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## Girls in Foster Care: Risk and Promotive Factors for School Adjustment Across the Transition to Middle School

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### Abstract

Girls in foster care may face difficulties across the transition to middle school. Latent growth curve modeling was employed to examine trajectories and predictors of academic competence and aggression from and against peers for 75 girls in foster care from the end of elementary school to the 2<sup>nd</sup> year of middle school. Across the transition to middle school, academic competence increased. Poor self-regulation was associated with decreased academic competence, and higher caregiver support was associated with increased academic competence. Frequency of aggression from peers decreased across the transition, with perceived school competence predicting smaller decreases. Aggression against peers dropped initially and then increased to pretransition levels by the end of the 2<sup>nd</sup> year of middle school. Lower caregiver support was associated with higher rates of aggression against peers at the end of the 1<sup>st</sup> year of middle school. The results are discussed in terms of implications for interventions for girls in foster care.

### Keywords

foster care; middle school; girls; academic achievement; peer relations

### 1. Introduction

Successes or failures during the transition to middle school can set the stage for continued academic and social success or negative outcomes such as disengagement from school, association with deviant peers, and dropout (e.g., Garnier, Stein, & Jacobs, 1997; Kaplan, Peck, & Kaplan, 1997). For children with increased odds of negative outcomes, this transition can be especially critical. On the one hand, it might exacerbate existing academic and social problems. On the other hand, it could present opportunities to improve previously negative trajectories. There has been relatively little research on the factors that affect individual students' responses to the transition to middle school in the general population (Aikins, Bierman, & Parker, 2005). Given the potential turning point of this transition, it might be especially important to examine trajectories of adjustment in groups that are particularly vulnerable to psychosocial difficulties, including children in foster care.

Drawing upon a risk and resilience framework (Masten & Obradovic, 2006), we examined the transition to middle school for girls in foster care, an understudied group of children who

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face increased odds of experiencing poor academic and social outcomes. It would be plausible to assume that these girls, who had histories of prior adversity (i.e., maltreatment and placement into foster care), would show negative adjustment during the transition to middle school. However, such negative effects cannot be a foregone conclusion; risk and promotive factors might increase or decrease the odds of such effects. Risk factors are assumed to have negative effects on an outcome regardless of a child's exposure to another risk factor (Fergusson, Vitaro, Wanner, & Brendgen, 2007). This is in contrast to vulnerabilities, which are factors that only negatively affect an outcome in interaction with exposure to another risk. Similarly, promotive factors are assumed to have positive effects on an outcome regardless of a child's exposure to a given risk factor and to compensate for a child having been exposed to a risk (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). This is in contrast to protective factors, a subset of promotive factors that are assumed to interact with levels of a risk factor to buffer a child against negative outcomes (Sameroff et al., 1998).

As van der Laan and colleagues (2010) noted, risk or promotive factors might not be universal. Thus, the same factors that serve to exacerbate or protect children in the general population might function differently in the foster care population. Because so little is known about the transition to middle school for girls in foster care, the models that have been created by researching children in the general population are a logical starting point. However, it is important to identify what the typical trajectories of school adjustment might be for this specific group of children given their experiences of early adversity in the forms of maltreatment and placement in foster care and the associated risks for poor school adjustment. In the present study, we also tested the effects of hypothesized risk and promotive factors that might influence the trajectories of school adjustment of girls in foster care during the transition to middle school. These included poor self-regulation and caregiver transitions (i.e., placement changes) as risk factors and caregiver support and self-competence as promotive factors. These factors have been shown to affect school outcomes during the transition to middle school in the general population (e.g., Cleary & Chen, 2009; Fenzel, 2000; Mehana & Reynolds, 2004) but are likely to be particularly salient for girls in foster care: That is, they might be expected to be significantly affected by the experiences of being maltreated and placed in foster care.

For professionals who may be called upon to work with children in foster care, testing the direction and degree of these factors' influences on the transition to middle school specifically for girls in foster care is critical in identifying possible points of intervention. If the processes for girls in foster care parallel those in the general population in some ways, then more universal interventions may be employed. On the other hand, if trajectories for these girls differ significantly, then the interventions will need to be tailored accordingly. Either way, it is only through conducting research with specific populations that potential pathways for intervention become clear.

### **1.1. Girls in Foster Care During the Transition to Middle School**

The transition to middle school is often a challenging period for students in general: increased psychological distress and decreased academic achievement, peer relations, self-esteem, self-competence, and school liking are often (but not always) documented (e.g., Alspaugh, 1998; Anderman & Midgley, 1997; Cantin & Boivin, 2004; Chung, Elias, & Schneider, 1998; Fenzel, 2000). Most prior research on this transition period has focused on the general student population, but little knowledge is available for shaping effective interventions for girls in foster care. The transition to middle school can be particularly challenging for these girls. They have undergone great early adversity, including the maltreatment that led to their placement into care and often caregiver transitions while in care. Such adversity appears to negatively impinge on school adjustment: Children in foster

care are more likely than their nonfostered peers to experience problems in school, including lower achievement, higher rates of special education, behavioral and discipline problems, and higher dropout rates (Blome, 1997; Fantuzzo & Perlman, 2007; Geenen & Powers, 2006; Scherr, 2007). Additionally, maltreated children are more likely to be rejected by and to aggress against their peers (Anthonysamy & Zimmer-Gembeck, 2007). In turn, peer rejection can lead to association with deviant peer groups and involvement in delinquent and antisocial activities (Patterson, Dishion, & Yoerger, 2000). Academic and social problems appear early in school (Pears, Fisher, Bruce, Kim & Yoerger, 2010), which can place children in foster care at greater risk than their peers for additional problems across this transitional period (Aikins et al., 2005; Anderman & Midgley, 1997).

