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Early School Engagement and Late Elementary Outcomes for Maltreated Children in Foster Care

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Abstract

Children with a history of maltreatment and placement into foster care face elevated risks of poor psychosocial outcomes including school failure, substance use, externalizing and deviant peer association. For children in the general population, school engagement appears to be a promotive factor in preventing negative outcomes. In this study, differences in behavioral, affective, and cognitive dimensions of school engagement in early elementary school were explored in maltreated children in foster care (n = 93) and a community comparison group of low SES, non-maltreated children (n = 54). It was also hypothesized that the three dimensions of school engagement would mediate the association between being maltreated and in foster care and several outcomes in late elementary school (Grades 3 to 5): academic competence, endorsement of substance use, externalizing behaviors, and deviant peer association. Measures were multi-method and multi-informant. Results showed that the children in foster care had lower affective and cognitive school engagement than children in the community comparison group. Structural equation modeling revealed that both affective and cognitive school engagement mediated the association between group status and academic competence in late elementary school. Cognitive engagement also mediated the association between group status and engagement in risk behaviors. The identification of dimensions of early school engagement that predict later outcomes suggests potential points of intervention to change trajectories of academic and behavioral adjustment for maltreated children in foster care.

Keywords

school engagement; foster care; risk behaviors; academic competence; elementary school

High levels of school engagement predict a number of positive outcomes, including better academic achievement (Finn & Rock, 1997; Wang & Holcombe, 2010), higher engagement in healthy behaviors (Carter, McGee, Taylor, & Williams, 2007) and lowered risks of delinquency (Hirschfield & Gasper, 2011) and substance use (Simons-Morton, 2004). School engagement is malleable, responding to changes both in the individual and in the environment (Fredericks, Blumenfeld, & Paris, 2004). As such, school engagement is

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promising as a focus of intervention for children who are at high risk for school failure and other related outcomes. In order to maximize the potential of school engagement as a point of intervention, however, it is necessary to understand how it operates among high-risk children. In the current study, three dimensions of early school engagement in children in foster care were compared to those of non-maltreated children who had never been in foster care. Additionally, early school engagement was tested as a potential mediator of the association between having been maltreated and placed in foster care and academic and psychosocial outcomes (e.g., endorsement of substance use, externalizing behaviors, and deviant peer associations). The identification of dimensions of school engagement at the beginning of elementary school as predictors of later outcomes could provide specific points for early intervention.

Multiple Dimensions of School Engagement

School engagement is commonly divided into behavioral, affective, and cognitive dimensions (Fredericks et al., 2004; Jimerson, Campos, & Greif, 2003; Wang, Willet, & Eccles, 2011). Behavioral engagement refers to the student's actions and performance at school and in school-related activities, and can include attendance in class, completion of assignments, and involvement in extracurricular activities. Affective engagement encompasses the student's feelings about school, and can include their positive or negative feelings about being in school as well as feelings of connection to school, teachers, and peers. Cognitive engagement refers to the effort that the student exerts on task- and skill-mastery materials and the student's abilities to regulate this effort (Fredericks et al., 2004; Jimerson et al., 2003; Wang et al., 2011). Researchers have recently suggested that examining the individual dimensions of school engagement both separately and together may be most informative in understanding its effects (Wang, Willet, & Eccles, 2011). From an intervention standpoint, understanding how each of these dimensions influence students' outcomes may allow for more precision and greater efficacy of interventions to improve school engagement, and potentially school adjustment, in children in foster care.

School Engagement and Academic and Psychosocial Outcomes

School engagement has been linked to a number of positive outcomes for typically developing children in the general population. It predicts better academic achievement, grades, and standardized test scores (Finn & Rock, 1997; Greene, Miller, Crowson, Duke, & Akey, 2004; Perry, Liu, & Pabian, 2010). Additionally, school engagement significantly affects student involvement in several risk behaviors that serve as markers for poor psychosocial outcomes across the lifespan. Greater school engagement is associated with lower rates of drug usage (Carter et al., 2007) as well as lower rates of initiation of alcohol use (Simons-Morton, 2004); conversely, student substance use is associated with lower school engagement over time (Simons-Morton & Chen, 2009). Externalizing behaviors, such as aggression, delinquency, and conduct problems, are also associated with lower levels of school engagement (Carter et al., 2007; Hirschfeld & Gasper, 2011; Simons-Morton, 2004), and as school engagement decreases, these behaviors increase (Hirschfeld & Gasper, 2011). In one of the only studies to examine the association between school engagement and deviant peer association, Simons-Morton and Chen (2009) found that increases in associations with peers who drank alcohol, bullied others, cheated, and fought were associated with decreases in school engagement over time.

