Peer Rejection, Aggressive or Withdrawn Behavior, and Psychological Maladjustment from Ages 5 to 12: An Examination of Four Predictive Models

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Findings yielded a comprehensive portrait of the predictive relations among children's aggressive or withdrawn behaviors, peer rejection, and psychological maladjustment across the 5–12 age period. Examination of peer rejection in different variable contexts and across repeated intervals throughout childhood revealed differences in the timing, strength, and consistency of this risk factor as a distinct (additive) predictor of externalizing versus internalizing problems. In conjunction with aggressive behavior, peer rejection proved to be a stronger additive predictor of externalizing problems during early rather than later childhood. Relative to withdrawn behavior, rejection's efficacy as a distinct predictor of internalizing problems was significant early in childhood and increased progressively thereafter. These additive path models fit the data better than did disorder-driven or transactional models.

The assumption that children's early behavioral propensities or their peer experiences engendered psychological maladjustment gained prominence during the 1950s and 1960s (cf. Freud & Dann, 1951; Morris, Soroker, & Burress, 1954; Robins, 1966; Roff, 1961, 1963), and fostered separate empirical traditions that were devoted to explicating each of these constellations of variables as risk factors for early- and later-emerging dysfunction (for reviews, see Kupersmidt, Coie, & Dodge, 1990; Ladd, 2005; McDougall, Hymel, Vaillancourt, & Mercer, 2001; Parker & Asher, 1987). From the outset, researchers utilized longitudinal studies—the most valuable of which were based on follow-up or follow-through (prospective) designs (see Parker & Asher, 1987)—to discern which facets of children's behavior, or their peer relationships, were most predictive of later-emerging dysfunctions (e.g., see Roff, Sells, & Golden, 1972; Roff & Wirt, 1984).

Children's Behavior Versus Peer Relations: Main Effect Predictive Models

Within one empirical tradition, investigators worked from the hypothesis that children's behavioral propensities were the principal determinates of psychopathology, and a sizable proportion of this research was designed to elucidate the predictive contributions of aggressive and withdrawn behavior to later dysfunction. An influential premise was that children's propensity to engage in confrontive forms of aggression became an enduring behavioral orientation that eventually brought about dysfunction (see Caspi, Elder, & Bem, 1987; Moss & Susman, 1980; Olweus, 1979). Early and recent longitudinal findings corroborated this premise by showing that aggressive behavior, even at early ages (e.g., see Tremblay, Pihl, Vitaro, & Dobkin, 1994), was fairly stable for boys and girls (see Cairns, Cairns, Neckerman, Ferguson, & Gariepy, 1989; Olweus, 1979) and moderately predictive of maladjustment, particularly externalizing problems (e.g., Cairns & Cairns, 1994; Caspi et al., 1987). Another influential premise was that children's propensity to engage in withdrawn behavior led to maladjustment. Although early findings suggested that withdrawn behavior was not particularly stable or predictive of dysfunction (see Michael, Morris, & Soroker, 1957; Morris et al., 1954; Wanlass & Prinz, 1982), later longitudinal evidence revealed that certain subtypes of this behavior (e.g., anxious–depressed, anxious–solitary styles) were moderately stable (Gazelle & Ladd, 2003; Harrist, Zaia, Bates, Dodge, & Pettit, 1997) and modestly predictive of internalizing problems (e.g., Caspi, Elder, & Bem, 1988; Gazelle & Ladd, 2003).

Investigators within another research tradition were guided by the hypothesis that children's
exposure to adverse peer relations (e.g., peer group rejection, low peer acceptance) was a fundamental determinant of later maladjustment. Initial efforts to pursue this research agenda were influenced by ideological perspectives in which children’s development was seen as malleable and largely influenced by their social relationships, including those with age-mates (e.g., see Hartup, 1970; Sullivan, 1953). This premise was strengthened by experimental evidence indicating that age-mates influenced children’s (and some primate’s) socialization, and that aberrant peer socialization predicted later-emerging psychopathology (e.g., Freud & Dann, 1951; Furman, Rahe, & Hartup, 1979; Harlow, Harlow, Dodsworth, & Arling, 1966; Suomi & Harlow, 1972). Past and recent efforts to elucidate the contributions of children’s peer relationships to the development of maladjustment have consistently implicated poor peer relationships, and peer group rejection in particular, as a precursor of externalizing and internalizing problems during the grade school years and thereafter (e.g., DeRosier, Kupersmidt, & Patterson, 1994; Hymel, Rubin, Rowden, & LeMare, 1990; Kupersmidt & Coie, 1990; Ladd & Troop-Gordon, 2003). Moreover, it was discovered that the predictive link between children’s peer acceptance/rejection and subsequent psychological adjustment was robust even when it was evaluated in conjunction with other types of peer relationships (e.g., friendship, friendlessness, peer victimization; see Bagwell, Newcomb, & Bukowski, 1998; Ladd, Herald, & Andrews, 2006; Ladd & Troop-Gordon, 2003).

One consequence of this bifurcation in investigative paradigms was that two rather distinct empirical literatures developed around these premises. Especially during the first generation of longitudinal studies, researchers—depending on their theoretical orientations—tended to favor one of the aforementioned premises over the other and, thus, investigated the predictors of psychological maladjustment from a “main effects” perspective. As might be surmised, the evidence that accrued within these two bodies of evidence tended to implicate either aggression or peer group rejection as a principal risk factor for later dysfunction.

Children’s Behavior and Peer Relations: Child and Environment Predictive Models

As the limitations of main effects perspectives became apparent, investigators began to devise more complex prediction models in which multiple risk factors were recognized as potential determinants of dysfunction (see Coie et al., 1993). These models were based on the premise that specific child behaviors (e.g., aggression, withdrawal) and adverse peer experiences (e.g., peer rejection) co-determine children’s future psychological adjustment (see Ladd, 1989, 2003; McDougall et al., 2001; Parker, Rubin, Price, & DeRosier, 1995). This paradigm shift was first evident in a critical review published by Parker and Asher (1987) in which the authors encouraged researchers to evaluate competing explanations—framed as “causal” versus “incidental” models—of how children’s behavior and peer relationships contributed to their future adjustment. The incidental model was essentially a restatement of the hypothesis that children’s preexisting characteristics, including their behavioral dispositions, were the principal causes of later maladaptive outcomes. It was assumed that (a) premorbid forms of a later-emerging disorder, children’s behavioral propensities, or both were the principal precursors of later maladjustment and (b) these same child attributes caused children to develop poor peer relationships—that is, children’s peer relational difficulties were “incidental” consequences (i.e., markers) of their behavioral dispositions, and played no causal role in the development of later dysfunction. In contrast, the main assumption of the “causal” model was that, along with children’s behavioral dispositions, participation in adverse peer relationships (i.e., exposure to peer group rejection) was influential in shaping children’s later adjustment.

In part, this proposal was a forerunner of contemporary “child and environment” frameworks. Although several variants of child and environment models have been proposed to elucidate the distinct versus conjoint predictive contributions of children’s behavior and peer relationships to later psychological maladjustment (see Ladd, 2003), most of the evidence amassed thus far conforms to an additive model. Additive models imply that, separate (partially independent) from the contributions of children’s behavior, the experiences they have in peer relationships increase or decrease the probability of maladjustment.

Additive Child by Environment Prediction Models: Principal Premises and Extant Evidence

The hypothesis that aggression and peer group rejection additively predict later maladjustment has been based on assumptions similar to those depicted in the following exemplary model: Children who frequently engage in confrontive aggression among peers—whether because of inheritance, learning, or some transaction between the two (see Caspi et al.,
The hypothesis that withdrawn behavioral styles and peer group rejection additively predict later maladjustment has been less well investigated. One of the principal assumptions guiding this line of investigation can be portrayed as follows: Children who manifest a withdrawn behavioral style—whether rooted in temperament, socialization, or the interaction of the two (see Rubin & Asendorpf, 1993)—are prone to respond to social contingencies by seeking solitude, avoiding contact, or interacting infrequently with peers. Because withdrawn behavior may be interpreted by peers as disinterest or a lack of social responsiveness, it may foster adverse interpersonal reactions such as disliking and rejection. In turn, exposure to peer rejection increases the probability that withdrawn children will develop internalizing problems because the stressors associated with this social position cause children to feel anxious or distressed and, thus, instigate and maintain internalizing problems (Gazelle & Ladd, 2003; Rubin, LeMare, & Lollis, 1990).