The results from three lines of research highlight the importance of academic and social adjustment in school for girls in foster care. First, Leve, Fisher, and DeGarmo (2007) found that, compared to boys in foster care, girls in foster care had poorer peer relations in elementary school than their nonfostered, same-sex peers, controlling for other behavior problems. This might be partially due to the potential for aggression in boys to be more socially acceptable. Thus, there might be a higher likelihood that the girls will be rejected for aggression to peers (e.g., Walden & Beran, 2010). If girls in foster care are already experiencing peer rejection in elementary school, these problems might be exacerbated during the transition to middle school, in turn increasing the probability that those girls will experience conduct problems and school failure through high school (Brendgen, Vitaro, Bukowski, Doyle, & Markiewicz, 2001). Second, school failure is associated with increased likelihood of teen pregnancy in the general population, and girls in foster care show increased rates of early sexual initiation and unintended pregnancies (Dworsky & Courtney, 2010; Fergusson & Woodward, 2000). Thus, if the transition to middle school is particularly difficult for these girls, the cost for the girls and the next generation might be quite high. Third, among girls in foster care, controlling for a number of background variables and experiences, greater academic achievement and greater investment in school predict fewer occurrences of conduct problems (Leathers, 2002). Additionally, for youth transitioning out of care, higher school grades predict far less risk for psychosocial problems such as suicide attempts and drug and alcohol abuse in adulthood (Berlin, Vinnerljung & Hjern, 2011). Efforts to improve school outcomes for these girls might therefore be a particularly effective point of intervention. Taken together, these results suggest that, for girls in foster care, the transition to middle school is a critical period in which decreased school adjustment could lead to detrimental outcomes and increased school adjustment could promote resiliency.

## 1.2. Academic and Social Trajectories Across the Transition to Middle School

Despite the likelihood that the transition to middle school is particularly important for girls in foster care, no prior research has been conducted on this topic. Our first goal was to determine the patterns of academic and social trajectories of girls in foster care from the end of elementary school through the end of the 2<sup>nd</sup> year of middle school using latent growth curve (LGC) modeling. Given that transitions can have sustained effects, the first 2 years of middle school were included. Thus, functioning immediately after the transition into middle school and functioning over the course of the 2<sup>nd</sup> year of middle school could be examined.

We examined two key components of school adjustment: academic competence and peer relations. These domains are increasingly recognized as being interdependent. Numerous studies in the general population have shown decreased academic achievement during the transition to middle school (Alspaugh, 1998; Cantin & Boivin, 2004; Chung et al., 1998; Wampler, Munsch, & Adams, 2002). Given that children in foster care might have struggled academically through elementary school (e.g., Scherr, 2007), it seems even more likely that girls in foster care might show a decline across the transition to middle school. We

hypothesized that girls in foster care would exhibit decreased academic competence, as perceived by caregivers and teachers, across this transition.

In the broader domain of peer relations, the rates at which children aggress against peers and are the targets of peer aggression appear to be particularly salient in terms of academic functioning. Children who aggress against their peers can quickly come to be rejected by those peers. Buhs and colleagues (2006) found that children who were chronically rejected by their peers participated less in the classroom, leading to negative effects on their academic achievement. In a large-scale study of middle and high school students, Nansel and colleagues (2001) found that students who aggressed against others showed lower academic achievement than their nonaggressive peers. Being a target of peer aggression also has negative effects on school adjustment. Children who are such targets are less able to concentrate on schoolwork (Boulton, Trueman, & Murray, 2008) and might engage in school avoidance, making it likely that their achievement will suffer (Buhs, Ladd & Herald, 2006). Further, these children can become disruptive, which can lead to declines in academic achievement (Beran, 2009).

Of particular relevance to the current study, the transition to middle school affects both the frequency of aggressing against peers and the frequency of being the target of peer aggression (e.g., Pelligrini & Bartini, 2001; Pelligrini & Long, 2002). Pelligrini and Long (2002) suggested that one function of aggression towards peers is to establish social dominance. Students might lose social status as they move from being the oldest elementary school students to being the youngest middle school students. In the general population, aggression towards peers during the transition to middle school drops initially before gradually increasing as students work to reestablish their social positions (Pellegrini & Long, 2002). From an early age, children who have been maltreated are more likely to aggress against peers than their nonmaltreated peers (Anthonysamy & Zimmer-Gembeck, 2007; Shields & Cicchetti, 2001). Given that patterns of aggression towards peers might be long standing and that such behavior might be exacerbated by stress (Konishi & Hymel, 2009), we expected girls in foster care to exhibit a sustained pattern of increased aggression towards peers across the transition to middle school.

In contrast to aggression towards peers, the receipt of aggression from peers has been shown to decrease over the transition to middle school in the general population (Smith, Madsen, & Moody, 1999). Entering a new school can represent a fresh start for children who have been victimized or socially isolated previously (Weiss & Bearman, 2007). Thus, for girls in foster care, the transition to middle school might allow them to escape such a social status.

### 1.3. Risk and Promotive Factors During the Transition to Middle School

Identifying potential risk and promotive factors could aid in designing interventions to improve adjustment across the transition to middle school for girls in foster care. It is also important to identify factors at multiple levels, which could enhance the number of potential intervention points. In the present study, we examined individual (e.g., self-regulation and self-competence) and contextual (e.g., placement changes and caregiver support) factors as potential risk and promotive factors. Children with poor self-regulation (e.g., the abilities to regulate attention, behavior, and emotions) have difficulties with academic and peer success across grade levels and subjects (e.g., Cleary & Chen, 2009; Matthews, Ponitz, & Morrison, 2009; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). If children have difficulty in focusing their attention and controlling their impulses, they are likely to miss learning opportunities (McClelland, Cameron, Wanless, & Murray, 2007) and to have difficulties with peers (Trentacosta & Izard, 2007). Children in foster care show deficits in self-regulatory abilities compared to their peers, and changes in caregivers appear to be particularly detrimental to their self-regulatory abilities (Lewis, Dozier, Ackerman, &

Sepulveda-Kozakowski, 2007; Pears, Bruce, Fisher, & Kim, 2010). These findings indicate that poor self-regulation might be a particularly salient risk factor across the transition to middle school for girls in foster care.

The placement changes often experienced by children in foster care represent another risk factor that could affect academic and social functioning over the transition to middle school. Placement changes are often accompanied by school changes, which negatively impact academic achievement and behavior at school in the general population (Mehana & Reynolds, 2004). In one of the few studies to examine the effects of school changes on children who had been maltreated but not necessarily placed in foster care, Eckenrode and colleagues (1995) found that the number of such changes mediated the effects of maltreatment on academic achievement. Additionally, Zima and colleagues (2000) found a negative effect of placement changes on the academic skills of children in foster care. Having a higher number of foster caregivers has also been linked to higher levels of physically aggressive behavior and delinquency (Legault, Anawati & Flynn, 2006; Ryan & Testa, 2005). In this study, we examined the effects of placement changes (specifically changes in caregiver) before and during the transition to middle school on school adjustment. Pretransition placement changes might contribute to a history of poor school adjustment that might negatively affect the transition to middle school, and placement changes during this transition might further exacerbate difficulties.