School Engagement in Maltreated Children in Foster Care

These associations between school engagement and school adjustment and risk behaviors are particularly important with regard to children in foster care. These children are at increased risk for academic failure, placement in special education services, and school

dropout (Blome, 1997; Courtney & Dworksy, 2006; Geenen & Powers, 2006; Goerge, Van Voorhis, Grant, Casey, & Robinson, 1992; Smithgall, Gladden, Howard, Goerge, & Courtney, 2004). Additionally, they are more likely than their non-maltreated peers to engage in a number of risk behaviors. Children and adolescents with a history of foster care show higher rates of early initiation of and continuing substance use (Leslie et al., 2010; Pilowsky & Wu, 2006; SAMSHA, 2005). These children also display higher rates of externalizing behaviors (Leslie, Hurlburt, Landsverk, Barth, & Slymen, 2004) and adolescents with a history of foster care are more likely to engage in delinquent activities and violent behavior (Jonson-Reid & Barth, 2000; Ryan & Testa, 2005). Deviant peer association has been strongly implicated as a predictor of substance use and externalizing behavior in children in foster care (Shook, Vaughan, Litschge, Kolilvoski, & Schelbe, 2009) and the early school failure and peer rejection often experienced by these children are predictive of their later associations with deviant peers (Vitaro, Pedersen, & Brendgen, 2007).

Given the research showing that school engagement ameliorates some risks for negative outcomes in the general population, it seems plausible that intervening on school engagement might similarly reduce the risks for maltreated children in foster care. However, very little is known about school engagement in this population. Evidence from studies of other at-risk populations suggests that school engagement in children in foster care is likely to be negatively affected by their experiences of early adversity. In general, children and adolescents from low SES backgrounds and neighborhoods in which there are fewer resources exhibit lower levels of school engagement than children from less disadvantaged backgrounds (Daly, Shin, Thakral, Selders, & Vera, 2009; Marks, 2000; Perdue, Manzeske, & Estell, 2009). There is also some evidence that school engagement may exert greater protective effects for children who have experienced more adversity (Schmidt, 2003). Finally, school mobility appears to have negative effects on academic and behavioral engagement in at-risk children (Gruman, Harachi, Abbott, Catalano, & Fleming, 2008), and children in foster care are likely to change schools if their placements change.

The few studies specifically focused on maltreated children have shown that low SES children who had been maltreated and who were living with their families had lower levels of academic engagement than did a group of low SES children who had not been maltreated (Shonk & Cichetti, 2001). Similarly, in a sample of maltreated adolescents who were not necessarily in foster care, lack of positive parenting experiences was negatively related to school engagement (Tyler, Johnson, & Brownridge, 2008). There is also some evidence that for adolescents who have been maltreated but not necessarily placed outside the home, greater school engagement may predict better academic and social outcomes, as it does in the general population (Leslie et al., 2010; Tyler et al., 2008). For example, Leslie and colleagues found that, among adolescents in child welfare, a high level of school engagement as measured by behavior, enjoyment of school, and feelings of closeness to teachers and peers, significantly lowered the odds of concurrently engaging in health-risk behaviors, including substance use and delinquency. Tyler and colleagues (2008) found that school engagement mediated the association between a lack of positive parenting and delinquent behaviors 3 years later. In the one study that focused specifically on youth placed into foster care, Taussig (2002) found that 7 to 12-year-olds who reported feeling supported by their classmates were less likely to engage in delinquent and self-destructive behaviors 6 years later.

The studies reviewed above suggest that experiences of maltreatment and lack of positive parenting may be negatively associated with school engagement and that school engagement might mediate the association between early adversity in the form of being maltreated and placed in foster care and later academic and psychosocial outcomes. However, none of the

studies focused specifically on maltreated children in foster care, the majority of whom have experienced both maltreatment and multiple caregiver changes while in the child welfare system. No previous studies have examined school engagement in maltreated children in foster care and compared it to that of non-maltreated, low SES peers with no foster care experiences. Additionally, even among previous studies of school engagement in maltreated children, there has not been examination of multiple dimensions of engagement, thus potentially obscuring differential effects of these dimensions on outcomes. Finally, all of the extant studies examined youth who were in late elementary, middle, or high school. Studies suggest that engagement in school decreases over time (Marks, 2000) and that school engagement at first grade appears to be a robust predictor of school dropout in high school (Alexander, Entwistle, & Kabbani, 2001). Additionally, by late childhood or adolescence, youths may have already experienced a number of years of school failure or have begun at least experimental involvement in risk behaviors, which may make it difficult to determine causality. Studying early school engagement may help to pinpoint a salient point of intervention for maltreated children in foster care before they have experienced school failure or become involved in risk behaviors. Studies of school engagement in differing high-risk populations such as this one also have the potential to contribute to the burgeoning literature on school engagement across various populations and cultures (Strambler & Weinstein, 2010; Vasalampi, Salmela-Aro, & Nurmi, 2009).

Goals of the Study

The present study sought to add to the literature on school engagement in maltreated children in foster care in two ways. First, multiple dimensions of early elementary school engagement in children in foster care were compared to those of their low SES peers. Children in foster care typically have low SES backgrounds which have been linked to poor school engagement (Daly et al., 2009; Marks, 2000; Perdue et al., 2009). By comparing the experiences of children in foster care to those of low SES children, we can begin to address the question of whether there are unique effects of maltreatment and foster care on school engagement independent of SES. It was hypothesized that children in foster care would show lower levels of school engagement across dimensions than their non-maltreated peers. Additionally, it was expected that children in foster care would have lower academic competence and higher rates of risk behaviors in late elementary school when compared to their non-maltreated peers. Second, in order to examine if school engagement mediates the association between being maltreated and placed in foster care, we tested the theoretical model pictured in Figure 1. In this model, the associations of early school engagement dimensions with two long-term outcomes, academic competence, and risk behaviors (e.g., endorsement of substance use, externalizing behaviors, and deviant peer associations) in third through fifth grades were tested. Based on the studies outlined above suggesting associations between adversity and school engagement and between school engagement and both academic and behavioral outcomes, it was hypothesized that each of the dimensions of school engagement would mediate the association between early adversity and later outcomes.

