
A longitudinal study of child maltreatment, mother—child relationship quality and maladjustment: the role of self-esteem and social competence

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Child maltreatment represents a profound and devastating challenge to the integrity of the developing individual. Maltreating families fail to provide many of the expectable and predictable experiences that promote the development of adaptive functioning (Cerezo, 1997). Maltreatment, therefore, provides a "natural experiment" in which children are reared in conditions that deviate dramatically from minimum standards for child care as defined by social consensus, law, medical practice, and developmental science (Scarr, 1992). Maltreatment research has increased over the past two decades, and the findings have facilitated our understanding of the etiology, correlates, and sequelae of child maltreatment. Some investigators have recently begun to progress beyond the descriptive investigation of maltreatment effects to an examination of the processes (e.g., mediating mechanisms) contributing to maladaptive pathways in maltreated children (e.g., Bolger & Patterson, 2001; Cicchetti & Rogosch, 1997). Yet, it remains unclear how child maltreatment and children's perceptions of relationship quality with their mothers are related to self-esteem and social competence, and jointly contribute to psychological and behavioral adjustment. In this study, we investigated longitudinal relationships among child maltreatment, mother--child relationship quality, self-esteem, social competence, and children's internalizing and externalizing symptomatology, focusing on the mediating roles of self-esteem and social competence of maltreated and nonmaltreated children.

Maltreatment, Self-Development, and Child Adjustment

The detrimental effects of child maltreatment on behavior problems and psychopathology are well documented. Previous studies have demonstrated that maltreated children are at increased risk for both internalizing symptomatology (Bolger & Patterson, 2001; Manly, Kim, Rogosch, & Cicchetti, 2001) and externalizing

symptomatology (Dodge, Pettit, & Bates, 1997; Famularo, Kinscherff, & Fenton, 1992; Manly et al., 2001). Prior theory and evidence supports the contention that the maltreating environment has a substantially negative impact on the individual's capacity to negotiate the progression of developmental tasks and challenges. Indeed, research on the behavioral and psychological adjustment of maltreated children suggests that the ecological conditions associated with maltreatment promote the likelihood of failure on many stage-salient tasks from infancy through childhood, including formation of attachment relationships, self-development, formation of peer relations, and adaptation to school. The difficulties that maltreated children exhibit in the successful resolution of developmental tasks place these youngsters in jeopardy for developing a variety of psychopathological conditions (Cicchetti & Toth, 1997).

There is considerable evidence suggesting that inadequate caregiving is related to difficulties in self-development. An extensive literature demonstrates that maltreated children show deficits in the self system that include low self-esteem, impaired perceptions of competence, and an extrinsic motivational orientation (for a review see Cicchetti & Rogosch, 1994). For example, maltreated toddlers express negative affect on visual self-recognition, and talk less about their negative internal states relative to nonmaltreated children (Beeghly & Cicchetti, 1994; Schneider-Rosen & Cicchetti, 1991). Furthermore, studies of preschool children indicate that maltreated preschool-aged children evidence more negative representations of self (Toth, Cicchetti, Macfie, & Emde, 1997), and show disruptions in the normal integration of memories, perception, and identity resulting in greater dissociation of self (Macfie, Cicchetti, & Toth, 2001). Maltreated children also are more likely to be rated by teachers and mothers as lower in self-esteem and social competence, and as having less positive self-concepts than nonmaltreated children (Bolger, Patterson, & Kupersmidt, 1998; Egeland, Sroufe, & Erickson, 1983; Kinard, 1999; Toth et al., 1997). Some maltreated children, however, exhibit resilience, or competent outcomes, despite the severe adversity in their lives. Investigating developmental processes contributing to dysfunction and resilience is critical for understanding pathways to adaptive and maladaptive development in maltreated children (Luthar, Cicchetti, & Becker, 2000).

Mother--Child Relationship Quality, Self-Development, and Child Adjustment

Interpersonal relationships exert strong organizing influences on individual development throughout the lifespan (Sroufe, 1989). The longstanding premise is that early attachment relationships with caregivers influence children's beliefs and expectations about themselves and others, as well as their more general understanding of the world (Bowlby, 1969/1982). Indeed, research has shown that experiences of poor quality caregiving seem to be related to the development of negative representational models of attachment figures as well as the self (Cicchetti, 1991; Crittenden & Ainsworth, 1989; Oppenheim, Emde, & Warren, 1997), which in turn are related to negative behavioral outcomes (Sroufe, 1989, 1997). Early caregiving experiences seem to have important implications for the development of the self.

Empirical work has suggested that parent--child relationship quality is related to children's self-esteem and social competence. In the early years, the quality of children's attachment has been related to individual differences in self-development including persistence and enthusiasm in problem-solving (Matas, Arend, & Sroufe, 1978), visual self-recognition (Schneider-Rosen & Cicchetti, 1991), and the development of more advanced internal state language (Beeghly & Cicchetti, 1994). The quality of the parent--child relationship is associated with the development of social competence as previous studies have demonstrated that children who have insecure attachments are less liked by peers and teachers (Cohn, 1990; Sroufe, 1983) and are less popular at school age (Bohlin, Hagekull, & Rydell, 2000). Studies also have shown that parental attachment and parenting behaviors have significant linkages with self-esteem in adolescents (Allen, Hauser, Bell, & O'Connor, 1994; Arbona & Power, 2003; Simons & Robertson, 1989). In a study examining self-esteem as a mediator of links between parental variables and adolescent drug use, Simons and Robertson (1989) found that parental rejection was related to lower levels of adolescents' self-esteem, which, in turn, was associated with adolescents' drug use.