In contrast to the risks presented by poor self-regulation and placement changes, we expected caregiver support and self-competence to promote adjustment across the transition to middle school. In the general population, the extent to which caregivers attend to and support their girls serves to promote better self-esteem across the transition to middle school (Bronstein et al., 1996). Further, high caregiver support has been linked to a lower likelihood of being victimized by peers (Cassidy, 2009) or bullying peers (Walden & Beran, 2010) and increased academic achievement (Bronstein et al., 1996). Caregiver support also appears to decrease internalizing behaviors (e.g., depression and anxiety), externalizing behaviors (e.g., aggression), and feelings of school strain, especially for girls (Bronstein et al., 1996; Fenzel, 2000; Wampler et al., 2002). Caregiver support might have particular salience for children who have experienced frequent caregiver changes. Higher caregiver support is linked to less engagement in risky behaviors in children in foster care (Taussig, 2002) and to more positive adult outcomes and higher educational attainment for youth with histories of foster care (Jackson & Martin, 1998; Ungar, 2004). Because caregivers might have changed across the transition to middle school, we averaged reports of caregiver support in the present study.

In addition to caregiver support, feelings of self-competence (i.e., the ability to perform well within and across domains) appear to promote positive academic and social adjustment across the transition to middle school (Chung et al., 1998; Fenzel, 2000). This topic has not been widely researched in foster care populations. However, Legault, Anawati, and Flynn (2006) found that children in foster care who had higher general self-competence were less anxious and less physically aggressive than those with lower self-competence. Further, in adolescents in foster care, feelings of self-competence appear to contribute to positive academic and employment outcomes, peer relations, and relationships with adults (Drapeau, Saint-Jacques, Lépine, Bégin, & Bernard, 2007). In this study, we examined feelings of self-competence at school as being most specific to (and most likely to affect) the domains of academic competence and peer relations in middle school.

#### 1.4. Goals of the Study

We sought to delineate the trajectories of academic competence and peer relations across the transition to middle school for girls in foster care. There has been no previous work on this

transition period for girls in foster care; therefore, these hypotheses are largely exploratory and based on research in the general population. We hypothesized that girls in foster care would show decreased academic competence, decreased aggression from peers, and increased aggression against peers across the transition to middle school. Additionally, we predicted that poor self-regulation and increased placement changes (before and during the transition to middle school) would serve as risk factors and would be associated with decreased academic achievement and increased aggression from and aggression against peers. Finally, we hypothesized that caregiver support and feelings of self-competence in school would serve as promotive factors and be linked to increases in academic achievement while predicting decreases in aggression from and aggression against peers.

## 2. Material and Methods

### 2.1. Participants

The participants included 75 girls and their foster caregivers, all of whom were enrolled in a randomized efficacy trial of an intervention designed to prevent the onset of psychosocial problems in early adolescent girls in foster care ( $N = 100$ ; Chamberlain, Leve, & Smith, 2006; Smith, Leve, & Chamberlain, 2011). The intervention included six behavior management training sessions for caregivers and skill building for the girls over the transition to middle school. To be eligible for participation in the efficacy trial, the girls had to be in relative or nonrelative foster care in one of two counties containing major metropolitan areas and had to be in their final year of elementary school. The eligible girls were referred through the child welfare system; after this, the caseworkers and the foster caregivers provided informed consent, and the girls provided assent. The girls and their caregivers were compensated for participating. All procedures were approved by our Institutional Review Board. There were no mean differences between the intervention and control groups on the predictor and outcome variables used in the present study ( $t = 0.18$ – $1.88$ ). Additionally, preliminary LGC analyses with intervention status as a predictor did not reveal any intervention effects. Thus, we combined both groups in the present study. See Smith et al., (2011) for additional details about the intervention.

The transition to middle school does not always involve a physical move in location. Because physical school moves appear to affect some aspects of the quality of the transition to middle school (Weiss & Kipnes, 2006), we focused only on the 75 girls from the efficacy trial who made a physical move during this transition. The excluded girls did not differ from the participants in this study on any of the variables examined ( $t = 0.003$ – $1.69$ ).

On average, the girls were 11.59 years old ( $SD = 0.46$ ) at the first assessment. The ethnicity breakdown of the sample was as follows: 66% European American, 9% African American, 9% Latino, 4% Native American, and 12% multiracial. At recruitment, the girls were in the fifth grade (84%) or the sixth grade (16%). (Some elementary schools continued through the sixth grade.) The girls had first entered foster care at the average age of 7.55 years ( $SD = 3.14$ ) and had been in care for an average of 3.99 years ( $SD = 3.11$ ). Most of the girls had experienced more than one placement change since entering care ( $M = 4.40$ ,  $SD = 3.10$ ). Sixty-seven percent of the girls were in nonrelative foster homes, and 33% were in relative foster homes. The only statistically significant difference by foster care type on the outcome variables was that the girls in relative foster homes had higher academic competence at the end of the 2<sup>nd</sup> year of middle school ( $t = -1.12$ – $2.18$ ). Thus, this variable was used as a covariate in preliminary analyses described below.

## 2.2. Procedure

The girls and their foster caregivers participated in structured interviews and completed questionnaires at the end of the last year of elementary school (T1), the end of the 1<sup>st</sup> year of middle school (T2), and the end of the 2<sup>nd</sup> year of middle school (T3). The girls' teachers also completed questionnaires at T1–T3. We created individual scales and multimethod, multiagent composites according to Patterson and Bank's (1986) method. All scales and composites had to show adequate internal reliability ( $\alpha \geq .60$ ), and all items in a scale or composite had to show an item-total correlation of .20 or higher.

## 2.3. Outcomes

**2.3.1. Academic competence—**T1–T3 academic competence was measured using a composite of caregiver and teacher ratings. At each assessment point, the caregivers were asked to rate the girls' academic competence on a 5-point scale: 1 (*much worse than other kids*) to 5 (*much better than other kids*). At each assessment time point, the teachers completed the Teacher Report Form (TRF) of the Achenbach System of Empirically Based Assessment (ASEBA; Achenbach & Rescorla, 2001). We used the raw academic competence score from the TRF which is a composite of teacher ratings of the student's performance in reading, spelling, math, and language arts/writing. Decades of research have shown that this score significantly discriminates between clinic-referred children and nonreferred children (Achenbach & Rescorla, 2001). The scores also show high test–retest reliability (Achenbach & Rescorla, 2001). The values on the TRF academic competence score range 0–6. The caregiver reports of academic competence were rescaled to be on the same scale as the TRF (i.e., 1 = 0, 2 = 1.5, 3 = 3, 4 = 4.5, and 5 = 6). The correlations between the two scores were significant at T1 and T2 ( $r = .49$  and  $.38$ , respectively,  $p < .05$ ) and marginally significant at T3 ( $r = .23$ ,  $p = .07$ ), so the scores were averaged to produce a multimethod, multiagent composite measure of academic competence for each time point.

