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Mean-level change and intraindividual variability in self-esteem and depression among high-risk children

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Abstract

This study investigated mean-level changes and intraindividual variability of self-esteem among maltreated (n=142) and nonmaltreated (n=109) school-aged children from low-income families. Longitudinal factor analysis revealed higher temporal stability of self-esteem among maltreated children compared to nonmaltreated children. Cross-domain latent growth curve models indicated that nonmaltreated children showed higher initial levels and greater increases in self-esteem than maltreated children, and that the initial levels of self-esteem were significantly associated with depressive symptoms among maltreated and nonmaltreated children. The average level (mean of repeated measurements) of self-esteem was predictive of depression at the final occasion for both maltreated and nonmaltreated children. For nonmaltreated children intraindividual variability of self-esteem had a direct contribution to prediction of depression. The findings enhance our understanding of developmental changes in self-esteem and the role of the average level and within-person variability of self-esteem in predicting depressive symptoms among high-risk children.

Keywords

mean-level change; intraindividual variability; self-esteem; depressive symptoms

Self-esteem is an important construct in psychological research. In general, self-esteem is quantified as the sum of evaluations across salient attributes of one's self or personality (Blascovich & Tomaka, 1991). Its correlates have long been studied and is known to be related to affect (Brockner et al., 1983; Pelham & Swann, 1989), attributional bias (Tennen & Herzberger, 1987), loneliness, and peer rejection (Ammerman, Kazdin, & Van Hasselt, 1993; Caldwell, Rudolph, Troop-Gordon, & Kim, 2004; East, Hess, & Lerner, 1987), anxiety and depressive symptoms (Abela & Taylor, 2003; Pyszczynski & Greenberg, 1987; Rawson, 1992; Renouf & Harter, 1990; Tennen & Herzberger, 1987), and illness and health problems (Antonucci & Jackson, 1983; Roberts, Shapiro, & Gamble, 1999; Vingilis, Wade, & Adlaf, 1998).

Empirical evidence suggests a significant link between inadequate caregiving and difficulties in self-development (Sroufe, 1990). Children who are reared in stressful home environments, such as maltreating family environments, are less likely to achieve positive regards about self and high self-esteem (Cicchetti & Schneider-Rosen, 1986). However, in addition to levels of self-esteem, within-person stability/variability in self-esteem may differ between children who are coping with chronically stressful environments and those who are

not. The main goal of this study was to examine differences in self-esteem development between maltreated and nonmaltreated children in regard to stability and changes in self-esteem and the predictions of depressive symptoms.

Self-Esteem Development in Childhood

Studies of normative trajectory of self-esteem during childhood suggests that young children (early to middle childhood) have relatively high self-esteem because they tend to make unrealistically favorable self-attributes and overestimate their abilities (Harter, 1999; Robins & Trzensniewski, 2005). It is speculated that as children move from middle to late childhood they formulate a more balanced view of self, in which both positive and negative self-representations are integrated (Harter, 1999). With major advances in cognitive abilities during this developmental stage, children increasingly base their self-evaluations upon external feedback and social comparisons and form more accurate appraisal of their competence and abilities. For these reasons, self-esteem may gradually decline over the course of childhood (Robins & Trzensniewski, 2005).

Researchers have suggested that parent-child relationship quality is related to children's self-esteem. More specifically, prior studies have demonstrated that children and adolescents who receive affection, acceptance, security, and support from their parents show higher levels of self-esteem compared to those who do not (e.g., Barnes & Farrell, 1992; DeHart, Pelham, & Tenne, 2006; Kim & Cicchetti, 2003; Peterson, Southworth, & Peters, 1983; Roberts & Bengtson, 1993). For example, in a study of longitudinal trajectories of self-esteem from early to middle adolescence (7th through 10th grade), Deihl and her associates (1997) found three distinct trajectories including consistently high (47%), small increase (37%), and chronically low (16%). These clusters differed significantly with regard to family relationship indicating that positive qualities of family relationships protected against suffering significant decreases in adolescents' self-esteem during school transitions (Deihl, Vicary, & Deike, 1997).

Deficient parenting seems to be a risk factor for self-esteem development because it can lead to profound disturbances in the self (Harter, 1998). The negative impact of deficient parenting on self-esteem is consistent with the attachment theoretical viewpoint which suggests that self-esteem is created through the incorporation of the attitudes and evaluations that others, particularly parents in early childhood, hold toward the self (Bowlby, 1969/1982; Harter, 1998, 1999). Children who experience parental maltreatment do not receive the support necessary to develop a sense of self-worth and are more likely to develop a sense of inner badness (Harter, 1998). The detrimental effect of maltreatment is expected to contribute to low global self-esteem due to feelings of inadequacy and incompetence, and lack of support from parents (Fischer & Ayoub, 1994; Harter, 1998).

Indeed, many studies have demonstrated that maltreated children show low self-esteem and disrupted perceptions of competence. For example, studies using story-stem narrative data indicate that maltreated preschool- and school-aged children, compared to nonmaltreated children, evidence more negative representations of self (Toth, Cicchetti, Macfie, & Emde, 1997; Toth, Cicchetti, Macfie, Maughan, & Vanmeenen, 2000). Maltreated children are also more likely to be rated by teachers as having lower self-esteem and less positive self-concepts (Bolger, Patterson, & Kupersmidt, 1998; Cicchetti & Rogosch, 1997; Egeland, Sroufe, & Erickson, 1983; Toth et al., 1992; Vondra, Barnett, & Cicchetti, 1989) and report lower levels of self-esteem compared to nonmaltreated children (Kim & Cicchetti, 2006).

Overall, existing research suggests that maltreated children are vulnerable to impaired self-esteem development and are more likely to experience multiple risks for behavioral and psychological maladjustment (for review see Cicchetti & Rogosch, 1994). It is expected that

maltreated children, in general, will show lower self-esteem across time compared to nonmaltreated children. It is not known, however, whether maltreated and nonmaltreated children will show differences regarding within-person changes in self-esteem. Furthermore, developmental trajectories and intraindividual changes in self-esteem may be differentially related to depressive symptoms in maltreated children compared to nonmaltreated children.

The Link between Self-Esteem and Depression

It has been argued that self-representations are of little interest unless it can be demonstrated that they have broader behavioral implications or ramifications for how individuals adapt (Harter & Whitesell, 2003). Negative or low self-esteem is a central component of many theories of depression and clear links between perturbations in self and depressive symptoms have been shown empirically (Blatt & Zuroff, 1992; Cicchetti & Toth, 1995; Kim & Cicchetti, 2006). Literature suggests that self-esteem is important for understanding linkages between negative life events and depression. Abramson, Metalsky, and Alloy (1989), proposing the hopelessness theory of depression, argued that negative life events might foster negative inferences about the self, which in turn, may serve as a proximal contributory cause of depressive symptoms.

