Evidence indicates that peer victimization is predictive of later maladjustment, but the mechanisms by which harassment impairs development have yet to be identified. The objectives of this study were (a) to discern normative trends in peer victimization experiences and self- and peer perceptions during preadolescence and (b) to investigate associations between individual differences in these trajectories and changes in psychosocial adjustment. A sample of 381 children (196 girls; 185 boys) was followed longitudinally between the ages of 9 and 11 years. Latent growth curve analyses revealed that, although children’s self-appraisals became increasingly positive during preadolescence, their appraisals of peers became more negative. Moreover, analyses supported the contention that self- and peer beliefs act as mechanisms through which victimization is related to psychological dysfunction.

Evidence indicates that divergent forms of maladjustment are associated with cognitive processes specific to each disorder (e.g., Epkins, 2000; Leung & Wong, 1998). Such cognitive biases do not occur in a vacuum, however, and it has become increasingly important to consider how life events, particularly those occurring in the interpersonal context (Hammen, 2000; Rudolph, Hammen, & Burge, 1997), should be integrated into cognitive theories of disorder. Therefore, a prominent research agenda emerging in the study of psychopathology is the clarification of how interpersonal relationships and cognitive processes interact (e.g., mediation models, diathesis-stress models) in ways that prevent or exacerbate dysfunction. The current study contributes to this research by testing the proposition that associations between peer victimization and changes in psychological well-being during preadolescence are mediated by the development of positive or negative perceptions of the self and peers.

Although it is likely that no single mechanism completely accounts for the relation between early relationship difficulties and later maladjustment, self- and peer perceptions may play a relatively critical role. Knowledge structures (e.g., schemas, working models) are believed to influence a number of “online” cognitive processes such as the interpretation of others’ actions and the generation of behavioral and emotional responses to interpersonal events (Burks, Dodge, Price, & Laird, 1999; Crick & Dodge, 1994). Furthermore, there is increasing evidence that self- and peer perceptions act as mediators between relational adversity and dysfunction. Cole and Turner (1993) found that negative biases in the self-referent thinking of fourth, sixth, and eighth graders accounted for the relation between peer-rated social competence and depression. However, cross-sectional data were utilized, and participants were the sole source of data regarding self-perceptions and emotional well-being. In an earlier study, we also addressed the issue of mediation using data from a prospective study of children’s social and emotional adjustment (Ladd & Troop-Gordon, 2003). Our findings indicated that associations between relational stressors occurring between the first and third grades and internalizing problems and loneliness at school, assessed during the children’s fourth-grade year, are at least partially mediated by children’s self- and peer perceptions.

This article was based on a doctoral dissertation by Wendy Troop-Gordon completed at the University of Illinois at Urbana-Champaign. Portions of this study were conducted as part of the Pathways Project at the University of Illinois and Arizona State University, a larger longitudinal investigation of children’s social/psychological/scholastic adjustment, which is supported by the National Institutes of Health (1 RO1MH-49223, 2-RO1MH-49223, and R01HD-049906 to Gary W. Ladd). Special appreciation is expressed to Karen Rudoloph, Dorothy Espelage, Philip Rodkin, and Alison Ryan for their helpful comments and assistance with this study. We would also like to express our gratitude to the children, parents, and teachers who made this study possible, and to members of the Pathways Project for assistance with data collection.

Correspondence concerning this article should be addressed to Wendy Troop-Gordon, 102C Minard, Department of Psychology, North Dakota State University, Fargo, ND, USA 58105 or Gary W. Ladd, Department of Family and Human Development, Arizona State University, Tempe, AZ, USA 85287-2502.
The Ladd and Troop-Gordon (2003) study, however, also had several limitations. Children’s social perceptions were assessed only once. Consequently, it was not clear whether peer difficulties precipitated changes in children’s social perceptions or whether relational adversity was simply a correlate of stable, problematic self- and peer beliefs construed earlier in development. The findings from this study may have been stronger if the link between children’s relational experiences and social perceptions had been studied during a different developmental period. For instance, cognitive and social advancements in pre- and early adolescence (e.g., greater concern for peer relationships, increased ability for abstraction, increased self-reflection) may result in stronger relations between the quality of children’s peer relationships, their self- and peer perceptions, and their socioemotional adjustment than are found in the early elementary school years. Furthermore, mediated pathways were strongest for loneliness, the only criterion variable that shared method variance with measures of social perceptions. A more stringent test of the relations between peer relationships, social perceptions, and psychological adjustment would include multiple, or unique, reporters for each construct assessed.

This investigation was a follow-up to the Ladd and Troop-Gordon (2003) study. Although participants came from the same longitudinal sample, data were gathered during a subsequent period of the children’s development. A principal extension of this study was the longitudinal examination of children’s self- and peer perceptions during late childhood and early preadolescence, allowing us to document normative shifts in these appraisals and to assess the extent to which such changes are a function of relational experiences. We also wished to determine whether social perceptions would mediate the links between relationship stressors and maladjustment in preadolescence, as was the case when these children were in middle childhood. By utilizing latent growth curve analysis, we were further able to assess the extent to which experiences of victimization and social perceptions from late childhood to early preadolescence predict changes in children’s well-being.

Specifically, two models were tested. The first model (see Figure 1) represents hypothesized associations between changes in victimization and shifts in children’s self- and peer perceptions across five time points between the Spring of children’s fourth-grade year and the Spring of their sixth-grade year. The second model (see Figure 2) was created by adding a latent variable representing change in adjustment to Model 1, allowing us to identify mediated linkages from victimization to dysfunction through social perceptions. This model was tested separately for internalizing and externalizing problems. Finally, we wished to determine whether the conceptual model proposed in Figure 2 would fit the data better than an alternative model based on the competing proposition that children’s negative social perceptions represent personal vulnerabilities that place children at risk for peer harassment and, in turn, psychological maladjustment.

Relational Stressors and the Development of Self- and Peer Beliefs (Model 1)

The Development of Self-Perceptions

During preadolescence (approximately ages 9–12 years), significant, qualitative changes emerge in children’s self-understanding. Unlike the middle childhood years, during which self-perceptions generally become more realistic and more self-critical, in preadolescence (approximately ages 9–12 years), children evidence a shift toward more positive self-evaluations (Cole et al., 2001; Nottelmann, 1987). It is also during preadolescence that children’s ability for abstraction emerges (Harter, 1983; Higgins, 1991). As a result, children may begin to think of themselves in terms of popularity, social status, and social roles. This may explain why, as noted by Damon and Hart (1988), children’s concern for their social skills and peer acceptance increases during this period. This increased concern for social acceptance may be particularly detrimental for those children who are victimized by peers, and they may begin to internalize the explicit and implicit messages regarding their self-worth inherent in their peers’ abuse (Kochenderfer-Ladd & Ladd, 2001). Thus, although a general positive trend in self-representations may be expected during preadolescence, individual differences in self-perception trajectories may be, in part, because of differences in exposure to relational risks.