Although sparse, corroborating evidence for this model has begun to accrue. Findings from a 1-year longitudinal study conducted by Renshaw and Brown (1993) revealed that both withdrawn behavior and low peer group acceptance made distinct predictive contributions to children’s loneliness over a 1-year interval. Similar linkages were reported by Boivin and Hymel (1997) for data gathered concurrently rather than longitudinally. In a 5-year prospective longitudinal study, Gazelle and Ladd (2003) examined how withdrawn behavior and peer group exclusion (one manifestation of peer group rejection) were linked with children’s trajectories toward depression. They found that children who were prone toward anxious solitary behavior during the early school years were more likely to manifest and maintain depressive symptoms if they also had been subjected to higher levels of peer exclusion.

In sum, there is a modicum of evidence to suggest that specific behavioral orientations (i.e., aggressive, withdrawn) and peer group rejection during childhood constitute related, but not entirely redundant, risk factors for later psychological dysfunction. At this juncture, the overarching pattern of findings suggests that, when aggression and rejection are evaluated conjointly as predictors of later externalizing problems, aggression typically emerges as the stronger of the two risk factors or tends to be the only predictor to account for significant nonshared variance in externalizing problems (for reviews, see Coie, 2004; Ladd, 2003; McDougall et al., 2001). When these same two risk factors are evaluated as predictors of internalizing problems, the additive contribution of peer group rejection (relative to aggression) tends to be larger (McDougall et al., 2001). In contrast, the hypothesis that withdrawn behavioral styles and peer group rejection contribute additively to later maladjustment has been less well investigated. At present, there is preliminary evidence to suggest that children disposed toward withdrawn behavioral patterns are at risk for later internalizing problems (e.g., Boivin, Hymel, & Bukowski, 1995; Caspi et al., 1988; Ladd & Troop-Gordon, 2003) and that exposure to peer group rejection additively enhances the prediction of these problems (see Ladd, 2003; McDougall et al., 2001). Next to nothing is known about whether children who are disposed toward withdrawn behavior are at risk for externalizing problems and whether peer group rejection exacerbates this risk (see Ladd, 2003).

Clearly, much remains to be learned about how peer group rejection, in conjunction with children’s aggressive or withdrawn behavioral styles, contributes to the prediction of childhood externalizing and internalizing problems. Accordingly, this investigation was undertaken to address two principal aims.
Aim 1: Conduct a More Comprehensive Analysis of Peer Rejection as an Additive Risk Factor

At present, knowledge remains limited with respect to when, to what extent, and how consistently peer group rejection adds to (beyond aggressive or withdrawn behavioral styles) the prediction of externalizing or internalizing problems during the grade school years (i.e., from age 5–12). In large part, this void stems from an overreliance on nonpanel, single-indicator, follow-up longitudinal designs. That is, in studies of additive risk factors, investigators have tended to assess single-indicator predictors at one time point (e.g., childhood) and use this information to forecast single-indicator criteria at one later time point (e.g., preadolescence or adolescence). Designs such as these do not enable investigators to assess patterns of continuity or change in predictor–criterion relations across successive intervals in children's development (e.g., age, grade levels), evaluate or control for the stability of predictors or criteria when examining predictive associations (e.g., controlling for current predictor–criterion associations when examining antecedent predictor-criterion linkages), draw clear distinctions between constructs, or maximize the psychometric properties of their measures (e.g., reliability, construct invariance over time, etc.).

Certain design problems must be avoided as well. There is a need to both distinguish among (rather than confound) the predictive contributions of behavioral and relational risk factors, and ensure that risk factors are not imbued with information about the to-be-predicted maladjustment criteria. To illustrate, when investigators attempt to estimate adjustment consequences for certain "subtypes" of children, such as those who manifest multiple behavioral and relational risks (e.g., aggressive–rejected children) or those who exhibit a behavioral risk and symptoms of maladjustment (e.g., anxious–withdrawn, depressed–withdrawn children), they essentially confound (likely overestimate) the predictive contributions of specific risk factors.

To address these limitations, a full-panel, follow-through longitudinal design was implemented in this investigation. Multiple indicators of each risk factor and maladjustment criterion were obtained yearly across a 7-year period, and used to formulate latent variables for each construct at each time of assessment. This measurement model was utilized so that all of the risk and maladjustment constructs were operationalized as separate latent variables (rather than confounding them, as occurs in some risk-subtype designs) and the hypothesized predictor–criterion linkages could be examined within latent stability models across six (lagged) 1-year intervals. One set of specific aims was to determine (1) whether, and when (i.e., how early) during the grade school years, exposure to peer group rejection forecasts later externalizing or internalizing problems, beyond that which can be predicted by children's aggressive or withdrawn behavioral propensities, and (2) whether the additive contribution of peer group rejection to the prediction of externalizing or internalizing problems (relative to behavioral styles) remains constant versus grows stronger or weaker across the grade school years (determine whether there is continuity vs. discontinuity in its additive, predictive contributions). Illustrations of the type of additive, latent stability models that was used to address these objectives are depicted in Figure 1. The scientific merit of the findings was expected to be substantial because neither of these aims has previously been examined with this age group, and the results would reflect on past and contemporary assumptions about (a) when, during childhood, peer group rejection (and its attendant stressors) creates adjustment consequences that are distinct from those attributable to children's behavioral styles and (b) the strength and continuity with which this form of peer adversity predisposes children to externalizing versus internalizing forms of dysfunction across early, middle, and later childhood.

It has been proposed that attaining acceptance in peer groups is a critical social task for children as they enter grade school and progress through the primary grades, and that failure to do so (i.e., peer group rejection) creates sustained risk for psychological difficulties. It is during the early grade school years that children are challenged to establish themselves (become accepted) as members of large, age-segregated peer groups (Ladd, 1989, 1996). Furthermore, in addition to being a key psychosocial task, acceptance into peer society can be seen as a powerful social need that emerges during the 6 to 9-year age period (Buhrmester & Furman, 1986). On the basis of these rationales, it was hypothesized that peer group rejection would additively contribute to the prediction of maladjustment as early as kindergarten (children's 1st year in grade school), and that continuity would be apparent in this additive linkage across the primary school years (childhood; ages 5–9) and, to a lesser extent, across the later grade school years (preadolescence; ages 10–12). Moreover, consonant with extant empirical evidence, it was anticipated that the strength and continuity of these additive contributions would be greater for internalizing than for externalizing problems.
Aim 2: Evaluate Alternatives to Additive Prediction Models

Knowledge may also be incomplete because it has not been a priority to validate the prevailing predictive paradigm (e.g., “additive risk models”) against alternative models that stem from different causal premises. A predominant assumption within this area of inquiry has been that children’s behavior and/or peer group rejection are determinants of psychological maladjustment. This theoretical hegemony has dissuaded investigators from considering, or empirically testing, models that imply alternative directions of prediction. Two such models were identified and targeted for investigation. First, it is conceivable that premorbid forms of a later-emerging disorder may predict children’s behavioral propensities, peer group rejection, or both (see Parker & Asher, 1987). Second, it is possible that the causal relations that exist among these variables may not be temporally invariant, but rather shift as a function of age-related changes in organismic factors and environmental circumstances (see Sameroff, 1987; Sameroff & Chandler, 1975). Were this the case, permutations in the predictive relations among children’s behavioral dispositions, classroom peer relations, and psychological adjustment would be expected to emerge over time, and these patterns would be better described by transactional rather than unidirectional models (see Parker et al., 1995). Accordingly, a second set of specific aims was to determine whether there was empirical support for these alternate models, which for ease of reference were termed “disorder-driven” and “transactional” prediction models, respectively.

The central premise of the disorder-driven model is that early-emerging dysfunctions—in this case, incipient externalizing or internalizing problems—cause children to act in aggressive or withdrawn ways and to alienate their classmates. For example, in classroom contexts, it is likely that children who manifest externalizing problems (a general pattern of emotional/behavioral undercontrol; e.g., angry, explosive, impulsive, distractible, overactive behaviors, etc.) will devise forceful tactics or react aggressively when confronted with peer problems or
interpersonal constraints. Moreover, children who under-regulate their behavior or emotions may, due to their impulsiveness and insensitivity toward others, irritate or alienate peers and, thus, become disliked and rejected by peers (see Figure 2, upper panel). Likewise, children’s early internalizing problems may cause them to act in an anxious–withdrawn manner among peers (emit anxious cues, avoid peers), and their lack of social responsiveness (e.g., reservedness, diffidence, melancholy) may engender peer dislike or rejection (see Figure 2, lower panel). However, because externalizing problems and peer aggression may stem from common underpinnings and therefore partially overlap as constructs (i.e., externalizing disorder encompasses some forms of aggression, particularly confrontive, angry, explosive, reactive subtypes), empirical support for disorder-driven models was expected to be stronger for children disposed toward early externalizing rather than internalizing problems.