Because caregiver and teacher ratings might be considered to be more subjective ratings, these scores were validated using standardized test scores. The girls attended multiple schools that had different testing protocols. Thus, it was not possible to obtain standardized test scores for all of the girls at every time point (51% of the sample had scores at T1, 59% at T2, and 63% at T3). We examined the bivariate associations between caregiver and teacher ratings and percentile rankings for standardized test scores on reading across the sample. (One case was dropped as an extreme outlier.) The average association between teacher ratings and test scores was generally strong ( $r = .73$ ). The average association between the caregiver ratings and test scores was moderately strong ( $r = .32$ ). Given these reasonable associations and the possibility that the large amount of missing data for standardized test scores might have negatively impacted analyses, we used the caregiver and teacher ratings to measure academic competence.

**2.3.2. Aggression From Peers—**T1–T3 experiences of receiving aggression from peers were assessed using two subscales from the Revised Social Experience Questionnaire (Paquette & Underwood, 1999), an adapted version of the Social Experience Questionnaire (Crick & Grotpeter, 1996): the five-item Overt Aggression From Peers subscale (e.g., “How often do you get hit by another kid at school?”) and the eight-item Relational Aggression From Peers subscale (e.g., “How often do other kids leave you out on purpose when it is time to play or do another activity?”). The girls answered items using a 5-point scale: 1 (*never*) to 5 (*all the time*). At T1–T3, both subscales showed good inter-item reliability (Overt Aggression from Peers  $\alpha = .76$ –.80; Relational Aggression from Peers  $\alpha = .80$ –.89) and were significantly intercorrelated ( $r = .71$ –.80,  $p < .001$ ). Thus, the subscales were averaged at each time point as a composite measure of aggression from peers.

**2.3.3. Aggression against peers**—Two Revised Social Experiences Questionnaire subscales were used to measure aggression against peers: Overt Aggression to Peers (e.g., “How often do you push or shove another kid at school?”) and Relational Aggression to Peers (e.g., “How often do you spread rumors or gossip about other kids at school?”). The items in these scales are identical to those above, but the directionality of aggression is reversed. At T1–T3, both subscales showed good inter-item reliability (Overt Aggression to Peers  $\alpha = .67-.75$ ; Relational Aggression to Peers  $\alpha = .77-.88$ ) and were intercorrelated ( $r = .57-.78, p < .001$ ). Thus, the subscales were averaged at each time point as a composite measure of aggression against peers.

## 2.4. Predictors of Changes in School Adjustment

**2.4.1. Poor self-regulation**—At T1, caregiver and teacher ratings of the girls’ self-regulation were combined to create a composite measure: the Attention Problems (standardized  $\alpha = .86$ ) subscale from the caregiver-reported Child Behavior Checklist for Ages 6–18 from the ASEBA (e.g., “Can’t sit still, restless, or hyperactive.”), and the Attention Problems (standardized  $\alpha = .91$ ) subscale from the TRF (e.g., “Fails to finish things he/she starts.”). These subscales both show good test-retest reliability and have been shown to correlate highly with other indices of attention problems (Achenbach & Rescorla, 2001). Additionally, we used the caregiver and teacher ratings on the Self-Control subscale of the Walker-McConnell Scale of Social Competence and School Adjustment-Adolescent Version (standardized  $\alpha = .92$  and  $.94$ , respectively; Walker & McConnell, 1995; e.g., “Displays self-control in difficult situations.”). The Self-Control subscale correlates well with other measures of self-control and discriminates clinic-referred from nonreferred children (Walker & McConnell, 1995). The scores for all of the subscales were standardized and averaged as a composite measure of poor self-regulation (standardized  $\alpha = .76$ ). Higher scores represent poorer regulation.

**2.4.2. Placement changes**—Child welfare system records were collected to determine the girls’ placement changes (e.g., foster homes, residential treatment, adoptive homes, and biological parent homes) since entering the child welfare system through T3. All transitions were summed for each girl.

**2.4.3. Caregiver support**—T1–T3 caregiver support was measured using the 10-item Attachment to Parent subscale of the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). To account for the possibility that the girls’ feelings toward caregivers might change if they had experienced placement changes, the T1–T3 scores were averaged. This self-report measure assesses the extent to which the child feels close to and supported by the mother figure (e.g., “I tell my mother about my problems and troubles”) on a 5-point scale: 1 (*almost always true*) to 5 (*almost never true*). Scores on this scale have been shown to correlate with scores on self-esteem and family well-being (Armsden & Greenberg, 1987). Internal reliabilities for the scale were high at T1–T3 (standardized  $\alpha = .82-.88$ ). Scale scores were generally well correlated across time points ( $r = .25$  and  $.32$  between T2 and T3 and between T1 and T3, respectively) except between T1 and T2 ( $r = .15$ ), possibly due to changes in who the girl considered to be her mother figure or to changes in the relationship between the girl and her mother figure.

The girls were instructed to answer the questions about the “mother you feel closest to right now” and to indicate her relationship with that mother figure. Across the time points, girls answered the questions about their foster or adoptive mothers on average 48% of the time, about their biological mothers 31% of the time, and about other women (e.g., grandmothers, aunts, and stepmothers) 21% of the time. If the relationship of the mother figure changed between two time points, the caregivers being rated were assumed to be different people. A



control variable indicating whether there was any change in the mother figure between T1 and T3 was used in supplementary analyses.

**2.4.4. Self-competence at school**—To measure T1 self-competence at school, the girls completed the six-item School Competence subscale of the Self-Perception Profile for Children (Harter, 1985). This subscale includes items pertaining to feeling that one is doing well on schoolwork, is as smart as her peers, remembers things easily, and can complete work quickly (standardized  $\alpha = .84$ ). Higher scores on this scale are related to fewer problems with externalizing behaviors and more negative attitudes towards substance use (Michaels, Barr, Roosa & Knight, 2007).