The first objective of the current study was to document the development of children’s social self-acceptance and to assess the relation between changes in victimization frequency and individual social self-acceptance trajectories. Social self-acceptance encompasses children’s assessments of how well liked they are by their peers and feelings of general self-worth that are, in part, derived from perceived evaluations from others (Ladd & Troop-Gordon, 2003). This construct is similar to what Edens, Cavell, and Hughes (1999) refer to as self-systems. We antic-
ipated that a significant positive slope (i.e., an increase in positive social self-acceptance) would emerge between the Spring of the fourth grade and Spring of the sixth grade (represented as $M_{4i}$ in Figure 1). Significant variance in this slope, representing individual differences in changes in social self-acceptance, was also expected ($D_{4i}$), as was significant variance in children's initial social self-acceptance ($D_{3i}$). Individual differences in self-perception trajectories were expected to be associated with differences in exposure to peer victimization. Children who experienced more frequent harassment at the outset of the study were expected to report lower levels of social self-acceptance ($P_{1i}$), and victimization trajectories were expected to be inversely related to changes in social self-acceptance ($P_{3i}$).

The Development of Perceptions of Peers

Through repeated social interactions, children are also believed to develop generalized cognitive representations of others (see Crick & Dodge, 1994). Children make judgments regarding entire categories of individuals who share a salient trait (e.g., boys, teachers, ethnic groups) and may attribute characteristics to naturally occurring groups (e.g., schoolmates, family members; see Brewer & Harasty, 1996). Of particular interest for this study were children’s evaluations of the social orientations of schoolmates.

Although it is widely believed that children construe stable representations of peers (e.g., Burks, Dodge, et al., 1999; Crick & Dodge, 1994), developmental trends in the construction of such knowledge structures have been largely overlooked, and few studies have been conducted examining how relational experiences may influence the construction of these peer beliefs. Previous research has shown that rejected children report less positive, more negative peer beliefs (MacKinnon-Lewis, Rabiner, & Starnes, 1999; Rudolph, Hammen, & Burge, 1995). Similarly, children who are victimized by others may develop cognitive representations of their aggressors as hostile, and, if other children do not help them cope with this victimization, or seem to be passive participants in the harassment (see Salmivalli, 2001), these negative perceptions may generalize to the entire peer group.

Figure 1. Hypothesized latent growth curve model of the associations between trajectories of peer victimization change and changes in self- and peer perceptions.
Accordingly, one of our objectives for this investigation was to extend the research on children’s peer beliefs by examining developmental trends in the social evaluations children make of their schoolmates and whether changes in victimization account for differences in children’s peer belief trajectories. Children provided self-reports of their perceptions of peers as being prosocial and trustworthy versus antisocial and hostile (i.e., peer beliefs). MacKinnon-Lewis et al. (1999) reported moderate stability in children’s peer beliefs during middle childhood. However, because few investigators have examined changes in peer beliefs at older ages, there was no basis on which to predict whether average modifications (i.e., slope) in peer beliefs should reflect a normative trend of construing more positive or more negative conceptualizations of peers in preadolescence (Mₐ). However, variance in initial peer beliefs (Dₐ) was assumed to be associated with frequency of peer victimization at the outset of the study (P₂<0), and differences in trajectories of peer belief development (Dₐ) were predicted to be a function of increases or decreases in peer harassment (P₄<0).

Pathways Between Victimization, Social Perceptions, and Adjustment (Model 2)

Internalizing Problems

Numerous cognitive theories of the etiology of internalizing disorders (e.g., depression, anxiety) have been proposed, which emphasize the role of maladaptive, self-referent thought processes (Beck, 1967; Seligman, 1975). Support for these theories stems from evidence that depression and anxiety in childhood are inversely related to assessments of self-worth (Harter, 1993; Renouf & Harter, 1990; Treadwell & Kendall, 1996) and that children high in depression have maladaptive self-schemas (Hammen & Zupan, 1984) and exhibit self-blaming attributional styles (Leon, Kendall, & Garber, 1980; Quiggle, Garber, Panak, & Dodge, 1992).

Some controversy exists over whether maladaptive perceptions of others are similarly predictive of internalizing problems. Burks, Dodge, et al. (1999) showed that greater negative content in peer schemas is predictive of externalizing, but not internalizing problems in adolescence. In contrast, other studies have produced evidence that depressed children attribute negative events to others’ hostility (Quiggle et al., 1992), and view their social relationships less positively than others (Burge, Hammen, Davila, Daley, Paley, Herzberg, et al., 1997; Burks, Laird, Dodge, Pettit, & Bates, 1999). Moreover, Rudolph et al. (1997) found that depressed boys and girls view peers as less supportive, trustworthy, and dependable than children not at risk for depression. We similarly found a significant link between negative peer beliefs and loneliness in our earlier study (Ladd & Troop-Gordon, 2003).

In the light of this evidence, it was expected that maladaptive self- and peer perceptions established during the middle childhood years (i.e., initial social perceptions) would be associated with subsequent
increases in internalizing problems by making depressogenic thought patterns readily accessible and increasing the likelihood of self-blaming and pessimistic thinking in response to stressful, relational experiences. Thus, an inverse relation was expected between positive initial self- and peer perceptions and increases in internalizing problems ($P_{5}$ and $P_{7} < 0$ in Figure 2). It was further hypothesized that proximal shifts in the perceptions of the self and others during preadolescence would be associated with changes in internalizing symptomology (i.e., $P_{6}$ and $P_{8} < 0$).

**Externalizing Problems**

It is often assumed that beliefs that characterize others as frequently hostile underlie the development of antisocial disorders (Beck, 1987; Dodge, 1993). Researchers have found that aggressive children are more likely than their non-aggressive peers to attribute hostile intentions to the ambiguous behaviors of others (Dodge & Frame, 1982; Slaby & Guerra, 1988) and to view aggression as normative (Henry et al., 2000; Huesmann & Guerra, 1997). In the few studies in which investigators have attempted to assess the content of children’s peer schemas more directly, results have shown that aggressive children view peers more negatively than non-aggressive children (Burks, Dodge, et al., 1999, Laird, et al., 1999). Therefore, a significant inverse relation was expected to emerge in this study between initial, positive peer beliefs and changes in externalizing difficulties ($P_{7} < 0$), and, likewise, an inverse relation was expected between the development of more prosocial/less hostile peer beliefs and increasing externalizing problems ($P_{8} < 0$).

Perhaps because of a tendency to ignore negative feedback from others (Zakriski & Coie, 1996), children who exhibit externalizing problems report positive social self-concepts (Boivin, Poulin, & Vitaro, 1994; Parkhurst & Asher, 1992). Therefore, it was presumed that within the current sample, no association would be found between initial social self-acceptance, or social self-acceptance trajectories, and changes in children’s display of externalizing difficulties ($P_{5}$ and $P_{6} = 0$). Accordingly, any associations between victimization and externalizing problems were expected to be mediated solely by peer beliefs.

**Alternative Model**

It is equally plausible that children who develop maladaptive social perceptions are more vulnerable to victimization from peers and, consequently, psychological dysfunction. Negative self-perceptions, in particular, have been identified as a risk factor for increased peer harassment (Caldwell, Rudolph, Troop-Gordon, & Kim, 2004; Egan & Perry, 1998). Therefore, we also tested an alternative model in which growth trajectories in peer victimization mediate the links between social perceptions and changes in psychological functioning. This model was tested separately for internalizing and externalizing problems.

