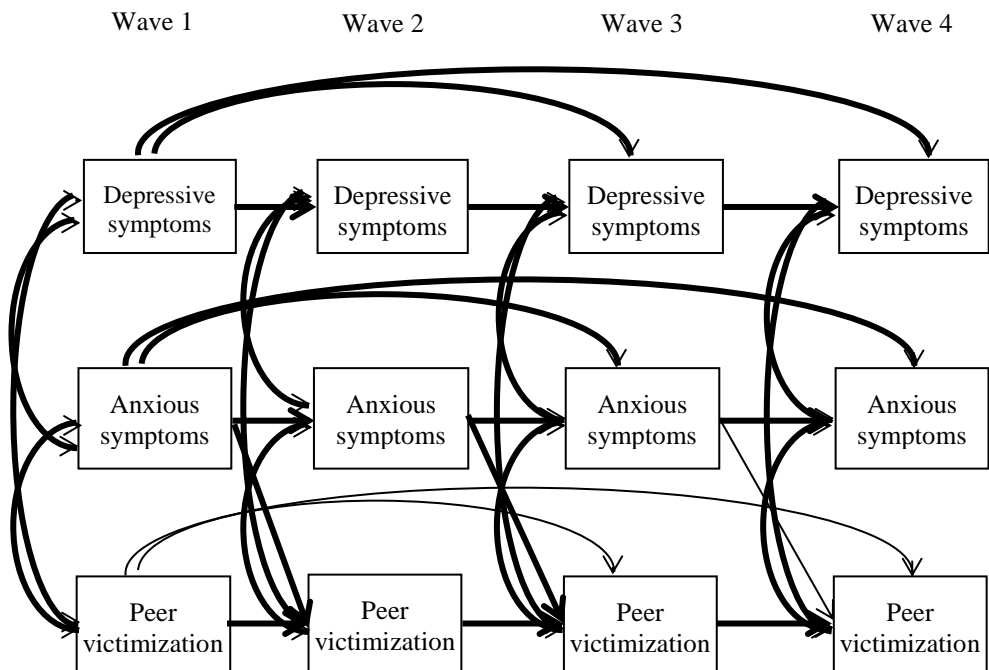


Figure 2. Model b. Anxiety predicting victimization



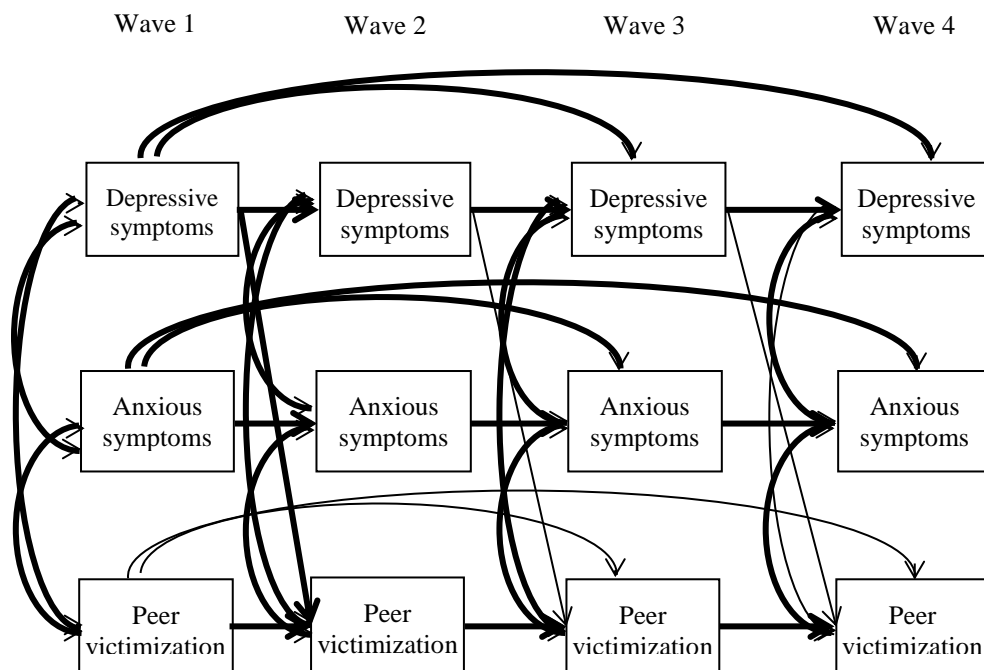


Figure 3. Model c. Depression predicting victimization

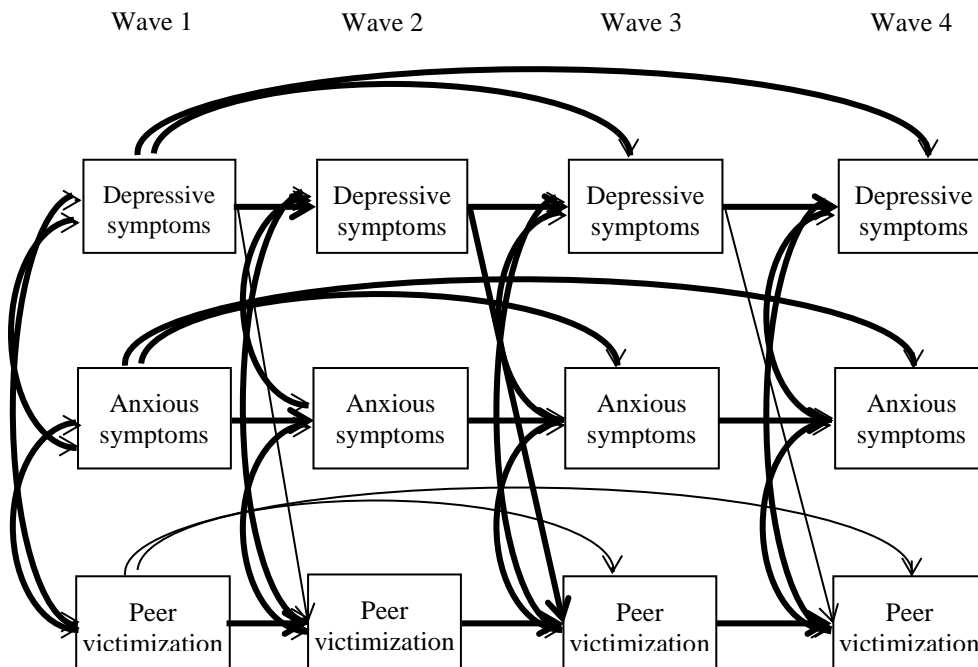


Figure 4. Model d. Anxiety and depression predicting victimization

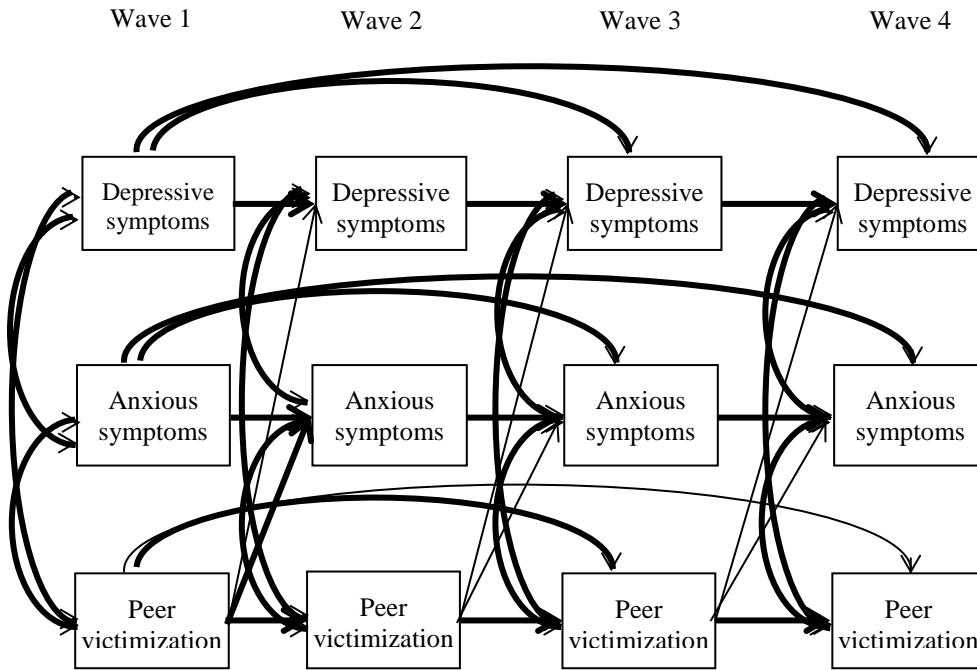


Figure 5. Model e. Victimization predicting anxiety and depression