Method

Participants

The participants in this study were part of a larger sample of children recruited into an efficacy trial of a treatment foster care program for preschool-aged children (Multidimensional Treatment Foster Care for Preschoolers; Fisher, Gunnar, Chamberlain, & Reid, 2000). The study occurred in two phases. Phase 1 began when the children were between the ages of 3 and 6 years and continued for 24 months. Children who were involved in Phase 1 were eligible to participate in Phase 2 which began an average of 33.84 months

after they had completed Phase 1. The complete sample included a foster care (FC) group of 117 maltreated foster children and a community comparison (CC) group of 60 age- and SES-matched, nonmaltreated children living with their biological families. For the FC group, children between the ages of 3 and 6 entering new foster placements were referred to the study through the local child welfare system. In order to be eligible for participation in the study, children had to be placed in a nonrelative foster home, be expected to remain in foster care for at least 3 months, and have English as their primary language. Staff members first contacted the child's caseworker (the legal guardian while the child is in care) and requested consent for the child to participate in the study. If the caseworker consented, staff members then contacted the foster parent to invite him/her to participate. For a child to be successfully recruited, the caseworker and foster parent had to consent to participate.

The CC group was recruited via flyers posted at local supermarkets, daycare centers, Head Start classrooms, and through advertisements in local newspapers and newsletters. The CC families were eligible for the study if the child had lived consistently with at least one biological parent, household income was no more than $30,000, parental education level was less than a 4-year college degree, and the family had no prior involvement with the child welfare system as verified by a check of child welfare records.

The mean age of the children at the baseline assessment was 4.40 years (SD = 0.83) and most children were not in school at study entry. Some of the children subsequently enrolled in school during Phase 1 and teacher and records data on the children's kindergarten and first grade years were gathered during this phase of the study. At Phase 2, children were assessed every 6 months for a total of four assessment periods. The majority of the children were in Grades 3, 4, or 5 in Phase 2 and teacher and school records data on their school performance were collected at the end of every school year. Any child who was in kindergarten, first, third, fourth, or fifth grade during either Phase 1 or Phase 2 of the larger study was included in the current subsample for a total of 147 children (93 FC and 54 CC). Twenty-nine of the 30 children who were not included in this subsample dropped out of the study before data on their kindergarten or first grade year could be collected (24 FC and 5 CC) and 1 CC child was homeschooled. Children for whom school data were available did not significantly differ from those for whom data were not available in terms of gender or being an ethnic minority; they were slightly older at the start of Phase 1 (M = 4.46, SD = .81) than the children for whom school data were not available (M = 4.10, SD = .87; t = −2.21, p < .05).

As is noted above, all of the children in the FC group were part of a larger sample in an efficacy trial to evaluate a treatment foster care program. They were assigned to intervention (n = 48) or comparison groups (n = 45) at study entry. (The CC children were not randomized to different conditions.) Effects of the intervention have been found on targeted outcomes including placement stability (Fisher, Burraston, & Pears, 2005; Fisher, Kim & Pears, 2009; Fisher, Stoolmiller, Mannering & Chamberlain, 2011), security of attachment (Fisher & Kim, 2007) Hypothalamic Pituitary Adrenal axis activity (Fisher, Van Ryzin, & Gunnar, 2011; Graham et al., 2012), and foster caregiver reported stress (Fisher & Stoolmiller, 2008). However, school engagement was not a primary targeted outcome and preliminary independent sample t-tests indicated that there were no significant mean differences between the two foster care groups on the variables used in the present study (using the Holm modification to the Bonferroni method to control for Type I error; Jaccard & Guilamo-Ramos, 2002).

Additionally, in order to ensure that the associations between the variables of interest in this study did not vary significantly by treatment group, we conducted a series of structural equation modeling (SEM) analyses to test the proposed model using three groups of

children, the CC group, the FC intervention group, and the FC comparison group. In the first model, the parameters (e.g., means, variance, and regression coefficients) for all of the groups were allowed to vary freely. In a second model, the parameter values for the two foster care groups were constrained to be equal, while the values for the CC were allowed to vary freely. A Sartorra-Bentler chi-square difference test was conducted to compare the two models, $\chi^2 = 36.51$, $df = 27$, $p = .10$. The nonsignificant difference between the two models led to the conclusion that there were no significant differences in means, variances, and regression coefficients when the two foster care groups were combined versus when they were treated separately in the model used in this study. Thus, given the rare opportunity to examine school engagement and longitudinal outcomes in maltreated foster children, it was decided to combine the two groups of foster children into one longitudinal sample for the purposes of this study.