**Sex Differences**

That boys and girls differ in how they manifest psychopathology is well documented (Nolen-Hoeksema & Girgus, 1994; Rutter, 1986). Girls tend to exhibit more internalizing problems than boys, perhaps reflecting a greater tendency to attribute stressful experiences to internal factors. Boys, in contrast, may be more prone to blame others for their difficulties, leading to more hostile perceptions of peers and externalizing problems. In the current study, we tested for potential sex differences in the mechanisms linking victimization frequency to maladjustment by utilizing multi-group analyses when conducting each of the latent growth curve analyses.

**Methods**

**Participants**

Data for this study came from a sample of 399 children (206 boys; 193 girls) participating in the Pathways Project, a longitudinal study of children’s social, emotional, and academic development (see Ladd & Troop-Gordon, 2003, for further discussion of this sample). Children and their families were recruited from multiple school districts prior to the children’s entry into kindergarten (e.g., through kindergarten pre-registration enrollment records, meetings, etc.). Consent was obtained from school districts before recruitment began, and informed consent letters were distributed to families whose children were scheduled to enroll in participating districts and kindergarten classrooms. School districts were selected so as to proportionately represent children from diverse geographic and socioeconomic strata; approximately one-third of the sample was recruited from each of three types of locales: urban, suburban, and rural communities. Of the families who were invited to take part in the investigation, 95% provided written, informed consent for their
children’s participation (written, informed consent was renewed at each stage of the study). The average age of participating children was 5.52 in kindergarten, 9.63 in the fourth grade, and 11.71 in the sixth grade. The sample included European American children (77.4%), African American children (17.3%), and children from Hispanic, mixed race, or other (5.3%) backgrounds. At the time of recruitment, the children lived in a wide range of socioeconomic households: 36.8% were lower to middle income ($0–20,000), 30.6% were middle income ($21,000–40,000), and 32.6% were middle-to-high income (above $41,000).

As the children got older, they became increasingly dispersed across a larger number of classrooms and school districts. Consequently, a large number of teachers (158 fourth-grade teachers; 282 sixth-grade teachers) provided data on children’s social, academic, and psychological adjustment. On average, the fourth-grade teachers provided data for 2.29 children, and the sixth-grade teachers provided data for 1.24 children. When granted permission from children’s schools and teachers, sociometric data were collected from participating children’s classmates. All classmates were invited to participate, but only those for whom parents’ written, informed consent was received took part in this study. The number of classmates contributing data to this study ranged between 2,172 children and 3,030 children at each assessment period. In addition, the parents of students from the original sample completed measures regarding their children’s social, academic, and school adjustment.

**Procedures**

At each of five time points—Spring fourth grade, Fall fifth grade, Spring fifth grade, Fall sixth grade, and Spring sixth grade—children completed measures assessing their self- and peer perceptions. In addition, at the same five assessment periods, sociometric measures of peer victimization and externalizing behavior (i.e., aggression) were administered to children and their classmates, as were other instruments that were not needed in this study. After being thoroughly trained as to how to use each response format, children completed the measures on their own unless they requested adult assistance. In appreciation for their participation, children and their classmates were given a small gift (e.g., pencil, food certificate). Teachers and parents also completed measures of children’s socioemotional and school adjustment at the Spring fourth-grade and the Spring sixth-grade administrations. They received a cash honorarium for participating in the study.

**Measures**

**Peer Victimization**

Three peer nominations were used to assess how often each child was victimized at school. Each item represented a specific form of victimization: (a) physical victimization (“get hit, pushed, or kicked”); (b) verbal victimization (“get called bad names”); and (c) general victimization (“get picked on”). For each item, children were asked to nominate up to three classmates fitting the descriptor. Children then indicated for each classmate they nominated whether the child was victimized “sometimes” or “a lot.” These nominations were transformed into a rating score, such that 0 = no nomination, 1 = a sometimes nomination, and 2 = an a lot nomination. Item-level victimization frequency scores were computed by averaging the ratings children received from their classmates. While more traditional peer-nomination measures yield scores indicating group consensus regarding whether an individual displays a particular characteristic, the “nomination and rating” procedure used in this study provides an indicator of victimization frequency, a unit of measurement more appropriate for growth curve analysis than a measure of consensus. Scores based on this “nomination and rating” procedure and scores derived from more traditional peer-nomination procedures have been found to be highly correlated and have yielded similar stability coefficients based on data obtained when the children were in the second to fourth grades (Ladd & Kochenderfer-Ladd, 2002). We conducted similar analyses with data collected when the children were in the fourth to sixth grades. All correlations between scores created using the “nomination and rating procedure” and the nomination-only procedure were greater than or equal to .84, and stability coefficients derived from these two procedures were highly similar and correlated at .94. Because scores on the three victimization items were highly correlated at each of the five time points (all rs > .70), scores on these three items were averaged to create a composite victimization variable. To correct for skewness, victimization scores were subjected to a logarithmic transformation before inclusion in the analyses reported below.

**Social Perceptions**

**Social self-acceptance.** Two subscales from the Harter (1985) Self-Perception Profile for Children, the perceived social acceptance and the global self-esteem subscales, were used to create a composite social self-acceptance variable. Both subscales consisted
of six items. For each item, children were given a description of two children, one doing well in the relevant domain and another who was not. Participants were then asked which of the two children they most resembled and whether that child’s description was “really true for me” or “sort of true for me.” Each item was then scored from 1 to 4, with higher scores indicating more positive self-perceptions. Five separate confirmatory factor analyses (CFAs) were then conducted to examine whether the 12 items loaded consistently one single latent factor at each of the five assessment periods. Standardized factor loadings for all items were greater than .30, and a model in which all 12 items loaded on one latent factor adequately fit the data in each of the five analyses. The 12 items were then averaged separately at each assessment period, yielding five social self-acceptance scores. Internal reliability for this variable was adequate at each time point (all \( \alpha > .80 \)).

Peer beliefs. Children’s perceptions of the social dispositions of their schoolmates were measured using the Peer Belief Inventory (PBI; Rabiner, Keane, & MacKinnon-Lewis, 1993) and five items assessing perceptions of peers’ trustworthiness that were derived from measures of children’s friendship quality (Ladd, Kochenderfer, & Coleman, 1997; Parker & Asher, 1993). The PBI includes five items regarding the extent to which children view their schoolmates as prosocial (e.g., friendly, helpful) and five items assessing perceptions of peers’ antisocial characteristics (e.g., hostile, bossy, deceitful). Children rated all 15 items on a 5-point scale from 1 (not very true) to 5 (very true). Items assessing perceptions of antisocial behaviors were reverse scored such that higher scores indicated more positive perceptions. A series of five CFAs, one for each assessment period, was conducted on the 15 peer belief items. All five of the PBI prosocial items, four of the PBI antisocial items, and four of the peer-trust items consistently loaded on one latent variable. These 13 items were averaged to create a composite peer belief variable for each assessment period. The internal reliability of this variable was adequate at each assessment period (all \( \alpha > .81 \)).