Prior studies have reported a strong association between low self-esteem and depression among children and adolescents in normal, clinical, and high-risk samples (Abela, 2002; Battle, Jarratt, Smit, & Precht, 1988; Kim & Cicchetti, 2006; Renouf & Harter, 1990; Rawson, 1992; Saylor, Finch, Spirito, & Bennett, 1984). The effects of stressful life events on adolescents' internalizing problems were mediated through their impacts on self-esteem (Dubois, Felner, Sherman, & Bull, 1994). In addition, high levels of self-esteem seem to buffer children with high levels of self-criticism from depressive mood reactions following negative events (Abela & Taylor, 2003).

Stability and Intraindividual Changes of Self-Esteem

Understanding the relationships between changes (based on longitudinal information) and differences (based on cross-sectional information) is a central concern of developmental research (e.g., Baltes, Reese, & Nesselroade, 1977). Accordingly, it is critical for research on developmental processes to provide direct information on developmental change within the individual (Wohlwill, 1973). Empirical evidence has been accumulated suggesting the importance of studying intraindividual variability in understanding complex developmental processes across the life span (e.g., Cattell, 1963; Fleeson & Leicht, 2006; Kim & Nesselroade, 2003; Lamiell, 1981; Larsen, 1987; Molenaar, 1985; Nesselroade, 2004). From a measurement standpoint, assessing intraindividual change and identifying interindividual differences (and similarities) in intraindividual change are main goals for longitudinal research because they are key to obtaining a fuller understanding of behavior and behavioral development.

While some might contend that self-esteem is relatively stable (e.g., Rosenberg, 1979), other researchers have suggested that the variability of self-esteem is a distinctive dimension from the level of self-esteem and plays a significant role in predicting adjustment outcomes. Previous studies by Kernis and his colleagues (see Kernis, 2005 for a review) have focused on level and stability of self-esteem. Level of self-esteem was defined as representations of individuals' general feelings of self-worth and was measured at a single point in time. In contrast, stability of self-esteem was defined as the magnitude of short-term fluctuations in individuals' immediate feelings of self-worth, and the instability of self-esteem was measured by the standard deviation of within-person self-esteem scores across short-term intervals (e.g., a half day).

In a study of young adults (50 undergraduate students), Kernis, Grannemann, and Mathis (1991) assessed the level of self-esteem in a mass-testing session using the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965). Stability of self-esteem was calculated by the standard deviation of the individual's repeatedly measures scores twice a day for four days. Self-reported depression was measured 4–5 weeks later. They found a significant interaction between level and stability of self-esteem indicating that low self esteem was associated with higher levels of depression particularly for individuals with stable self-esteem. Thus the authors concluded that low self-esteem was an important risk factor only for those individuals who experienced *chronically* low self-esteem. However, in another study of young adults (98 undergraduate students), self-esteem level did not predict increases in depression (Kernis et al., 1998). Instead, the interaction between self-esteem stability and daily stress was significantly predictive of changes in depression suggesting that increases in depression were greatest among individuals who reported substantial daily hassles and whose self-esteem was unstable regardless of the self-esteem level.

Roberts and his associates (1995) reported three studies addressing level and stability of self-esteem based on three independent data sets (total $N=504$ undergraduate students). In these samples, self-esteem was measured by the RSE (Rosenberg, 1965) either three times a week for three weeks or daily for one week. In addition to level of self-esteem (first assessment of the RSE), the authors calculated average of self-esteem which was the aggregate of the repeated assessments. In contrast to Kernis et al.'s (1991) findings, the interaction between level or average of self-esteem and stability of self-esteem was not significantly predictive of depression, suggesting that lower levels of self-esteem (whether measured by level or by average) were associated with higher levels of depression regardless of the stability of self-esteem. In a related study of young adults (225 undergraduate students), Roberts and Kassel (1997) reported limited evidence of an interaction between life events and instability of self-esteem (assessed as within-person standard deviation scores of self-esteem over the seven daily assessments). Unlike Kernis et al.'s (1991) findings, life stress was related to depression among persons with instable self-esteem compared to those with stable self-esteem, but this was true only among individuals who reported a severe previous episode of depression. The authors suggested that unstable self-esteem might represent vulnerability factors whereas stability might be associated emotional resilience.

Similarly, Greve and Enzmann (2003) viewed stability of the person's self-esteem as one of the key foci in the explanation of individual resilience in the face of unfavorable conditions and challenges. They studied 21 incarcerated male adolescents longitudinally (beginning of the prison term, 2 months later, end of prison term) and found an increase in self-esteem during the term of imprisonment. The changes of self-esteem were closely related to the individual's accommodative coping resources (which was measured by individual inclination to adapt to onerous experiences or circumstances by goal adjustment). That is, the increase in self-esteem is earlier and faster for high accommodative individuals. Such results demonstrate that individual's self-esteem can be actively enhanced and stabilized against threatening experiences (such as imprisonment) by coping process (Greve & Enzmann, 2003; Leary & Baumeister, 2000).

Thus, previous findings are not consistent across studies with regard to the relationship between self-esteem variability and depression. However, it is clear that the variability of self-esteem is a distinctive dimension from level of self-esteem and that systematic investigation of the role of self-esteem variability in predicting adjustment outcomes is warranted.

The Present Study

The current investigation tested whether the significance of the link between average level (the mean of a given individual's repeated measurements) and intraindividual changes (the standard deviation of the individual's repeated measurements) of self-esteem and depression differ between maltreated and nonmaltreated children. To our knowledge, no study has investigated within-person stability and variability of self-esteem in relation to depressive symptoms among high-risk children. Children in the present sample experienced multiple risks to their development including low socioeconomic status, limited maternal education, single parenting, and ethnic minority status. In addition, 57% of the children experienced maltreatment. Children's self-esteem and depression were assessed once a year over four years as part of a large-scale longitudinal study during elementary school.

First we fitted confirmatory factor analytic models using two-group structural equation modeling (Bollen, 1989) to test the measurement equivalence between maltreated and nonmaltreated children. Next, longitudinal confirmatory factor models evaluated the assumption that the SEI measurement battery measured the same construct across four occasions, thus providing justification for collapsing the yearly repeated measurements into indices of intraindividual variability and stability to characterize each person over time. Next, a series of cross-domain growth curve models were estimated to explore the relationships between self-esteem and depressive symptoms manifested in both intraindividual and interindividual components of change (McArdle & Bell, 2000).

