



HHS Public Access

Author manuscript

Child Youth Serv Rev. Author manuscript; available in PMC 2015 November 27.

Published in final edited form as:

Child Youth Serv Rev. 2012 May 1; 34(5): 891–899. doi:10.1016/j.chilyouth.2012.01.017.

Behavior problems, foster home integration, and evidence-based behavioral interventions: What predicts adoption of foster children?

Sonya J. Leathers^a, Jill E. Spielfogel^a, James P. Gleeson^a, and Nancy Rolock^a

^aJane Addams College of Social Work, University of Illinois at Chicago

Abstract

Objectives—Adoption is particularly important for foster children with special mental health needs who are unable to return home, as adoption increases parental support often critically needed by youth with mental health issues. Unfortunately, significant behavior problems frequently inhibit foster parents from adopting, and little is known about factors that predict adoption when a child has behavior problems. Previous research suggests that foster parent behavioral training could potentially increase rates of successful adoptions for pre-school-aged foster children with behavior problems (Fisher, Kim, & Pears, 2009), but this has not been previously tested in older samples. In older children, effective treatment of behavior problems might also increase adoption by reducing the interference of behavior problems and strengthening the child's foster home integration. This pilot study focused on this question by testing associations between behavior problems, foster home integration, an evidence-based foster parent intervention, and adoption likelihood.

Methods—This study used an intent-to-treat design to compare foster home integration and adoption likelihood for 31 foster children with histories of abuse and neglect whose foster parents received a foster behavioral parenting intervention (see Chamberlain, 2003) or usual services. Random effect regression analyses were used to estimate outcomes across four time points.

Results—As expected, externalizing behavior problems had a negative effect on both integration and adoption, and foster home integration had an independent positive effect on adoption. Internalizing behavior problems (e.g., depression/anxiety) were not related to adoption or integration. However, the intervention did not have a direct effect on either foster home integration or adoption despite its positive effect on behavior problems.

Conclusions—Results from this preliminary study provide further evidence of the negative effect of externalizing behavior problems on adoption. Its findings also suggest that foster home integration is an important dimension of foster home adaptation that appears particularly relevant to chances for adoption. While behavior problems appear to weaken foster home integration,

Corresponding author: Sonya Leathers, Jane Addams College of Social Work, 1040 W. Harrison St., Chicago, IL 60607. Tel. 1 312 996 8512; fax 1 312 996 2770. SonyaL@uic.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

integration is also an independent predictor of adoption likelihood. If these results are replicated in a larger study, consideration of foster home integration in case planning and future intervention studies focused on increasing permanency could potentially improve outcomes for foster children with behavior problems.

Keywords

Foster children; adoption; behavior problems; foster parent training; evidence-based practice

A high prevalence of behavior problems is found among foster children who have experienced abuse and neglect (Leslie, Hurlburt, Landsverk, Barth, & Slymen, 2004; Raviv, Taussig, Culhane, & Garrido, 2010) and these behavior problems have a significant negative impact on foster children's placement and permanency outcomes. Behavior problems contribute to risk for placement and adoption disruption (Chamberlain, Price, Reid, Landsverk, Fisher, & Stoolmeyer, 2006; Barth, Lloyd, Green, James, Leslie, & Landsverk, 2007; Newton, Litrownik, & Landsverk, 2000), long-term foster care (Lawder, Poulin, & Andrews, 1986; Landsverk, Davis, Ganger, & Newton, 1996), and returning to care after reunification with parents (Barth, Weigensberg, Fisher, Fetrow, & Green, 2008; Wells & Guo, 1999).

Fortunately, recent research indicates that interventions providing behavioral parenting training and support to foster parents are effective in reducing behavior problems. How these interventions affect placement outcomes, however, is less clear. In the general population, behavior problems are associated with difficulties in parent-child interaction and greater parenting stress (Duchovic, Gerkenmeyer, & Wu, 2009; Ross, Blanc, McNeil, Eyberg, & Hembree-Kigin, 1998), but for foster parents, behavior problems are also likely to affect their commitment to the child and the extent that they view the child as a part of their family. These consequences might be even more predictive of placement outcomes, particularly adoption by foster parents, than children's behavior. Supporting this notion, foster home integration, or the extent that a child is viewed as a close family member who belongs to the foster family, has been found to predict placement disruption (Leathers, 2006) and permanency outcomes (Leathers, Falconnier, & Spielfogel, 2010). Effective treatment of behavior problems might facilitate foster home integration and adoption by reducing the interference of behavior problems and increasing positive interactions between the foster parent and the child; alternatively, the negative effects of behavior problems on the child-foster parent relationship and foster home outcomes might endure even after treatment.