## 2.5. Data Analysis Plan

We used LGC modeling in Mplus (Muthén & Muthén, 1998–2010) to examine sample mean and individual differences in the developmental trajectories of academic competence, aggression from peers, and aggression against peers. LGC modeling can also accommodate predictors, thus allowing for investigation of the extent to which hypothesized risk and promotive factors were related to the initial levels of and changes in girls' school adjustment over time. Models for each outcome were fitted using two steps. First, an unconditional LGC model (i.e., without predictors) was fitted to examine the shape of the developmental trajectory of that outcome. Initially, a linear LGC was fitted to ensure that a two-factor linear model adequately described the observed developmental changes. In this linear model, observed values from T1–T3 served as indicators of two latent growth factors (i.e., the intercept and slope) for the outcome measure. All of the models were centered at T3 (i.e., the intercept represents the last assessment). The exception to this was the model for aggression against peers (explained below). Thus, the slope factor loadings for the linear models were fixed at  $-2$ ,  $-1$ , and  $0$ . If the linear model did not fit the data, a linear spline LGC was fitted to accommodate nonlinearity in the growth patterns. A linear spline model is often recommended when there are only 3 time points and thus a quadratic model cannot practicably be fitted to the data (Duncan, Duncan, & Stoolmiller, 1994; Stoolmiller, 1995). The linear spline model has been used in longitudinal studies as an effective way to approximate nonlinearity in the data, especially when there are only 3–4 time points (e.g., Fisher & Kim, 2007; Kim, Pears, et al., 2010). In the linear spline model, the first and last loadings on the slope factor were fixed at  $-1$  and  $0$  when the model was centered at T3, and the middle loading was freely estimated. Therefore, the slope factor mean in the spline model represents mean changes between T1 and T3. Second, once the shape of the trajectory was determined, the predictors and any control variables were added to investigate the direct effects of those predictors on the trajectory. All of the models were analyzed on the full sample ( $N = 75$ ) using the full information maximum likelihood function in Mplus, which has been known to provide unbiased and more efficient estimates than other methods (e.g., listwise and pairwise deletion under ignorable missing data conditions; Arbuckle, 1996; Enders & Bandalos, 2001). Covariance coverage can be used as an estimate of the extent of missing data for the variables in the models, and it was generally high ( $0.92$ – $1.00$ ) across the models, indicating very little missing data.

## 3. Results

### 3.1. Descriptive Analyses

Overall, the girls' academic competence scores increased during the transition to middle school. The girls tended to report decreasing levels of aggression from peers over time and decreased aggression against peers at T2 that increased by T3 (see Figure 1). Means, standard deviations, and associations between the predictor and outcome variables are presented in Table 1. In terms of academic competence, as was predicted, T1 poor self-

regulation was significantly associated with poorer academic competence over time. Academic competence was positively associated with T1 self-competence only and not associated with placement changes or caregiver support. Aggression from peers was not significantly related to any study predictor except for T1 self-competence, which was significantly negatively associated. At T2 and T3, aggression against peers was significantly positively associated with placement changes. At T3, aggression against peers was significantly negatively associated with caregiver support. Aggression against peers was not significantly associated with the other predictors. The only significant intercorrelations among the predictors were between poor self-regulation and a greater total number of placement changes and poorer self-competence.

### 3.2. LGC Models

**3.2.1. Academic competence**—The linear LGC model for change in academic competence across the first 2 years of middle school fit the data very well ( $\chi^2 = .01, p = .98$ , CFI = 1.00, TLI = 1.12, RMSEA = .00). The means of the intercept and slope factor were 3.27 ( $z = 20.93, p = .00$ ) and .25 ( $z = 2.66, p = .01$ ), respectively, suggesting that both were significantly different from zero. These values represent the average of the sample at T3 and change rates over time (e.g., sample means). The positive slope factor mean suggested that, on average, the girls' academic competence increased during the transition to middle school. The intercept and slope factors had variances of .88 ( $z = 2.01, p = .04$ ) and .11 ( $z = .52, p = .61$ ), respectively. The significant intercept factor variance indicates that there were considerable individual differences in T3 academic competence, but the nonsignificant slope factor variance suggests that, on average, all of the girls showed steady increases in academic competence during the transition to middle school. The correlation between the intercept and slope factor was .12 ( $z = .47, p = .64$ ), suggesting that there was no significant relationship between change rates and T3 academic competence.

When the predictors were added to the unconditional LGC model, the model continued to fit the data well ( $\chi^2 = 2.12, p = .83$ , CFI = 1.00, TLI = 1.15, RMSEA = .001). The structural parameter estimates are presented in Table 2. Compared to the unconditional model, the factor means and variances became smaller and nonsignificant, suggesting that they were accounted for by the predictors. T1 poor self-regulation significantly predicted the intercept factor, suggesting that girls with poorer self-regulation had lower T3 academic competence. Caregiver support positively predicted the slope factor, suggesting that higher caregiver support was associated with greater increases in academic competence during the transition to middle school.

As is noted above (2.1), the girls were in relative or nonrelative foster care, and there was a significant difference between foster care types for T2 academic competence. Because in preliminary analyses relative foster care status was not a significant predictor and did not change the patterns of prediction reported above, it was not included in the final analyses reported here. Additionally, because caregiver support was a significant predictor, a covariate was included in supplementary analyses to indicate T1-T3 placement changes. This was not a significant predictor in the model and did not significantly alter the results from those reported above; thus, it was not included in the final model.

As an additional validation check for the caregiver and teacher ratings, a model was run in which percentile rankings on standardized reading tests were included in the academic competence composite in addition to caregiver and teacher ratings. The patterns of significance did not differ from those in the model presented above. Because of the large number of missing tests scores, and although FIML was used in the model in which they were included, they were not included in the final analyses.