Psychological Adjustment

Internalizing problems. Children’s feelings of loneliness were measured using a combination of self-, teacher-, and parent reports, providing multi-informant indicators for a latent variable representing change in internalizing problems. Children provided assessments of their feelings of loneliness at school by completing four items derived from the Loneliness and Social Satisfaction Questionnaire (Asher & Wheeler, 1985; Cassidy & Asher, 1992). Each item asks children to rate on a 5-point scale how often they feel sad and alone at school. Higher scores indicated more frequent loneliness and depression. The internal reliability of these items were adequate for both the Spring fourth-grade (\( \alpha = .84 \)) and the Spring sixth-grade (\( \alpha = .84 \)) data. To create a variable representing change in internalizing problems, a residualized score was computed by regressing Spring sixth-grade internalizing scores on Spring fourth-grade internalizing scores.

Teacher reports of children’s internalizing behavior was assessed using 19 items from the withdrawn and depression/anxious subscales of the Teacher Report Form (TRF; Achenbach, 1991). Items from the original scales that are specific to peer relationships and items that are not clearly internalizing (e.g., mood swings) were not included. Teachers rated each item on a 3-point scale as to how often children displayed the relevant behavior. A composite internalizing variable was created by averaging across subscale items. Good internal reliability was evidenced for the internalizing variable (\( \alpha = .88 \) and \( \alpha = .95 \), for the fourth-grade and Spring sixth-grade assessments, respectively). A residualized internalizing score was then computed.

Parent reports of children’s internalizing behavior were assessed using 17 items from the withdrawn and depressed/anxious subscales of the Child Behavior Checklist (CBCL; Achenbach, 1991). Items from the original scales specific to peer relationships and items that are not clearly internalizing were not included. Parents rated each item on a 3-point scale, and a composite internalizing variable was created by averaging scores across the relevant items. Good internal reliability was evidenced for the internalizing variables (\( \alpha = .79 \) and \( \alpha = .78 \), for the fourth-grade and Spring sixth-grade assessments, respectively), and a residualized internalizing score was computed.

Externalizing problems. Externalizing problems were assessed using peer, teacher, and parent reports, providing multi-informant indicators for a latent variable representing change in externalizing problems. Children’s aggressive behavior was measured with two peer-nomination items. The first item assessed the extent to which children physically aggress against others (“hit, push, or kick other kids”), and the second item assessed verbal aggression (“talk meanly to or argue too much with other kids”). Children were asked to nominate up to three classmates for each item. The total number of nominations a child received for each item divided by the total number of potential nominators was then calculated. These two item scores were highly corre-
lated (for Spring fourth-grade data, \( r = .72 \); for Spring sixth-grade data, \( r = .72 \)), and, accordingly, the two items were averaged to create a composite aggression score. Spring sixth-grade aggressive scores were regressed on Spring fourth-grade scores to create a residualized change in aggressive behavior variable.

Teacher reports of children’s externalizing behavior was assessed using the TRF (Achenbach, 1991). Twenty-eight items assessing aggressive and delinquent behaviors were used to evaluate externalizing behaviors. Items that are specific to peer relationships or do not clearly measure externalizing problems were not included. Teachers rated each item on a 3-point scale, and a composite variable was created by averaging across subscale items (\( \alpha = .86 \) and .95, for the fourth-grade and Spring sixth-grade assessments, respectively). A residualized externalizing score was then computed.

Twenty items from the CBCL (Achenbach, 1991) assessing aggressive and delinquent behaviors were used to evaluate externalizing behaviors. Items from the original scales specific to peer relationships and items that are not clearly externalizing were not included. Parents rated each item on a 3-point scale as to how often children displayed the described behavior. A composite externalizing variable was created by averaging scores from the relevant items. Good internal reliability was evidenced for the externalizing variable (\( \alpha = .85 \) and .84, for the Spring fourth-grade and Spring sixth-grade assessments, respectively), and a residualized externalizing score was then created.

Results

Overview

Before evaluating the hypothesized models, preliminary analyses were conducted to examine patterns of missing data and to impute missing values (see discussion of multiple imputation below). Next, descriptive statistics and bivariate correlations were computed in order to examine distributional properties of each variable, identify potential multicollinearity between predictors, and to examine hypothesized associations between the predictor and criterion variables. These preliminary analyses were followed by a series of latent growth curve analyses to assess each of the hypothesized and alternative models.

Multiple Imputation for Missing Data

Attrition was limited in the current study; 95.5% of the children had continued their involvement with the Pathways Project through the Spring of their fourth-grade year. However, 33.6% of the original sample had at least 1 missing data point, resulting in a small percentage of missing data for each variable (see Table 1). Rather than excluding these 127 children from the analyses, multiple imputation was employed. Multiple imputation marks a significant advancement over more traditional methods for handling missing data (e.g., listwise or pairwise deletion, mean or regression substitution), which can lead to biased parameter estimates, underestimation of variability, and covariances matrices that are not positive definite. Multiple imputation has also been lauded as an improvement over model-based methods such as maximum likelihood estimation or the expectation-maximization (EM) algorithm (Graham & Hofer, 2000; Sinharay, Stern, & Russell, 2001).

Statistical analyses involving multiple imputation requires three steps: (1) the creation of \( m \) imputed

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Percentage of Missing Data and Descriptive Statistics for All Variables Included in Growth Curve Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Percent missing</td>
</tr>
<tr>
<td>Victimization</td>
<td></td>
</tr>
<tr>
<td>S 4th</td>
<td>10.2</td>
</tr>
<tr>
<td>F 5th</td>
<td>8.9</td>
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<tr>
<td>S 5th</td>
<td>8.9</td>
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<td>F 6th</td>
<td>8.9</td>
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<tr>
<td>S 6th</td>
<td>7.9</td>
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<tr>
<td>Social self-acceptance</td>
<td></td>
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<tr>
<td>S 4th</td>
<td>2.1</td>
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<tr>
<td>F 5th</td>
<td>3.4</td>
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<tr>
<td>S 5th</td>
<td>3.7</td>
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<td>F 6th</td>
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<tr>
<td>Peer beliefs</td>
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<td>S 4th</td>
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<td>F 5th</td>
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<td>4.7</td>
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<tr>
<td>S 6th</td>
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<tr>
<td>Int. problems</td>
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<td>Parent report</td>
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<tr>
<td>Ext. problems</td>
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<td>15.2</td>
</tr>
<tr>
<td>Teacher report</td>
<td>13.1</td>
</tr>
<tr>
<td>Parent report</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Note. Int. problems, internalizing problems; Ext. problems, externalizing problems; S, Spring; F, Fall. Statistics for internalizing problems and externalizing problems are based on residualized scores. Statistics for victimization scores were derived after the logarithmic transformation.
data sets, (2) analysis of these data sets, and (3) combining the results across the \( m \) analyses. In the first step, \( m > 1 \) values are imputed for each missing data point. Based on Rubin’s (1987) formula for estimating the efficiency of an estimate based on \( m \) imputations,

\[
(1 + \gamma/m)^{-1}
\]

where \( \gamma \) is the fraction of missing data, it was determined that five imputed data sets would be satisfactory for the current study, resulting in 97% efficiency.