This research examined these questions in a longitudinal pilot study of an evidence-based behavioral parenting intervention for foster parents caring for children with emotional and behavioral problems. The purpose of this study was to provide preliminary data on (1) the relationships between foster home integration, behavior problems, and adoption and (2) the effect of an evidence-based intervention for behavior problems on foster home integration and adoption.

Background

Over 250,000 children are estimated to enter foster care in a given year, and over 60% of children entering foster care are unable to return home within five years (Child Welfare Information Gateway, 2011; Zinn, 2009). For many of these children, adoption potentially provides placement stability and long-term family ties not provided by foster care, particularly when children are placed with nonrelatives, as is the case for 76% of foster children. While chances for reunification decline over time, adoption increases; for example, in Illinois, 30% of children entering care are adopted five years after entering foster care (Zinn, 2009). Subsidized guardianship, which in some states allows kin foster parents to have legal guardianship without completely severing parental rights, also provides a permanency option with similar protective effects as adoption (Testa, 2002). Despite the importance of adoption and subsidized guardianship in influencing children's long-term outcomes, little research has focused on factors that predict adoption or influence foster parents' decision to adopt. What is known is that younger children, particularly infants, are more likely to be adopted, and foster parents with more financial resources who are of child bearing age are more likely to adopt. In contrast, children with mental health diagnoses are less likely to be adopted (Connell, Katz, Saunders, Tebes, 2006; Zinn, 2009), possibly due to the emotional and financial costs of parenting a child with significant mental health needs (Kirton, Beecham, & Ogilvie, 2006). This is unfortunate, as youth with mental health needs have a particular need for the ongoing support provided by parents in early adulthood (Fingerman, Miller, Birditt, & Zarit, 2009). This raises two related questions: what factors might promote adoption even when a child has significant emotional and behavioral needs, and do interventions that treat children's symptoms increase chances for adoption?

Several studies have demonstrated that behavioral interventions that increase foster parents' encouragement of positive behavior and use of mild, consistent punishments are effective in reducing foster children's externalizing behavior problems. Positive outcomes for foster children have been found in two or more studies for the Incredible Years intervention (Linares, Montalto, Li, & Oza, 2006; Nilsen, 2007), Keeping Foster Parents Trained and Supported (KEEP; Chamberlain, Price, Leve, Laurent, Landsverk, & Reid, 2008; Price, Chamberlain, Landsverk, Reid, Leve, & Laurent, 2008; Leathers, Spielfogel, McMeel, & Atkins, 2011), Multidimensional Treatment Foster Care for Preschoolers (MTFC-P; Fisher, Kim, Pears, 2009; Fisher & Kim, 2007), and Parent-Child Interaction Therapy (McNeil, Herschell, Gurwitsch, & Clemons-Mowrer, 2005; Timmer, Urquiza, & Zebell, 2005; Timmer et al, 2006). These interventions appear to change child behavior through changes in parenting behavior, with factors such as an increase in the ratio of praise to discipline and positive parenting practices found to mediate the effect of the intervention on behavioral outcomes.

Less is known, however, about the effects of these interventions on permanency outcomes, particularly for older children. Results from Fisher's study of MTFC-P indicate a positive effect on chances for successful permanency attempts among preschool aged children who had experienced four or more placements for both a combined measure of permanency outcomes and adoption outcomes (Fisher, Kim, & Pears, 2009). In the largest study of a foster parent behavioral intervention with older children (Price et al, 2008), the intervention

had a positive effect on placement outcomes, but only when both reunifications and stability in foster care were combined. This may be due to the relatively low level of risk in this sample, as it included all foster children entering a new placement rather than focusing specifically on children with behavioral disorders. In this study, intervention group children with a history of four or more placements were also less likely to experience a disruption relative to control group children, indicating that the intervention might reduce risk among those who are at particularly high risk. Other outcomes such as rate of successful permanency attempts and adoption have not been reported for this study.

Given the lack of information in this area, gaining an understanding of the predictors of adoption of older children is essential. These predictors might indicate key intermediate outcomes of existing interventions that ultimately improve permanency outcomes, or might indicate targets for interventions that have not yet been developed. Foster home integration, or extent of “belonging” and closeness to family members, might be particularly important given evidence that perceptions of integration might be related to the decision adopt a child. In a study including 203 randomly selected foster children age 12–13 years, a combined report of integration from caseworkers and foster parents was negatively associated with behavior problems and was a strong independent predictor of adoption in adolescence (Leathers et al., 2010), supporting the potential role of integration in determining outcomes. Although other studies have not examined the relationship between integration and adoption, results from several qualitative studies support the importance of integration and sense of belonging as a key dimension of foster children’s wellbeing. For example, the development of a sense of family belonging and identity is a process described by foster parents as helping children recover from maltreatment (Riggs, Augoustinos, & Delfabbro, 2009), and two studies of adults who had aged out of foster care identified belonging and “real” family membership as essential experiences that are often lacking for youth in long term foster care (Samuels, 2009; Schofield, 2002).