The characteristics of children in the FC and CC groups are shown in Table 1. There were no significant differences between the FC and CC groups on age or ethnicity. The study included 20 sibling dyads (10 FC and 10 CC), 3 FC triads, and 1 FC tetrad. Placement and maltreatment history information for the FC children is also presented in Table 1. Child welfare case records were coded using the Maltreatment Classification System (Barnett, Manly, & Cicchetti, 1993) to obtain information about the types of maltreatment that the children had experienced.

Procedure

As noted above, children entered Phase 1 between 3 and 6 years of age. For those children who entered school during those 24 months and completed kindergarten or first grade (or both), teacher questionnaires and school records data were collected in the spring of those school years. During Phase 2, children were in Grades 3, 4, and/or 5 and school data were collected at the end of every school year during the study period. A majority of the children had school data from multiple grades across the phases of the study. In addition to the school assessments, children and their caregivers completed laboratory-based assessments at 6-month intervals over the 24 months of Phase 2. These included self-report measures of the children's endorsement of substance use as well as parent reports of the children's academic competence, externalizing behaviors, and deviant peer association (all described below).

For the current study, individual scales and multimethod, multi-informant composites were created according to Patterson and Bank's (1986) method. All scales and composites had to show an internal reliability of .60 or higher (standardized alpha), and all items in a scale or composite had to show an item-total correlation of .20 or higher.

Measures

Group status—In the current study, a history of maltreatment and foster placement was represented by a dichotomous variable. The FC children were coded as 1 (*history of maltreatment and foster placement*), whereas the CC children were coded as 0 (*no history of maltreatment or foster placement*).

School engagement—Three dimensions of school engagement were measured for the current study. Scores were taken from the kindergarten and first grade spring assessments. When there were data from more than 1 school year available for a child, an average for both years was taken.

Behavioral engagement: The number of days that the child was absent from school was taken as a measure of behavioral engagement to indicate whether the child was actually

attending classes and school activities. The scores were reversed so that higher scores reflect greater behavioral engagement with school.

Affective engagement: To assess children's feelings about school, the 9-item school dislike scale of the Seattle Personality Questionnaire (Greenberg & Lengua, 1995) was used. Children answered 1 "yes" or 0 "no" to questions about their feelings about school (e.g., "Do nice things happen to you at school?"), their teacher (e.g., "Do you like your teacher?") and their peers (e.g., Do you have kids to play with at school?"). In prior studies, the school dislike subscale has been found to be positively associated with feelings of victimization at school (Hood, Power, & Hill, 2009). In the present study, the scale scores were reversed so that higher scores indicate more affective engagement with school. In other studies, items from the reversed scale have been found to be positively associated with teacher support and peer acceptance (Gruman et al., 2008). In the present study, kindergarten and first grade scores were significantly positively correlated ($r = .31$, $p < .05$).

Cognitive engagement: To measure the children's levels of effort at learning skills and tasks and their abilities to regulate these efforts, teacher reports on the school adjustment subscale of the Walker-McConnell Scales of Social Competence and School Adjustment (Walker & McConnell, 1988) were used. Ten items pertain to the student's ability to regulate attention to tasks (e.g., "Attends to assigned tasks", "Listens carefully to teacher instructions and directions for assignments"), to make efforts to complete tasks (e.g., "Answers or attempts to answer a question when called on by the teacher") and to organize their time and materials (e.g., "Displays independent study skills", "Has good work habits, "Organizes materials, makes efficient use of class time"). Items were answered on a scale from 1 "never" to 5 "frequently". Some researchers have argued that because the abilities to direct and regulate one's own efforts involve metacognition, self-report items might be best (Appleton, Christenson, Kim, & Reschly, 2006). However, when working with young children who might not be able to accurately report on their own metacognitions, collecting teacher reports on behaviors may be more reliable (Fredericks et al., 2004). Studies have shown that scores on the school adjustment questionnaire correlate well with other measures of cognitive competence, study skills, and learning and attention problems (August, Lee, Bloomquist, Realmuto, & Hektner, 2004). The cognitive engagement scales for the kindergarten and first grade timepoints were significantly positively correlated ($r = .65$, $p < .01$).

Late Elementary School Outcomes—Two dimensions of late elementary school outcomes were assessed for the present study. Indicators were developed from Phase 2 of the study when the children were in Grades 3, 4, and 5. Teacher and school records data were taken from the end of each grade and if the child was in multiple grades during the study, data from the multiple grades were averaged. For child and parent data, measures were collected twice during the study and scores for the current study were taken from the last timepoint that the measure was completed during Grades 3 to 5.

Academic competence: Academic competence was assessed using teacher and parent report and data from school records. Parents completed the School Competence Scale of the Child Behavior Checklist (CBCL; Achenbach, 1991a) which assesses how well the child is performing in a number of school subjects as well as more generally academically. Teachers completed the corresponding Academic Performance Scale on the Teacher Report Form (TRF; Achenbach, 1991b). The raw scores on the subscales of both measures were significantly positively correlated ($r = .63$, $p < .01$). Finally, in order to assess whether the child was receiving any special academic services, school records were examined and special services were classified according to the following categories: special education

services in the general classroom, special education in a self-contained classroom, and Chapter I/Title I services. The number of special academic services was reversed scored. These parent, teacher, and special academic services scores were all moderately to strongly positively correlated (*r*s = .45 to .63, *p*s < .01); thus they were standardized and averaged to produce one academic competence score (α = .79).