For purposes of this investigation, the concept of a transactional model was based on the principle that, temporally, the relations that transpire between risk factors and dysfunction are dynamic rather than static and unidirectional—that is, subject to “turnabouts” or reversals in causal priority or directions of effect (Rutter, 1996). The two transactional predictive models evaluated in this investigation were based on the premise that risk factors and maladjustment influence each other cyclically over time (Ladd, 1989). The first of these models constitutes a synthesis (sequential paring) of the “additive risk” and “disorder-driven” models, respectively (see Figure 3, upper panel). To illustrate, children who initially succeed in addressing classroom social challenges with aggression and are repeatedly subjected to peers’ rejecting behaviors may generalize their use of force toward broader social contingencies and become desensitized to various forms of social censure (i.e., develop pervasive, more serious forms of externalizing problems). In turn, movement into this form of dysfunction (i.e., acting/reacting impulsively, pervasively violating rules and norms, minimizing or disregarding broader social consequences) may become the proximal cause for later aggression (an increasing reliance on the use of force) and peer rejection across each of six targeted time lags.
group rejection (acting in ways that generate negative peer sentiments such as dislike, distrust, wariness, fearfulness, etc.; see Coie, 2004). Corroboration for this “risk → maladjustment → risk” model would be obtained if observed predictive linkages conformed to a pattern in which children’s behavioral orientations and peer group rejection during early grade school anteceded externalizing or internalizing problems during middle childhood and, thereafter, the dysfunction forecasted children’s behavioral propensities and rejection by peers.

The second of these transactional models depicts a cycle in which the direction of prediction for the disorder-driven model precedes that specified for the additive risk model (i.e., a “maladjustment → risk → maladjustment” model; see Figure 3, lower panel). As an example, it may be the case that children’s initial internalizing tendencies (e.g., emitting anxious social signals, being emotionally unresponsive to peers) cause them to act in a withdrawn manner and be rejected by peers, but it is the development of withdrawn behavior and the experience of being rejected (exposure to peer maltreatment, and the accompanying emotional scars or debilitating cognitions children acquire from it; see Pomerantz & Rudolph, 2003) that subsequently drives the development of later internalizing problems (i.e., predictive relations are congruent with a diathesis-stress interpretation; e.g., isolation from peers and rejecting peer reactions alienate children and confirm their anxieties about social rejection, and thus perpetuate or increase their wariness, fearfulness, propensity toward depression, etc.). Support for this maladjustment → risk → maladjustment model would be obtained if evidence fit a pattern in which early externalizing or internalizing problems forecasted peer group rejection and/or children’s behavioral orientations in middle childhood but, thereafter, one or both of these risk factors became the principal antecedents of maladjustment in later childhood.

Method

Participants

Participants were 399 children (206 boys; 193 girls) who were recruited as they entered kindergarten.
(average age = 5.62 years) and followed prospectively until they completed sixth grade (average age = 11.71 years). Children and their parents were recruited at kindergarten preregistration meetings that were held in school systems within multiple urban, suburban, and rural U.S. locations. Written informed parental consent was obtained before children’s participation, and 95% of the recruited families agreed to participate. The sample contained children from different ethnic groups (77.4% European American, 17.3% African American, 5.3% Latina, mixed race, or other) and family socioeconomic backgrounds (36.8% lower to middle income, range = $0 – 20,000; 30.6% middle income, range = $21,000 – 40,000; and 32.6% upper-middle to high income; range = $41,000 and higher). At the time of the sixth-grade assessment, 96.49% of the children were still active participants in the longitudinal study (n = 385). Data were also collected from children’s teachers and classmates.

Over the course of this investigation, children became increasingly dispersed across classrooms and school districts. When children moved or changed schools, permission was sought from administrators, teachers, and parents to extend the project into their schools. After these consents were obtained, the parents of project children’s classmates were contacted and asked to provide consent for their child’s participation. Only those classmates who had written informed parental consent (and child assent) participated in the study. The number of teachers who participated in this study per assessment period ranged from 32 to 282, and the number of classmates who contributed data per assessment ranged from 964 to 3,030.

**Measures**

Multiple indicators of the targeted constructs were obtained. To increase the probability that these indicators could be used to form latent variables that were invariant across measurement occasions, identical measures were administered at each time of assessment. Indicators were measured with instruments that are known to yield reliable and valid data.

**Behavioral Orientations**

Confrontive aggression. Indicators of this construct included two peer nomination measures (one for verbal and another for physical aggression) and one teacher report measure of children’s aggressive behavior toward peers. The reliability and validity of all three measures have been substantiated (see Ladd & Profilet, 1996). Peer nominations of verbal aggression (PN-VAG) and physical aggression (PN-PAG) were obtained by presenting children with a roster containing classmates’ names (those with permission) and asking them to circle the names of up to three classmates who could be described by each of the following criteria, respectively (order of administration counterbalanced): (1) “Someone who teases, calls names, or makes fun of other kids” (i.e., verbal aggression toward peers) and (2) “Someone who hits, kicks, or pushes other kids” (i.e., physical aggression toward peers). For children in kindergarten to grade 2, a felt board containing classmates’ pictures was used instead of a roster and, during individual interviews, respondents were asked to designate (by pointing) up to three nominees. Before administering these measures, children were presented with class rosters/picture boards, tested until they could identify all classmates, and trained to make nominations contingent on a series of practice criteria. The third measure of aggression (CBS-AG) was obtained by asking teachers to rate, on a 3-point scale (1 = doesn’t apply; 2 = applies sometimes; 3 = certainly applies), each of the seven-items included in the Aggressive with Peers subscale of the Child Behavior Scale (CBS; Ladd & Profilet, 1996). Items on this subscale describe children’s use of verbal and physical aggression against peers, and zs across testing occasions ranged from .90 to .93.

Withdrawn, asocial behavior. Two teacher-rating measures served as indicators of this construct, including the Withdrawn Behavior subscale of the Achenbach Teacher Report Form (TRF-WD; Achenbach, 1991) and the Asocial Behavior Subscale of the CBS (CBS-AB; Ladd & Profilet, 1996). Items on the TRF-WD and CBS-AB indexed children’s tendency to engage in shy or solitary behaviors, avoid or withdraw from peer activities, and abstain from social overtures (e.g., talking to peers). One item from the TRF-WD subscale (i.e., “sad”) was eliminated due to its semantic similarity with indicators selected to tap internalizing problems (anxiety/depression, see below). The remaining eight TRF-WD items (e.g., withdrawn, shy, rather be alone) were rated on a 3-point scale (e.g., 0 = not true; 1 = sometimes true; 2 = often true), as were the six items included in the CBS-AB subscale (e.g., solitary child; keeps peers at a distance, likes to play alone; 1 = doesn’t apply; 2 = applies sometimes; 3 = certainly applies). Internal consistency was acceptable across measurement occasions for both measures (range = .90 – .93 and .87 – .92, respectively).

Although it was of interest to obtain indicators of this construct from the same informants used to tap
aggressive behavior (i.e., peers and teachers), this was infeasible because peers appear to lack the necessary schema to distinguish and report this form of behavior reliably until middle childhood (approximately 8 years of age; see Ladd & Mars, 1986; Younger & Boyko, 1987; Younger, Gentile, & Burgess, 1993). However, for prediction purposes, problems associated with shared-informant bias were reduced because different teachers rated children on these measures at each time of assessment. Further, as a check against the validity of these indicators, scores for the TRF-WD and CBS-AB were correlated with scores from a peer nomination measure of children’s withdrawn, asocial behavior (PN-ASOC) that were obtained during grades 3–6. The procedures used to obtain this index were the same as those described for the PN-VAG and PN-PAG measures, except that peers responded to the criterion “Someone who is alone a lot.” Moderate convergence was found between the peer- and the teacher-report measures. Correlations (all \( p < .01 \)) ranged from .37 to .53 between the PN-ASOC and TRF-WD, and from .30 to .48 between the PN-ASOC and CBS-AB.