Much less clear to date, however, are the mechanisms and processes that account for the significant associations that have been found to exist between children's perceptions of parent--child relationship quality and adjustment problems (e.g., Gomez, Gomez, DeMello, & Tallent, 2001; Rey & Plapp, 1990; Toth, Cicchetti, & Kim, 2002). In view of findings that have delimited linkages between parent--child relationship quality and self-development, and between self-development and adjustment outcomes, we hypothesized that self-esteem and social competence may mediate associations between negative parent--child relationship quality and maladjustment.

The majority of the investigations of mother--child relationships conducted to date have involved attachment relationships and the paradigms utilized for the assessment of attachment predominantly have focused on the early years of life. Consequently, we possess less knowledge about the concurrent effects of attachment on child adjustment during the school age years. In this study, we used the Relatedness scale (Wellborn & Connell, 1987), a self-report measure assessing conceptualizations of relationships. Conceptually, children's responses to this scale are viewed as compatible with attachment theory (Connell & Wellborn, 1991; Lynch & Cicchetti, 1991). Empirical verification, however, of relatedness as being equivalent to attachment has yet to be demonstrated.

Development of Self-Esteem and Social Competence and Child Adjustment

Prior studies have found fairly strong relationships between low self-esteem and children's maladjustment including depression and anxiety (Abela & Taylor, 2003; Battle, Jarratt, Smit, & Precht, 1988; Dubois, Felner, Sherman, & Bull, 1994), and conduct problems and delinquent behaviors (Cole, Chan, & Lytton, 1989; Rosenberg, Schooler, & Schoenback, 1989; Schneider & Leitenberg, 1989). Most notably, Dubois et al. (1994) tested a mediational model to ascertain whether the effects of socioenvironmental experiences (measures of social support and stressful life events) on adolescents' internalizing and externalizing problems were mediated through their impacts on self-esteem. The results revealed that self-esteem mediated the linkage

between socioenvironmental experiences and internalizing problems, but failed to show significant effects of self-esteem on externalizing problems. These findings suggest that mediational processes involving self-esteem may be more useful for understanding the effects of environmental conditions on internalizing problems than on externalizing problems.

In addition, lower levels of self-reported competence in social relationships are associated with depressive symptoms and anxiety (Dodge, Pettit, McClaskey, & Brown, 1986; Han, Weisz, & Weiss, 2001). In a recent study of competency deficits and risk for academic and behavioral maladjustment in 228 children (ages 5-12 years). Shonk and Cicchetti (2001) reported that the effects of maltreatment on behavioral maladjustment were fully mediated by social competencies. Maltreated children, in comparison to nonmaltreated children, showed significantly lower levels of social competence. Furthermore, these maltreated children's deficits in social competencies, in turn, appeared to undermine their behavioral functioning.

Collectively, the results of prior research suggest that children's self-esteem and social competence may serve as process mechanisms that relate child maltreatment and children's perceptions of parent--child relationship quality to negative adjustment outcomes including internalizing and externalizing symptomatology.

The Present Study

Although a variety of studies have demonstrated a significant impact of child maltreatment on general adjustment, no investigation has considered how child maltreatment, children's perceptions of mother--child relationship quality, self-esteem, and social competence jointly relate to child internalizing and externalizing symptomatology. Our approach to examining the linkage between relational risk factors (child maltreatment and poor mother--child relationship quality) and child maladjustment outcomes stems from the risk and resilience literature (e.g., Ladd & Burgess, 2001; Luthar et al., 2000). Within the risk and resilience research framework, relational risk or protective factors can be seen as making additive or contingent

contributions to adjustment. More specifically, an additive model postulates that relational risk factors, such as poor mother--child relationship quality, would increase the probability of maladjustment in children, separately from the risk posed by maltreatment, thereby adding to the risk for maladjustment that is the outcome of child maltreatment. Alternatively, a moderator model implies that the contribution of maltreatment to adjustment is contingent on the level of perceived mother--child relationship quality.

In the present study, we used longitudinal assessments of child externalizing and internalizing symptomatology along with structural equation modeling (SEM) to evaluate the hypothesis that maltreatment and perceived mother--child relationship quality predict children's self-esteem and social competence, which, in turn, are related to later child adjustment. The mediational model in Fig. 1 was tested to estimate the direct effects of Time 1 child maltreatment and mother--child relatedness on internalizing and externalizing symptomatology at Time 1 and Time 2, and to examine the indirect effects of Time 1 child maltreatment and mother--child relatedness through their influences on Time 1 self-esteem and social competence. The model included Time 1 internalizing and externalizing symptomatology to address changes in internalizing and externalizing symptomatology by controlling for the initial levels of maladjustment. Because children's age was significantly correlated with mother--child relationship quality, it was included in the model as a covariate to control the variance attributable to age differences. Investigating the roles of self-esteem and social competence as mediating processes in the link between relational risks such as child maltreatment and poor mother--child relationship quality and later child maladjustment will make important theoretical contributions to the understanding of the processes involved in the development of maladaptation and psychopathology among children with higher relational risks and provide implications for prevention and intervention efforts.