Risk behaviors: Three indicators - endorsement of substance use, externalizing behaviors, and deviant peer association were included in the analysis to represent the latent construct of risk behaviors in children.

Endorsement of substance use: In a structured interview children were asked to indicate whether they believed that it is "okay" for people to "smoke cigarettes or use smokeless tobacco", "drink alcohol", "use marijuana", "use drugs that you can buy at a drugstore like prescriptions or cough syrup to get high", "use household chemicals like glue and paint to get high", and "use illegal drugs such as LSD, cocaine, or meth[amphetamines]". For each question, children could answer "no", "sometimes" or "yes". The scores were averaged to produce one score representing endorsement of substance use (α = .77) with higher scores representing greater endorsement.

Externalizing behaviors: Parents reported on children's externalizing behaviors on the CBCL (Achenbach, 1991a) and teachers reported on the child's behaviors on the TRF (Achenbach, 1991b). The raw scores on the externalizing subscales of both measures were significantly positively correlated (*r* = .56, *p* < .01) so they were standardized and averaged to produce one externalizing behaviors score.

Deviant peer association: Parents completed a questionnaire (Dishion & Capaldi, 1985) on which they indicated how frequently they believed that their child's friends had a bad influence on the child's behavior on a scale of 1 "always or almost always" to 5 "never or almost never". This item was recoded so that higher scores indicated more frequent bad influences. Additionally, parents completed two items indicating how often their child associated with children who fought and with children who stole on a scale of 1 "never" to 4 "often". These items are part of a larger scale measuring deviant peer influence that has been used in a number of studies and shown to be related to poor parenting practices, high levels of comorbid internalizing and externalizing behavior, and antisocial behavior in late childhood and adolescence (Dishion, 2000; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Capaldi, Dishion, Stoolmiller, & Yoerger, 2001). In this study, an item that measured friends' firesetting showed no to very low variance and was thus dropped from the scale. The three items showed good internal reliability (α = .67) and thus were standardized and averaged to produce the deviant peer association score.

Child gender—The child gender's was coded 0 *"male"* and *1 "female"*. Preliminary analyses indicated gender differences on cognitive school engagement and academic competence in Grades 3 to 5. Thus, it was used as a covariate in the subsequent analysis described below.

Analysis plan

First, group differences in early school engagement variables between FC and CC children were examined using independent t-tests. Second, the associations between dimensions of early school engagement and late elementary outcomes were examined with correlational analyses and SEM using Mplus 6.1 (Muthén & Muthén, 1998–2010). For the SEM, the Maximum Likelihood with Robust (MLR) estimator was used to account for the nonindependence due to siblings. Full information maximum likelihood (FIML) estimation

was also used to accommodate missing data. Missing data ranged from 0 – 20% across study variables with an average of 12.9 %. FIML has been shown to provide unbiased estimates when data are missing at random (Arbuckle, 1996). In order to examine the mediating effects of early school engagement variables, indirect effects were tested using Mplus.

Results

Group Differences in Early School Engagement

The first goal of the study was to examine group differences in early school engagement between children in foster care and their non-maltreated, low SES peers. A series of t-tests were conducted for the two groups of variables, the school engagement variables and the academic and individual risk behaviors, as the variables were drawn from different time periods. To control for Type I error, we used the Holm modification to the Bonferroni method (Jaccard & Guilamo-Ramos, 2002). As shown in Table 2, children in the FC group showed lower mean levels of affective and cognitive engagement than did children in the CC group. The mean levels of academic competence and individual risk behaviors in Grades 3, 4, and 5 are also presented in Table 2. Children in the FC group had significantly lower levels of academic competence compared to those in the CC group. For all of the risk behavior variables, the FC children tended to show higher levels of risk behaviors than the CC children and such group differences were statistically significant for externalizing behavior and deviant peer associations.

Associations of School Engagement to Late Elementary Outcomes and Potential Mediating Effects

The second goal of the study was to examine whether the three dimensions of early school engagement were related to academic competence and risk behaviors in third to fifth grades and whether engagement might mediate the association between early adversity and academic and risk behavior outcomes in late elementary school.

Correlational analyses—Bivariate correlational analyses were conducted to examine the associations between the variables and results are presented in Table 3. Children's early affective engagement and cognitive engagement were significantly associated with one another but not with behavioral engagement. Both affective engagement and cognitive engagement were positively associated with academic competence in late elementary school and negatively associated with children's externalizing behavior. Children's early cognitive engagement was also significantly negatively associated with deviant peer associations in Grades 3, 4, and 5. The associations between the three indicators of risk behaviors were positive and all were significant, except the association between endorsement of substance use and deviant peer associations. All three individual risk behaviors were significantly negatively correlated with academic competence in third to fifth grades. As would be expected from the analyses of group differences, the experience of early adversity in the form of maltreatment and foster care was significantly negatively associated with affective and cognitive engagement and academic competence and positively associated with externalizing behavior and deviant peer association. Child gender was significantly related to cognitive engagement and academic competence; girls tended to show higher levels of both than did boys.

