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General Cognitive Ability as an Early Indicator of Problem Behavior Among Toddlers in Foster Care

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Abstract

Objective: Children who have experienced maltreatment and subsequent placement in foster care are at increased risk for problem behavior. Increased knowledge of the development of problem behavior in this population, particularly during toddlerhood, can greatly inform preventive intervention efforts. This study examined variability in problem behavior among toddlers entering new foster care placements and identified related child and parenting characteristics.

Method: Ninety-one toddlers in foster care ($M = 2.26$ years) and their caregivers completed an initial assessment and were reassessed six months later. Child general cognitive ability was assessed via performance on a standardized developmental measure, and child problem behavior, parenting stress, frequency of family routines, and harsh discipline were assessed via caregiver report.

Results: Upon entering a new foster care placement and six months post-placement, respectively, 38% and 25% of the toddlers were within the borderline clinical or clinical range in terms of problem behavior when assessed using the Child Behavior Checklist. There was not a significant difference in problem behavior over this 6-month period, suggesting that problem behavior was quite stable among the toddlers as a group. However, general cognitive ability was a significant predictor of individual differences in change in problem behavior, with toddlers with lower general cognitive ability displaying increased problem behavior over this period.

Conclusion: An elevated number of toddlers in foster care displayed clinically significant levels of problem behavior, further demonstrating that these children are an extremely high-risk group. The association between general cognitive ability and change in problem behavior highlights the importance of early developmental screenings, which may help to identify the children at greatest risk for problem behavior and most in need of preventive intervention efforts.

Keywords

Foster Care; Problem Behavior; General Cognitive Ability; Toddlers

INTRODUCTION

Children in foster care have been exposed to various forms of maltreatment including emotional, physical, and sexual abuse and physical and supervisory neglect.¹ Extensive research has shown that maltreated children in foster care are at increased risk for poor outcomes across multiple domains of functioning, including poor academic achievement and increased psychiatric disorders, alcohol and substance abuse, and criminality, across childhood, adolescence, and beyond.^{1, 2} Rates of problem behavior are particularly elevated in children in foster care.^{3, 4, 5} Importantly, problem behavior in early childhood has been linked to subsequent negative outcomes, such as school failure, juvenile justice involvement, long-term physical and mental health problems, and alcohol and substance use.^{5, 6, 7} However, while there is increased likelihood of problem behavior among children in foster care, not all of these children show clinically significant levels of problem behavior, highlighting the importance of studying individual variability in the adaptation to early adversity.¹ Given the increased risk for problem behavior in young children in foster care and the associations between early problem behavior and subsequent functioning, understanding the emergence and predictors of variability in problem behavior in toddler-aged children over the first months of entering new foster care placements may provide insight into the long-term negative outcomes observed among foster care populations. Such research may also aid in the early identification of the children at greatest risk for problem behavior and inform the development of early, targeted preventive interventions, which have been shown to be more efficacious and cost effective than later interventions.⁸ Thus, the present investigation sought to examine variability in problem behavior in toddlers entering new foster care placements and identify child and parenting characteristics that are predictive of change in problem behavior over a 6-month, post-placement period.

Although not yet investigated, there is evidence to suggest that child general cognitive ability may partially explain variability in problem behavior among toddlers in foster care. First, previous research demonstrates that children in foster care show deficits in general cognitive ability. For example, one study found that children in foster care displayed lower general cognitive ability than an age-matched community sample at 2–3 years of age.⁹ Similarly, preschool-aged children in foster care have been shown to have developmental delays in visuospatial functioning, language, and general cognitive functioning.¹⁰ Second, delays in general cognitive ability have been linked to poor subsequent functioning, including increased problem behavior, in the general population.^{11, 12, 13, 14} Likewise, cognitive functioning in early childhood has been shown to be significantly related to emotion regulation and school adjustment in middle childhood in children in foster care.¹⁰ Taken together, these results suggest that deficits in general cognitive ability may be well positioned to underlie the relationship between early adversity and subsequent difficulties and thus contribute to the variability in problem behavior among young children in foster care.