[FIGURE 1 OMITTED]

METHOD

Participants

The participants included 345 children (206 maltreated and 139 nonmaltreated children) who attended a summer daycamp research program in upstate New York during the years of 1989 through 2000. The research camp program was designed to provide maltreated and nonmaltreated children from economically disadvantaged families with a naturalistic setting in which children's behavior and peer interactions could be observed in an ecologically valid context. In the present investigation, we chose to study all children who had data on mother--child relationship quality, self-esteem, social competence, and behavior problems for 2 consecutive years. Only less than 2% of children (6) were missing data on Time 2 maladjustment outcomes. For those children, the missing values were imputed using the predicted values estimated by regressing Time 2 missing scores on Time 1 scores of the same individual. Children ranged in age from 7 to 12 years ($M = 9.18$, $SD = 1.08$ for nonmaltreated children and $M = 9.18$, $SD = 1.19$ for maltreated children). Consistent with gender ratios in the maltreated population, there were more boys than girls in the present sample: 64% of the children were boys (84 boys and 55 girls in the nonmaltreated group, and 138 boys and 68 girls in the maltreated group). The sample consisted of children from diverse ethnic backgrounds: 62.6% African American, 24.3% European American, 11.6% Latino, and 1.4% other ethnic groups.

No significant differences were found between the maltreated group and the nonmaltreated group with respect to demographic features including socioeconomic status (85% of families in the maltreated group and 82% in the nonmaltreated group fell into the two lowest socioeconomic strata defined by Hollingshead, 1975; [chi square] (1) = 0.53, ns) and parental marital status (i.e., 71% of families in the maltreated group and 71% in the nonmaltreated group were headed by single parents, typically mothers; [chi square] (1) = 0.01, ns). There were significant differences between maltreated and nonmaltreated children on ethnicity (55.8% African American,

30.1% European American, 13.1% Latino, and 1.0% other ethnic groups in the maltreated group; and 72.7% African American, 15.8% European American, 9.4% Latino, and 2.2% other ethnic groups in the nonmaltreated group, [chi square] (3) = 12.52, $p < .05$), and family reliance on welfare (84% of families in the maltreated group and 75% in the nonmaltreated group received Aid to Families with Dependent Children (AFDC), [chi square] (1) = 4.10, $p < .05$). However, neither ethnicity nor receipt of public assistance was significantly related to children's self-esteem, social competence, and internalizing or externalizing symptomatology; therefore they were not addressed in further statistical analyses.

Maltreated children had been identified through the County Department of Social Services (DSS) as having experienced child maltreatment. Prior to enrolling in the study, mothers of maltreated children provided written consent for examination of any DSS records. Assessment of maltreatment history was based on multiple informants that included mothers, child protective services workers, neighbors, and other community members (e.g., teachers and daycare providers). All existing DSS records were coded by raters to specify the occurrence of sexual abuse, physical abuse, physical neglect, and emotional maltreatment. (See Barnett, Manly, & Cicchetti, 1993, for a detailed description of the nosological system used to code incidents for maltreatment.) Coding was conducted by trained doctoral students and by clinical and developmental psychologists. For each subtype, weighted kappa statistics were calculated to account for reliability. Inter-rater agreement was good, with kappas of 1.0 for sexual abuse, .94 for physical abuse, .78 for emotional maltreatment, and a range of .79-.85 for the types of physical neglect (moral/legal/education maltreatment, lack of supervision, and failure to provide). Consistent with the high cooccurrence of subtypes that are found in the literature (cf. Manly et al., 2001), 64% of the maltreated children in this sample experienced two or more forms of maltreatment. Specifically, 60% experienced emotional maltreatment, 74% were neglected, 33% had been physically abused, and 12% had been sexually abused. For 97% of the maltreated children, the child's biological mother was named as a perpetrator for some form of maltreatment. Given that the majority of the children had experienced multiple subtypes of

maltreatment, we focused on examination of maltreatment versus nonmaltreatment differences and did not conduct subtype analyses.

Nonmaltreated children were recruited from families receiving Aid to Families with Dependent Children (AFDC) or Temporary Assistance to Needy Families (TANF), because the majority of maltreating families were receiving such income supplement. The demographic characteristics of these families were highly similar to those of the maltreating families and enabled us to assess the independent effects of maltreatment beyond the influences of social adversity. Parental consent was obtained to review the DSS records and Child Abuse Registry to confirm the absence of any documented maltreatment in these families. If any reports of child maltreatment or any ambiguous child maltreatment information were discovered, then the child was not included in the study ($n = 13$). This screening process resulted in a reduction in the size of the nonmaltreated group relative to the maltreated group used in analyses.

Procedure

Parents were asked to give their informed consent to have their child attend a summer daycamp and participate in research assessments. Subsequently, children were given the option to decide for themselves whether or not they wanted to participate, thus resulting in child assent for participation. In return for their participation in the research activities, children were allowed to choose from a variety of small prizes. In camp, children participated in a variety of recreational activities that were appropriate to their developmental level and interests in groups of six to eight same-age and same-sex peers. In addition, the children took part in a variety of research assessments. Every week, six groups of children participated in the camp and each camp group was led by three trained camp counselors. Half of the children in each of the groups were maltreated and the other half were nonmaltreated. Camp days lasted for 7 hr, thereby providing 35 hr of interaction between children and counselors (see Cicchetti & Manly, 1990, for detailed descriptions of camp procedures). The counselors completed a number of assessment instruments at the end of each week. The counselors were

trained to complete a range of assessment measures based on their observations and interactions with the children in their respective groups, and the counselors and research interviewers who administered assessment measures were unaware of the children's maltreatment status or of the research hypotheses.

Measures

Relatedness Scales (Wellborn & Connell, 1987)

This 17-item questionnaire was used to gain information regarding children's relationships with their mother. Children were asked to rate on 4-point scale items that measured their feelings of relatedness in terms of: (1) emotional quality and (2) psychological proximity-seeking. The emotional quality subscale measured the positive and negative emotions that children reported with regard to their mother (e.g., "When I am with my mother, I feel relaxed." or "When I am with my mother, I feel happy."). The psychological proximity-seeking subscale contained items that tapped the degree to which children wished they were psychologically closer to their mother (e.g., "I wish my mother paid more attention to me." or "I wish my mother understood me better."). The answers were rated on a 4-point Likert scale from 1 = almost never to 4 = almost always. In the present study, Cronbach's alpha (average of Time 1 and Time 2) for psychological proximity seeking was .87 and for emotional quality was .83. The test-retest correlation between Time 1 and Time 2 scores was .51 ($p < .01$) for psychological proximity seeking and was .39 ($p < .01$) for emotional quality.