Multivariate analyses—SEM analyses were conducted to test possible mediation by the three dimensions of school engagement of the effects of early adversity on academic and risk behavior outcomes in late elementary school. The results are shown in Figure 2. Endorsement of substance use, externalizing behaviors, and deviant peer associations formed a latent variable of risk behaviors for one of the outcome measures and academic

competence was the other outcome measure. Based on the significant correlations between child gender and both cognitive engagement and academic competence, gender was included in the model to control for its potential effects on these two variables. The model fit the data well with a chi-square of 10.12, *df* = 17, *p* = .90, *CFI* = 1.00, *TLI* = 1.11, *RMSEA* = .00. All three indicators significantly loaded on the latent factor representing risk behaviors. There were significant negative effects of being maltreated and placed in foster care on affective engagement and cognitive engagement. Both affective and cognitive engagement were in turn associated with higher levels of academic competence in late elementary school. Children's cognitive engagement was also related to lower levels of risk behavior in Grades 3 to 5. There was a significant direct effect of group status on risk behaviors showing that having been maltreated and placed in foster care was positively associated with risk behaviors in later elementary school. The negative association seen between group status and academic competence in the bivariate correlations was no longer significant in the multivariate model. Child gender was significantly related to cognitive engagement but not to academic competence in the model.

To examine mediation effects, the significance of the indirect paths from group status to children's affective and cognitive engagement and then to adjustment outcomes in third to fifth grades was tested using Mplus. The total indirect effects for academic competence (the combined effects of three indirect paths from group status to academic competence) was significant (z = −2.43, $p < .05$). This overall effect appears to be primarily due to the path from group status to affective engagement to academic competence ($z = -1.93$, $p = .05$) and the path from group status to cognitive engagement to academic competence (z = −1.89, $p = .06$). For risk behaviors, the total indirect effects were also significant (z = 2.31, $p < .05$) and, specifically, the indirect path from group status to cognitive engagement to risk behaviors was significant (z = 2.09, $p < .05$).

Discussion

The overarching aim of the present study was to better understand multiple dimensions of school engagement in maltreated children in foster care, a group at high risk for poor school and psychosocial outcomes (Leslie et al., 2004; Leslie et al., 2010; Smithgall et al., 2004). A better understanding of how school engagement might be associated with outcomes for these children could elucidate potential points of intervention. Multiple dimensions of engagement in early elementary school were examined in both children in foster care and a sample of low SES children from the community who did not have histories of maltreatment or foster care. As was predicted, children in foster care had poorer affective and cognitive engagement than children in the community comparison sample, suggesting detrimental effects of a history of maltreatment and foster care independent of the effects of low SES. There were no differences in behavioral engagement. These findings suggest that some children in foster care experience disengagement from school at a very early age. This is particularly concerning as early disengagement robustly predicts negative long-term outcomes, including high school dropout (Alexander et al., 2001). Additionally, school engagement tends to decrease in all children with age (Marks, 2000), and since children in foster care appear to begin their schooling with low levels of engagement, they may be at even greater risk than other children for decrements over time.

Lower levels of early affective and cognitive school engagement appear to contribute to lower academic competence and higher levels of risk behaviors in later elementary school. Findings from bivariate and multivariate analyses linked both affective and cognitive school engagement to higher levels of academic competence. Cognitive school engagement also was linked to lower levels of risk behaviors which included endorsement of substance use, externalizing behaviors, and deviant peer associations. This association with risk behaviors

is not surprising as cognitive school engagement included children's abilities to regulate their task-related efforts and to monitor their own learning behaviors; self-regulatory abilities have strong links to substance use and externalizing behaviors including antisocial behaviors and delinquency (Kirisci, Tarter, Vanyukov, Reynolds, & Hebeych, 2004; Giancola & Parker, 2001). Additionally, both early affective and cognitive school engagement appeared to mediate the association between being maltreated and placed in foster care and academic competence in late elementary school and early cognitive school engagement mediated the association with engagement in risk behaviors. Behavioral school engagement was not significantly associated with outcomes. Attendance at school in the early grades may be largely controlled by parents and thus, while reflecting how much time the child is at school, may not be a strong measure of child engagement.

The role of school engagement as a mediator is a hopeful finding despite the lower levels of early school engagement in children in foster care. School engagement is believed to be relatively malleable (Fredericks et al., 2004), and thus, it may provide a salient point of intervention to help prevent not only poor academic outcomes but also children's involvement in early risk behaviors that could have grave long-term consequences including substance use disorders and criminal involvement. Interventions might focus on increasing children's academic skills as previous academic success has been linked to greater subsequent school engagement (Marks, 2000). Additionally, the teacher-child relationship appears to influence children's affective school engagement (Furrer & Skinner, 2003; Ryan & Patrick, 2001); thus efforts to build strong relationships between children in foster care and their teachers might improve school engagement in this population. Interventions to improve children's self-regulation also might increase cognitive involvement.