**Peer Group Rejection**

The three measures used as indicators of this construct were obtained from two types of informants: peers and teachers. Peer reports of children’s group acceptance/rejection were obtained with roster-and-rating and peer nomination sociometric measures (see Asher & Dodge, 1986; Asher, Singleton, Tinsley, & Hymel, 1979). The roster-and-rating measure (RR-SMS) was administered in each classroom by asking children (those with permission) to rate each of their classmates on the following criterion: “How much do you like to play with this person in school?” At all grades, ratings were made on a 3-point scale, with 1 = *not much*, 2 = *sometimes*, and 3 = *a lot* (for details, see Asher et al., 1979). For children in kindergarten to grade 2, a felt board containing classmates’ pictures was used instead of a class roster, and respondents rated classmates during individual interviews by sorting their pictures into boxes marked (in text and graphics) with the same 3 scale points. A second measure of peer group rejection was acquired via a peer nomination procedure (PN-NEG) in which children nominated up to three classmates (i.e., “Kids who you don’t like to hang out with [play with] at school”) by circling names on a roster (pointing to individual photos). The ratings and the nominations children received from classmates were separately averaged and standardized within classrooms. It has been established that the RR-SMS and PN-NEG measures yield reliable and valid data with both younger and older children (see Asher et al., 1979; Cillessen & Bukowski, 2000; Ladd et al., 2006). The third measure of peer group rejection was obtained by asking teachers to rate participants on the seven-item Excluded by Peers subscale of the CBS (CBS-EP). Peer exclusion constitutes one manifestation of peer group rejection (i.e., peers’ attempts to exclude children from participation in classroom social activities; see Buhs & Ladd, 2001) that can be reliably observed by teachers in classroom settings and that has been shown to correlate substantially with peer report indices of peer group rejection (see Buhs & Ladd, 2001; Ladd & Profilet, 1996).

**Psychological Maladjustment**

**Externalizing problems.** Indicators of this broadband construct consisted of three forms of child misconduct—classroom disruptiveness, hyperactive–distractable behavior, and “delinquent” behavior—all of which were measured at each time of assessment. Collectively, these measures were seen as indicators of children’s propensity to respond to a broad range of classroom contingencies in an emotionally and behaviorally impulsive or undercontrolled manner. To acquire a measure of the first indicator, classroom disruptiveness (CD), teachers rated children on five-items taken from the Teacher Rating Scale of School Adjustment (TRSSA; see Ladd, Buhs, & Seid, 2000; e.g., “Has discipline problems”); “Is easy for teacher to manage (reverse scored)”; “Needs constant supervision”), each of which was accompanied by a 3-point scale (1 = *doesn’t apply;* 2 = *applies sometimes;* 3 = *certainly applies*). To tap the second indicator, teachers rated each of four items on the CBS Hyperactive–Distractable subscale (CBS-HD; e.g., “Restless, doesn’t keep still”; “Poor concentration”) on a 3-point scale (1 = *doesn’t apply;* 2 = *applies sometimes;* 3 = *certainly applies*). The nine-item TRF Delinquent Behavior subscale (TRF-DB) was used to tap the third indicator. Teachers rated these items (“Lying or cheating”; “Steals”) on a 3-point scale (e.g., 1 = *not true;* 2 = *sometimes true;* 3 = *very or often true*). Scores for each measure were created by averaging teachers’ ratings across the items within each subscale. As calculated for these measures across assessment occasions fell within the following ranges: .79–.84 (CD), .84–.91 (CBS-HD), and .68–.78 (TRF-DB).

**Internalizing problems.** Indicators for this broadband construct included measures of anxiety and depression (i.e., emotional/behavioral manifesta-
tions of anxious and sad affect). Teachers rated each child on 17 items from the TRF Anxious/Depressed subscale (TRF-AD; one item was deleted due to content that overlapped with peer group rejection) using a 3-point scale (e.g., 0 = not true; 1 = sometimes true; 2 = very or often true). zs for the TRF-AD ranged from .82 to .89 across all times of assessment. Teachers also rated children on the 4-item (e.g., “Appears miserable, distressed”; Fearful or afraid”) CBS Anxious Fearful subscale (CBS-AF) using a 3-point scale (1 = doesn’t apply; 2 = applies sometimes; 3 = certainly applies). Scores for the CBS-AF are known to be reliable (see Ladd & Profilet, 1996; Ladd & Troop-Gordon, 2003) and yielded zs that ranged from .69 to .78 with this sample.

Procedure

Peers and teachers completed each of the behavioral orientation, peer group rejection, and psychological maladjustment measures each year, for a period of 7 consecutive years (from kindergarten to grade 6). Trained examiners administered these measures in children’s and teachers’ classrooms during the spring of each school year (i.e., approximately March through May). Details about the exact procedures used to administer each measure are reported in the Measures section. During each assessment interval, children were trained, and teachers received instructions about how to use the rating scales that accompanied the items contained in each of their assigned measures. Upon completion of their assigned measures, children and their classmates were thanked and given a small gift (e.g., pencil, stickers), and teachers received a cash honorarium.

Results

Data Analytic Strategy and Results of Preliminary Analyses

Preliminary analyses were conducted to examine variable distributions, relations, and patterns of missing data, and to determine whether these and other properties of the data set conformed to the assumptions underlying parametric statistics and data augmentation procedures—specifically, multiple imputation (e.g., values missing at random; variables normally distributed, etc.; Rubin, 1987; Schafer, 1999; Schafer & Olsen, 1998). Because it was possible to satisfy these prerequisites, missing values were replaced with estimated scores, and additional preparatory analysis was undertaken. Multicollinearity was evaluated by examining correlations among predictors or criteria. Although substantial covariance was evident among some predictors (e.g., indicators of aggressive behavior and peer rejection), it was not of a magnitude that constituted serious multicollinearity (e.g., destabilized matrix inversion). Measurement models were initially evaluated to determine whether the hypothesized alignments of construct indicators and corresponding latent variables fit the data well, and whether there was evidence of factorial invariance or constancy in the relations of indicators to constructs over time. Structural equations modeling was then utilized to examine the fit between the data and the proposed (i.e., hypothesized and alternative) prediction models. Two criteria were used to judge model fit (see Hu & Bentler, 1999): the root mean square error of approximation (RMSEA < .08) and the standardized root mean square residual (SRMR < .08). CFI was not utilized because it tends to be a conservative fit indicator when measurement models are complex. All estimated models were compared by gender using multisample SEM analyses, and the same analytic strategy was used to compare model fit for the entire sample versus a reduced sample in which a small number (n = 4) of dual behavioral risk children (i.e., those with scores > 1.00 SD on the averaged indicator scores for both aggressive and withdrawn behavior across four or more assessment occasions) had been eliminated. Because there was no instance in which model fit differed significantly by gender or by risk status, the full sample was utilized in all analyses.

Estimation of Missing Values Via Multiple Imputation

Attrition was minimal, with 385 (96.49%) of the original 399 participants remaining in the sample from kindergarten to grade 6. Constraints on data collection (e.g., absences, moves, dropouts, etc.) caused 3.49% of the data points within the entire longitudinal data set to be missing. The percentage of missing data by measure across all times of administration averaged 3.52% (range = 0.00 – 9.00%).

Missing data were estimated via NORM (Schafer, 1999), a multiple imputation program in which missing multivariate data are simulated m > 1 times. Three imputations were generated (n = 3) because, for data sets containing 10% or fewer missing data points, it has been established that n = 3 imputations yield sufficient estimation efficiency (i.e., 97%; Rubin, 1987; Schafer, 1999). Mplus 3.01 (Muthén & Muthén, 1998–2004) was used to estimate each of the hypothesized models from the multiple imputed data sets, and to average parameter estimates and obtain combined standard errors.
Formation of Latent Variables and Factorial Invariance

The multiple prediction models that were stipulated for this investigation necessitated the creation of five latent variables: confrontive aggression, withdrawn behavior, peer group rejection, internalizing problems, and externalizing problems. Each latent variable was constructed from its manifest indicators (i.e., see measures listed under corresponding constructs in the Method section). For example, the latent confrontive aggression measure was formed from three indicators: the PN-VAG, PNPAG, and CBS-AG measures. The coherence between indicators and their respective latent variables was evaluated as part of the SEM analyses that were conducted for each prediction model; without exception, indicators loaded only on the latent variables that they were intended to represent (see measurement model results in subsequent sections).

To determine whether the factor structure for each latent variable was invariant over time, five multisample CFAs were calculated. In each of these analyses, grade level was the grouping variable and the measurement model contained a single latent variable that was constructed from its corresponding indicators. Using a marker variable strategy, the unstandardized loading for one indicator (per factor) was fixed at 1.0, and all remaining factor loadings were freely estimated, as were error covariances between identical indicators across measurement occasions (Rensvold & Cheung, 2001). The results of these analyses (ranges for fit statistics: $\chi^2/df = 1.44-3.85$; RMSEA = .03-.08; SRMR = .03-.07) supported the assumption that each latent variable’s indicators formed a single factor that was invariant across measurement occasions.