Data imputation was conducted using Shafer’s (1999) NORM program. The imputation model included each of the variables in the latent growth curve models below, as well as additional data not used for this particularly study. NORM uses data augmentation (Tanner & Wong, 1987) to generate imputed data sets with starting values estimated using the EM algorithm. The EM algorithm converged after 16 iterations, and consistent with Shafer’s (1997) recommendations, data sets were generated after each set of 50 iterations of the data augmentation. The autocorrelation plots indicated that predicted distributions from which the imputed values were drawn achieved independence within five steps of data augmentation.

Tests of each of the models were conducted using Mplus (Muthen & Muthen, 1998), and NORM was used to compute final parameter estimates and standard errors. NORM uses Rubin’s (1987) method for combining estimates from analyses on multiple imputed data sets. The final parameter estimate is simply the average estimate for that parameter across the \( m \) data sets:

\[
Q = \frac{\sum_{j=1}^{m} \hat{Q}_j}{m}
\]

where \( \hat{Q}_j \) is the parameter estimate from data set \( j \). The total variance for \( Q \) includes both the mean within-imputation variance for that estimate:

\[
\tilde{U} = \frac{1}{m} \sum_{j=1}^{m} U_j
\]

where \( U_j \) is the squared standard error of \( \hat{Q}_j \), and the between-imputation variance for that estimate,

\[
B = \frac{1}{m} \sum_{j=1}^{m} (\hat{Q}_j - \overline{Q})^2
\]

The final total variance for each parameter estimate is computed as

\[
T = \tilde{U} + \left(1 + \frac{1}{m}\right)B
\]

with degrees of freedom equal to

\[
(m - 1) \left(1 + \frac{m \tilde{U}}{(m + 1)B}\right)^2
\]

All of the results reported below, including descriptive statistics, bivariate correlations, and unstandardized path coefficients, were computed using the procedures outlined above. Fit indices for the latent growth curve models and standardized path coefficients were computed by averaging across the five imputed data sets.

**Descriptive Statistics and Bivariate Correlations**

Descriptive statistics for each of the variables used in the growth curve analyses are presented in Table 1. It should be noted that the means for each of the indicators of internalizing problems and externalizing problems are equal to 0 because of the creation of residualized scores. Pearson correlations were computed next to examine construct stability across assessments, construct overlap, agreement among informants, and predictive associations. Stability coefficients for victimization were moderately high (see Table 2). In contrast, social self-acceptance and peer belief scores were only modestly correlated across time points. Relations between social self-acceptance scores and peer belief scores were relatively weak, suggesting that children’s self-perceptions are relatively independent of how they view their schoolmates. Correlations among the criterion variables are presented in Table 3. Agreement among informants for each of the outcome variables was low to moderate, and associations among criterion variables were modest. Predictive associations between victimization, social perceptions, and the residualized outcome variables were investigated next (see Tables 2 and 3). Although the magnitude of the correlations between predictors and criterion variables was somewhat more modest than was predicted, each of these patterns is consistent with the mediated pathways proposed in this study.

**Latent Growth Curve Analyses**

**Examination of Relations Between Victimization and Social Perception Trajectories**

Latent growth curve analyses were employed to assess the model presented in Figure 1, and the results from these analyses are presented in Figure 3. For each construct included in the growth curve analyses (i.e., victimization, social self-acceptance, and peer beliefs), two latent variables were created.
First a latent intercept variable was created by setting the observed variables to this latent construct were set at 0, 1, 2, 3, and 4, for the Spring of fourth grade to the Spring of sixth grade indicators, respectively. By setting the path from the time 1 (i.e., Spring fourth
grade) variables to 0, the intercept variable could be interpreted as children’s status at the first assessment period (Duncan, Duncan, Strycker, Li, & Alpert, 1999). We allowed parallel latent constructs (e.g., initial social self-acceptance and initial peer beliefs) to covary, and, when necessary, we permitted the error variances of observed variables to covary (a) if the variables represented assessments of the same construct at different times, or (b) if the variables were from conceptually similar domains (e.g., self- and peer perceptions) assessed at the same time point by the same respondent.

Sex differences in the means, variances, and path coefficients were identified by testing the model separately for boys and girls with all parameters constrained to be equal across the two groups. A chi-square difference test was used to determine whether freeing each parameter provided a significantly better fit to the data. Boys evidenced greater variance in initial victimization, $\Delta \chi^2(1) = 14.92$, $p < .001$ and in linear change in victimization, $\Delta \chi^2(1) = 31.56$, $p < .001$. Furthermore, on average, boys experienced greater initial levels of victimization than girls, $\Delta \chi^2(1) = 25.10$, $p < .001$. There were no sex differences in the variances or means for the latent variables for self- or peer beliefs. Because sex differences emerged for the variance for two of the latent constructs, non-standardized parameter estimates that were found to be equivalent for boys and girls yielded slightly different standardized parameter estimates.

After identifying significant sex differences in the parameter estimates, adequate fit statistics were obtained: $\chi^2(209, N = 381) = 311.77$, $p < .001$, root mean square error of approximation (RMSEA) = .051, standardized root mean square residual (SRMR) = .080, comparative fit index (CFI) = .97. Standardized path coefficients, latent variable means and variances, and sex differences in these parameter estimates are presented in Figure 3. The mean growth trajectory for victimization (i.e., $M_2 = -.01$) was significantly different from zero and negative, suggesting that, on average, children experienced a decline in victimization during preadolescence.
Furthermore, this decline was greatest for those children who were the most frequently victimized during the Spring of their fourth-grade year, as indicated by the significant inverse relation between initial victimization and linear change in victimization. This relation between initial victimization and changes in victimization was stronger for girls than for boys, \( \Delta \chi^2(1) = 5.90, p<.05 \). The average growth parameters (i.e., \( M_4 \) and \( M_3 \)) for the social perception variables reflected significant change across the 3-year period. As has been shown in previous longitudinal studies of self-perceptions (Cole et al., 2001; Nettelmann, 1987), social self-acceptance gradually increased during the pre-adolescent years. In contrast, children’s peer beliefs became progressively more negative.

Significant variance was also found in each of the self- and peer belief latent variables, representing individual differences in each of these constructs. As was the case for victimization, there was a strong inverse relation between initial social perceptions and changes in those perceptions during preadolescence. As we had hypothesized, the paths from initial peer victimization to initial self-perceptions and to initial peer beliefs were significant (see Figure 3), suggesting that children’s “early” self- and peer perceptions were related to victimization experiences in the Spring of fourth grade. Moreover, increased victimization during the preadolescent years was associated with declining social self-acceptance and, for boys, with developing less prosocial, more hostile cognitive representations of peers. Changes in victimization frequency were not predictive of changes in peer beliefs for girls, however, \( \Delta \chi^2(1) = 5.48, p<.05 \).