As we reported later, we derived two subscales scores--one of psychological proximity seeking (the sum of 5 items), and the other of emotional quality (the sum of 11 items)--based on the result of the confirmatory factor analysis, and used the average subscale scores to obtain configural patterns of relatedness.

Previous work by Lynch and Cicchetti (1991) has yielded five prototypical patterns of relatedness including the following: (a) optimal--higher than average levels of emotional quality and lower than average levels of proximity seeking, reflecting feeling

positive and satisfied with the degrees of closeness; (b) adequate--average levels of emotional quality and proximity seeking; (c) deprived--lower than average levels of emotional quality and higher than average levels of proximity seeking reflecting feelings of negativity and insecurity; (d) disengaged--lower than average levels of emotional quality and proximity seeking, reflecting negative feelings toward relationship and the lack of desire to be closer; and (e) confused--high levels of emotional quality and proximity seeking, reflecting the need for more closeness despite feeling emotionally positive with the relationship figure. Consistent with the way in which relatedness has been treated in the past research (e.g., Toth & Cicchetti, 1996), we combined these categories into two configural patterns of relatedness that may be parallel to attachment patterns. Optimal and adequate patterns of relatedness were considered to be similar to "secure" patterns whereas deprived, disengaged, and confused patterns of relatedness were viewed as similar to "insecure" patterns.

Self-Esteem Inventory (SEI: Coopersmith, 1981)

The SEI allowed children to report their perceptions of self by evaluating a set of 50 items on whether or not each item was characteristic of themselves (e.g., "I am pretty sure of myself." or "I can make up my mind without too much trouble."). Each item was rated as 0 = unlike me or 1 = like me. The total self score was used as an indicator of self-esteem and valuing the self. The total self score was computed by summing up the four subscale scores including general self subscale (26 items), social self-peers subscale (8 items), home-parents subscale (8 items), and school-academic subscale (8 items). Previous research has demonstrated adequate reliability and validity of this scale (Coopersmith, 1981). In the current study, Cronbach's alpha for SEI was .85. The test-retest correlation between Time 1 SEI and Time 2 SEI scores was .61 ($p < .01$).

Pupil Evaluation Inventory (PEI: Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976)

Children's social competence was assessed with the likeability subscale of the PEI. Items of the likeability subscale assessed prosocial behavior (e.g., "are liked by everyone" or "help others") and were found to tap a dimension of social competence

(Frankel & Myatt, 1994). Counselors were asked to select no more than two children in their group who were best characterized by each individual item. The total subscale scores were generated based on the number of nominations that each individual child received on respective scale items. To combine the independent perspectives of three camp counselors, we averaged the individual counselor assessments for each individual child on the likeability subscale. Inter-rater reliabilities (average Cronbach's alphas among triads of raters) across camp years ranged from .88 to .90. and the test-retest correlation between Time 1 and Time 2 likeability subscale scores was .45 ($p < .01$).

Teacher's Report Form of the Child Behavior Checklist (TRF: Achenbach, 1991)

Children's internalizing and externalizing symptomatology were rated by camp counselors using the TRF. The TRF is a widely used and well-validated instrument to assess a wide range of child behavioral disturbances. It consists of 118 items rated for frequency of occurrence of problem behaviors including two broadband dimensions of child symptomatology--externalizing symptomatology (e.g., aggressive behaviors, delinquent behaviors) and internalizing symptomatology (e.g., withdrawal, somatic complaints, anxiety-depression). Three counselors' scores for each child were averaged to obtain individual child scores for externalizing and internalizing symptomatology. Inter-rater reliabilities (averaged intraclass correlations) were .84 for externalizing symptomatology and .66 for internalizing symptomatology. The test-retest correlation between Time 1 and Time 2 scores was .65 ($p < .01$) for externalizing symptomatology and was .44 ($p < .01$) for internalizing symptomatology.

Data Analysis Strategy

We first compared latent factor structures of children's self-reported relatedness and self-esteem, and of adults' reports of children's social competence and internalizing and externalizing symptomatology to test whether the factor structures for those psychological constructs are equivalent between maltreated children and nonmaltreated children. In order to investigate factor structures of the relatedness measures, we conducted confirmatory factor analyses using AMOS 4.0 (Arbuckle & Wothke, 1999)

with a maximum likelihood estimation method. In evaluating the overall goodness of fit of each model, we report: the (1) chi-square goodness-of-fit statistic ([chi square]); (2) degrees of freedom (df); (3) corresponding p value; (4) goodness-of-fit index (GFI); and (5) root mean square error of approximation (RMSEA) statistic. The RMSEA index assesses the degree of lack of fit for a model and a value of the RMSEA of about .05 or less is considered to indicate close fit of the model in relation to the degrees of freedom (Browne & Cudeck, 1993).

We also examined the impact of maltreatment and perceived mother--child relationship quality on self-esteem, social competence, and internalizing and externalizing symptomatology by performing a series of univariate analyses of covariance (ANCOVAs) with a Bonferroni-based correction to control for Type I errors across multiple outcome variables (i.e., dividing the per comparison alpha level by the number of outcome variables, $[\alpha] = .01$). The main focus of this study was to examine the longitudinal relations among child maltreatment, mother--child relatedness, self-esteem, social competence, and internalizing and externalizing symptomatology among maltreated and nonmaltreated children. We conducted path analyses to demonstrate the statistically separate effects of child maltreatment and mother--child relatedness on children's internalizing and externalizing symptomatology as well as to test the hypothesized mediation effects through their influences on self-esteem and social competence.