Stabilities of the Latent Variables

SEM analyses were also used to estimate the stability of each latent variable across the seven assessment occasions. Each of these analyses was conducted on a model in which the same latent variable was estimated on each of seven measurement occasions from its corresponding indicators. Factor loadings were freely estimated, as were error covariances for identical indicators across measurement occasions. The results are shown by construct in Figure 4. Of the five latent variables, aggression and peer rejection were the most stable from kindergarten to grade 6; the stability coefficients for these variables were substantial at lag 1 and remained high across all subsequent lags. The withdrawn behavior and externalizing latent variables exhibited a pattern of increasing stability over time; the stability coefficients for these variables were low to moderate in magnitude during the early grades (across lags 1–2) but became progressively stronger thereafter (e.g., across lags 3–6). Only modest stability was found for internalizing problems and, over time (lags 1–6), the stability coefficients for this latent variable increased only slightly.

Estimation of Additive Continuity Models

The hypothesis that each of two variables makes a distinct (additive) predictive contribution to a criterion rests on the assumption that both variables are, independently, predictors of that criterion. Thus, as a precondition to estimating the proposed additive models, six “main effects” models were tested via SEM to determine whether each of the latent behavioral and peer rejection variables, when evaluated independently, were significant predictors of the latent externalizing or internalizing variables across one or more of the six lagged, 1-year intervals. These analyses were conducted on a model that contained one latent predictor variable measured on seven occasions (either aggressive behavior, withdrawn behavior, or peer rejection at each of the seven grade levels) and one latent criterion variable measured on seven occasions (either externalizing or internalizing behavior at each of the 7 grade levels). Each of the latent variables included in these analyses was estimated from its corresponding indicators. Factor loadings for latent variables were freely estimated, as were error covariances for matching indicators across measurement occasions and same-informant indicators within measurement occasions (see Cole & Maxwell, 2003). For example, in the analysis where aggressive behavior predicted externalizing problems, structural paths were estimated across each of six lagged, 1-year intervals—that is, from the latent aggressive behavior predictor measured at one grade level to latent externalizing problems criterion measured at the next grade level (e.g., AG-K $\rightarrow$ EXT-G1; AG-G1 $\rightarrow$ EXT-G2; AG-G2 $\rightarrow$ EXT-G3; AG-G3 $\rightarrow$ EXT-G4; AG-G4 $\rightarrow$ EXT-G5; & AG-G5 $\rightarrow$ EXT-G6$\rightarrow$K, kindergarten; G1, grade 1).

For externalizing problems, the model in which aggression was the sole predictor fit the data adequately, $\chi^2(721) = 2,362.04$, $p < .01$; RMSEA = .08, SRMR = .07, as did the model in which peer rejection was a lone predictor, $\chi^2(721) = 1,922.32$, $p < .01$; RMSEA = .06, SRMR = .07. Positive and statistically significant path coefficients were found from aggression to externalizing problems, and these weights increased in magnitude across the six lagged
intervals (e.g., .67, .73, .78, .79, .80, .89, respectively). The path weights from peer rejection to externalizing problems were also positive and significant, but these coefficients declined in magnitude across the latter of the six lags (i.e., .73, .70, .74, .68, .54, .55, respectively). In contrast, the model for withdrawn behavior did not fit the data, \( \chi^2(487) = 2,207.40, p < .01; \) RMSEA = .10, SRMR = .18, and none of the path coefficients were significant.

For internalizing problems, model fit was adequate for the withdrawn model, \( \chi^2(279) = 795.27, p < .01; \) RMSEA = .07, SRMR = .07, and for the peer rejection model, \( \chi^2(487) = 1,176.78, p < .01; \) RMSEA = .06, SRMR = .07. All but the first of the six path coefficients from withdrawn behavior to internalizing problems were significant, and these weights increased in magnitude across the six lags (.09, .15, .19, .31, .26, .40, respectively). Similarly, all path coefficients from peer rejection to internalizing problems were significant and tended to increase in magnitude across the six lags (.14, .22, .43, .38, .32, .42, respectively). Although the aggression model approximated a fit to the data, \( \chi^2(487) = 1,302.18, p < .01; \) RMSEA = .07, SRMR = .10, none of the path weights from aggression to internalizing problems were significant.

These findings indicated that it was feasible to evaluate two of the hypothesized additive models. The first of these models (i.e., the AG + REJ additive model) provided a test of the hypothesis that, in addition to children’s propensity to engage in aggressive behavior, peer group rejection contributes additively to the prediction of externalizing problems. The second model (i.e., the WD + REJ additive model) addressed the hypothesis that beyond children’s propensity to engage in asocial–withdrawn behavior, peer group rejection contributes additively to internalizing problems. In each case, it was of interest to determine (1) whether peer rejection contributed additively to the prediction of maladjustment, (2) when during childhood such contributions were evident, and (3) how the observed contributions differed in strength and continuity across grade levels (i.e., the six lagged, 1-year intervals). Because results from the main effects analyses did not implicate withdrawn behavior as a signi-
significant predictor of externalizing problems, nor aggressive behavior as a predictor of internalizing problems, the predictive contributions of peer rejection were not estimated in conjunction with these latent variables.

Both the measurement and structural components of the AG+REJ and WD+REJ models are depicted graphically in Figures 5 and 6. In the SEM analyses performed on these models, the latent predictor and criterion variables were estimated from their corresponding indicators. Factor loadings for all latent variables were freely estimated, as were error covariances for matching indicators across measurement occasions and for same-informant indicators within measurement occasions.

**AG+REJ additive model.** Calculation of the correlations among the multiple indicators of the latent variables included in this model (averaged across imputed data sets) yielded a very large number of coefficients (n = 1,953). For the sake of brevity, the ranges of coefficients obtained between predictors (AG & REJ) across all lags, and between the predictors and the criterion (AG & EXT; REJ & EXT) across all lags, are reported by measure in the left column of Table 1. SEM results indicated an adequate fit between this model and the data, $\chi^2(924) = 2,213.76$, $p < .01$; RMSEA = .06, SRMR = .07. Measurement model results showed that indicators loaded on their designated latent variables (all $\lambda$s $p < .01$). Results for the structural model revealed substantial continuity in the predictive (additive) contributions of peer group rejection to internalizing problems in the sense that the path coefficients obtained for this latent variable were significant (after adjusting for asocial–withdrawn behavior) across all grade intervals except K → G1. In contrast, the path weights for asocial–withdrawn behavior were significant only for the last three grade intervals (i.e., G3 → G4, G4 → G5, and G5 → G6), suggesting that this variable’s additive contribution to the prediction of internalizing problems was not substantial until later in childhood. The importance of peer rejection as a distinct predictor of internalizing problems was also illustrated by the fact that, across each of the lagged intervals, the path weights obtained for this variable were larger in magnitude than those obtained for asocial–withdrawn behavior.

**Estimation of Disorder-Driven Models**

Another series of SEM analyses were conducted to evaluate models founded on the premise that early-emerging maladjustment predicts children’s subsequent propensities to engage in specific behaviors (aggressive or withdrawn) and be rejected by their classmates. Here again, main effects models were initially estimated to determine whether early externalizing problems or internalizing problems, when evaluated independently, were significant predictors of each of the latent behavioral risk and peer rejection variables across one or more of the six lagged, 1-year intervals. Each of these analyses was conducted on a model that contained one latent predictor variable measured on seven occasions (either externalizing or internalizing behavior at each of the seven grade levels) and one latent criterion variable measured on seven occasions (either aggressive behavior, withdrawn behavior, or peer rejection at each of the seven grade levels). Each latent variable was estimated from its corresponding indicators, and factor loadings for latent variables were freely estimated, as were error covariances for matching indicators across measurement occasions and same-informant indicators within measurement occasions. To illustrate, in the analysis where externalizing
Figure 5. Path diagram for the AG+REJ additive model. AG = latent variable for aggressive behavior; REJ = latent variable for peer rejection; EXT = latent variable for externalizing problems. Indicators for latent variables: AG (1: PN-PAG; 2: PN-VAG; 3: CBS-AG); REJ (1: PN-NEG; 2: RR-SMS; 3: CBS-EP); and EXT (1: CD; 2: TRF-DB; 3: CBS-HD). All path weights shown in this model were statistically significant ($p < .01$).
Figure 6. Path diagram for the WD+REJ additive model. WD = latent variable for withdrawn behavior; REJ = latent variable for peer rejection; INT = latent variable for internalizing problems. Indicators for latent variables: WD (1: CBS-AB; 2: TRF-WD); REJ (1: PN-NEG; 2: RR-SMS; 3: CBS-EP); and INT (1: TRF-AD; 2: CBS-AD). All path weights above .16 were statistically significant (p<.01).
problems were evaluated as predictors of aggressive behavior, structural paths were estimated across each of six lagged, 1-year intervals—that is, from the latent externalizing predictor measured at one grade level to latent aggressive variable measured at the next grade level (e.g., EXT-K \rightarrow AG-G1; EXT-G1 \rightarrow AG-G2; EXT-G2 \rightarrow AG-G3; EXT-G3 \rightarrow AG-G4; EXT-G4 \rightarrow AG-G5; & EXT-G5 \rightarrow AG-G6).