Effects of foster parent behavioral training on foster home integration have not previously been examined, but Fisher’s study of MTFC-P examined effects on foster parents’ reports of their children’s attachment behavior. Foster parents’ reports of attachment security has conceptual overlap with foster home integration; in fact, measures of foster home integration include questions about attachment and closeness to the caregiver, and a recent conceptualization of foster children’s attachment security added “sense of belonging” to traditional attachment dimensions (Schofield & Beek, 2005). In Fisher’s study, children’s attachment behaviors were measured using the Parent Attachment Diary, a measure completed by foster parents designed specifically for very young children in foster care. Over time, foster parents in the intervention condition reported more attachment security and less avoidant behavior relative to those in the control group, supporting that behavioral parent training and ongoing support of foster parents have a positive effect on attachment behaviors. Although these results only generalize to preschool aged children, an additional encouraging finding was that age at placement was positively associated with change in attachment behaviors over time. This indicates that the intervention had a stronger effect for preschoolers children placed more recently, who are likely to have a higher risk for attachment problems than those placed earlier, supporting continued study of the effects of foster parent behavioral interventions on older children’s relationships.

Use of attachment as the primary construct to understand foster children's adaptation in foster care has been critiqued as potentially limiting the scope of interventions to address their behavioral needs (Barth, Crea, John, Thoburn, & Quinton, 2005). In particular, primary identification of foster children's needs as attachment related may have led to over-reliance on individual treatment of the child based on a psychodynamic orientation that supported the development of treatment focused on providing corrective experiences to children in individual treatment. Traditionally, these types of interventions overlooked the contextual nature of attachment behaviors and provided little support or training to the caregivers, who live with the child's complex and draining needs on a daily basis. The implied role for foster parents is to function as a secure base and provide the child with consistent, nurturing and responsive care despite the child's difficult behaviors (Schofield & Beek, 2005). For many foster parents caring for children with behavior problems, however, maintaining this role is not possible given the disruptions to their families caused by the child's behavior.

In this context, the finding that behavioral parenting interventions might have a positive impact on foster parents' perceptions of attachment behaviors in addition to behavior problems is especially notable. Many children who enter foster care have significant challenges developing secure attachments with their caregivers, particularly when they have experienced abuse (George, 1996); child welfare workers and researchers have focused on attachment as a primary construct in understanding these issues because of the impact that these relational problems have on a children's well-being and placement outcomes (Mennen & O'Keefe, 2005). Given the lack of effective interventions to address attachment disorders based on attachment theory (Barth et al., 2005), behavioral interventions might provide effective treatment to mitigate the effects of child behavior problems and allow stronger caregiver-child relationships to develop. These treatments are also compatible with trauma-focused cognitive behavioral therapy (TF-CBT) to address post-traumatic stress symptoms; in fact, behavior parent training is incorporated into TF-CBT, and when behavior problems are severe, it is recommended that behavior problems be addressed through an evidence-based practice before beginning TC-CBT (Cohen, Berliner, & Mannarino, 2010). Behavioral interventions offer foster parents structured guidance on how to respond to a child each time a behavioral issue arises, regardless of its etiology. Ideally, parents who are skilled in these techniques becomes less reactive to their child's behavior and view themselves as having a key role in teaching new behaviors. Redefining the child's behavior as learned and amenable to change through specific techniques might allow foster parents to tolerate difficulties in the relationship with the child as they are involved in actively addressing the interfering behaviors.

Hypotheses

In this pilot study, we focused on the relationships between behavior problems, foster home integration, and adoption likelihood. Both behavior problems and foster home integration were expected to predict adoption, and these effects were expected to mediate the relationship between the intervention and adoption likelihood. In addition, externalizing behavior problems (e.g., oppositional behavior, aggression, lying, and stealing) were expected to have a negative effect on foster home integration and adoption, while internalizing problems (e.g., depression and anxiety) were not expected to affect these

outcomes. We hypothesized that the types of problems that foster families find most inhibiting of close relationships and adoption are disruptive behavior problems rather than internalizing symptoms, which might be more easily tolerated. Because very few families in the sample were considering subsidized guardianship, this outcome could not be analyzed separately, but in some cases consideration of subsidized guardianship was included in the outcome measure because parents who were considering subsidized guardianship also tended to be considering adoption.