RESULTS

Confirmatory Factor Analysis

We fitted a sequence of confirmatory factor analytic models using two-group structural equation modeling to test the measurement equivalence as well as the factor relationship equivalence between maltreated and nonmaltreated children. To examine both construct comparability and possible group-differences, we tested a series of nested models and performed an incremental fit test. The difference in fit was indexed by subtraction between two nested models and the statistical significance of the

difference in fit was tested to determine the best-fitting model. The first model was a configural invariance model in which all the parameters estimated were allowed to vary across the two groups. The configural invariance model tested if the patterns of structural relations, rather than the actual numerical values, were invariant between the two groups. The configural invariance model was the least stringent model among the models tested, and in the subsequent models, numeric invariance on certain parameters was introduced.

The second model was an equal factor loading model in which we imposed numeric invariance on factor loadings to test if the measurement model structure was different between the maltreated group and the nonmaltreated group. The third model was an equal factor covariance model in which we added an equality constraint on the factor covariance to test if the magnitude of factor covariance was equivalent across the maltreated and the nonmaltreated groups. The equal factor covariance model was relevant only for the relatedness and the TRF measures because their measurement models involve more than one factor. Finally, the fourth model, an equal variance model, was used to test numeric invariance of factor variances and unique variances between the maltreated group and the nonmaltreated group.

For the relatedness measures, we computed covariances among the 17 items of the relatedness measures at Time 1, separately for maltreated and nonmaltreated children. A two-factor model was specified with 6 manifest variables loaded on the psychological proximity-seeking latent factor and 11 manifest variables loaded on the emotional quality latent factor. The psychological proximity-seeking and the emotional quality factors were allowed to be correlated with each other. For the SEI measures, one factor model was specified with the four subscale scores at Time 1 (i.e., general self, social self-peers, home-parents, and school-academic subscales) loaded on the self-esteem latent factor. For the PEI measures, the covariance structure among 5 item scores of the PEI-Likeability subscale at Time 1 was subjected to a single factor model. A two-factor model was specified for the TRF measures. The externalizing symptomatology factor was represented by two subscale scores of aggressive behaviors

and delinquent behaviors whereas the internalizing symptomatology factor was represented by three subscale scores of withdrawal, somatic complaints, and anxiety-depression. The externalizing symptomatology and internalizing symptomatology factors were allowed to be correlated with each other.

Table I provides the results of these tests. Along with the overall goodness of fit of each model, changes in chi-square values and changes in degrees of freedom (step-down goodness-of-fit) are reported. The results for the relatedness measure show that the equal factor covariance model was the best-fitting model indicating that the maltreated group and the nonmaltreated group did not differ with respect to factor loadings and factor covariance. The factor correlation between the psychological proximity-seeking factor and the emotional quality factor was significant and negative ($r = -.28, p < .05$). Factor loadings for all 11 items for the emotional quality factor and factor loadings for 5 of the 6 items for the psychological proximity-seeking factor were significant and comparable in magnitude. We excluded Item 4 ("I wish my mother spent more time with me.") due to its low and insignificant factor loading ($=.01$) and derived two subscale scores: Psychological Proximity Seeking (the sum of 5 items) and Emotional Quality (the sum of 11 items). Similarly, for the TRF measures at Time 1, the equal factor covariance model was the best fitting model. The results indicated that the factor loadings and the strength of the association between the internalizing symptomatology and the externalizing symptomatology factors did not significantly differ between the maltreated and the nonmaltreated children, but factor variances and unique variances differed between the two groups. There was a significant positive correlation between internalizing and externalizing latent factors ($r = -.39, p < .05$).

For both the SEI and the PEI-Likeability measures, the equal variance model was the best-fitting model showing that the maltreated group and the nonmaltreated group did not differ with respect to factor loadings as well as factor and unique variances. All of the factor loadings for the self-esteem (SEI) factor and all of the factor loadings for the social competence (PEI-likeability) factor were significant, thereby lending support to their construct validity. Testing between-group differences for the factorial structure

and measurement parameters using the Time 2 data of relatedness, self-esteem, social competence, and internalizing and externalizing symptomatology yielded consistent findings with Time 1 data.

The Effects of Maltreatment and Mother--Child Relationship Quality

In Table II means and standard deviations of the study variables are presented for maltreated and nonmaltreated children. A series of two-factor ANCOVAs was conducted to test the main effects of maltreatment status at Time 1 (maltreated vs. nonmaltreated) and relatedness at Time 1 ("secure" vs. "insecure"), and the interaction effect between maltreatment and relatedness on self-esteem at Time 1, social competence at Time 1, and maladjustment variables at Times 1 and 2 using age as a covariate. The main effect of maltreatment was significant for social competence and internalizing and externalizing symptomatology. Compared to nonmaltreated children, maltreated children had lower scores in social competence at Time 1 and showed greater internalizing symptomatology at Time 1 and greater externalizing symptomatology at Times 1 and 2. The main effect of relatedness was significant for self-esteem at Time 1. Regardless of maltreatment status, children who had a "secure" relationship quality with their mothers showed higher levels of self-esteem than children who had an "insecure" relationship quality with their mothers. There was no significant interaction effect between maltreatment and relatedness suggesting that the maltreatment and relatedness have independent or additive effects on those variables.