As the following fit statistics reveal, there was less than adequate coherence between the data and each of these six models: externalizing problems \rightarrow aggressive behavior, \( \chi^2(279) = 1,106.77, \ p < .01; \ RMSEA = .09, \ SRMR = .13; \) internalizing problems \rightarrow peer rejection, \( \chi^2(487) = 1,973.89, \ p < .01; \ RMSEA = .09, \ SRMR = .21. \) Because none of these models fit the data well, no attempt was made to evaluate larger disorder-driven models such as those in which antecedent maladjustment variables predicted both children’s behavior (e.g., aggressive, withdrawn behavior) and peer rejection across multiple grade intervals.

Estimation of Transactional Models

Two final SEM analyses were undertaken to determine whether the predictive relations observed between the investigated risk factors and dysfunctions followed a cyclical pattern that conformed to one of the two proposed transactional models. Both of these models were estimated such that the direction of effect between risk factors and maladjustment

| Range of Correlations Obtained Between Latent Variable Indicators Across Six Assessment Lags |
|---|---|
| **AG+REJ model** | **WD+REJ model** |
| **Aggressive behavior and peer rejection** | **Withdrawn behavior and peer rejection** |
| PN-PAG & RR-SMS | .21 to .56 | TRF-WD & RR-SMS | .12 to .39 |
| PN-PAG & PN-NEG | .21 to .60 | TRF-WD & PN-NEG | .05 to .32 |
| PN-PAG & CBS-EP | .11 to .35 | TRF-WD & CBS-EP | .10 to .53 |
| PN-VAG & RR-SMS | .19 to .51 | CBS-AB & RR-SMS | .08 to .44 |
| PN-VAG & PN-NEG | .21 to .58 | CBS-AB & PN-NEG | .07 to .37 |
| PN-VAG & CBS-EP | .11 to .40 | CBS-AB & CBS-EP | .07 to .60 |
| CBS-AG & RR-SMS | .23 to .45 | | |
| CBS-AG & PN-NEG | .21 to .56 | | |
| CBS-AG & CBS-EP | .11 to .57 | | |
| **Aggressive behavior and externalizing problems** | **Withdrawn behavior and internalizing problems** |
| PN-PAG & CD | .36 to .61 | TRF-WD & TRF-AD | .04 to .58 |
| PN-PAG & CBS-HD | .27 to .58 | TRF-WD & CBS-AF | .04 to .56 |
| PN-VAG & CD | .31 to .63 | CBS-AB & TRF-AD | .01 to .42 |
| PN-VAG & CBS-HD | .22 to .52 | CBS-AB & CBS-AF | .01 to .48 |
| PN-VAG & TRF-DB | .33 to .57 | | |
| CBS-AG & CD | .35 to .61 | | |
| CBS-AG & CBS-HD | .21 to .60 | | |
| CBS-AG & TRF-DB | .35 to .62 | | |
| **Peer rejection and externalizing problems** | **Peer rejection and internalizing problems** |
| RR-SMS & CD | -.18 to -.54 | RR-SMS & TRF-AD | .01 to .26 |
| RR-SMS & CBS-HD | -.14 to -.56 | RR-SMS & CBS-AF | .01 to .29 |
| RR-SMS & TRF-DB | -.14 to -.44 | | |
| PN-NEG & CD | .19 to .55 | PN-NEG & TRF-AD | -.03 to -.24 |
| PN-NEG & CBS-HD | .20 to .53 | PN-NEG & CBS-AF | -.05 to -.28 |
| PN-NEG & TRF-DB | .18 to .56 | | |
| CBS-EP & CD | .13 to .53 | CBS-EX & TRF-AD | .03 to .52 |
| CBS-EP & CBS-HD | .16 to .50 | CBS-EX & CBS-AF | .05 to .51 |
| CBS-EP & TRF-AD | .16 to .46 | | |

AG = aggressive behavior; WD = withdrawn behavior; REJ = peer rejection.
were reversed beginning at grade 3 (at lag 4, as shown in the upper and lower panels of Figure 3). The first of these models—the risk → maladjustment → risk model (see Figure 3, upper panel)—contained three latent variables, each of which was measured on seven occasions (at each of the seven grade levels). This model was estimated such that (a) in kindergarten to grade 2, the latent aggressive behavior and peer rejection variables that were measured at each of these grade levels predicted the latent externalizing problems variable that was measured at the next grade level (each of these structural paths traversed a 1-year lag), and (b) in grades 3–6, the direction of prediction reversed so that the latent externalizing problems variables that were measured at each of these grade levels predicted the latent aggressive behavior and peer rejection variables that were measured at each subsequent grade level (each path traversed a 1-year lag). The second of the two models—the maladjustment → risk → maladjustment model (see Figure 3, lower panel) was estimated as follows: (a) in kindergarten to grade 2, the latent internalizing problems variable that was measured at each of these grade levels predicted the latent withdrawn behavior and peer rejection variables that were measured at the next grade level (each of these structural paths traversed a 1-year lag), and (b) in grades 3–6, the direction of prediction reversed so that the latent withdrawn behavior and peer rejection variables that were measured at each of these grade levels predicted the latent internalizing problems variable that was measured at each subsequent grade level (each path traversed a 1-year lag). In both analyses, the latent predictor and criterion variables were estimated from their corresponding indicators. Factor loadings for all latent variables were freely estimated, as were error covariances for matching indicators across measurement occasions and for same-informant indicators within measurement occasions. Results showed that neither the risk → maladjustment → risk model, $\chi^2(1,664) = 4,626.61, p < .01; RMSEA = .07, SRMR = .11$, nor the maladjustment → risk → maladjustment model, $\chi^2(1,672) = 5,099.54, p < .01; RMSEA = .07, SRMR = .13$, fit the data adequately. Altering the structural paths such that the reversals occurred at earlier or later grade levels did not improve the fit of either model.

Discussion

The results of this investigation advance extant knowledge in several novel, specific ways. Unlike the evidence obtained in past investigations, the data obtained from this study yielded a more comprehensive, developmental portrait of the relations that evolve among children's behavioral orientations, peer rejection, and psychological maladjustment across the entire grade school period (ages 5–12). In addition, this study's prospective longitudinal panel design permitted an evaluation of differing premises about the causal forces that may underlie the relations that develop among the targeted risk and maladjustment variables. By estimating traditional models along with conceptually viable but previously untested alternative models, it was possible to draw stronger inferences about the relative importance (predictive significance) of peer behavioral and relational risks in the development of childhood psychological maladjustment and vice versa.

At the broadest level of analysis, the combined model evaluation results were consistent with a child and environment perspective, and implicated both child attributes (i.e., aggressive, withdrawn behavioral orientations) and features of the child's peer milieu (i.e., peer rejection) as risk factors for psychological maladjustment (Ladd, 1989, 2003, 2005; McDougall et al., 2001; Parker & Asher, 1987; Parker et al., 1995). More importantly, the results were congruent with an additive child and environment model (see Ladd, 2003). An additive model implies that maladjustment has multiple triggering mechanisms and accelerants (exacerbating factors) that, when concurrently operative, act as separate forces (complements) on the inception and development of dysfunction. The fact that the data conformed to an additive model is significant because, theoretically, these findings strengthen the view that peer rejection contributes to children's maladjustment, and does so in a way that is at least partially independent of their behavioral orientations. That is, the findings are consistent with the inference that, in addition to agentic forces (the child's performance of aggressive or withdrawn behaviors among peers), relational influences (peers' rejection of the child) shape early psychological maladjustment and its developmental course. On the basis of this, it can be argued that maladjustment becomes more likely when either of these risk factors is present, and its probability of occurrence or severity is exacerbated when both are operative. This is in contrast to several competing theoretical perspectives (for a review, see Ladd, 2003), including those in which it has been argued that (a) child (e.g., behavioral) rather than relational forces, or vice versa, constitute the determinants of maladjustment (i.e., main effects models), (b) peer rejection is a consequence of deviant behavior rather
than a cause of maladjustment (e.g., incidental, behavior continuity models), (c) children’s behavioral styles and peers’ rejecting reactions derive from emergent dysfunction rather than vice versa (i.e., disorder-driven models), and (d) child behavior, peer rejection, and maladjustment influence each other and evolve cyclically over time (i.e., transactional models).