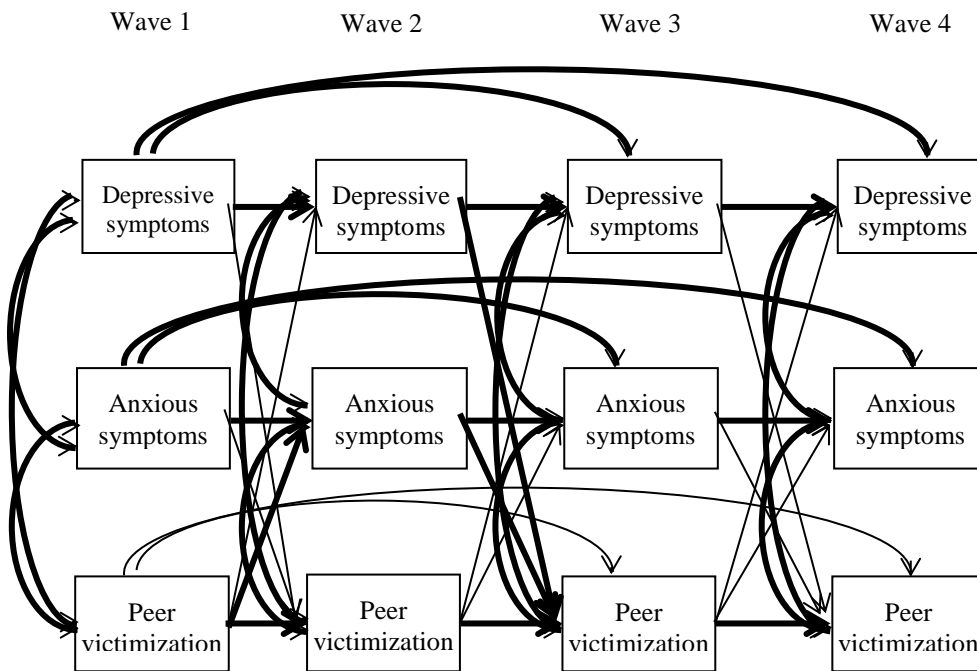


Figure 6. Model f. Full model

## Vita

Tess Katherine Drazdowski was born on November 5, 1985, in Juneau, Alaska and is a United States citizen. She graduated from Wyoming Seminary College Preparatory, Kingston, Pennsylvania in 2004. She received her Bachelor of Arts in Psychology with a minor in sociology from Loyola University Maryland where she graduated Summa Cum Laude in 2008. Subsequently she received a Masters of Science in Clinical Psychology from Loyola University in 2009. From there she worked at Johns Hopkins University as a Research Coordinator in the Department of Child and Adolescent Psychology from 2009 to 2011. Currently she is enrolled as a Clinical/Developmental Scholar pursuing her doctorate in psychology at Virginia Commonwealth University. She is an author on three published manuscripts on topics about youth mental health.