As for examining stability and intraindividual changes in self-esteem and their relations to depression, we tested two alternative hypotheses regarding the contribution of self-esteem intraindividual variability to depressive symptoms. First, an *additive* model postulated that intraindividual variability of self-esteem would increase the probability of depression in children, separately from the risk posed by low levels of self-esteem, resulting in adding to the risk for depression. Alternatively, a *moderator* model proposed that the contribution of self-esteem level to depression is contingent on the degree of intraindividual variability of self-esteem. That is, self-esteem levels were predictive of depression only among individuals with stable or unstable self-esteem over time.

Method

Participants

The participants included 251 children (142 maltreated and 109 nonmaltreated) who attended a summer day camp in a Northeastern urban city. The research camp program was designed for maltreated and nonmaltreated children from economically disadvantaged families (Cicchetti & Manly, 1990). The four wave longitudinal data (with 1-year intervals) involved children ranging in age from 6 to 11 years ($M=8.46$, $SD=1.11$) at Wave 1. The majority of the children (72%) were of ages between 7~8 years at Wave 1. Consistent with gender ratios in the maltreated population, there were more boys than girls in the maltreated group and the matched nonmaltreated group in the present sample; 64% percent of the children were boys (159 boys and 92 girls). The sample consisted of children from diverse ethnic backgrounds: 65.7% African American, 21.1% European American, 10.8% Latino, and 2.4% other ethnic groups. About 88% of families in the maltreated group and 82% in the nonmaltreated group fell into the two lowest socioeconomic strata defined by Hollingshead (1975). Table 1 presents demographic information for the maltreating and nonmaltreating families. No significant differences were found between the maltreated group and the nonmaltreated group with respect to age, gender, socioeconomic status, parental marital status, and minority group membership.

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 day-care providers). All existing DSS records were coded by raters to specify the occurrence of sexual abuse, physical abuse, physical neglect, and emotional maltreatment according to the nosological classification system for child maltreatment developed by Barnett, Manly, and Cicchetti (1993). Coding was conducted by trained doctoral students and by clinical and developmental psychologists.

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 supplements. The demographic characteristics of these families were highly similar to those of the maltreating families and thus the independent effects of maltreatment beyond the influences of social adversity may be assessed. Parental consent was obtained to review DSS records and the 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. Additionally, all mothers in the nonmaltreated group were interviewed regarding any incidents that might have reflected officially undetected maltreatment. This screening process resulted in a reduction in the size of the nonmaltreated group relative to the maltreated group included in the study sample.

Procedure

Parents were asked to give their informed consent to have their child attend a summer day camp and participate in research assessments. Children also decided for themselves whether or not they wanted to participate by signing a child assent form. In camp, children participated in a variety of recreational activities that were appropriate for their developmental level and interests, and periodically took part in research assessments throughout the week. Each camp group consisted of six to eight same-age and same-sex children with approximately half of the children in each group having been maltreated. Three camp counselors led each camp group. Clinical psychologists trained camp counselors to administer camp activities for one week. Camp sessions lasted seven hours a day for five days. The counselors completed a number of assessment instruments at the end of each week. The counselors and research interviewers who administered assessment measures were unaware of the children's maltreatment status or of the research hypotheses.

Measures

Child Maltreatment—The narrative reports of the maltreatment incidents from the DSS records were coded according to the Maltreatment Classification System (MCS, Barnett et al., 1993). The MCS provided operational definitions and specific criteria for rating the severity of multiple subtypes of maltreatment including Emotional Maltreatment (e.g., persistent or extreme thwarting of children's emotional needs), Physical Neglect (e.g., failing to meet a child's needs for food, clothing, shelter, medical, dental, or mental health care, adequate hygiene, physical safety, or education), Physical Abuse (e.g., injuries that were inflicted upon a child by non-accidental means), and Sexual Abuse (e.g., any sexual contact or attempted sexual contact occurred between a child and an adult)

Among 142 maltreated children, 67% were emotionally maltreated, 74% were neglected, 40% had been physically abused, and 18% had been sexually abused. Interrater 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 physical neglect. Consistent with the high co-occurrence of subtypes that are found in the literature (e.g., Manly, Kim, Rogosch, & Cicchetti., 2001), 72% of the maltreated children in this sample experienced two or more forms of maltreatment. For 92% 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, this study focused on examination of maltreatment versus nonmaltreatment differences rather than individual subtypes.

Self-Esteem—The Self Esteem Inventory (SEI; Coopersmith, 1981) 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. Each item was rated as “0 = unlike me” or “1 = like me.” The SEI consists of four subscales designed to assess perceptions of self (General Self subscale: 26 items, e.g., “I am pretty sure of myself.”), peers (Social Self-Peers subscale: 8 items, e.g., “I’m popular with kids my own age.”), parents (Home-Parents subscale: 8 items, e.g., “My parents usually consider my feelings.”), and school (School-Academic subscale: 8 items, e.g., “I’m proud of my school work.”). There is no item overlap across subscales. The total self score was computed by summing up the four subscale scores. Previous research has demonstrated adequate reliability and validity of this scale (Coopersmith, 1981). In the current study, the mean of Cronbach’s alphas across four waves for the SEI was .85.

Depressive Symptoms—The Children’s Depression Inventory (CDI; Kovacs, 1985) was a 27-item self-report questionnaire that assessed children’s depressive symptoms. Each item consisted of three statements scored from 0 to 2, in order of increasing severity. For the current sample, the internal consistency (Cronbach’s alpha) for the CDI was .84. In this study, only the CDI scores at the last occasion were used (i.e., Wave 3 or Wave 4).

Results

Table 2 displays descriptive statistics of the SEI and the CDI scores used in the analyses. Due to missing data, sample sizes varied across the four measurements. Among 251 children in the sample, 232 children had the SEI data for Time 1, 235 children for Time 2, 233 children for Time 3, and 156 children for Time 4. All children in the sample had data on the SEI measure for at least three time points over four consecutive years. The impact of “missingness” on the study was assessed by testing the significance of differences in demographic variables (age and gender), presence of maltreatment experience, and the baseline levels of self-esteem (SEI) and depressive symptoms (CDI) between the groups with and without missing data in the SEI. The results of a logistic regression indicated that children with and without missing data did not differ in terms of their baseline scores on the SEI ($B = .07$, $SE = 1.20$, ns), the CDI ($B = .01$, $SE = .02$, ns), age ($B = .24$, $SE = .13$, ns), gender ($B = .13$, $SE = .28$, ns), or maltreatment experience ($B = -.08$, $SE = .27$, ns). For all statistical tests, an alpha level of .05 was used.