It must be recognized, however, that even though additive models better represented the covariance structures within this longitudinal data set than did the investigated alternative models, such findings do not render implausible other hypothesized but untested effect patterns. Investigators have, for example, proposed models other than those tested here to explain how behavioral and relational risks might combine to influence psychological maladjustment. Examples would include models in which one risk factor’s effects on children’s maladjustment is hypothesized to be (a) contingent upon another variable (i.e., moderator models) or (b) transmitted through one or more variables (i.e., mediator models; see Ladd, 2003, for further explication of these models). Models such as these were not evaluated in this study, however, because they could not be operationally defined or analyzed in a way that made them comparable, from a sample size (power) or design perspective, to the investigated main effects, additive, disorder-driven, and transactional models. For example, evaluation of a mediated model, using this study’s panel design, would have required estimating latent variable linkages across multiple rather than single time lags.

Similarly, interpretive certainty is curtailed by sampling constraints. It remains to be seen whether the reported data patterns, which were obtained with a normative community sample (one that was fairly diverse with respect to gender, SES, ethnicity, and geographic locales), will replicate in other samples, including ones that incorporate other cultural groups, peer environments, and child populations. For example, stronger empirical support for disorder-driven models might be found in clinical samples, such as those composed entirely of children who manifest diagnosable early-onset psychopathology. Conceivable, too, are differences in the relative importance of additive risk factors across samples. It is possible, for example, that the strength of a particular child attribute as a predictor of maladjustment may vary as a function of the “normativeness” of that characteristic within the child’s peer environment. The additive contribution of aggression, for example, relative to peer rejection, might be diminished within peer environments where aggression is widespread (e.g., exhibited by most group members) or so frequent as to desensitize children to its occurrence and effects (see Wright, Giammarino, & Parad, 1986). For these reasons, it will be necessary to undertake additional studies to achieve a fuller, more comprehensive understanding of how peer behavioral and relational risks antecedes psychological maladjustment.

In the meantime, however, the present findings enhance the stature of additive models—that is, they lend support to the premise that, in addition to specific behavioral orientations, peer rejection increases the probability that children will become maladjusted. This inference, however, calls attention to the question of why peer rejection forecasts or, if construed as a determinant, “contributes” to dysfunction in ways that are partially distinct from those attributable to children’s behaviors. Pertinent to this issue is the contention that, even though children’s behaviors contribute to their rejection (see Coie & Kupersmidt, 1983; Dodge, 1983), the subsequent establishment of a rejecting peer milieu exposes children to other (i.e., nonshared) processes that foster the development of psychological dysfunction. In other words, behaviors such as aggression may cause peer rejection, but once children come to occupy this social position (i.e., acquire rejected status), their experiences in the peer group may change in ways that affect their adjustment. As Coie (2004) has argued, children’s behavioral characteristics may have a pathogenic influence on their development, but peer rejection has its own debilitating consequences.

Therefore, why is peer rejection debilitating to children’s psychological health in a way that is distinct from their behavioral propensities? Insight into this question can be found, in part, within emergent metatheories where it has been proposed that peer rejection is not just a social “address” (e.g., a child’s position or status in a peer group) but also a social experience—one that exposes children to adverse or painful interpersonal processes (see Bukowski & Hoza, 1989; Coie, 1990, 2004; Sandstrom & Zakriski, 2004). For example, it has been hypothesized that the acquisition of rejected status (an awareness among peers that an individual is disliked) signals to members of the peer group that disliked individuals are suitable targets for maltreatment (see Buhs & Ladd, 2001; Coie, 1990). Coie (1990, 2004), for example, contends that once children are rejected, peers treat them more negatively, and that this abuse and the isolation and stigma it often produces are distinct causes of maladjustment. In this way, peer rejection can be seen as having effects on children that are at least partially distinct from those attrib-
utable to aggression or other behaviors that may antecede rejection. Support for this contention has begun to accrue; evidence indicates that peers perpetrate many forms of abuse against rejected children (e.g., ignoring, exclusion, threats, mocking, verbal and physical abuse; see Asher et al., 2001) and that peer maltreatment predicts psychological and school maladjustment even after controlling for individual differences in children’s aggressive and withdrawn behaviors (see Buhs & Ladd, 2001; Gazelle & Ladd, 2003; Ladd, Birch, & Buhs, 1999; Ladd & Troop-Gordon, 2003).

In contrast, little evidentiary support was found for alternative or competing prediction models based on the view that premorbid forms of psychological dysfunction foster the development of specific behavioral propensities or peer group rejection (i.e., disorder-driven models; see Parker & Asher, 1987), or that the investigated forms of risk and dysfunction influence each other cyclically over time (i.e., transactional models; see Parker et al., 1995). Collectively, the lack of unanimity between these models and the data, coupled with the stronger fit found for additive models, implies that developments within the peer milieu (children’s behavior and rejection among age-mates) are more influential in shaping the course of dysfunction than vice versa. Moreover, this implied direction of effect remained evident over a 7-year period, suggesting that both peer behaviors and relations continue to play an important role in the emergence and maintenance of psychological dysfunction throughout childhood.

In part, the basis for the lesser efficacy of the disorder-driven and transactional models was reflected in the pattern of stabilities and main effect linkages that were observed among the investigated latent variables. Consider, for example, the relative stability of the three latent variables that were included in the AG+REJ and WD+REJ additive models. Within each model, the two latent peer predictors (i.e., aggressive behavior and peer rejection, withdrawn behavior and peer rejection, respectively) exhibited greater stability across the six lagged, 1-year intervals than did the latent maladjustment criterion (i.e., externalizing or internalizing problems, respectively). This relative difference in stabilities was particularly apparent during the early grade school years, suggesting that individual differences in maladjustment were subject to greater temporal variability (change over time) than were differences in children’s behavioral orientations or peer rejection. This apparent instability may reflect the fact that internalizing and externalizing problems, when measured at early ages and in normative samples such as this one, constitute incipient rather than mature forms of dysfunction. If so, it is likely that the symptoms, or outward expressions of these dysfunctions, were few in number, sporadically expressed, and only moderately discrepant from age norms. For this reason, these dysfunctions—as they were initially manifested—may not have constituted a force strong or consistent enough to induce moderate to severe behavioral deviance (e.g., aggressive or withdrawn behavior) or peer censure (e.g., peer group rejection). Additionally, results from the main effects models revealed that, across each of the six lags, the predictive links between both of the peer variables and the maladjustment criteria remained substantial (statistically significant) or became stronger over time. Collectively, these findings are consistent with the inference that children’s behavioral orientations and peer rejection anteceded emergent forms of dysfunction or, conversely, that manifestations of maladjustment changed over time so as to become increasingly predictable from children’s behavior and social rejection within the peer milieu.

Second, the fact that peer rejection increased the efficacy with which both externalizing and internalizing problems could be predicted (beyond that attributable to differing behavioral orientations) suggests that this aspect of children’s peer experience is a risk factor for both externalizing and internalizing problems—that is, multiple forms of psychopathology. The findings also suggest, however, that it would be imprudent to conclude that the strength and pattern of these predictive contributions were identical or invariant over time. Rather, examination of peer rejection in different variable contexts (e.g., in conjunction with aggression as a predictor of externalizing problems, and in combination with withdrawn behavior as a predictor of internalizing problems), and across repeated time intervals throughout childhood (yearly, from kindergarten to grade 6), revealed differences in the timing, strength, and consistency of peer rejection as a distinct predictor of externalizing versus internalizing problems.