Four specific hypotheses were tested: (1) Behavior problems predict foster home integration; (2) Both behavior problems and foster family integration predict adoption; (3) Behavioral interventions increase children's foster family integration and adoption likelihood, and these effects are mediated by reduced behavior problems; and (4) Internalizing behavior problems (e.g., anxiety and depression) do not predict foster home integration or adoption likelihood.

Methods

Overall Design

This study used data from an intent-to-treat pilot study of an adaptation of Chamberlain's Keeping Foster Parents Trained and Supported intervention (see Price, Chamberlain, Landsverk, & Reid, 2009). The sample was drawn from a single large child welfare agency in an urban area. Children were eligible for the study if they were (1) in a foster home that received a specialized foster care rate for the selected child and (2) age 4 to 12 at the time of selection. To receive a specialized foster care rate, children must have significant documented behavioral, medical, or developmental needs. The majority of the children included had behavioral needs, and the few children who primarily had medical or developmental needs also had behavior problems. Although history of abuse was not measured, reports from administrators and staff in the program indicated that all of the children in the specialized foster care program had experienced physical abuse, sexual abuse and/or neglect; all had been placed in foster care due to a substantiated claim of abuse or neglect. No children were excluded based on psychiatric diagnoses, and so in many cases diagnoses other than behavioral diagnoses (e.g., oppositional defiant disorder and conduct disorder) were the child's primary mental health diagnosis.

At this agency incoming cases are assigned to casework teams based on openings that occur as children achieve permanency, age out of care, or are moved to another agency. This procedure approximates random assignment to teams and results in caseloads with a comparable severity of need across the teams, providing the opportunity to create a quasi-experimental design by comparing outcomes across the specialized foster care teams. Historically, permanency outcomes were reported by the agency to be similar across the teams. Overall, case managers provide mainly case management services to children, and very little training or supportive services to foster parents, which minimizes variation in services across the teams.

In this study, all children age 4–12 who were served by one of three specialized foster care teams were eligible to participate. Foster parents were then recruited based on children's eligibility. Children from two teams were assigned to a treatment-as-usual control group (*n*

= 13) and children from another specialized foster care team were assigned to the intervention group ($n = 18$). The variation in the number of children eligible from each of the teams was due to two of the teams serving a higher proportion of children who did not meet the age criteria; in particular, one team included some case managers who primarily provided services to teens. Simple random assignment was not possible because intervention caseworkers were trained in the intervention, and so contamination of the control group could occur if caseworkers had cases in both the intervention and control groups.

Of the 30 foster parents who were eligible for the study, 25 (83%) participated. Fifteen were in the intervention group and 10 in the control group. Foster parents who participated did not have to commit to receiving services and were explicitly told that they could choose to refuse all services and remain in the study. Interviews with foster parents and their caseworkers occurred four times over 12 months (baseline, 3 months after baseline, 6 months after baseline, and 12 months after baseline). Foster parents were paid \$40–50 to complete each interview. Consistent with an intent-to-treat design, all data were included in the analyses regardless of foster parents' level of participation in the intervention.

The intervention consisted of 16 sessions provided in either 90-minute foster parent groups held weekly at an agency site in the neighborhood of most of the attending foster parents, or up to 16 home visits that covered the same material delivered in a manualized protocol developed for this study. Sessions include information on topics such as how to increase cooperation, effective encouragement, incentive charts, and discipline strategies (see Chamberlain et al., 2008 for a description of the KEEP intervention). Detailed information on adaptations to the intervention is provided in a previous publication (Leathers et al., 2011).

Description of the Sample

Demographic information for children and foster parents is shown in Table 1. Foster parents were all receiving a specialized rate for the child's care, and all were licensed. None were close relatives of the child, although one was a distant relative. Children's ages ranged from 4 to 12. Five sibling pairs were placed as pairs in the same homes. Additionally, two additional unrelated children were placed together. The strategy used to assess the effects of this clustering is described in the analysis section.

Foster parents ranged in age from 28 to 64. Just one foster parent participated for each child. As shown in Table 1, most had a low to moderate household income. They were predominately African American (96%), with just one who was Caucasian. Two children, one African American and one Caucasian, were placed with foster parents who were of a different race. Thirteen families resided in the city and 12 resided outside of the city in nearby suburbs.

Measures

Four waves of data were collected. Foster parents provided information about foster home integration, likelihood of adoption, the child's behavior, and medications that the child was

taking. Caseworkers provided information about foster home integration, likelihood of adoption, and the mental health and school services that the child was receiving.