Examination of Factorial Invariance and Stability

We fitted two-group confirmatory factor analytic models using AMOS 7.0 (Arbuckle, 2006) to test the measurement equivalence of self-esteem measures between maltreated and nonmaltreated children and the equivalence of the latent structure of self-esteem over time. As can be seen in Figure 1, a single factor model was specified with the four subscale scores (General Self subscale, Social Self-Peers subscale, Home-Parents subscale, and School-Academic subscale) loaded on the self-esteem latent factor at each time point. The latent factors of self-esteem were allowed to correlate with each other across occasions to estimate

between-occasion factor relationships. In addition, the unique variances were allowed to covary between the corresponding variables across the two time points. The longitudinal factor model was fitted to data from Time 1 ($n = 251$) and Time 3 ($n = 233$). Due to a large number of missing data at Time 4, data from Time 1 and Time 3 were used.¹ In the configural invariance model, all the parameters estimated were allowed to vary across the two groups and time, and then equality constraints were imposed hierarchically to test the adequacy of the constraints using nested chi-square difference tests (Bollen, 1989).

In the equal between-group factor loadings model, factor loadings were constrained to be equal to their counterparts across time to examine whether maltreated and nonmaltreated children show differences in factor stability (estimated by latent factor correlation) and factorial invariance of self-esteem (estimated by equal factor loadings) over time. As shown in Table 3, the difference between configural invariance and the equal between-group factor loadings models was not significant, indicating that the maltreated group and the nonmaltreated group did not differ with respect to factor loadings as well as factor variance. All of the factor loadings for the self-esteem latent factor were significant, thereby lending support to their construct validity. Next, the equal longitudinal factor loadings model was fitted to test equivalence of the latent structure of self-esteem over time by examining factorial invariance across waves. As shown in Table 3, model fit comparison indicated that the overall fit of the equal longitudinal factor loadings model was not significantly worse than that of the equal between-group factor loadings model. Therefore, we concluded that the latent structure of the self-esteem measure was invariant across occasions for both maltreated and nonmaltreated children.

Finally, in the equal factor covariance model, an equality constraint was added on the factor covariance between the groups. The difference between the equal longitudinal factor loadings model and the equal factor covariance model was significant, suggesting that the magnitude of factor covariance significantly differed between maltreated and nonmaltreated groups. Parameter estimates of the equal longitudinal factor loadings model (best-fitting model) are reported in Table 3. The stability of the factor scores between Time 1 and Time 3 differed significantly between the groups: $r = .64$ ($p < .05$) for maltreated children and $r = .42$ ($p < .05$) for nonmaltreated children.

Testing Differences in Growth Trajectories of Self-Esteem between Maltreated and Nonmaltreated Children

In order to examine individual differences in growth functions of the SEI and the CDI scores, we conducted growth curve analyses with a maximum likelihood estimation method, which allows for inclusion of respondents with missing data by using full information maximum likelihood (FIML) estimation (Arbuckle, 1996). The growth curve model involved two latent factors for each psychological construct. The intercept factor represented the initial starting point of the growth function, and the four factor loadings for the latent intercept factor were fixed to 1. The slope latent factor represented the rate of change in the growth trajectory over time. The latent intercept and slope factors were freely correlated.

We used wave of the assessment as a metric in the growth curve models rather than age of the children. This was because we found that the excessive amount of missing data at each age caused problems in initiating the missing data EM algorithm and resulted in non-convergence. More specifically, we used a 4 X 4 (4 assessments) covariance matrix to delineate developmental trajectories over six chronological ages (i.e., 7 to 12 years of age

¹There were 19 children who did not have Time 1 SEI scores but had Time 2 SEI scores; for those children, their Time 2 and Time 4 scores were used for Time 1 and Time 3 scores, respectively.

over the four waves of measurement). In the current sample, 72% of the children were between 7~8 years of age at Time 1. We investigated whether the developmental trajectories of self-esteem differed depending on the age at the initial assessment using a multiple group structural equation model. No significant age by slope interactions were found, suggesting that the variability in children's chronological age at Time 1 did not affect the estimation for the growth trajectories of self-esteem (see Kim & Cicchetti, 2006 for more detailed results).

A series of two-group cross-domain growth models were fitted to examine differences between maltreated and nonmaltreated children in (1) the pattern of the longitudinal trajectories of self-esteem and depression, (2) cross-domain relationships between self-esteem and depression growth factors, and (3) factor means and variances of the self-esteem and depression growth factors. In these cross-domain growth models, we estimated correlations between (1) the SEI and the CDI intercept factors, (2) the SEI and the CDI slope factors, (3) the SEI intercept and slope factors, and (4) the CDI intercept and slope factors. We tested bidirectional prospective prediction of changes by estimating a regression path from the SEI intercept to the CDI slope and a regression path from the CDI intercept to the SEI slope. We allowed measurement error variances to covary across the two constructs within the same measurement point.

In Table 4, the first model was a configural invariance model in which all parameters were freely estimated across the two groups. We tested the effects of gender by including a dichotomous variable of gender (0=girl, 1=boy) as a covariate in the cross-domain growth models. The SEI and CDI intercept and slope latent factors were regressed on gender. Non-significant regression parameters indicated that initial levels and growth in self-esteem and depressive symptoms did not vary as a function of gender, therefore, the gender variable was not included in the following models. The second model was the SEI equal slope model in which we imposed equality constraints upon the two factor loadings of the SEI slope factor to test the group differences in the pattern of self-esteem trajectories. These constraints did not lead to a significant decrement in model fit, indicating that the shape of self-esteem growth trajectories was similar between maltreated and nonmaltreated children. As for the CDI equal slope model, we added equality constraints on the two factor loadings of the CDI slope factors. These additional equality constraints did not degrade the model fit, suggesting that the shape of depression growth trajectories was similar between maltreated and nonmaltreated children.