These findings are important not only because they suggest potential points of early intervention with a population of children at high risk for poor academic and psychosocial outcomes but also because they add to the literature on school engagement in diverse populations and cultures (Strambler & Weinstein, 2010; Vasalampi et al., 2009). School engagement has been examined in such at-risk populations as low income children, those living in urban areas, and those facing multiple family stressors (Daly et al., 2009; Schmidt, 2003). However, it has much more rarely been studied in children who have experienced the multiple risk factors of maltreatment and foster care that together may greatly increase their likelihood of negative outcomes. Exploring school engagement in children with atypical experiences may help to specify the range of factors that affect school engagement and their paths of influence. It may also help to more fully elucidate the potential of school engagement as an important point of intervention with multiple populations of children.

Limitations of the study

There has been relatively little investigation of school engagement in maltreated children in foster care to date. Thus, this study represents an important step in identifying intervention targets in early elementary school to improve later outcomes. Additionally, the use of multi-method, multi-informant, prospective data for such a high-risk sample is rare. However, several limitations must be noted.

The first limitation is that the measure of behavioral engagement may have been relatively weak compared to the measures of affective and cognitive engagement. This may have accounted for the failure to find group differences in or prediction from this dimension. Attendance in school was used as the measure of behavioral engagement as it reflected the child's presence for learning activities and thus how much schooling the child received. Other studies have focused on children's completion of school work or homework as a behavioral measure. However, children in the early elementary grades often do not receive homework and such a measure would not necessarily be relevant for all of the children.

Examination of behavioral engagement with different measures warrants further research. Second, the sample was smaller in comparison to those in some studies of school engagement. However, the practical difficulties involved in recruiting such a high-risk sample and retaining participants over the course of several years often precludes the recruitment of large samples. Third, although the group of children in foster care and the community comparison group did not differ on key demographic variables, they might have differed on other variables that are not measured here, other than the history of maltreatment and foster care, that could have potentially affected school engagement. Finally, this study is based on children in foster care in the United States, which may differ from foster care in other countries. Thus, this may limit the generalizability of the results to children in foster care in other countries and cultures.

Overall, this study has allowed for the explication of how multiple dimensions of school engagement in early elementary school are associated with the experiences of maltreatment and placement into foster care. It has also shown that both affective and cognitive engagement mediate the associations between early adversity and academic and behavioral outcomes in late elementary school. If effective interventions to improve school engagement in children in foster care can be developed, they could hold great potential for improving the long-term trajectories of these vulnerable children.

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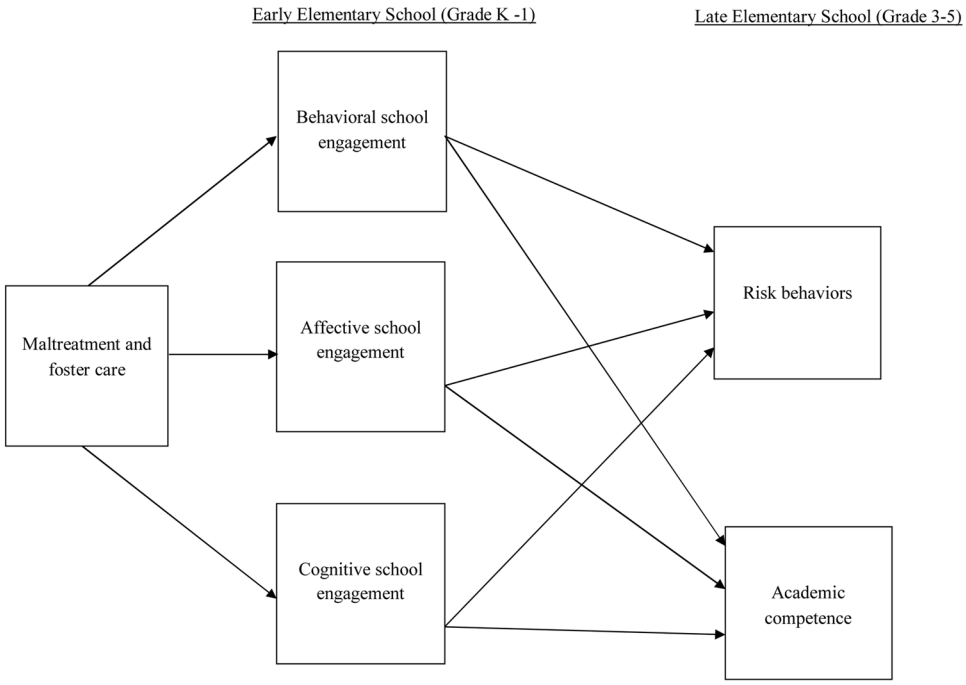