Foster Home Integration—This measure was created based on questions created by Fanshel (1982) and modified by Poulin (1985) and Leathers (2002). Fanshel's original single item was created to assess a child's bond to their foster family in a brief measure that could be easily administered in child welfare practice. Because Fanshel's item included two dimensions (*child's perception of belonging in the foster home* and *probable reaction to being removed from the home*), this question was split into two items in this study. Each item describes five levels of foster family integration and attachment as assessed by the foster parent. For example, for the "perception of belonging in the foster home" items, the categories ranged from "First, child does not appear to feel like a part of the family" to "Fifth, child is deeply integrated within the family and experiences foster parents as own family." To further develop this measure, an additional five items were created for this study based on the conceptualization of integration as the extent that the child was perceived to be an integrated, close family member. These include "How often does child participate in family activities?" and "How much does this child seem to want this foster home to be permanent home?" Additionally, three items asked how close the child was to the foster parent, the foster parent's extended family, and other children in the home. Two negatively worded items asking "How often do you need to encourage your child to participate in activities?" and "How much conflict does child appear to experience accepting foster parents as parents?" were not included in the foster parent measure as they loaded on a separate factor in principal component factor analyses with both an orthogonal (varimax) rotation and a nonorthogonal (promax) rotation. The internal consistency of the 7-item measure was good (Cronbach's alpha = .88). The final measure is available from the first author.

Although the foster parent's perception of foster home integration was of primary interest in this study, caseworkers were also asked the same questions to provide an indication of the reliability of the foster parent measure. All nine items loaded on the same factor for caseworkers, so the caseworker measure included all items. The internal consistency of this measure was .89 (Cronbach's alpha). The correlation between the foster parent and caseworker assessments of foster home integration was strong ($r = .65$ $p < .001$), providing support for the reliability of the measure. Validity for the full measure used in this study could not be tested prior to testing the study hypotheses, but validity is supported by findings from a prior study including the foster parents and caseworkers of 203 foster youth (Leathers, Falconnier, & Spielfogel, 2010). In this study, a foster home integration measure that used three of the items included in this measure was a strong predictor of subsequent adoption, and foster home integration level was lower for families choosing subsidized guardianship over adoption. Additionally, this measure was predictive of foster home disruption even after controlling for behavior problems (Leathers, 2006).

Adoption Likelihood—The child's chances for adoption by their current foster family was measured with a question that asked foster parents whether adoption was very unlikely, somewhat unlikely, somewhat likely, or very likely. This variable was coded from 0–4, with

a 3 assigned to children whose foster parents stated that adoption was very likely. Some children's adoptions were in process during the course of the study; finalized adoptions were coded with a 4.

Caseworkers were also asked how likely they thought adoption by the foster parent was so that the reliability of the measure could be assessed. The caseworker and foster parent assessment were significantly correlated ($r = .55$ $p < .001$), indicating adequate reliability. An indication of the validity of the measure is that all of the finalized adoptions that occurred during the course of the study had a rating of 3 (very likely) prior to the finalization.

Reunification likelihood—Chances for reunification with birth parents was included as a control variable in all multivariate analyses, as a child who was likely to return home would be unlikely to be adopted. This variable was assessed with an item that asked foster parents and caseworkers about the child's chances for reunification on a four-point scale. The reliability of foster parent and caseworker reports was high, with a correlation of .71. Foster parent report was used in all analyses, since the foster parents' perception was viewed as most relevant to their assessment of adoption likelihood.

Child Behavior Problems—The Child Behavior Checklist (Achenbach, 2001) was used to assess child behavior problems. Because externalizing problems such as oppositional behavior and aggression were the primary focus of the study, t -scores for the externalizing subscale were computed. In addition, internalizing subscale t -scores were also used computed to test the hypothesis that internalizing behaviors would not be a significant predictor of foster home integration or adoption.

Mental Health Services and Psychotropic Medication—Mental health services and use of medications for mental health disorders were measured using the Services for Children and Adolescent Parent Interview (SCAPI; Jensen et al., 2004), which was completed through in-person interviews with caseworkers. Because all children received nearly the same mental health services (individual child treatment), mental health services were not included as a control variable. However, some children were not taking psychotropic medication for all or some part of the study, and so medication use was used as a control variable in all initial multivariate analyses.