**Examination of Mediated Relations Between Victimization Trajectories and Changes in Adjustment**

Next, latent growth curve analyses were conducted to evaluate the model depicted in Figure 2, and the results of these analyses are presented in Figure 4. Separate tests of this model were conducted for internalizing and externalizing problems. This model is identical to the first model with the addition of the criterion variables, which were assumed to covary with initial social perceptions and social perception growth trajectories, and to be related indirectly with initial victimization and victimization trajectories. Means, variances, and covariances that had been found to differ for boys and girls when testing the first model were allowed to differ when assessing this more complex model.

**Internalizing problems.** Preliminary analyses were conducted to determine whether there were significant individual differences (i.e., variance) in internalizing problems and whether direct associations between initial levels and changes in victimization and changes in internalizing difficulties were statistically significant. Significant variance in the latent variable representing changes in internalizing problems emerged, \( D = .21, p<.01 \). The standardized path coefficient from initial victimization to internalizing problems was .51 and .41, \( ps < .001 \), for boys and girls, respectively. Similarly, the standardized path coefficient from changes in victimization to internalizing problems was .24 and .21, \( p < .01 \), for boys and girls, respectively.

Fit indices suggested that the model presented in Figure 2 adequately represented the data, \( \chi^2(301, N = 381) = 451.45, p < .001 \), RMSEA = .051, SRMR = .081, CFI = .96. The path coefficients from initial self- and peer representations to changes in internalizing problems were negative, suggesting that children who had more derogatory self- and peer beliefs demonstrated increases in internalizing problems in subsequent years (see Figure 4, upper panel). Similarly, more negative growth in social self-acceptance and peer beliefs were predictive of concurrent increases in internalizing problems. Averaged across \( m = 5 \) data sets, the social perception variables accounted for 57% and 54% of the variance in internalizing problems for boys and girls, respectively.

As hypothesized, the indirect effect of initial victimization on subsequent changes in internalizing problems through children’s initial self-perceptions was significant, \( Z = 5.54, p < .001 \) (Kenny, Kashy, & Bolger, 1998), as was the indirect path through initial peer beliefs, \( Z = 2.06, p < .05 \). The extent to which children’s harassment from peers worsened or abated was indirectly associated with changes in internalizing problems through changes in social self-acceptance, \( Z = 2.57, p < .01 \), but not through changes in peer beliefs: for boys, \( Z = 1.63, p = .10 \); for girls \( Z = .39, p = ns \).

**Externalizing problems.** Analyses were next employed to test predictive links from children’s peer beliefs and peer victimization to changes in externalizing difficulties. Preliminary analyses revealed significant variance in changes in children’s externalizing problems, \( D = .04, p < .05 \). Tests of the direct relation between initial peer victimization and changes in externalizing problems revealed a significant sex difference, \( \Delta \chi^2(1) = 8.06, p < .01 \). The path from initial victimization to externalizing problems approached significance for boys with a standardized path coefficient of .22, \( p = .07 \), but was not significant for girls with a standardized path coefficient of .11, \( p = ns \). The path from changes in
victimization to externalizing problems was significant, and did not differ significantly between boys and girls. The standardized path coefficient for boys was .26 and for girls was .22, both significant at \( p < .05 \).

It was predicted that children’s self-perceptions would not be predictive of changes in externalizing difficulties. Accordingly, when testing the model in Figure 2, the paths from initial self-perceptions and changes in those perceptions were set to zero, allowing only the peer belief variables to predict changes in externalizing problems. This model adequately fit the data, \( \chi^2(301, \ N = 381) = 467.31, \ p < .001, \ RMSEA = .051, \ SRMR = .051, \ CFI = .96 \). The results of these analyses are presented in the lower panel of Figure 4. As anticipated, the paths indicated that children who held more negative peer beliefs at the end of the fourth grade were more likely to show increased externalizing problems in subsequent years, and children who evidenced a decline in their positive perceptions of peers demonstrated a parallel increase in antisocial behavior. Together, these effects accounted for 6% and 5% of the variance in changes in externalizing problems, for boys and girls, respectively. In addition, the indirect effect from initial victimization through initial peer beliefs to changes in externalizing problems was significant, \( Z = 2.55, \ p < .01 \). However, the indirect effect of victimization trajectories to changes in externalizing problems through changes in peer beliefs was not; \( Z = 1.43 \) and \( - .45, \ ps = ns \), for boys and girls, respectively.

We also tested a model in which the paths from children’s self-perceptions to externalizing problems were freed. These paths were not significantly different from zero and freeing these parameters did not improve the fit of the model, corroborating our prediction that children’s social self-acceptance would not be related to changes in externalizing problems.

![Figure 4. Results of the latent growth curve model predicting internalizing and externalizing problems. Within each set of parentheses, coefficients derived from data collected from boys is presented on the left, and coefficients derived from data collected from girls is presented on the right. *Designates significant sex differences in the estimates for that parameter.](image-url)
Examination of an Alternative Model: Mediated Relations Between Social Perception Trajectories and Changes in Adjustment

We also tested the proposition that negative self- and peer beliefs represent personal vulnerabilities that place children at greater risk for peer victimization and, in turn, psychological maladjustment. Accordingly, we tested a model in which initial social perceptions predicted initial victimization, and linear changes in these perceptions predicted changes in victimization. In turn, the victimization trajectories predicted changes in the criterion variable. Such a model allowed us to assess whether (a) this alternative model fit the data better than the hypothesized model and (b) the victimization variables would mediate relations between the social perception and criterion variables. In addition to looking at the fit indices for these alternative models, we used the Akaike Information Criteria (AIC; Akaike, 1974) to compare non-nested models (i.e., the hypothesized model to the alternative model). Smaller AIC values reflect a better fit of the model to the data.

The alternative model provided a slightly worse fit to the data compared with the hypothesized model when internalizing problems was the criterion variable, $\chi^2(303, N = 381) = 530.43, p<.001$, RMSEA = .063, SRMR = .059, CFI = .94. In addition, the AIC for the alternative model was 2,790.49, larger than that for the hypothesized model, AIC = 2,715.51. There was also mixed support for the proposition that victimization mediates the links between self- and peer beliefs and internalizing problems. For both boys and girls, the path from initial social self-acceptance to initial levels of victimization was significant, as was the path from initial victimization to changes in internalizing problems. Not surprisingly then, the indirect effect from initial self-perceptions to changes in internalizing problems was significant, $Z = 3.80, p<.001$. Similarly, the path from changes in self-perceptions to changes in victimization was significant, as was the path from changes in victimization to changes in internalizing problems. However, the indirect effect from self-perception trajectories to changes in internalizing problems was not significant, $Z = 1.83, p = .07$. There was also no support for the proposition that victimization mediates the links between peer beliefs and internalizing problems. Initial peer beliefs were not related to initial victimization, and changes in peer beliefs did not predict victimization trajectories.

Finally, we examined whether the alternative model would adequately fit the data when externalizing problems were included as the criterion variable. As was the case with internalizing problems, the fit indices indicated that this model fared somewhat worse than the hypothesized model, $\chi^2(299, N = 381) = 485.08, p<.001$, RMSEA = .057, SRMR = .080, CFI = .95. The AIC for the alternative model was 1,450.74; the AIC for the hypothesized model was 1,431.00. As was the case when internalizing problems served as the criterion variable, the peer victimization variables did not predict children’s initial peer beliefs or changes in their peer beliefs. Furthermore, the victimization variables were not predictive of changes in externalizing problems, providing strong evidence that victimization does not mediate the relation between peer beliefs and externalizing difficulties.