Figure 1.
Theoretical model for the study

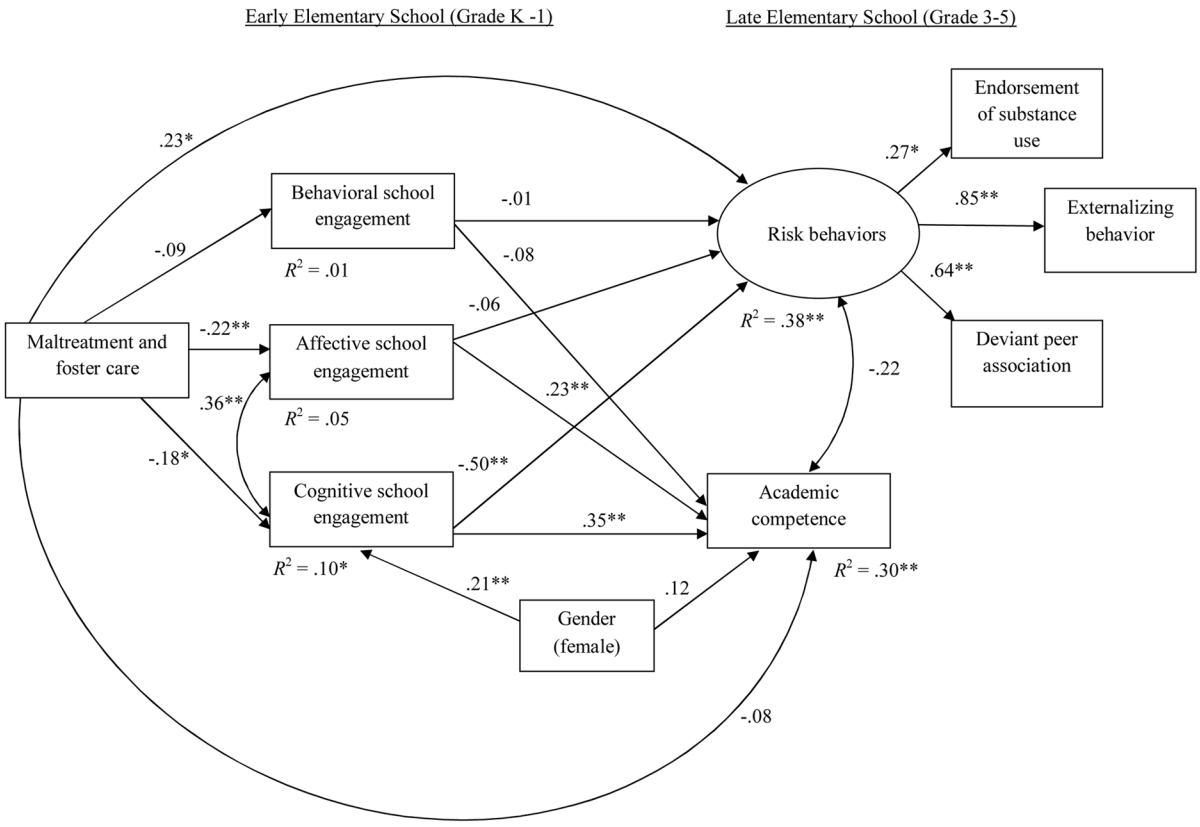

Figure 2.

Model of associations between maltreatment and foster care, early elementary school engagement, and late elementary school outcomes

Note: Values represent standardized coefficients.

*$p < .05$; ** $p < .01$

Table 1

Demographic variables for the sample

	Foster Care Group	Community Comparison Group
Mean age in years	4.55 (0.81)	4.31 (0.80)
Male	55%	52%
Ethnicity		
Caucasian	87%	78%
African American	1%	6%
Native American	6%	7%
Pacific Islander	0%	2%
Mixed race	2%	2%
Other/unknown	4%	5%
Placement and maltreatment histories [a]		
Mean age at first placement into foster care (in years)	3.53 (1.45)	--
Mean number of unique placements prior to study entry	3.08 (1.51)	--
Mean number of days in foster care prior to study entry	168 (190)	--
Frequency of physical abuse	35%	--
Frequency of sexual abuse	26%	--
Frequency of physical neglect	81%	--
Frequency of supervisory neglect	89%	--
Frequency of emotional maltreatment	90%	--

[a] Because children could experience more than one type of maltreatment, percentages will not sum to 100.

Table 2

Means for predictor and outcome variables by group status

	FC group	CC group	*t*
School engagement			
Behavioral engagement	−9.81 (8.01)	−11.33 (9.97)	−0.92
Affective engagement	−2.09 (1.81)	−1.34 (1.01)	2.96*
Cognitive engagement	36.87 (8.88)	40.36 (8.44)	2.23*
Late elementary school outcomes			
Academic competence	−0.13 (0.97)	0.21 (0.55)	2.51*
Risk behaviors			
Endorsement of substance use	1.20 (0.34)	1.11 (0.19)	−1.77
Externalizing behavior	0.27 (0.99)	−0.30 (0.71)	−3.70*
Deviant peer association	0.15 (0.85)	−0.19 (0.63)	−2.38*

*Statistically significant using the Holm modification of the Bonferroni procedure to control for Type 1 error

Table 3

Bivariate correlations among the study variables

	1	2	3	4	5	6	7	8
1. Behavioral engagement	--							
2. Affective engagement	−.09							
3. Cognitive engagement	.02	.38**						
4. Academic competence	.06	.37**	.49**					
5. Endorsement of substance use	.01	−.15	−.15	−.20*				
6. Externalizing behaviors	−.01	−.25*	−.50**	−.38**	.21*			
7. Deviant peer associations	.09	−.10	−.37**	−.30**	.15	.54**		
8. Group status	.08	−.23**	−.19*	−.20*	.15	.30**	.22*	
9. Child's gender	.04	−.02	.22*	.18*	−.18	−.05	−.12	−.03

* $p < .05$;

** $p < .01$