Data Analysis

Mixed-effects regression models were used to test the study's hypotheses (Hedeker & Gibbons, 2006; Hedeker, Gibbons, & Flay, 1994). Mixed-effects models, also called random effects regression models and hierarchical linear models, have some characteristics that were particularly important in this study. First, these models estimate both group and individual trend lines over three or more time points, which allows for the estimation of changes over time and nonlinear effects. Additionally, random effects models use data from all individuals and are less restrictive regarding missing data than other longitudinal methods (Gibbons et al., 1993). Specifically, mixed regression models are designed for use with data with "ignorable" nonresponse, which includes covariate-dependent missing data and missing

data related to known outcomes. This is another important consideration in this study given the potential for missing data for children who are lost to the study due to reunification and other moves; as these moves are predicted by variables included in the models or are known outcomes, missing data that occurs due to these reasons is unlikely to bias the results.

A disadvantage of using mixed effects regression analyses in this study is that these techniques are optimally used with large samples; in this study, just 98 observations clustered within 31 cases were available, which might lead to biases in estimation of standard errors and coefficients (Hedeker & Gibbons, 2006). However, because mixed effect regression analyses provide results such as the inter-class correlation coefficients that are not obtained from other methods, these analyses are commonly used in smaller studies to obtain preliminary results and plan for larger studies.

Some of the data assumptions required by mixed effects methods are more likely to be violated in small samples, and so diagnostic tests were conducted for all models estimated. Diagnostic tests included (1) visual inspection of a histogram of the residual values and a scatter plot of residuals and the estimated outcome to assess normality in multivariate residuals, and (2) review of influence statistics such as Cook's D and likelihood distance to assess the influence of outliers on results and model fit. Results from these tests are reported in the next section. Although these results do not assure that this study did not produce results that are less likely to be replicated in another study due to its size, they do indicate that no apparent problems with violation of model assumptions in the models estimated.

To test each hypothesis, we used PROC MIXED in SAS to test between-group differences in the individual growth curves of each of the outcomes through the fourth point of data collection, with time coded 0–3. To test hypothesis 1, change in foster home integration over time was predicted by externalizing behavior problems and the control variables (age, gender, length of time in placement, reunification likelihood, and use of psychotropic medications). Hypothesis 2 was tested by estimating the effects of behavior problems, foster family integration, and the control variables on chances for adoption over time. For hypothesis 3, which expected the intervention to increase foster home integration and adoption likelihood and for a reduction in behavior problems to account for any detected effects, two models first tested the direct effect of the intervention on adoption and foster home integration. In these models, treatment group, time, Treatment Group X Time and all control variables were used as predictors. A significant coefficient for Treatment Group X Time would indicate an increase in level of foster home integration or adoption likelihood for children included in the intervention group relative to those in the control group. Mediation by externalizing behavior problems would be indicated by a decrease in any effect detected for the intervention after externalizing behavior problems were included. Finally, hypothesis 4 was tested by repeating the adoption and foster home integration models using internalizing behavior problems as a predictor instead of externalizing behavior problems in the models tested for hypotheses 1 and 2. Control variables were removed from the models whenever they were nonsignificant and deletion did not change the pattern of results.

Because we were unable to statistically control for the possible effects of clustering within foster homes because of the small sample, we conducted two sets of analyses for all hypotheses to ensure that clustering did not affect the significance of the findings. In the first set, we used individual child data, and in the second, we used sibling-averaged data rather than individual-level data. Results were compared for each analysis. Because no differences were found in any of the analyses, we present findings from the individual child analyses.

Results

Preliminary Analyses

Foster Home Integration—On average, foster parents assessed children's foster home integration as very high at time 1, with a mean value of 4.5 ($SD = .52$) on the 1–5 point scale at time one. The range of scores was negatively skewed, with scores ranging from 3.14 to 5. Caseworkers' assessments were significantly lower ($t = 4.35, p < .001$) with a mean value of 4.02 ($SD = .64$). Foster home integration did not significantly increase over time for either group, although it did increase slightly for children in the intervention group. At time 1, integration as reported by foster parents was 4.47 ($SD = .48$) in the control group and 4.52 ($SD = .56$) in the intervention group. At time 3, two months after the completion of the intervention, integration was 4.5 ($SD = .95$) in the control group and 4.71 ($SD = .45$) in the intervention group.

Adoption Likelihood—At time one, most foster parents thought it was either somewhat likely (36%) or very likely (48%) that they would adopt the child. The mean value for adoption was 2.27 ($SD = .94$) on the scale that ranged from 0 to 4. Adoption likelihood slightly increased for both groups, ranging from a mean of 2 ($SD = 1.12$) at time 1 to 2.22 ($SD = 1.3$) at time 3 in the control group, and from 2.44 ($SD = .78$) at time 1 to 2.61 ($SD = 1.33$) at time 3 in the intervention group, although no observed changes were statistically significant.