Discussion

Perhaps the most significant contribution of this study is its novel focus on the formation of peer beliefs and their contribution to developmental outcomes, separate from self-perceptions. The evidence obtained in this study suggests that in preadolescence, when self-perceptions are becoming increasingly more positive, children gradually perceive their schoolmates as more hostile and relatively less prosocial. For boys, this decline in positive perceptions of peers was significantly predicted by increases in peer victimization, suggesting that in preadolescence boys interpret increased social failure as indicative of a hostile social environment. Moreover, negative perceptions of others contributed to the prediction of both internalizing and externalizing problems. The findings also supported the proposition that social perceptions construed in middle childhood act as mechanisms through which interpersonal risks established in the early elementary school years are associated with the etiology of internalizing problems at older ages.

The Development of Social Perceptions

This study is unique in that shifts in social perceptions that reflect normative changes (e.g., mean trends) and individual differences in these trajectories were examined simultaneously. As a result, this study contributes substantially to our knowledge of the development of peer beliefs and self-perceptions.

Peer Beliefs

Findings indicated that during preadolescence, children, on average, gradually view their peers as
less friendly and more antisocial, as evidenced by a negative mean slope for peer belief trajectories. Given the scarcity of research on the etiology of peer beliefs, this finding had not been predicted. Changes in cognitive abilities may provide one explanation for this trend toward more negative appraisals of peers. At younger ages, children may not be able to conceive of their classmates in such abstract terms as a peer group. Rather, assessments of schoolmates made during middle childhood may be based on one or two representative peers, perhaps friends with whom they frequently interact. Support for this possibility is provided by Ladd and Troop-Gordon (2003) who found that children’s peer beliefs in the Spring of fourth grade were related to participation in a close friendship, but were not associated with levels of peer rejection or victimization. In addition, children’s thinking at earlier ages may be somewhat egocentric, and their evaluations of others may be based almost entirely on how they are treated by peers, not how their peers act with others more generally. At older ages, they may begin to incorporate the behavior of non-friends and observations of others’ interactions into their cognitive representations of agemates, resulting in more negative peer beliefs.

Another possible explanation is that the construal of hostile peer beliefs in preadolescence reflects actual increases in the antisocial behavior of classmates, rather than distortions in children’s mental representations of others. Although typically, physical aggression decreases with age, other forms of victimization (e.g., indirect, verbal) tend to increase (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Cairns, Cairns, Neckerman, Gest, & Garéipy, 1989). However, in the current study, growth trajectories of victimization reflected decreasing belligerence in children’s peer relationships over time. Therefore, it is unlikely that greater direct or indirect exposure to negative interactions among classmates accounted for the increase in maladaptive perceptions of peers. An important objective of future research will be to identify those processes associated with advancements in how children conceptualize their peer group and to explicate the origins of more “cynical” peer beliefs in preadolescence.

Overall, the results of this study supported the hypothesis that children’s peer beliefs in middle childhood (i.e., initial peer beliefs) would be significantly associated with the extent to which their peers victimized them. However, this relation was modest relative to the link between initial victimization and initial self-perceptions. These findings are similar to those obtained by MacKinnon-Lewis et al. (1999) who reported modest correlations (range: − .24 to − .28) between peer beliefs and peer preference for a group of 7–9-year-old boys. In the early elementary school years, children may be prone to view others positively and may attribute peer harassment largely to internal factors.

With time and increased cognitive abilities, victimized children may begin to view harassment as indicative of the social dispositions of others, as well as indicative of their own self-worth. However, the question of whether adverse peer experiences precede maladaptive representations of others has rarely been addressed (see Ladd & Troop-Gordon, 2003; MacKinnon-Lewis et al., 1999), and whether peer beliefs are differentially related to social experiences as a function children’s gender has received even less attention. Thus, it was interesting to discover that changes in peer victimization were predictive of changes in peer beliefs for boys, but not for girls. Boys evidenced more frequent victimization at the outset of this study and showed greater individual differences in changes in victimization during preadolescence than girls. Consequently, boys may have experienced more pronounced changes in their victimization trajectories leading to more significant changes in their peer beliefs. It is also possible that during preadolescence gender differences emerge in children’s attributions for relational difficulties. Girls may increasingly attribute peers’ harassment solely to deficiencies in their own social skills and abilities forming positive peer relationships. Boys, in contrast, may increasingly blame peer victimization on characteristics of their peers, as well as their own perceived shortcomings.

Social Self-Acceptance

A number of the results obtained for children’s social self-acceptance were consistent with previous findings. A relatively strong association emerged between frequency of victimization in the Spring of fourth grade and children’s social self-acceptance. These findings add to a relatively large body of literature linking detrimental social experiences to less positive self-evaluations in middle childhood. Furthermore, as indicated by a significant positive mean for the latent social self-acceptance growth trajectory, children’s self-evaluations tended to become more positive across late childhood and preadolescence, a trend similar to those reported by Cole et al. (2001) and Nottelman (1987).

Given the relatively well-established link between peer victimization and self-esteem, that children experiencing increased victimization demonstrated less positive growth, or even declines, in their self-
assessments was anticipated. Children have been shown to blame themselves when ridiculed or picked on by peers (Graham & Juvonen, 1998), and these self-defeating attributions may accrue, leading to a more generalized concept of the self as socially incompetent and worthy of others’ harassment. Children may also internalize messages that are explicitly or implicitly communicated through acts of harassment (e.g., being called “ugly”; Kochenderfer-Ladd & Ladd, 2001). Understanding how children translate self-referent information derived from victimization experiences into negative perceptions of the self-warrants further study.

Mediation to Psychological Adjustment

Strong evidence emerged regarding the mediational role of social perceptions for the development of internalizing problems. Moreover, the criterion variables were related to unique subsets of the predictors, suggesting that how victimized children come to view themselves or their social environment may determine which, if any, adjustment difficulties they display.

Internalizing Problems

The results of this study are consistent with the premise that peer beliefs, as well as self-evaluations, are associated with changes in internalizing problems. Both children’s initial peer beliefs and changes in those beliefs during preadolescence were associated with changes in internalizing symptoms. In addition, children’s initial peer beliefs mediated the relation between initial victimization and later changes in internalizing symptoms. Children may interpret greater social difficulties as being indicative of a threatening social environment, and such biases in children’s social-information processing may result in greater vulnerability to anxiety and depression in the future.

These findings represent a shift in the study of internalizing problems from a somewhat narrow focus on self-referent thought processes to an examination of more diverse facets of people’s social perceptions. Previously, cognitive theorists have stated either indirectly or directly that deleterious perceptions of others have little impact, or perhaps even a buffering effect, on depressive affect. For example, Seligman (Abramson, Seligman, & Teasdale, 1978) proposed that attributing negative events to internal causes (e.g., self), rather than external ones (e.g., other people), is symptomatic of depression. Findings from more recent studies contradict these assumptions by demonstrating that maladaptive relational schemas (see Baldwin, 1992) are also indicative of internalizing problems (Burke, Hammen, Davila, Daley, Paley, Herzberg, et al., 1997; Burke, Hammen, Davila, Daley, Paley, Lindberg, et al., 1997). The results from the current study extend these findings by providing evidence that perceptions of peers as being generally unfriendly and aggressive is associated with the emergence of internalizing difficulties.