**3.2.2. Aggression from peers**—A linear LGC model was fitted for girls' aggression from peers over time, but the model did not fit the data well ( $\chi^2 = 11.12, p = .01, CFI = .71, TLI = .71, RMSEA = .19$ ). Therefore, a linear spline LGC was fitted using the procedure described above. Similar to the model for academic competence, the model for aggression from peers was centered at T3. The linear spline LGC model fit the data well ( $\chi^2 = .09, p = .96, CFI = 1.00, TLI = 1.10, RMSEA = .00$ ), suggesting a significant improvement over the linear LGC model (nested  $\chi^2[1] = 11.03, p < .001$ ). The means of the intercept and slope factor in the linear spline LGC model were 1.92 ( $z = 25.49, p = .00$ ) and  $-.26$  ( $z = -3.18, p = .00$ ), respectively, suggesting that both were significantly different from zero. The negative slope factor mean indicated that, on average, aggression from peers decreased during the transition to middle school. As can be seen in Figure 1, this decrease occurred between T1 and T2; levels of aggression from peers then remained largely stable with a slight increase between T2 and T3. The factor variances of the intercept and slope were .25 ( $z = 3.36, p = .00$ ) and .22 ( $z = 2.21, p = .03$ ), respectively, suggesting that there were significant individual differences in T3 aggression from peers and in the change rate over time. Similar to the analyses for academic competence, there was no significant association between the two growth factors.

The conditional model with predictors showed a relatively good model fit ( $\chi^2 = 6.48, p = .37, CFI = .99, TLI = .97, RMSEA = .03$ ). The mean and variance of the intercept factor remained significant (see Table 2), but the slope factor mean and variance became nonsignificant when predictors were included in the model. Self-competence significantly and positively predicted the slope factor, suggesting that higher self-competence predicted smaller decreases in aggression from peers over time.

**3.2.3. Aggression against peers**—Similar to the analyses for aggression from peers, the linear LGC model for aggression against peers did not fit the data well ( $\chi^2 = 6.47, p = .04, CFI = .81, TLI = .72, RMSEA = .17$ ). Thus, a linear spline LGC model was fitted. To better reflect the observed decrease from T1 and T2 and to facilitate the model convergence (see Figure 1), the model was centered at T2. The linear spline LGC model fit the data well ( $\chi^2 = .71, p = .40, CFI = 1.00, TLI = 1.04, RMSEA = .00$ ), suggesting a significant improvement over the linear LGC model (nested  $\chi^2[1] = 5.76, p < .05$ ). The means of the intercept and slope factor in the linear spline LGC model were 1.30 ( $z = 33.89, p = .00$ ) and .10 ( $z = 2.01, p = .05$ ), respectively, suggesting that both were significantly different from zero. Despite the initial decrease in aggression against peers between T1 and T2, the significant positive slope indicated that the *overall* change between T1 and T3 was positive, suggesting increases in aggression against peers among girls during the transition to middle school. The slope factor variance was .10 ( $z = 2.65, p = .01$ ), suggesting that there were significant individual differences in the change rates of aggression against peers. The intercept factor (i.e., T2 aggression against peers) variance was .01 ( $z = 0.31, p = .75$ ). The correlations between the two growth factors were fixed to be zero to facilitate model convergence.

The model fit for the conditional model with predictors was acceptable ( $\chi^2 = 12.94, p = .23, CFI = .92, TLI = .88, RMSEA = .06$ ). As is shown in Table 2, when the predictors were taken into account, the intercept factor mean and variance remained significant, and the slope factor variance was significant. Caregiver support negatively predicted the intercept factor, suggesting that higher levels of caregiver support were associated with lower levels of T2 aggression against peers. None of the predictors was significantly associated with the slope factor, although there was a trend for placement changes to be positively associated with changes in aggression against peers ( $p = .05$ ). Because caregiver support was a significant predictor, a covariate was included to indicate whether the caregiver changed between T1 and T3 in supplementary analyses. This predictor was not significant and did

not significantly alter the results from those reported above, so it was not included in the final models.

Finally, we ran all of the final models using bootstrapping in Mplus to test the robustness of the estimators in the study. The 95% confidence intervals for all of the significant predictors in the models did not include zero, suggesting that all the null hypotheses could be safely rejected. In addition, all of the point estimators from the prediction models fell within the 95% confidence intervals, confirming the robustness of the findings.

#### 4. Discussion

Children in the general population often falter at the critical transition to middle school, which can result in a cascade of negative outcomes across adolescence. For girls in foster care, it may be particularly important to examine this transition to prevent the exacerbation of existing difficulties. We hypothesized that several risk and promotive factors found to increase or decrease the risk of difficulties in the general population might be particularly important for girls in foster care in the transition to middle school. Thus, they might be potential targets for interventions.

We predicted that, given the findings of decreased academic achievement in the general population and the likelihood that children in foster care might already be experiencing difficulties in academic competence before the transition to middle school, girls in foster care would show decreases in academic competence. This hypothesis was not upheld. In fact, as a group, the girls showed increasing academic competence across the transition. However, even in the general population, findings of decreased achievement across the transition to middle school have not been consistent (Aikins et al., 2005; Chung et al., 1998). That the girls did not appear to be having greater difficulties across the transition to middle school is a hopeful finding and one that suggests that they may have been demonstrating some resiliency as a group. Foster care might be a positive intervention in itself: removing children from adverse circumstances. Thus, foster care might have served an ameliorative function for the girls in regard to their academic competence. However, although academic competence improved over time for the girls in this study, their scores fell below those of normative samples. For example, the girls' mean scores on the TRF academic scale were approximately 1 *SD* below those of normative samples at the end of elementary school and the 1<sup>st</sup> year of middle school and less than 1 *SD* below those of normative samples at the end of the 2<sup>nd</sup> year of middle school. Thus, the girls continued to lag behind their nonfostered peers although they did not experience declines in competence as a group.

Caregiver support might have contributed to the girls' resiliency and ability to improve over time in academic competence. Our findings indicated that greater feelings of caregiver support were associated with greater increases in academic competence across time. This is consistent with the literature suggesting that having a caregiver relationship that is perceived by the youth as being positive and supportive could promote resilience for youth in foster care (e.g., Jackson & Martin, 1998; Ungar, 2004), from other high-risk backgrounds, and in the general population (Lipschitz-Elhawi & Itzhaky, 2008; Rueger, Malecki, & Demaray, 2010). In accord with literature linking poor self-regulation to poor school performance in general and foster care populations (e.g., Matthews et al., 2009; Pears, Fisher et al., 2010), poor self-regulation at the end of elementary school was associated with poorer academic competence at the end of the 2<sup>nd</sup> year of middle school, indicating that it is a risk factor for poorer performance in middle school. Given evidence that self-regulation can be improved through intervention (Rueda, Rothbart, McCandliss, Saccomanno, & Posner, 2005), strengthening the self-regulation skills of girls in foster care prior to the transition to middle school might help to increase academic competence and achievement.