Reunification Likelihood—Chances for reunification were much lower than for adoption, with a mean value of .52 ($SD = .85$). For the majority of the sample (67%), reunification was rated as very unlikely.

Behavior Problems—As reported in a previous article, children's level of behavior problems was high; 73% of the children had externalizing behavior problems in the clinical range at baseline (Leathers et al., 2011). Externalizing behavior problems in the intervention and control groups were similar at baseline ($M = 67.5, SD = 8.8$, and $M = 66.77, SD = 10.91$, respectively), as were internalizing problems ($M = 61.67, SD = 13.48$, and $M = 61.46, SD = 10.82$). By the third time point, two months after the completion of the intervention, externalizing scores had diverged in the two groups ($M = 61.38, SD = 10.48$, and $M = 69.17, SD = 5.6$, intervention and control groups respectively). Similarly, at the third time point, internalizing scores were reduced in the intervention group, but not the control group ($M = 52.38, SD = 11.59$, and $M = 59.33, SD = 11.22$).

Psychotropic medications and other services—Most children (80%) were taking psychotropic medications, including stimulants (60%); anti-psychotics, most commonly Risperdol or Abilify, (47%); and antidepressants (17%). This level of use is much higher than the 15% reported for a national sample of foster children (Leslie, Raghavan, Hurley, Zhang, Landsverk, & Aarons, 2011), reflecting the severity of mental health needs in this sample. Most children (84%) were also in individual therapy once a week.

Multivariate Analyses

Hypothesis 1: Behavior problems predict foster home integration—Results from the mixed regression analysis support that externalizing behavior problems are a significant predictor of foster home integration (Table 2). Use of psychotropic medications was also significantly associated with foster home integration, with use of medications to treat mental health conditions associated with greater foster home integration. Time in placement was also predictive of greater integration, with each year in placement at the time of the first interview associated with a higher integration score of .19. None of the other control variables (age, gender, reunification likelihood) were associated with foster home integration, and so these variables were removed from the model.

Results from diagnostic tests to assess the influence of outliers and violations of the assumption of normality of multivariate residuals indicated no problems with the symmetry of the distribution of the residuals. However, two children were found to be outliers in prediction of foster home integration, leading to a high central value in the residuals. Although these cases had relatively low value for Cook's D ($.6 < \text{Cook's D} < 1$), Cook's D values were in a higher range for these cases than other for other children and the likelihood distance values were high, as these cases also had a poor fit to the model. As expected given this information, deleting these observations increased the fit of the model (AIC decreased from 131 to 108), lowered the high central value in the distribution of residuals, and increased the significance of externalizing behavior from $p < .05$ to $p < .001$. We decided to keep these observations in the data set, however, as deleting outliers is controversial and in this case would not change the overall pattern of results other than increasing the significance of externalizing behavior.

Hypothesis 2: Behavior problems and foster family integration predict adoption—Support for this hypothesis was indicated by significant coefficients for both externalizing behavior problems and foster home integration, as shown in Table 3. Results suggest that each of these variables has an independent effect on adoption that is not accounted for by the other variable; in particular, although behavior problems predict lower foster home integration (Hypothesis 1), foster home integration does not account for all of the negative effect of behavior problems on adoption. Reunification likelihood was also a predictor of lower chances for adoption, as expected. All control variables were removed as they did not predict adoption likelihood and removal did not change the pattern of results.

Diagnostic statistics identified two outliers. As in the foster home integration model, deletion of these outliers increased the significance of the findings but did not otherwise affect the results, and so these cases were retained in the model.

Hypothesis 3: Behavioral interventions increase children’s foster family integration and their likelihood of adoption and this effect is mediated by reduced behavior problems—Support for this hypothesis requires that (1) the intervention have a direct effect on integration and adoption and (2) this effect be mediated by behavior problems. No support for this hypothesis was found. The intervention did not have a direct effect on foster home integration or adoption likelihood, as indicated by the nonsignificant coefficient for Intervention X Time in both the foster home integration and adoption models (Table 4). Because no direct effect for the intervention on foster home integration or adoption was found, mediation of this effect by behavior problems was not applicable.

Hypothesis 4: In contrast, internalizing behavior problems are not a significant predictor of foster home integration or adoption likelihood—Support for this hypothesis was found; in analyses that included internalizing behavior problems as a predictor of foster home integration and adoption likelihood, internalizing behavior problems were not statistically significant predictors of either integration or adoption, respectively ($b = -.01, SE = .005, p = .14$; $b = -.01, SE = .01, p = .25$). All other results in these analyses were similar to the results from the analyses that included externalizing behaviors.