Parenting characteristics, such as elevated parenting stress, inconsistent family routines, and harsh discipline, have been shown to be critical to child functioning in the foster care population. In particular, higher levels of parenting stress in foster caregivers have been associated with negative child outcomes, including alterations in the stress-response system

and increased problem behavior.^{3, 15} Similarly, foster caregivers' implementation of consistent family routines has been linked to decreased child problem behavior and improved family well-being.^{16, 17} Finally, research on the discipline practices of foster caregivers has shown that lower levels of harsh discipline is associated with more positive adjustment in children in foster care, and conversely, higher levels of harsh discipline is related to increased child aggression.^{16, 18, 19} Notably, preventive interventions targeting these parenting behaviors have shown the malleability of these behaviors and the subsequent positive effect on the development of children in foster care.^{16, 20, 21} However, relatively few studies have examined the associations between different parenting characteristics and problem behavior in children in foster care during toddlerhood specifically. Thus, limited evidence is available to inform preventive intervention efforts to reduce problem behavior in toddlers in foster care.

The present study investigated variability in problem behavior in toddlers entering new foster care placements and examined the influence of child general cognitive ability, parenting stress, frequency of family routines, and harsh discipline on change in children's problem behavior over a 6-month period after entering new foster care placements. This study is particularly novel given its focus on toddlerhood, because most of the research with the foster population thus far has focused on older children and adolescents. Increased understanding of the early stages of problem behavior, as well as predictors of change in this behavior over the first months of entering new foster care placements, is critical. Early identification of the children at greatest risk for subsequent difficulties will aid in delivering the much-needed services at an earlier age, which has been shown to be more effective and cost effective.⁹ The following specific hypotheses were investigated in the present study. First, it was predicted that an elevated percentage of toddlers in foster care would display clinically significant levels of problem behavior upon entering a new foster care placement and six months post-placement. Second, it was hypothesized that greater general cognitive ability, lower parenting stress, greater frequency of family routines, and less harsh discipline would be associated with decreased problem behavior six months post-placement even after controlling for problem behavior at placement.

METHODS

Participants and Procedure

The present study focused on 91 children (44.0% female) in foster care in two counties in the Pacific Northwest. Children who were within the selected age range (i.e., 18 to 36 months old) and were entering a new foster care placement (i.e., being placed in foster care for the first time, reentering foster care following failed reunifications with biological parents, or transitioning to a new foster care placement) were referred to the study by the county branch of the state child welfare system. The state is the legal guardian of children in foster care, and the children's caseworkers, as representatives of the state, provided permission for the children to participate in the study. Additionally, informed consent was obtained from the foster caregivers for their own participation. Once permission and consent was obtained, the children and their foster caregivers participated in a laboratory-based assessment. The first assessment (Wave 1) was conducted within a month of the children

entering a new foster care placement, and the second assessment (Wave 2) was conducted approximately six months later.

Children were a mean age of 2.26 ($SD = .44$) years at Wave 1 and 2.87 ($SD = .47$) years at Wave 2. Fifty-two (57.1%) of children were European American, 14 (15.4%) were Mixed Race, 16 (17.6%) were Hispanic/Latino, 5 (5.5%) were African American, 3 (3.3%) were Native American, and 1 (1.1%) was Other. The median annual household income was between 40,000-\$49,000, and the median highest level of education completed by the foster caregiver corresponded with completing some community college or vocational/specialized training courses but not receiving a degree or certificate. The retention rate at Wave 2 was 81.3% ($n = 74$). Of the 17 families who did not participate at Wave 2, 9 families were unresponsive to attempts to contact them, 1 family could not be located, and 6 families declined due to the foster parent's significant ill, the family's busy schedule, a placement change (e.g., reunited with a biological parent or moved to a different foster care placement) and the new caregiver was not interested, or a unspecified desire to discontinue participation. There were no significant differences between those who participated and those who did not participate at Wave 2 in terms of child sex, child age, or any of the study variables assessed at Wave 1. Between Waves 1 and 2, 21 children (23.1%) experienced a placement change. Experiencing a placement change between Wave 1 and Wave 2 was unrelated to Total Problems score at Wave 1 ($r = .04$, $p = .75$) or Wave 2 ($r = -.07$, $p = .57$) and thus this variable was not included in subsequent analyses. As described below, all of the children were included in the present analyses. The research protocol was approved by the Institutional Review Boards at the University of Oregon, Oregon Social Learning Center, and Oregon Department of Human Services and Public Health.