Next, for the equal factor covariance model, we tested invariance of the factor covariances between the SEI intercept and CDI intercept, and between the SEI slope and CDI slope. These constraints did not lead to a significant decrement in model fit, indicating that the magnitude of the cross-domain correlations between intercept factors and slope factors were similar between maltreated and nonmaltreated children. For the equal cross-domain regression model, we tested the equality of the regression coefficients for the cross-domain effects (i.e., the effect of the SEI intercept on the CDI slope and the effect of the CDI intercept on the SEI slope). The fit of the equal cross-domain regression model was not significantly worse than that of the equal covariance model. This result suggested that the association between the SEI intercept and the CDI slope, and the association between the CDI intercept on the SEI slope did not significantly differ between maltreated and nonmaltreated groups. For the equal factor variance model, we added equality constraints for the variances of the SEI and CDI growth factors. The non-significant difference in the model fits between the equal cross-domain regression model and the equal factor variance model indicated that the individual variability in the intercept and slope factors of the SEI and CDI was not significantly different between the maltreated and the nonmaltreated groups. Finally, for the equal factor mean model, we tested the equality for the means of the SEI and CDI growth factors (i.e., the intercept and slope factors). The model fit of the equal

factor mean model was significantly worse than the model fit of the equal factor variance model, indicating that the initial levels and the rates of change in the growth trajectory for the SEI and CDI were significantly different between maltreated children and nonmaltreated children.

As shown in Table 4, a closer examination of parameter estimates in the equal factor variance model (best-fitting model) indicated that the mean of the SEI slope was significant and positive for the nonmaltreated group but the mean of the SEI slope was not significant for the maltreated group. For both the maltreated and nonmaltreated group, the mean of the CDI slope was significant and negative. Of greater importance, for both maltreated and nonmaltreated children, the initial level of self-esteem was significantly predictive of the slope of depression, but the initial level of depression was not significantly predictive of the slope of self-esteem. In addition, the initial level of self-esteem and the initial level of depression were negatively correlated but there was no significant correlation between the slope of self-esteem and the slope of depression. The effect size of the cross-domain regression coefficients was evaluated by estimating changes in model fit after fixing the corresponding path parameters to zero. As expected, fixing the regression coefficient between the SEI intercept and the CDI slope to zero significantly worsen the model fit ($\Delta\chi^2 = 8.43$, $\Delta df = 1$, $p < .05$) whereas fixing the regression coefficient between the CDI intercept and the SEI slope did not ($\Delta\chi^2 = .06$, $\Delta df = 1$, *ns*).

Intraindividual Variability and Stability of Self-Esteem

Means and standard deviations for the average level (Intra Mean) and intraindividual variability (Intra SD) scores of the SEI are presented in Table 1. Analogous to operationalization by previous researchers (e.g., Kernis et al, 1991; Roberts et al., 1995), we defined average level as the mean of a given individual's repeated measurements over the four occasions. Intraindividual variability (stability/instability in Kernis et al.'s studies) was the standard deviation of the individual's scores over the four occasions, thus reflecting the degree of within-person fluctuation over time. Higher scores reflected greater variability. The Intra Mean scores can be thought of as estimates of trait scores because they are averages over time (and situation) for each individual. The Intra SD scores can be thought of as reflecting the amount of variability manifested over four years. The analyses using Intra Mean and Intra SD scores involved only 215 children (123 maltreated children and 92 nonmaltreated children) who had data for three or four consecutive years (thus having no skipping year between the first and the last occasions) for assessing year-to-year variability.

As expected, maltreated children showed lower SEI Intra M scores than nonmaltreated children ($t = 3.03$, $df = 245.87$, $p < .05$). The effect sizes were moderate in magnitude, Cohen's $d = .38$. However, there was no significant difference between maltreated and nonmaltreated children with regard to SEI Intra SD scores ($t = .12$, $df = 249$, *ns*, Cohen's $d = .01$). For both maltreated and nonmaltreated children, SEI Intra M was negatively correlated with SEI Intra SD ($r = -.23$, $p < .05$ for maltreated children and $r = -.27$, $p < .05$ for nonmaltreated children), and the correlations were not significantly different between the two groups ($Z = .36$, *ns*).

The results of cross-domain growth models suggested that initial levels of self-esteem were predictive of developmental changes (slopes) of depressive symptoms but not vice versa. We used hierarchical regression to predict CDI scores based on SEI Intra Mean and Intra SD scores. In order to test whether the effects of SEI Intra Mean and Intra SD scores significantly differ between the maltreated and the nonmaltreated groups, we performed a multiple regression analysis that involved the main effects of maltreatment status (0 = nonmaltreated and 1 = maltreated), SEI Intra Mean, SEI Intra SD, and three two-way interactions (i.e., between maltreatment and SEI Intra Mean, between maltreatment and SEI

Intra SD, and between SEI Intra Mean and SEI Intra SD). To decrease the likelihood of multicollinearity between the interactive term and its components, both SEI Intra Mean and Intra SD scores were centered before taking their cross-products by subtracting the mean value for each of these variables from individual scores (e.g., Aiken & West, 1991). Findings of the multiple regression analysis indicated that the main effects of SEI Intra Mean ($Beta = -.57, t = -5.24, p < .05$) and SEI Intra SD ($Beta = -.19, t = -2.05, p < .05$), and the interaction effect between maltreatment and SEI Intra SD ($Beta = .18, t = 1.95, p = .05$) were significant; multivariate $F(6, 208) = 11.51, p < .05$. We proceeded to test hierarchical regression models to estimate unique contributions of SEI Intra Mean and SEI Intra SD, and the interaction between them to predicting depression separately for maltreated and nonmaltreated children.

In Table 5, the dependent variable was the CDI scores at the last occasion, which represented either Time 4 or Time 3 scores. There were 100 children whose last occasion CDI scores were from Time 3 because their data were missing at Time 4. For all other children, Time 4 CDI scores used. SEI Intra Mean and Intra SD scores were entered simultaneously in Step 1, and the interaction term between SEI Intra Mean and Intra SD was added in Step 2. As can be seen in Table 5, the main effect of SEI Intra Mean was significant, indicating an inverse relation between average levels of self-esteem and the last occasion depression scores both for maltreated and nonmaltreated children. However, the main effect of SEI Intra SD was significant only for nonmaltreated children showing that intraindividual variability of self-esteem was negatively related to the level of depression at the final occasion. The interaction effect between SEI Intra Mean and Intra SD scores was not significant for either the maltreated or nonmaltreated group.

Next, we examined the extent to which Intra Mean and Intra SD scores predicted *changes* in CDI scores between the initial assessment and the final assessment. In Step 1, the final occasion CDI scores were regressed onto the Time 1 CDI scores, SEI Intra Mean scores, and SEI Intra SD scores. In Step 2, the two-way interaction term between SEI Intra Mean and Intra SD scores was added. As shown in Table 5 (Model 2), the interaction effect between the SEI Intra Mean and Intra SD scores was not significant. For both maltreated and nonmaltreated groups, SEI Intra Mean was significantly predictive of changes in CDI scores. Time 1 CDI scores were positively associated with the final occasion CDI scores for nonmaltreated children only (see Step 1 of Model 2).