Testing Mediational Models Using Longitudinal Data

The model in Fig. 1 was examined by structural equation modeling to investigate longitudinal relations among child maltreatment, mother--child relationship quality, self-esteem, social competence, and internalizing and externalizing symptomatology. Figure 2 presents the summarized results of the structural equation analyses. The hypothesized model fitted the sample data very well (with [chi square] = 12.18, df = 8, $p = .14$; GFI = .99 and RMSEA = .04). Maltreatment was not only directly related to higher levels of internalizing and externalizing symptomatology at Time 1 but also

indirectly through Time 1 social competence. Maltreatment status was related to lower levels of social competence with peers, which in turn was related to higher levels of internalizing and externalizing symptomatology at Time 1. The impact of an "insecure" mother--child relationship quality on child outcomes was completely mediated through its influences on self-esteem. Feeling insecure in the relationship with mothers at Time 1 was associated with lower self-esteem at Time 1, which in turn was related to higher levels of internalizing behaviors at Time 1 and higher levels of internalizing and externalizing symptomatology at Time 2.

There were significant autoregressive effects of Time 1 adjustment on Time 2 adjustment indicating strong stability of child adjustment over 1 year. We found no significant correlations between child maltreatment and secure mother--child relationship quality and between self-esteem and social competence. Internalizing symptomatology and externalizing symptomatology were positively correlated with each other both at Time 1 and at Time 2.

We conducted additional tests to confirm our path analysis findings of mediation effects of maltreatment and mother--child relationship quality on child outcomes. The significance levels of the indirect effects were tested using Sobel's approximate significance test (Sobel, 1982) for the indirect effect of the independent variable on the dependent variable via the mediator (see MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The results of the significance tests using Sobel's first-order solution for the variance of the mediated effect revealed that the significant indirect effects found in Time 1 concurrent relationships were statistically significant ($Z > 1.96$, $p < .05$) including maltreatment [right arrow] social competence [right arrow] internalizing symptomatology, maltreatment [right arrow] social competence [right arrow] externalizing symptomatology, and mother--child relationship quality [right arrow] self-esteem [right arrow] internalizing symptomatology. The indirect effects found in longitudinal relationships between Time 1 mother--child relationship quality and Time 2 internalizing symptomatology ($Z = 1.86$, $p = .06$) and between Time 1 mother--child

relationship quality and Time 2 externalizing symptomatology ($Z = 1.91, p = .06$) closely approached significance.

[FIGURE 2 OMITTED]

DISCUSSION

This study examined how child maltreatment and mother--child relationship quality are related to children's maladjustment, particularly the roles of self-esteem and social competence as mediating mechanisms. Our longitudinal analyses supported the additive model showing that maltreatment and mother--child relationship quality independently contributed to children's internalizing and externalizing symptomatology, directly as well as indirectly through self-esteem and social competence.

As predicted, maltreated children exhibited greater internalizing and externalizing symptomatology than nonmaltreated children. They also were viewed as showing less socially adaptive behaviors in their interactions with peers. Consistent with previous findings (e.g., Dodge et al., 1986; Han et al., 2001; Shonk & Cicchetti, 2001), deficits in social competencies predicted greater internalizing and externalizing symptomatology. We found no evidence for the indirect effects of maltreatment on internalizing and externalizing symptomatology through its influences on self-esteem.

In contrast, self-esteem mediated the impact of mother--child relationship quality on child adjustment outcomes. For both maltreated and nonmaltreated children, those who reported greater insecurity with mother exhibited lower self-esteem. Lower self-esteem, in turn, was related contemporaneously to greater internalizing symptomatology. In addition, lower self-esteem was predictive of later internalizing and externalizing symptomatology over 1 year after controlling for the initial levels of maladjustment. Given that the "secure" and "insecure" patterns based on children's reports on the relatedness measures can be considered to be conceptually compatible with the patterns specified by attachment theory (e.g., secure and insecure attachment) (Connell &

Wellborn, 1991), these results are consistent with the proposition that insecure attachment may set a trajectory that increases the risk for externalizing or internalizing psychopathology (Greenberg, 1999; Sroufe, 1983). Specifically, our findings of the indirect linkage between insecure mother--child relationship quality and children's maladjustment are in agreement with the attachment literature suggesting that insecure attachment is related to lower self-esteem (Ainsworth, Blehar, Waters, & Wall, 1978; Elicker, Englund, & Sroufe, 1992; Sroufe, 1983; See Thompson, 1999 for a review) and internalizing and externalizing symptomatology (Easterbrooks, Davidson, & Chazan, 1993; Shaw & Vondra, 1995; See Greenberg, 1999 for a review). Furthermore, our findings lend support to the transactional view of attachment and psychopathology that emphasizes the importance of attachment as an indirect and/or direct effect on child adjustment (e.g., Greenberg, Speltz, & DeKlyen, 1993; Sroufe, 1997; Waters, Posada, Crowell, & Lay, 1993).

The significant association between self-esteem and internalizing symptomatology is consistent with the previous research that has demonstrated poor self-esteem in withdrawn children and depressed adolescents (Capaldi & Stoolmiller, 1999; Schneider & Leitenberg, 1989). It has been commonly assumed that children with externalizing problems suffer from poor self-esteem but empirical findings are rather inconsistent. Some researchers have found aggressive children and children with behavior problems to have lower self-esteem than well adjusted children (Grizenko, Archambault, & Pawliuk, 1992; Olweus, 1978). Moreover, in a longitudinal study of an at-risk sample of 200 males, Capaldi and Stoolmiller (1999) found that conduct problems in early adolescence (Grade 6) were associated with low self-esteem in young adulthood (Grade 12). In contrast, other researchers demonstrated that aggressive boys with peer problems showed higher self-esteem than nonaggressive boys with peer problems (Frankel & Myatt, 1994), and that solely aggressive children had higher self-esteem than either solely withdrawn children or children who were both aggressive and withdrawn (Schneider & Leitenberg, 1989). Our prospective longitudinal analysis showed that children with lower self-esteem manifested greater increases in externalizing symptomatology over time.