Results from the AG+REJ additive model corroborated extant evidence by indicating that peer rejection, as well as children’s aggressive behavior, presages the development of externalizing problems. More importantly, these findings expanded extant knowledge by showing that the distinct predictive link between peer rejection and externalizing problems (1) was significant and sustained across a substantial period of child development, from childhood through preadolescence, and (2) tended to be stronger during the early rather than the later grade
school years. Thus, along with aggressive behavior, peer rejection was found to be an enduring risk factor throughout childhood, but one that proved to be a stronger prognosticator of impending externalizing problems during the early rather than later school years. These age-related differences in prediction were consistent with the hypothesis that peer rejection during the primary grades (ages 5–9) causes children to resolve insipient social needs and tasks in ways that orient them toward antisocial rather than normative social and behavioral development. On the basis of Sullivanian premises, Buhrmester and Furman (1986) characterized this particular age period (i.e., the “juvenile era”) as one in which children experience a growing need for peer acceptance (inclusion) and a heightened fear of peer rejection (exclusion). As these needs become prominent, peer rejection experiences (e.g., ignoring, exclusion, maltreatment) may become an impetus for negative emotions (e.g., anger at exclusion), forceful behaviors (e.g., attacks on peers, revenge seeking), rule violations (e.g., rejecting norms established or followed by nonrejected peers), and other maladaptive reactions that lead to the development of externalizing problems (see Coie, 2004; Kupersmidt & DeRosier, 2004). Similarly, it has been proposed that peer rejection during the early grades institutes thought and behavior patterns (e.g., attributional biases, negative peer beliefs, coercive cycles) that persist over time and increase children’s propensity to engage in misconduct and delinquency (see Coie, 2004; Ladd & Troop-Gordon, 2003; Sandstrom & Zakrski, 2004).

Within this same variable context, the efficacy of aggressive behavior as a distinct predictor of externalizing problems not only remained significant but also increased in magnitude from childhood through preadolescence. Although not previously documented longitudinally across this entire age period, perhaps it should not be surprising that aggressive behavior became a stronger predictor of externalizing problems over time. The current findings corroborated the view that children’s use of force against age-mates is an enduring behavioral propensity for both boys and girls (Cairns et al., 1989; Ladd, 2003; Olweus, 1979), and one that is likely to be perpetuated by its social consequences (Caspi et al., 1987) and other mediating factors (e.g., aggressive children’s tendency to infer that forceful behaviors are effective; see Boldizar, Perry, & Perry, 1989; Crick & Ladd, 1990; Egan, Monson, & Perry, 1998; Slaby & Guerra, 1988). Eventually, the use of confrontive aggression in the peer milieu may generalize to a larger range of environmental contingencies and cause children to develop broader and more serious forms of externalizing problems. Moreover, as children approach preadolescence, they are less likely to be restricted by the contextual constraints of self-contained classrooms and more likely to engage in social niche seeking. It has been substantiated that as children mature, those with aggressive tendencies tend to seek the company of other aggressive peers who, in turn, may socialize or encourage (e.g., condone) more frequent and serious forms of externalizing behavior (Brown, Dolcini, & Leventhal, 1997; Cairns & Cairns, 1994; Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988). Moreover, in this context, aggressive children may find that it is necessary to engage in more frequent and extreme conduct problems to establish and maintain their social positions among aggressive peers (Coie, 2004).

Results from the WD+REJ additive model implied that the efficacy with which peer rejection and children’s withdrawn behavior predicted internalizing problems increased as children matured, or were stronger during the later rather than the early grade school years. Compared with results for the AG+REJ model, these findings suggest that internalizing problems are less stable than externalizing problems throughout grade school, and that peer rejection and withdrawn behavior are less powerful predictors (risk factors) for this type of dysfunction, especially during the early elementary school years. Of the two risk factors, peer rejection was the stronger; unlike withdrawn behavior, it emerged as a significant predictor of internalizing problems early in grade school (as indicated by main effects results), and its distinct predictive contributions increased progressively over time (implied by additive model findings). This was in contrast to rejection’s distinct predictive contributions (when evaluated with aggressive behavior) to externalizing problems, which, as previously noted, declined as children matured. These contrasting data patterns were consistent with McDougall et al.’s (2001) contention that peer rejection experiences are particularly influential in the development of internalizing problems. Moreover, these data extend that inference by suggesting that rejection’s role becomes progressively more important as an antecedent of internalizing problems as children mature. This may be the case because repeated exposure to rejection experiences (e.g., peer maltreatment) may intensify children’s feelings of distress and strengthen processes that instigate internalizing problems (e.g., uncertainty, mistrust, debilitating self-attributions, etc.; see Chorpita & Barlow, 1998; Pomerantz & Rudolph, 2003; Rubin et al., 1990; Troop-Gordon & Ladd, 2005). However, a
comparison of the absolute magnitude of rejection’s distinct predictive contributions (additive path weights) with externalizing versus internalizing problems over time does not appear to justify—at least for the age period investigated here—the conclusion that peer rejection is a more powerful risk factor for internalizing than for externalizing problems.

Additionally, the findings expand what is known about withdrawn behavior as a risk factor for psychopathology. The data were consistent with the conclusion that the risk posed by withdrawn behavior for internalizing problems was low during the early grade school years, but higher during the middle grade school years when, perhaps not surprisingly, peers begin to judge withdrawn behavior as atypical or deviant (Younger & Boyko, 1987; Younger et al., 1993). It may be the case that, as children grow older, those prone to engage in withdrawn behavior become increasingly marginalized from the mainstream of social interaction and, accordingly, begin to experience stronger feelings of alienation, anxiety, loneliness, and other internalizing symptoms. Furthermore, by middle childhood and thereafter, withdrawn behavior may become a less mature way of coping with the social demands of peer environments, and norms may shift such that children who engage in such behaviors are at greater risk for peer censure. Were this the case, both withdrawn behavior and peer rejection would become more powerful risk factors, or predictors of subsequent internalizing problems. Indeed, the findings reported here were congruent with this inference.

Comparatively, however, it would appear that withdrawn behavior does not carry the same level of risk for internalizing problems during the grade school years as aggression does for externalizing problems. In part, this appears to be attributable to the fact that withdrawn behavior exhibited lesser stability over time as compared with aggressive behavior, and the fact that internalizing problems manifested lesser stability than did externalizing problems. This result was consistent with past evidence indicating that, at early ages, withdrawn behavior is not a particularly powerful risk factor for maladjustment (Ladd & Burgess, 1999; Rubin, 1982, 1993). Still, it may be judicious to reexamine this conclusion in light of additional evidence. Whether or not these findings accurately gauge the risk associated with early withdrawn behavior may depend, in part, on investigators’ definitions of this construct and their ability to distinguish it conceptually and empirically from its psychological consequences (particularly, problems of an internalizing nature). A key aim of this investigation was to define and measure withdrawn behavior in a way that would distinguish its attributes (i.e., avoidance of, and infrequent interaction with peers) from those indicative of its hypothesized or to-be-predicted consequences (internalizing problems). Whether this aim was fully realized using existing measures of withdrawn behavior (e.g., TRF-WD, CBS-AB subscales) warrants further theoretical and empirical scrutiny and, perhaps, cannot be determined until greater precision is achieved in defining and measuring this construct and distinguishing it from its reputed consequences. Interpretation is also complicated by the conceptual question of whether withdrawn behavior—once distinguished from its psychological consequences—is multifaceted or takes more than one form (see Rubin & Coplan, 2004). If the measures used to construct the latent variable used in this study tapped more than one form of withdrawn behavior, then the reported findings may not accurately reflect the risk associated with constituent subtypes.

In sum, the results of this investigation reflect on a long-standing controversy about the efficacy of two childhood risk factors—children’s behavioral orientations (i.e., aggressive, withdrawn) and peer group rejection—as predictors of incipient and later-emerging forms of psychological maladjustment. Unlike prior studies, the results provide a more nuanced, developmental perspective on when, to what extent, and how consistently children’s behavioral styles and peer rejection forecast the development of externalizing and internalizing problems during the 5–12 age period. Peer group rejection, when evaluated in conjunction with children’s behavior, made distinct contributions to the prediction of both externalizing and internalizing problems, and did so consistently throughout the 5–12 age period. As anticipated, aggressive behavior was a stronger predictor of externalizing problems than was peer rejection over the entire course of this age period, but no support was found for the conclusion that only aggression accounts for significant nonshared variance in externalizing problems. The predictive contributions of withdrawn behavior to internalizing problems was eclipsed by peer rejection earlier in childhood, but became progressively stronger (although not stronger than rejection) as children approached preadolescence. No support was found for the premise that withdrawn behavior increases children’s risk for externalizing problems, nor the supposition that aggressive behavior increases children’s risk for internalizing problems.

Thus, these data add to a growing corpus of evidence that contests the validity of “incidental mod-


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Predicting Maladjustment 845