Discussion

Research and theory in resilience and developmental psychopathology areas depict two sets of protective factors that promote resilience in the face of life's adversities: social resources and personal resources (Luthar, Cicchetti, & Becker, 2000; Rutter, 1987). First, social resources pertain to social integration or connectedness in the form of close relations with supportive adults, effective schools, and connections with competent, prosocial adults in the wider community. Second, personal resources encompass subjective dispositions such as self-esteem, mastery, self-understanding, basic values and priorities. The current investigation focused on the role of self-esteem as a personal resource that may promote resilience among high-risk children. The sample involved school-aged children who were from low-income families, more than half of which had been maltreated thus lacked one of the primary social resources of supportive family relationships.

Developmental Changes in Self-Esteem among Maltreated and Nonmaltreated Children

Nonmaltreated children in this high-risk sample showed increases in self-esteem over the four time points. This finding is in line with previous growth curve research reporting a general tendency of increases in perceptions of internal control among school-aged children

in a community sample (e.g., Bolger and Patterson, 2001). In contrast, a recent study by Robins and Trzesniewski (2005) reported gradual declines in self-esteem in childhood based on a large cross-sectional study of individuals that included children aged 9 to 12 years. A declining trend in self-esteem was also reported in a meta-analytic review of children's self-esteem (Twenge & Campbell, 2001). The discrepant findings in this study regarding developmental trajectories of children's self-esteem may be due partly to differences in methodology and sample characteristics. The current study examined longitudinal changes of self-esteem based on repeated measures of the same individuals over time whereas the other studies employed cross-sectional data to examine age differences. The present sample included high-risk children with over half of them having experienced some sort of maltreatment, whereas Robins and Trzesniewski's report was based on community samples of children.

In general, nonmaltreated children showed higher levels of self-esteem than maltreated children as indicated by mean comparisons at each occasions and the average level of self-esteem of repeated measurement (i.e., Intra Mean scores). In addition, nonmaltreated children showed significant increases in self-esteem over four years whereas maltreated children showed no changes. Such findings converge with well-documented detrimental effects of maltreatment on the development of children's self-system processes (e.g., Bolger et al., 1998; Cicchetti, 1991; Cicchetti & Rogosch, 1997; Egeland, et al., 1983; Toth et al., 1997). The current results provide compelling information that enhances existing knowledge regarding the development of self-esteem by showing that maltreated children exhibit not only lower levels of self-esteem but also non-significant (or slower if any) changes in self-esteem compared to nonmaltreated children from similar socio-demographic background. Furthermore, this finding implies that the deleterious effects of maltreatment on self-esteem may increase over time. Thus, in accordance with the life course perspective suggesting continuity in resilience and accumulation in advantage/disadvantage (Merton, 1968), it may be that those who are high in self-esteem in their early years are likely to be even better off in regard to self-esteem in their later years (e.g., Robins & Trzensniewski, 2005). Supporting the life-course theory of cumulative disadvantage (Elder, 1995), this study's findings demonstrate that the discrepancy in self-esteem between maltreated and nonmaltreated children increased over time.

Links between Self-Esteem Growth Factors and Depression Growth Factors

In examining measurement invariance and temporal stability of self-esteem, some interesting findings emerged. The results of longitudinal factor analyses revealed that the structural patterns of self-esteem latent factor were similar over two years between maltreated and nonmaltreated children. This finding suggests that there were no 'qualitative' changes in children's self-esteem across repeated measurements (McArdle & Nesselroade, 1994). However, it should be noted that temporal stability of self-esteem was higher in maltreated children than in nonmaltreated children. We found that the test-retest correlations ($r = .64$ for the maltreated group and $r = .40$ for the nonmaltreated group over a two-year period) in this high-risk sample were within the ranges that were reported in previous studies using community samples. For example, Coopersmith (1967) reported test-retest correlations of .70 over 3 years, and Rubin (1978) reported test-retest correlations of .42 between ages 9 and 12 in one sample, and .64 between ages 12 and 15 in another sample. Combined with the finding that maltreated children showed lower levels of self-esteem than nonmaltreated children across all the repeated measurements, the higher temporal stability found among maltreated children demonstrates that maltreated children showed *stable* low self-esteem compared to nonmaltreated children.

The two group structural equation model indicated that the initial level of self-esteem predicted changes in depression but the initial level of depression did not predict changes in

self-esteem. The strength of the links between the growth factors of self-esteem and depression did not differ significantly between maltreated children and nonmaltreated children. The current study dovetails with others demonstrating significant associations between low self-esteem and depressive symptoms in children and adults (e.g., Abela, 2002; Battle et al., 1988; Rawson, 1992; Renouf & Harter, 1990; Roberts et al., 1995; Roberts et al., 1999). Consistent with the hopelessness theory of depression (Abramson et al., 1989), we found stronger support for the longitudinal influences of self-esteem on changes in depression than the other way around. The current result expands previous findings by demonstrating that lower self-esteem is critical to the development of depression among children at high risk.

Predicting Depression Based on Average Level and Intraindividual Variability of Self-Esteem

One of the primary questions addressed in the present study was to investigate both (trait-like) average levels and intraindividual variability in self-esteem and their contributions to depression among children. This investigation is one of the first to examine intraindividual variability of self-esteem in a high-risk sample of school-aged children. As expected, maltreated children exhibited lower average levels of self-esteem compared to nonmaltreated children but maltreated and nonmaltreated children did not differ as to the amount of intraindividual variability. Consistent with prior research (e.g., Roberts et al., 1995), lower average levels of self-esteem (based on repeated measures) were associated with higher levels of depressive symptoms at the final occasion in maltreated and nonmaltreated children. There was no significant interaction between the average level and intraindividual variability of self-esteem, suggesting that the association between average level of self-esteem and depression did not vary depending on the level of within-person variability. However, intraindividual variability was predictive of depression only for nonmaltreated children. We further investigated whether the average level and intraindividual variability of self-esteem were associated with final occasion depression scores after taking into account the initial levels of depression. For both maltreated and nonmaltreated children, the average level of self-esteem was consistently associated with depression scores at the final occasion after controlling for the initial level of depression, but intraindividual variability was not.