Consistent with studies on the general population (e.g., Smith et al., 1999), reports of aggression from peers decreased in girls in foster care across the transition to middle school and leveled out in the 2<sup>nd</sup> year of middle school. Researchers have suggested that the transition to middle school offers the opportunity for children to start anew and shed their roles as victims (Weiss & Bearman, 2007). The precipitous drop in aggression from peers from the end of elementary school to the end of the 1<sup>st</sup> year of middle school supports this theory for girls in foster care. However, the finding that higher self-competence at school was associated with smaller decreases in aggression from peers was unexpected. Perhaps variations in changes in aggression from peers are dependent on the girls' levels of self-competence. Further research is needed to explore this counterintuitive finding.

The hypothesis that girls in foster care would show consistently increased aggression against peers across the transition to middle school was partially supported. Overall, there was an increase in aggression towards peers across the period. However, such aggression followed the pattern often seen in the general population: a decrease at middle school entry followed by an increase. The increase might have indicated that the girls were trying to reestablish their social standings 2 years into middle school, when younger peers were now enrolled in the grade below them. This lends further support to theories that aggression against peers in middle school may serve to establish social dominance, particularly among high-risk girls (Pellegrini & Long, 2002). This finding also highlights the importance of targeting middle school entry for intervening with aggression against peers. Perhaps rates of such aggression could be kept low by helping girls in foster care to find other methods of increasing social standing. Increasing caregiver support could aid in this regard. In this study, higher levels of perceived caregiver support were related to lower levels of aggression against peers at the end of the 1<sup>st</sup> year of middle school.

The links between increased caregiver support and both increased academic competence and decreased aggression against peers highlight a potentially important focus for promoting school adjustment in girls in foster care: establishing a positive, stable, supportive relationship with a caregiver or other adult. Although research on resiliency in adult graduates of foster care has underscored the long-term importance of supportive relationships (Drapeau et al., 2007), our findings are among the first to highlight the effects of caregiver support for young adolescents in foster care.

#### 4.1. Implications for Practice

That girls in foster care do not appear to show marked decreases in academic competence or increases in aggression from peers at the transition to middle school is important for social workers, school psychologists, and other mental health and educational professionals. These findings suggest that, despite histories of early adversity that often lead to poor psychosocial and academic outcomes (e.g., Jackson & Martin, 1998), the transition to middle school does not seem to compound the risk for all girls in foster care. However, the often significant measures of variability in the models indicate heterogeneity in outcomes and there were increases in aggression towards peers. Thus, professionals working with these girls should be aware that some of these girls are likely to require more support over the transition to middle school and might require more monitoring for signs of difficulty.

Our findings also suggest potential avenues of intervention for girls who are having greater difficulties in the transition to middle school. As is noted above, caregiver support appears to confer some protection against declines in academic competence and increases in aggression towards peers. Although establishing and maintaining supportive caregiver-child relationships are likely goals of the child welfare system, it can be difficult given the likelihood for placement changes. In this study, we focused only on the mother figure, generally considered to be the primary caregiver in children's lives. However, such figures

are not the only potential sources of support in the lives of youths in foster care. School personnel, including teachers and counselors, can be important sources of support and mentorship (Drapeau et al., 2007). Next to the home, children spend a great deal of their time in school, and this might provide an ideal environment in which to establish supportive networks both for girls who are struggling either academically or socially. Additionally, self-regulation was associated with greater academic competence in middle school. This suggests that interventions could focus on helping girls in foster care to improve their self-regulatory skills, particularly around academic goal-setting and focus (Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011).

#### 4.2. Limitations and Future Directions

A number of study limitations should be noted. First, we did not include a comparison group of nonfostered girls. Although academic competence did not decline over time in this study, it was lower on average than in normative samples. It will be important to examine patterns of academic competence and aggression from and against peers in low-risk populations to understand how the patterns in girls in foster care might be similar or different. For example, in low-risk girls, academic achievement has been shown to decline (Alspaugh, 1998; Anderman & Midgley, 1997). However, if low-risk girls start with higher academic achievement, there might continue to be a gap between low-risk girls and girls in foster care.

Second, our relatively small sample size might have had limited power to find statistically significant associations between variables. However, the bootstrapping method described above indicated that the effects measured in the models were robust. Although the data available reflected a range of reporters, the limited item counts of some scales might have affected reliability. For example, there was only one caregiver-rated item for academic competence. This might have contributed to the teacher and caregiver ratings of academic competence being significantly and positively associated at T1 and T2 but not at T3, although the direction was still positive. Additionally, for the measure of perceived academic competence, it would have been ideal to have standardized test scores or grades in addition to the caregiver and teacher ratings of competence for all of the participants. However, analyses of the associations between caregiver and teacher ratings and standardized reading scores for a subsample of girls for whom such scores were available indicated that the caregiver and teacher ratings were correlated with the test scores at acceptable levels. This adds confidence that the ratings were accurate reflections of the girls' academic competence. Our modest sample size also precluded our ability to look at a number of other possible factors from the girls' backgrounds that might have affected school adjustment (e.g., number of school changes in elementary school). Such factors will be important to include in future research. Finally, although we were able to explore general trends across the entire sample, the significant variances in the intercepts and slopes in some of the models suggest potential heterogeneity in outcomes. The small sample size precluded exploring this heterogeneity but this should be a topic of future research.

Despite these limitations, our study is among few that have followed children in foster care over time and obtained detailed information from caregivers, children, and teachers. Further, our sample allowed for a unique focus on issues salient to these girls during the transition to middle school. Our results present the hopeful possibility that, rather than having negative consequences, this transition might represent a chance for girls in foster care to have some catchup academically and to experience less aggression from peers. Such potentials for positive change make it all the more important to identify possible points of intervention that will promote optimal adjustment across the transition. Although researchers will need to replicate these findings with differing foster care populations, our results highlight a number of potential intervention targets of relevance to professionals working with this population (e.g., increasing foster girls' caregiver or other adult support and their self-regulation skills).

Such research and intervention efforts might increase the likelihood that girls in foster care will succeed in middle school, thus leading to potential promotive effects on adjustment across adolescence.