Measures

Child General Cognitive Ability.—Child general cognitive ability was assessed at Wave 1 using the Mullen Scales of Early Learning, which measures motor and cognitive functioning in children under the age of 69 months.¹¹ The Early Learning Composite (ELC), which is derived from the standardized T-scores from the Visual Reception, Fine Motor, Receptive Language, and Expressive Language subscales, is typically used as a measure of general cognitive ability ($M = 100$, $SD = 15$).¹¹ The ELC scores correspond to descriptive category (very low, below average, average, above average, or very high) depending on the deviation from the mean. Internal reliability for the ELC score in the present study was excellent (Cronbach's $\alpha = .96$).

Child Problem Behavior.—Caregiver reports on the Child Behavior Checklist for Ages 1.5–5 years (CBCL) were used to assess child problem behavior at Waves 1 and 2.²² The CBCL is comprised of 99 items rated on a 3-point Likert scale and yields seven subscales and an Internalizing, Externalizing, and Total Problems scale ($M = 50$, $SD = 10$). Sample questions include “Defiant,” “Hits others,” and “Nervous, highstrung, or tense.” Scores on these scales can be categorized as normal, borderline clinical, or clinical, referring to below the 93rd percentile, between the 93rd-97th percentile, and above the 97th percentile, respectively. In the present study, the Total Problems scale, which is comprised of the

Internalizing and Externalizing scales, was analyzed. This scale had excellent internal reliability (Cronbach's $\alpha = .95$ at Wave 1 and $\alpha = .96$, at Wave 2).

Parenting Stress.—Caregiver stress was measured via the Parenting Stress Index-Short Form at Wave 1.²³ This measure is comprised of 36 items and is rated on a 5-point Likert scale. Sample questions include “I feel trapped by my responsibilities as a parent” and “I feel that I am not very good at being a parent.” The measure yields 3 subscales, Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child, which together form the Total Parent Stress scale. The Total Parent Stress score was used in the present investigation and had excellent internal reliability (Cronbach's $\alpha = .91$).

Family Routines.—Caregiver reports on the Family Routines Inventory were used to assess the frequency of 28 positive, strength-promoting family routines at Wave 1.²⁴ Sample items include “Children go to bed at the same time almost every night” and “Parent(s) read or tell stories to the children almost every day.” Frequency of family routines is assessed on a 4-point scale. The internal reliability of the Frequency of Family Routines scale in the present study was .73.

Harsh Discipline.—Caregivers' use of harsh discipline was assessed via the Discipline Questionnaire at Wave 1.²⁵ This questionnaire is comprised of 25 items and assesses the use of a variety of discipline practices and the effectiveness of those practices. The present study used the Harsh Discipline subscale, which includes 6 items. Questions were rated on a 5-point scale. Sample questions include “How often do you scold or yell at child” and “How often do you spank or swat your child.” The internal reliability of the subscale in the present study was .64.

Data Analysis

Descriptive statistics were examined using SPSS Statistics 21, including bivariate correlations (Table 1). A Path model was conducted in MPlus 7.31 with child problem behavior at Wave 2 as the outcome variable and child general cognitive ability, parenting stress, frequency of family routines, and harsh discipline as predictors. Child age, child sex, and problem behavior at Wave 1 were included as control variables. By including problem behavior at Wave 1, the outcome variable represents change in problem behavior between Waves 1 and 2. Between 0% and 38.4% of the sample had missing data across the variables included in the model. The Little's Missing Completely at Random test indicated that data was missing completely at random ($X^2 = 48.19$, $p = .38$). To take into account missing data, full information maximum likelihood was utilized for model estimation, which is known to yield less biased estimates than listwise or pairwise deletion approach.²⁶