As Baird, Le, and Lucas (2006) suggested, if variability is an important and meaningful individual difference, it should be able to predict outcomes above and beyond the contribution of the average levels. In the current data, there was evidence supporting the *additive* model, demonstrating that for nonmaltreated children, within-person variability of self-esteem was predictive of depression independent of the average level of self-esteem. Interestingly, higher intraindividual variability was related to lower levels of depression among nonmaltreated children. In contrast, although equivocal, previous studies of young adults have suggested that unstable self-esteem (e.g., higher variability or instability) may be a vulnerability factor associated with high levels of depression (e.g., Kernis et al., 1998; Roberts et al., 1995). The discrepancy in findings may be due to the fact that the current investigation measured year-to-year intraindividual variability whereas previous studies assessed day-to-day fluctuations (e.g., Kernis et al., 1991; Roberts et al., 1995). In the current sample, maltreated children, who were more vulnerable to emotional maladjustment, showed consistently lower levels of self-esteem compared to nonmaltreated children. Yet, maltreated and nonmaltreated children did not show any significant difference regarding the amount of intraindividual variability. Thus, it appears that consistently low levels of SEI scores among maltreated children were not affected by a floor effect. It may be that within-person fluctuations in self-esteem did not influence a depressed affect among maltreated children whose levels of self-esteem were consistently low. Alternatively, exhibition of

year-to-year fluctuations within increasing trajectories of self-esteem found among nonmaltreated children may be an indication of emotional resilience. The mechanisms by which intraindividual variability in self-esteem is linked to depression remains an issue for future research.

Several limitations and directions for future investigation should be noted. First, this study relied only on self-reports of self-esteem and depressive symptoms. Although there is evidence that self-report measures seem to be particularly revealing for symptomatic behaviors that are related to private or internal experience such as low self-esteem and depressive feelings (e.g., Kendall, Cantwell, & Kazdin, 1989), the associations between self-esteem and depressive symptoms may be enhanced due to method variance and within-subject bias. Future research in this area would benefit from using multiple informants (e.g., parents, teachers, and clinicians) and multiple methods (e.g., observation, clinical interview, and formal diagnostic criteria).

Second, in light of the findings by Roberts and Kassel (1997) showing that instability of self-esteem exacerbated the impact of life stress on depression for individuals with severe depression, future research needs to consider examining relations between the average level and variability of self-esteem and depressive symptoms in different subgroups of depression severity (e.g., non-depressed, moderately depressed, and severely depressed). Another potentially fruitful direction for future research is to examine the relation between stability and intraindividual variability of self-esteem and other types of psychopathology. For example, prior research has demonstrated that there was a modest yet robust relation between low self-esteem and externalizing problems such as aggression and antisocial behaviors (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). As suggested by the multifinality principle of developmental psychopathology (Cicchetti & Rogosch, 1996), some children with low self-esteem may display internalizing problems whereas others with low self-esteem may exhibit externalizing problems.

Finally, from the standpoint of methodology, future researchers should be aware of potential artifacts that the associations between Intra SD scores and outcomes may be largely due to the effect of mean-level variance. In a recent study of intraindividual variability of personality, Baird and his colleagues (2006) showed that when the distribution of Intra Mean scores is skewed, the Intra SD scores can conflate mean-level variance with true change over time. It should be also noted that the Intra SD scores in the current study was confounded fluctuations of self-esteem that occurred over years and the amount of true developmental change occurring between assessments. Because of limitations in sample size and number of measurements, we could not apply a latent trait-state approach (e.g., Kenny & Zautra, 1995; Cole, Nolen-Hoeksema, Girgus, & Paul, 2006). In subsequent research, it will be important to use a latent trait-state-error model and estimate intraindividual variability while accounting for developmental change.

In summary, findings from this study suggest that child maltreatment presents formidable challenges that interfere with the healthy development of self-esteem. Dysfunctional caregiving (or parenting) behaviors were associated with disturbances in the development of self-esteem, as indicated by consistently lower levels of self-esteem among maltreated children compared to nonmaltreated children and increasing gaps between the two groups over four years. This study highlights the need for studying mean-level change and within-person variability in self-esteem to obtain a better understanding of both normal and abnormal development of self-esteem in relation to individuals' adaptation across lifespan.

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Figure 1.

Longitudinal confirmatory model for the Occasion 1 and Occasion 3 SEI data. The correlations between error variances of the Occasion 1 and Occasion 3 manifest variables are not shown. GEN = General Self subscale; SOC = Social Self-Peers subscale; HOM = Home-Parents subscale; SCH = School-Academic subscale.

Table 1
Comparison of Maltreated and Nonmaltreated Children on Demographic Characteristics

Variables	M (SD)/Percentage		t (df) or χ^2 (df)
	Maltreated (n=142)	Nonmaltreated (n=109)	
Child age (years)	8.43 (1.09)	8.50 (1.44)	.47 (249)
Child gender (% male)	63%	63%	.00 (1)
Ethnicity			7.13 (3)
African American	56%	73%	
European American	30%	16%	
Latino	13%	9%	
Other	1%	2%	
Family Hollingshead (the two lowest socioeconomic strata)	88%	82%	1.76 (1)
Marital status (% not married)	67%	72%	.51 (1)

Table 2
Descriptive Statistics for Self-Esteem of Maltreated and Nonmaltreated Children

Variables	Maltreated (N=142) ^a			Nonmaltreated (N=109) ^b			Univariate <i>t</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range		
SEI at Time 1	.67	.15	.24–.98	.69	.14	.34–.96	1.09	.14
SEI at Time 2	.70	.15	.34–.96	.74	.13	.34–.98	2.36*	.28
SEI at Time 3	.71	.15	.30–1.00	.76	.13	.42–1.00	2.68*	.36
SEI at Time 4	.72	.16	.36–1.00	.81	.13	.46–.98	3.81*	.62
SEI Intra Mean	.69	.13	.31–.96	.74	.11	.46–.97	2.79*	.42
SEI Intra SD	.09	.05	.00–.23	.09	.05	.01–.22	.50	0
CDI at Time 1	9.82	8.12	0.00–35.00	9.06	6.73	0.00–30.00	–.79	.10
CDI at Time 2	7.57	6.71	0.00–27.00	6.73	6.42	0.00–25.00	–.99	.13
CDI at Time 3	6.79	5.77	0.00–32.00	6.05	5.48	0.00–29.00	–.98	.13
CDI at Time 4	6.46	5.69	0.00–24.00	4.89	5.05	0.00–21.00	–1.76 [†]	.29

Note. SEI=Self-Esteem Inventory.

^aN=124 for SEI Intra Mean and SEI Intra SD scores.

^bN=93 for SEI Intra Mean and SEI Intra SD scores.