That peer belief trajectories were predictive of internalizing disorder does not discount the contribution made by self-perceptions. Indeed, both initial assessments of social self-acceptance and subsequent growth trajectories predicted changes in internalizing problems. Moreover, negative self-assessments mediated the relation between greater initial levels of harassment and increased emotional dysfunction. This research adds to previous studies that have shown that maladaptive self-referent thought processes mediate associations between relational risks and depression and anxiety (Cole & Turner, 1993; Ladd & Troop-Gordon, 2003; Panak & Garber, 1992). However, tests of the alternative hypothesis also supported the proposition that victimization mediates links between negative self-perceptions and increased internalizing problems. This pattern of findings is consistent with previous studies demonstrating a bidirectional association between low self-regard and problematic peer relationships (Caldwell et al., 2004; Egan & Perry, 1998). The findings from the current study suggest that this transactional relationship between negative self-perceptions and peer victimization may, over time, contribute to development of internalizing difficulties.

Externalizing Problems

The results obtained in this study provided support for the proposition that the development of more hostile perceptions of peers is associated with increased externalizing difficulties (Beck, 1987). Investigators have frequently proposed that children who display excessive aggressive behavior and partake in delinquent activities are acting upon maladaptive cognitive schemas of others’ behavior (Beck, 1987; Crick & Dodge, 1994). Burks, Dodge, et al. (1999) and Burks, Laird, et al., (1999) obtained evidence that assessments of peer schemas obtained in middle school are associated with concurrent aggression and later externalizing problems in adolescence. In the current study, children’s initial peer beliefs and changes in those beliefs in preadolescence were significantly related to changes in externalizing problems.

Contrary to our expectations, the evidence of indirect effects between victimization and externaliz-
ing problems through the development of hostile peer beliefs was mixed. Evidence did emerge, indicating a significant indirect effect from initial victimization to externalizing problems through children's initial peer beliefs. However, this finding is tempered by the fact that direct associations between initial victimization and changes in externalizing problems were weak for boys and non-significant for girls. Furthermore, although direct links did emerge between changes in victimization and changes in externalizing problems, the indirect effect through changes in peer beliefs was not significant. That peer beliefs did not act as mediators between victimization and externalizing problems suggests that other mechanisms may be involved in the link between harassment and externalizing syndromes.

Peer victimization and social perceptions also accounted for notably less variance in externalizing problems than they did for internalizing problems, a discrepancy that may be due, in part, to the fact that there was less variance in changes in externalizing problems than there was in changes in internalizing problems. This is consistent with previous research demonstrating that aggression and externalizing syndromes are highly stable across time (Cairns et al., 1989; Olweus, 1979). In addition, in prior research, the proportion of victims identified as externalizing has been small compared with the proportion identified as non-aggressive or passive (Ladd & Ladd, 1998; Schwartz, Proctor, & Chen, 2001), suggesting that the association between peer victimization and externalizing problems may not be as strong as the relations between peer harassment and internalizing problems.

Limitations and Future Directions

It should be noted that the results found in this study might not generalize to later stages of development (e.g., adolescence) or to different forms of peer harassment (e.g., relational victimization). In particular, many of the gender differences that emerged in this study may be because of how peer victimization was assessed. For example, boys may not have evidenced higher levels of initial victimization or greater variance in victimization trajectories compared with girls if relational forms of victimization had been included in this study. Different methods for estimating growth trajectories (e.g., hierarchical linear modeling; Bryk and Raudenbush, 1992) also may have produced different estimates for the mean levels of change in children's relational experiences and social perceptions during preadolescence. Furthermore, the primary objective of this study was to examine how relational experiences and social perceptions are associated with changes in children's psychological health and well-being. Therefore, we did not assess the possibility that children's initial internalizing and externalizing problems may be predictive of changes in their social adjustment and self- and peer perceptions. Theoretical models based on the premise that links between relationship quality, social perceptions, and emotional adjustment are bidirectional should be evaluated in future studies.

One strength of the current study was its reliance on multiple reporters for the assessment of internalizing and externalizing problems, providing a more reliable estimate of children's true scores for each criterion variable. However, in some instances, paths indicated that the latent variable was accounting for only a small percentage of the variance in the data from some sources (e.g., parent reports of internalizing problems), despite being statistically significant. Consequently, associations from the peer victimization and social perception variables to the adjustment variables may have been different if data from each reporter had been examined separately, an issue that should be addressed in future studies.

That cognitive representations of the self and others mediated links between victimization and internalizing problems should not lead to the conclusion that these processes alone account for observed relations between relational stressors and adjustment outcomes. A number of other processes, both intra-personal and interpersonal, may contribute to dysfunction displayed by victimized children. Moreover, these potential mediators may interact in ways that lead to greater disorder than would be observed if only one of these processes were taken into account. For example, membership in social networks with antisocial peers is related to early rejection and later externalizing problems (Cairns & Cairns, 1994; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Laird, Jordan, Dodge, Pettit, & Bates, 2001). Children who are victimized may come to view their peers as highly antisocial. As a result, they may choose friends who hold similar peer beliefs and who reinforce these maladaptive cognitive representations, exacerbating already escalating trajectories of adjustment difficulties. Further examination of the processes that mediate the relation between interpersonal stressors and adjustment, and the interactions between these mechanisms, may provide a more comprehensive understanding of the emergence, escalation, and reduction of psychopathology.
How children perceive their schoolmates was a significant predictor of both internalizing and externalizing difficulties. However, there may be other aspects of children’s social environment for which they construe distinct mental representations. For example, children may construct schemas specific to individuals, relationships (Baldwin, 1992), and social networks. Although these schemas may be interrelated, unique qualities of each may emerge as a result of interpersonal histories specific to their formation (e.g., involvement in close friendships may contribute to a schema for same-sex friendships). Moreover, each of these specific cognitive representations may be uniquely related to distinct forms of adjustment. Future research should focus on distinguishing between the various ways children perceive their social environment, tracing the etiology of specific belief systems, identifying processes influential in their development, and discerning their association with later dysfunction.

In conclusion, by examining growth trajectories of children’s self- and peer beliefs, we were able to assess normative changes in these perceptions and evaluate the extent to which individual variation in these trajectories is predicted by shifts in peer victimization. It was also possible to investigate the relation between social perception trajectories and the abatement or exacerbation of psychological disorder. The findings indicated that between the fourth and sixth grades, children’s evaluations of schoolmates became increasingly negative. Furthermore, the findings supported the contention that cognitive representations of the self and others account for the link between past relationship histories and later internalizing problems. The findings also indicated that children continue to modify their self- and peer perceptions in reaction to shifts in the social environment and, in turn, these modified social perceptions predict concurrent changes in children’s psychological adjustment.

References