RESULTS

Variability in General Cognitive Ability and Problem Behavior

We first examined within-group variability in general cognitive ability as reflected by the ELC scores measured at Wave 1. Thirty-three children (40.2%) were categorized as very low or below average in general cognitive ability ($M = 89.24$, $SD = 18.91$). We also examined

within-group variability in problem behavior. At Waves 1 and 2, respectively, 38.2% and 25.0% of the children had Total Problem scores in the borderline clinical or clinical ranges ($M = 55.17$, $SD = 11.14$ and $M = 54.32$, $SD = 11.21$). There was no significant difference between Total Problems scores at Wave 1 and Wave 2, which suggests that problem behavior was quite stable among this sample of toddlers, $t(68) = 1.41$, $p = .16$.

Early Indicators of Change in Problem Behavior Six Months after Placement

Results of the aforementioned path model indicated that the model fit the data well ($X^2 = 12.39$, $p = .34$; CFI = 1.00; TLI = 1.04; RMSEA = .00; Figure 1). Child general cognitive ability ($\beta = -.31$, $p = .001$) at Wave 1 was the only significant predictor of Total Problems score at Wave 2, controlling for Total Problems score at Wave 1. Total Parent Stress ($\beta = .12$, $p = .30$), Frequency of Family Routines ($\beta = -.09$, $p = .62$), and Harsh Discipline ($\beta = -.05$, $p = .62$) did not demonstrate significant main effects. The model predicted 43.4% of the variance in Total Problems score six months after entering a new foster care placement.

DISCUSSION

Given the growing number of children in foster care in the United States, over one-third of whom are under the age of 5, increased understanding of children in foster care during this critical developmental period is urgently needed.²⁷ The present study examined within-group variability of problem behavior in a sample of toddlers in foster care, as well as child and parenting characteristics associated with change in problem behavior over a 6-month period. The findings highlighted that variability among foster children may be observed as early as 18 months old. Roughly 38% and 25% of toddlers in the present sample (compared to 7% in the general population) displayed borderline clinical or clinical levels of problem behavior upon entering a new foster care placement and six months post-placement, respectively.²² Additionally, approximately 40% of these toddlers (compared to approximately 16% in the general population) were within the below average or very low range in terms of general cognitive ability.¹¹ Together, these findings provide further evidence that children in foster care are an extremely high-risk group. However, it is also important to note that a significant number of toddlers in the present study did not demonstrate clinical levels of problem behavior or deficits in general cognitive ability. Thus, the variability in problem behavior and deficits in general cognitive ability observed in present study highlights the need to identify the children in foster care who are at particularly high risk for subsequent negative trajectories at an early age.

In the present study, problem behavior upon entering a new foster care placement and six months post-placement was significantly correlated. Additionally, there was not a significant difference in problem behavior over this 6-month period. Taken together, these results suggest that problem behavior was quite stable among the toddlers in the present study as a group. However, general cognitive ability upon entry into a new foster care placement was predictive of individual differences in problem behavior six months post-placement even after controlling for problem behavior at placement. This finding is consistent with previous research highlighting the association between deficits in general cognitive ability and problem behavior. For example, in the general population, general cognitive ability predicted

subsequent problems with inattention in preschool-aged children.²⁸ These results highlight the importance of screening the general cognitive ability and problem behavior of young children in foster care and proactively providing targeted preventive interventions to the children at greatest risk for negative outcomes. Because pediatric primary care is one of the few commonly accessed services by families with young children, pediatric clinics may be an ideal setting to conduct a brief developmental screening for young children in foster care and to provide a referral for some much-needed services for most at-risk children.