We found no interaction effect between maltreatment and perceived mother--child relationship quality on self-esteem, social competence, and internalizing and externalizing symptomatology (see Table II). In addition, the results of testing the mediational model in Fig. 1 revealed that maltreatment and relatedness variables were not significantly correlated. Our findings lend support for an additive model of risk factors, suggesting that insecure mother--child relationship quality increased the probability of child maladjustment independent of the deleterious effect of maltreatment. The finding of an insignificant correlation between maltreatment and children's reports of mother--child relationship quality is consistent with the report by Toth et al. (1997) that there was no difference between maltreated and nonmaltreated children with respect to positive representation of self or mother. Maltreated children, however, manifested more negative maternal representations and more negative self-representations than did nonmaltreated children. The findings of the present study appear to be in line with what previous investigators have suggested: Although disturbed parent--child relationships have been demonstrated between maltreated children and their caregivers (e.g., Cicchetti & Toth, 1995), maltreated children have been shown to inhibit negative affect and exhibit false positive affect (Beeghly & Cicchetti, 1994; Crittenden & DiLalla, 1988; Koenig, Cicchetti, & Rogosch, 2000).

We examined the measurement equivalence of the self-reports of perception of mother--child relationship quality and self-esteem, and the adult reports of children's social competence and internalizing and externalizing symptomatology between maltreated and nonmaltreated children. The results of confirmatory factor analyses using two-group structural equation models provided strong support of the comparability of these psychological constructs between maltreated and nonmaltreated children. As for the relatedness measures, the evidence of invariance in each variable's loadings and factor covariance indicated construct comparability regarding the perception of mother--child relationship quality between maltreated and nonmaltreated children. We found that the factor covariance between the emotional quality and the psychological proximity seeking latent factors was significant and negative both for maltreated and nonmaltreated children, suggesting that children who reported more positive emotions

toward their relationship with mother tended to express lower levels of perceived need for seeking a closer relationship with their mother. Thus, analogous to the relationship between feeling secure and seeking physical proximity in attachment theory (e.g., Ainsworth et al., 1978), the more positive children felt in their relationship with their mothers, the less the children felt that they needed to seek greater psychological proximity than they already had.

In addition, similarities in the maladjustment constructs between maltreated and nonmaltreated children were indicated by invariance in the estimates of factor loadings and factor covariance. As has been found in previous studies (e.g., Hinshaw, Lahey, & Hart, 1993; Loeber, Russo, & Stouthamer-Loeber, 1994), a significant positive correlation between internalizing and externalizing symptomatology suggests that children who exhibited more aggressive and disruptive behaviors also tend to be more depressed.

Some limitations of this study should be noted. First, the data, albeit longitudinal, are correlational. Thus no firm conclusions can be drawn regarding causality in relations among the variables. Second, even though this study used a multimethod approach (e.g., self-report and counselor ratings through behavioral observation procedures), the use of additional informants (e.g., parent and peer ratings) in future studies is recommended to preclude possible biases resulting from shared method variance and enhance the validity of the obtained relations. It is possible that statistical associations between social competence and internalizing and externalizing symptomatology may have been overestimated because the behaviors were assessed in the same settings and by the same group of raters. It will be interesting, for example, to study if children's perceptions of social competence and adult ratings of children's social competence would be differentially related to mother--child relationship quality and child adjustment. Finally, in the future, investigation of relationship quality for different relationship figures may be fruitful. In a study of influence of parent--child relationship quality on depressive symptoms in children with asthma, Bleil, Ramesh, Miller, and Wood (2000) found a significant positive correlation between children's reports of

relationship quality with their mothers and children's reports of relationship quality with their fathers. Interestingly, only the patterns of mother--child relationship quality, but not the patterns of father--child relationship quality, mediated the link between impaired functional status and depressive symptoms among those children. It is plausible that mother--child relationship quality and father--child relationship quality affect children's emotional and behavioral adjustment by different pathways.

Our findings suggest that relational risk factors such as child maltreatment and children's perceptions of insecure relationship quality with mothers have immediate and enduring effects on their adjustment directly as well as indirectly through their influences on self-esteem and social competence. Having the experience of mother as a provider of emotional security, regardless of maltreatment experiences, may increase the probability that children will develop a greater sense of self-worth. The resulting positive self-conception will, in turn, be more likely to be related to more adaptive behaviors and less psychopathological problems. The evidence that self-esteem and social competence mediate the effect of child maltreatment and mother--child relationship quality on children's internalizing and externalizing symptomatology reinforces the view that enhancing children's self-esteem and social competence may be an important target of intervention for the prevention and treatment of emotional and behavioral problems among children. Effective interventions to enhance social interaction abilities may help children with higher relational risks at home to form positive relationships with peers and adults, resulting in improvement in self-esteem and social competence, which in turn should lead to better psychological and behavioral adjustment.