### Highlights

Girls in foster care may face difficulties across the transition to middle school

Latent growth curve modeling examined trajectories and predictors of the transition

Academic competence increased and caregiver support predicted increases

Aggression from peers decreased

Aggression towards peers dropped then increased predicted by caregiver support

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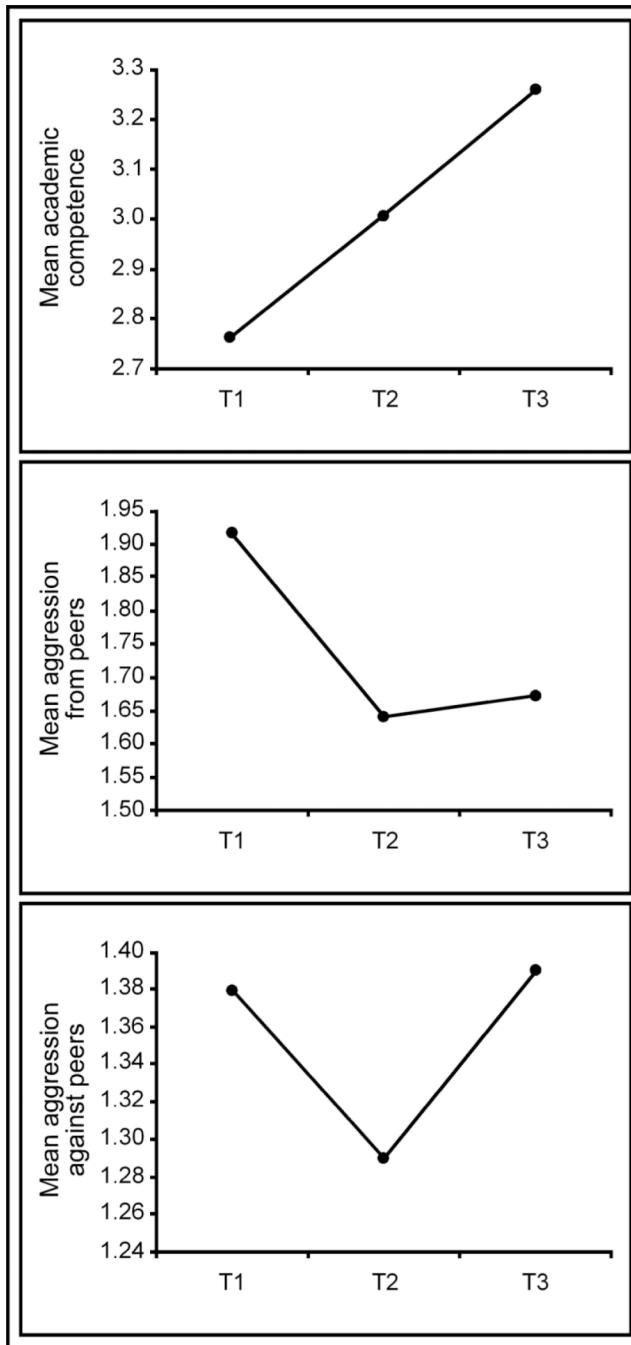
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**Figure 1.** Growth curves for academic competence, aggression from peers, and aggression against peers.

Table 1

Correlations Between the Outcome and Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T1 academic competence													
2. T2 academic competence	.39**												
3. T3 academic competence	.34**	.41**											
4. T1 aggression from peers	-.23*	-.18	-.27*										
5. T2 aggression from peers	.01	.06	-.07	.27*									
6. T3 aggression from peers	-.17	-.01	.01	.30*	.53**								
7. T1 aggression against peers	-.10	.07	.01	.48**	.01	.26*							
8. T2 aggression against peers	.12	-.06	.05	.21†	.55**	.31**	.27*						
9. T3 aggression against peers	.04	-.11	-.15	.02	.10	.27*	.37**	.47**					
10. Poor self-regulation	-.50**	-.40**	-.41**	.12	-.06	.18	-.03	-.17	.05				
11. Placement changes	.01	-.15	-.11	-.12	.06	.13	-.06	.24*	.29*	.23*			
12. Caregiver support	-.11	.10	.21†	.01	-.06	-.16	-.21†	-.19	-.24*	-.13	-.05		
13. Self-competence	.40**	.20†	.22†	-.28*	.18	-.04	-.20†	.05	-.01	-.30*	.05	.03	
<i>M</i>	2.76	3.03	3.26	1.92	1.64	1.66	1.38	1.29	1.38	-0.03	5.52	4.05	3.39
<i>SD</i>	1.42	1.36	1.39	0.66	0.61	0.61	0.37	0.35	0.47	0.82	4.19	0.50	0.99

†  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

**Table 2**  
 Parameter Estimates, Standard Errors, Critical Ratios, and *p* Values for LGC Models With Predictors

Parameter	Academic competence			Aggression from peers			Aggression against peers					
	Est.	SE	Critical Ratio	<i>p</i>	Est.	SE	Critical Ratio	<i>p</i>	Est.	SE	Critical Ratio	<i>p</i>
Regression effects on intercept												
Poor self-regulation	-0.59	0.20	-2.99	.00	0.03	0.08	0.36	.72	-0.07	0.04	-1.74	.08
Placement changes	-0.02	0.04	-0.61	.54	0.01	0.02	0.65	.51	0.01	0.01	1.64	.10
Caregiver support	0.47	0.29	1.62	.11	-0.11	0.12	-0.92	.36	-0.16	0.06	-2.54	.01
Self-competence	0.06	0.16	0.42	.68	0.04	0.07	0.58	.56	-0.04	0.03	-1.33	.18
Regression effects on slope												
Poor self-regulation	0.10	0.12	0.79	.43	-0.04	0.10	-0.36	.72	0.04	0.06	0.71	.48
Placement changes	-0.03	0.02	-1.42	.16	0.03	0.02	1.46	.14	0.02	0.01	1.93	.05
Caregiver support	0.43	0.18	2.40	.02	-0.15	0.15	-1.03	.30	-0.06	0.09	-0.74	.46
Self-competence	-0.13	0.10	-1.34	.18	0.22	0.08	2.73	.01	0.03	0.04	0.72	.47
Factor means												
Intercept	1.26	1.31	0.96	.34	1.94	0.54	3.58	.00	2.06	0.28	7.38	.00
Slope	-0.88	0.81	-1.09	.28	-0.52	0.65	-0.80	.42	0.08	0.39	0.20	.84
Factor residual variances												
Intercept	0.58	0.39	1.47	.14	0.18	0.05	3.81	.00	0.06	0.02	3.55	.00
Slope	0.09	0.18	0.51	.61	0.15	0.09	1.69	.09	0.07	0.03	2.13	.03
Factor correlation	0.14	0.23	0.62	.54	0.06	0.05	1.19	.23	0.00	0.00	—	—