Previous research has demonstrated an association between parenting characteristics, including parenting stress, family routines, and discipline practices, and problem behavior in children in foster care.^{3, 4, 6, 16, 17, 18, 19} However, none of these parenting characteristics were significant predictors of problem behavior in the present study. While there was a significant bivariate correlation between parenting stress and problem behavior six months post-placement, parenting stress no longer predicted problem behavior once child problem behavior at placement and general cognitive ability were included in the model. As noted above, problem behavior was quite stable over the observed 6-month period. Thus, controlling for problem behavior at placement may have obscured the association between parenting stress and later problem behavior. These results also suggest that general cognitive ability is more strongly related to later problem behavior than these parenting characteristics. Another possible explanation for the lack of associations between parenting stress, family routines, and discipline practices and problem behavior was due to reporting bias on the measures assessing the parenting characteristics. That is, caregivers may have been reluctant to endorse parenting behaviors that might be viewed as unfavorable. Thus, future investigations should further explore these parenting characteristics with a larger sample using a multimethod measurement approach, as well as investigate the complex relationships between early adversity, child and parenting characteristics, and multifarious developmental trajectories at different ages. Given the significant bivariate relation between parenting stress and problem behavior aforementioned, as well as the relationship between parenting stress and problem behavior in previous research, this characteristic may be particularly important to explore in future studies.

This study had several limitations. First, the sample size was relatively small. Second, the majority of measures were based on caregiver report, and thus findings may be influenced by the shared variance among these measures. Future studies should use a multimethod measurement approach (e.g., caregiver report, child report, and naturalistic and/or structured observation) to further investigate the associations between parenting characteristics and problem behavior. Third, the norms for the Mullen Scale of Early Learning norms are quite old and thus may be less representative of the current general population. Fourth, the observed variability in problem behavior among toddlers in foster care may be due to individual differences in a number of unmeasured factors such as maltreatment experiences, number and quality of previous foster care placements, access to other supportive caregivers or resources, and child characteristics such as temperament. For example, difficulties in accessing the official child welfare system records resulted in a lack of information about the children's maltreatment and foster care placement histories. An increased understanding of the differential effects of different maltreatment and foster care experiences on problem behavior may enhance our ability to differentiate between resilient toddlers and toddlers that

are in need of targeted preventive interventions. Thus, although it was beyond the scope of the present study, systematic examinations of potential effects of these factors warrant further research. Finally, assessment across multiple domains of child functioning such as prosocial behavior in early childhood is also warranted. As described above, children in foster care are at increased risk for a host of long-term negative outcomes, at least some of which may be traced to emerging difficulties in toddlerhood.

The present study was unique provided the focus on toddlers in foster care. Given the importance of this developmental period, additional research is clearly warranted. However, the findings of the present study provide further evidence that young children in foster care are an extremely high-risk sample of children and highlight the importance of early developmental screenings for young children in foster care. While it would be optimal for all children in foster care to receive a comprehensive developmental and behavioral evaluation given the demonstrated high-risk nature of this group, early developmental screenings, which could occur within pediatric primary care clinics, may identify the children at greatest risk for subsequent problem behavior and aid in the delivery of targeted preventive interventions at an earlier age.

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Figure 1.

Path model predicting children's problem behavior 6 Months after placement. * $p < .05$, ** $p < .01$, *** $p < .001$. $X^2 = 12.39$, $p > .05$. CFI = 1.00. TLI = 1.04. RMSEA = .00. $R^2 = .434$.

Numbers displayed are standardized model results.

Table 1

Correlations between Main Study Variables (n=91)

	1	2	3	4	5	6	7
1. Child Sex							
2. Child Age	-.12						
3. Child General Cognitive Ability	-.23 [*]	.34 ^{**}					
4. Parenting Stress	.13	.02	-.16				
5. Frequency of Family Routines	-.07	.18	.16	.01			
6. Harsh Discipline	.05	.21	-.04	.20	-.05		
7. Total Problems Score at Wave 1	.29 ^{**}	.02	-.29 [*]	.62 ^{**}	.06	.17	
8. Total Problems Score at Wave 2	.17	-.10	-.43 ^{**}	.45 ^{**}	-.05	.08	.58 ^{**}

^{*} Note. $p < .05$

^{**} $p < .01$. Child sex male=1, female=0.