[†]*p* < .10.

**p* < .05.

Table 3

Model Fit Indices, Parameter Estimates, Standard Errors, and Critical Ratios for Two-Group Longitudinal Factor Models

Overall Model Fit Indices									
Model Label	χ^2	df	p(exact)	CFI	RMSEA	p(close)	$\Delta\chi^2$	Δdf	p(d)
Configural invariance	25.30	30	.71	1.00	.00	.99			
Equal between group factor loadings	35.08	36	.51	1.00	.00	.98	9.78	6	.13
Equal longitudinal factor loadings	36.33	39	.59	1.00	.00	.99	1.25	3	.74
Equal factor covariance	40.13	40	.46	1.00	.00	.98	3.81	1	.05
Equal Factor Loadings Model									
	Maltreated (N=142)				Nonmaltreated (N=109)				
	Estimate	SE	C.R.	Estimate	SE	C.R.	Estimate	SE	
Factor loadings (Time 1 & Time 3)									
General Self → SEI	1.00=			1.00=					
Social-Peers → SEI	.86*	.08	11.34	.86*	.08	11.34			
Home-Parents → SEI	1.00*	.09	11.76	1.00*	.09	11.76			
School-Academic → SEI	.83*	.07	11.45	.83*	.07	11.45			
Factor variances									
SEI Time 1	.02*	.00	6.45	.02*	.00	5.32			
SEI Time 3	.02*	.00	6.69	.02*	.00	5.06			
Factor covariances									
SEI Time 1 → SEI Time 3	.01*	.00	5.30	.01*	.00	2.94			

Note. SEI=Self-Esteem Inventory. p(exact)=probability of an exact fit to the data; CFI=comparative-fit index; RMSEA=root mean square error of approximation; p(close)=probability. C.R.=Critical Ratio. The “=” symbol means a parameter is fixed.

* $p < .05$.

Two-Group Cross-Domain Growth Curve Models for Self-Esteem and Depressive Symptoms of Maltreated and Nonmaltreated Children

Table 4

Overall Model Fit Indices									
Model Label	χ^2	df	p(exact)	CFI	RMSEA	p(close)	$\Delta\chi^2$	Δdf	p(d)
Configural Invariance	35.32	28	.16	.99	.03	.81			
Eq. SEI Slope	35.47	30	.23	.99	.03	.88	.15	2	ns
Eq. CDI Slope	35.70	32	.30	1.00	.02	.93	.23	2	ns
Eq. Factor Covariance	38.58	36	.35	1.00	.02	.96	2.88	4	ns
Eq. Cross-Domain Reg	39.25	38	.41	1.00	.01	.97	.67	2	ns
Eq. Factor Variance	43.98	42	.39	1.00	.01	.97	4.73	4	ns
Eq. Factor Mean	61.34	46	.07	.98	.04	.82	17.37	4	< .05
Equal factor variance model									
	Estimate			Std. Error	Critical Ratio				
Factor loadings									
Time 1 → SEI slope	0=								
Time 2 → SEI slope	.47*			.07			6.45		
Time 3 → SEI slope	.69*			.08			8.89		
Time 4 → SEI slope	1=								
Time 1 → CDI slope	0=								
Time 2 → CDI slope	.59*			.09			6.59		
Time 3 → CDI slope	.87*			.09			10.88		
Time 4 → CDI slope	1=								
Factor covariances									
SEI intercept CDI intercept	-.52*			.10			-5.22		
SEI slope CDI slope	-.13			.08			-1.64		
SEI intercept SEI slope	-.00			.00			-1.29		
CDI intercept CDI slope	-7.21			5.66			-1.27		
Regressions between SEI and CDI factors									
SEI intercept → CDI slope	24.65*			6.65			3.71		
CDI intercept → SEI slope	.00			.00			.32		
Factor variances									

<i>Equal factor variance model</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>Critical Ratio</i>
SEI intercept	.01 *	.00	5.46
SEI slope	.01 *	.00	2.21
CDI intercept	35.37 *	7.50	4.72
CDI slope	14.72	7.05	2.09
Factor means			
SEI intercept	.66 ^a /.68 *	.01/.01	54.59/47.39
SEI slope	.05/.11 *	.03/.03	1.49/3.40
CDI intercept	9.73 ^a /9.10 *	.66/.67	14.78/13.63
CDI slope	−19.79 ^a /−20.56 *	4.49/4.58	−4.41/−4.49

Note. SEI = Self-Esteem Inventory, CDI = Children's Depression Inventory. $\rho(\text{exact})$ = probability of an exact fit to the data; CFI = comparative-fit index; RMSEA = root mean square error of approximation; $\rho(\text{close})$ = probability of a close fit to the data; $\Delta\chi^2$ =difference in likelihood ratio tests; Δdf =difference in *df*; $\rho(d)$ =probability of the difference tests. The means for latent factors, maltreated children are on the left and nonmaltreated children are on the right. The “=” symbol means a parameter is fixed.

* $p < .05$.

Table 5
Summary of Hierarchical Regression Analysis for Self-Esteem Variables Predicting Depression of Maltreated and Nonmaltreated Children

Variables	Maltreated (N=123)						Nonmaltreated (N=92)					
	Step 1			Step 2			Step 1			Step 2		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Model 1												
Intra Mean	-19.99	3.57	-.46*	-18.38	3.74	-.43*	-24.29	4.30	-.53*	-24.35	4.33	-.54*
Intra SD	4.40	9.83	.04	7.58	10.04	.06	-19.21	9.45	-.19*	-19.77	9.80	-.20*
Interaction				114.75	81.09	.12				18.55	79.36	.02
F			17.17*			12.21*			16.07*			10.62*
df(Model/residual)			2, 120			3, 119			2, 89			3, 88
R ² adjusted			.21			.22			.25			.24
Model 2												
CDI 1st	7.80	4.68	.21	8.16	4.68	.22	14.10	5.20	.39*	15.55	5.30	.43*
Intra Mean	-28.98	5.40	-.67*	-27.88	5.45	-.64*	-39.93	5.76	-.87*	-40.76	5.78	-.88*
Intra SD	-1.10	9.02	-.01	1.71	9.24	.01	-9.33	9.29	-.10	-9.75	9.26	-.10
Interaction				97.03	72.07	.11				84.55	65.50	.10
F			16.35*			12.79*			21.73*			16.82*
df(Model/residual)			3, 137			4, 136			3, 104			4, 103
R ² adjusted			.25			.25			.37			.37

Note. CDI 1st = Children's Depression Inventory at the first participation.

* $p < .05$.