Table I. Comparative Goodness of Fit of Structural Equation Models for

Confirmatory Factor Analyses

Test of

close-

Absolute goodness-of-fit fit

Variables Model Label Df [chi square] GFI p(exact) RMSEA

I. Relatedness

M1: Configural

Invariance Model 236 623.19 .80 .00 .07

M2: Equal Factor Loading

Model 251 632.07 .80 .00 .07

M3: Equal Factor

Covariance Model 252 633.42 .80 .00 .07

M4: Equal Variance Model 271 663.66 .79 .00 .07

II. Self-Esteem Inventory

M1: Configural Invariance

Model 4 1.24 1.00 .87 .00

M2: Equal Factor Loading

Model 7 5.44 .99 .61 .00

M4: Equal Variance Model 11 7.18 .99 .79 .00

III. Pupil Evaluation Inventory (Likeability Subscale)

M1: Configural Invariance

| | | | | | |
|-------|---|------|-----|-----|-----|
| Model | 8 | 9.45 | .99 | .31 | .02 |
|-------|---|------|-----|-----|-----|

M2: Equal Factor Loading

| | | | | | |
|-------|----|-------|-----|-----|-----|
| Model | 12 | 12.06 | .99 | .44 | .00 |
|-------|----|-------|-----|-----|-----|

| | | | | | |
|--------------------------|----|-------|-----|-----|-----|
| M4: Equal Variance Model | 18 | 16.15 | .98 | .58 | .00 |
|--------------------------|----|-------|-----|-----|-----|

IV. Teacher's Report Form of the Child Behavior Checklist

M1: Configural Invariance

| | | | | | |
|-------|---|------|------|-----|-----|
| Model | 6 | 3.27 | 1.00 | .77 | .00 |
|-------|---|------|------|-----|-----|

M2: Equal Factor Loading

| | | | | | |
|-------|---|------|------|-----|-----|
| Model | 9 | 3.59 | 1.00 | .94 | .00 |
|-------|---|------|------|-----|-----|

M3: Equal Factor

| | | | | | |
|------------------|----|------|-----|-----|-----|
| Covariance Model | 10 | 5.54 | .99 | .85 | .00 |
|------------------|----|------|-----|-----|-----|

| | | | | | |
|--------------------------|----|-------|-----|-----|-----|
| M4: Equal Variance Model | 16 | 19.83 | .98 | .29 | .03 |
|--------------------------|----|-------|-----|-----|-----|

Test of

close-

fit Step-down goodness-of-fit

Variables Model Label p(close) [DELTA]df [DELTA][chi square] p(d)

I. Relatedness

M1: Configural

Invariance Model .00

M2: Equal Factor Loading

Model .00 15 8.88 .88

M3: Equal Factor

Covariance Model .00 1 1.35 .25

M4: Equal Variance Model .00 19 30.24 .05

II. Self-Esteem Inventory

M1: Configural Invariance

Model .97

M2: Equal Factor Loading

Model .92 3 4.20 .24

M4: Equal Variance Model .98 4 1.74 .78

III. Pupil Evaluation Inventory (Likeability Subscale)

M1: Configural Invariance

Model .79

M2: Equal Factor Loading

Model .92 4 2.60 .63

M4: Equal Variance Model .98 6 4.09 .67

IV. Teacher's Report Form of the Child Behavior Checklist

M1: Configural Invariance

Model .96

M2: Equal Factor Loading

Model 1.00 4 .32 .96

M3: Equal Factor

Covariance Model .99 1 1.95 .16

M4: Equal Variance Model .87 6 14.29 .03

Note. GFI = goodness-of-fit index; p(exact) = probability of an exact

fit to the data: RMSEA = root mean square error of approximation:

p(close) = probability of a close fit to the data: [DELTA]df =

difference in df:[DELTA][chi square] = difference in likelihood ratio

tests: p(d) = probability of the difference tests.

Table II. Mean and Standard Deviations, and Summary of Effects of Maltreatment and Mother--Child Relationship Quality on Self-Esteem, Social Competence, and Internalizing/Externalizing Symptomatology Among Maltreated and Nonmaltreated Children

| Variables | Groups | | Source | | | |
|--------------------------------|--------------------|---------------------|-----------------|------------------|--------|-------|
| | Nonmaltreated M | Nonmaltreated SD | Maltreated M | Maltreated SD | F | df |
| Self-Esteem Inventory | | | | | | |
| Self-Esteem at Time 1 | .71 | .14 | .68 | .15 | 1.02 | 1.340 |
| Pupil Evaluation Inventory | | | | | | |
| Likeability at Time 1 | .37 | 1.15 | -.09 | .91 | 16.68* | 1.340 |
| TRF (Child Behavior Checklist) | | | | | | |
| Internalizing at Time 1 | 49.53 | 7.44 | 52.97 | 8.44 | 14.26* | 1.340 |
| Internalizing at Time 2 | 52.97 | 8.72 | 56.70 | 9.21 | 5.73 | 1.340 |
| Externalizing at Time 1 | 50.71 | 7.27 | 52.83 | 8.58 | 13.90* | 1.340 |

Externalizing at Time 2 53.84 9.67 57.94 9.56 15.05* 1.340

Source

Relatedness Interaction

| Variables | F | df | F | df |
|--------------------------------|--------|-------|------|-------|
| Self-Esteem Inventory | | | | |
| Self-Esteem at Time 1 | 42.58* | 1.340 | 1.75 | 1.340 |
| Pupil Evaluation Inventory | | | | |
| Likeability at Time 1 | 4.49 | 1.340 | .17 | 1.340 |
| TRF (Child Behavior Checklist) | | | | |
| Internalizing at Time 1 | 3.57 | 1.340 | .52 | 1.340 |
| Internalizing at Time 2 | .20 | 1.340 | .03 | 1.340 |
| Externalizing at Time 1 | .20 | 1.340 | .00 | 1.340 |
| Externalizing at Time 2 | .66 | 1.340 | .57 | 1.340 |

Note. Sample size is 139 for nonmaltreated children and 206 for maltreated children.

* $p < .01$.

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