Discussion

This pilot study examined (1) the relationships between foster children’s behavior problems, their foster home integration, and adoption likelihood; and (2) the potential for a foster parent behavioral intervention to improve foster home integration and chances for adoption in a sample of children at high risk for long term foster care. Results indicated that higher foster home integration and fewer externalizing behavior problems independently predict adoption, but in this sample of children age 4–12 placed in specialized foster care, the behavioral intervention did not affect integration or adoption despite its significant effect on behavior problems. These preliminary results support that the extent to which foster parents perceive of a child as an integrated, close member of their family might be an important indicator of chances for permanency when reunification has been ruled out. Although the child’s foster home integration had an independent association with adoption likelihood, the strong relationships between externalizing behavior problems and both lower foster home integration and weaker chances for adoption also suggests that these factors are intertwined; behavior problems appear to be associated with adoption likelihood both directly and indirectly through their effect on foster home integration. Addressing behavior problems early in a child’s placement history might be critical in improving chances for permanency given the potential for their direct and indirect negative effects over time.

These results also point to the importance of understanding more clearly why some children appear to form close relationships and become a part of a particular family while others do not. High foster home integration has been shown to be predictive of adoption in this study and one earlier one that followed 203 youth through adolescence (Leathers et al., 2010). In both studies, externalizing behavior problems were associated with lower integration, but other factors that led to integration were not identified. Future research might include

longitudinal studies that attempt to sort out the reciprocal effects of foster parent and child characteristics, attitudes, and behavior, and intervention studies that seek to improve integration and permanency outcomes as well as child behavior.

In particular, children's relationships with biological parents are likely to be relevant to some children's openness to forming binding relationships with new caregivers even after termination of parental rights (Samuels, 2009). Expectations about returning to their parents someday and their birth parents' primacy as parent figures could create an insurmountable barrier to adoption. Loyalty conflicts have been shown to be associated with greater behavior problems as well as difficulty in accepting a foster home as a permanent home (Leathers, 2003). The addition of co-parenting or inclusive practice interventions to behavioral interventions, as in Linares, Montalto, Li, and Oza's (2006) intervention with foster and biological parents, might be effective in facilitating permanency outcomes by addressing these loyalty conflicts and allowing children to form stronger bonds with their foster families when reunification is not possible. Our results suggest that including measures of foster home integration in these studies is important, as foster home integration might have a unique association with adoption not accounted for by behavior problems.

Similarly, understanding how children's experiences of different types of trauma affect their capacity to form close relationships and become a part of a new family is critical. Although all of the children in this sample had experienced abuse and neglect, some formed close relationships within their foster families while others did not. Childhood abuse experiences create a significant risk for relational and attachment difficulties in both childhood and adulthood (Aspelmeier, Elliott, & Smith, 2007; Styron & Jannoff-Bulman, 1997). If replicated, the lack of effect of an intervention for behavior problems on foster home integration despite its positive effect on behavior problems, as found in this study, suggests that these relational difficulties might not be addressed by this type of behavioral intervention in samples with both significant behavioral problems and trauma histories. In a combined child welfare involved and general population sample of preschoolers from economically disadvantaged families, a recent study found the association between abuse and behavior problems was completely accounted for by trauma symptoms (Milot, Ethier, St-Lauren, Provost, 2010), supporting that the high level of behavior problems found in some child welfare samples is related to the high levels of trauma they have experienced. It might be that reducing behavior problems without specifically addressing previous traumatic experiences is not enough to address the relational consequences of significant abuse and neglect. Intervention studies focusing on foster children with a high level of behavior problems that combine trauma treatments with intensive behavioral treatments are needed to test this hypothesis.

Finally, understanding how to place children entering a new out-of-home placement to optimize chances for permanency is another important area for research. Efforts to increase placement stability have included matching protocols, which attempt to increase stability by placing children with families that have a particular capacity or interest in parenting a child with the characteristics of the placed child (Blakey et al., 2011), and the development of foster parent assessment methods that can assist in identifying foster parents who are open to adopting children with different types of emotional and behavioral needs (Cox, Cherry, &

Orme, 2011). Studying the effects of matching protocols that use these types of assessment procedures in an experimental design is needed to understand their potential to facilitate integration and adoption.

While the study's hypotheses related to behavior problems, foster home integration, and adoption were supported, the hypothesis related to the positive effect of the parenting intervention on these outcomes was not supported. Although the behavioral intervention provided in this study had a strong effect on behavior problems over time (Leathers et al., 2011), the intervention did not directly impact either foster home integration or adoption likelihood. This is inconsistent with the results of Fisher's and colleagues study, which found that preschool aged children whose foster parents received a similar behavioral parenting intervention had more secure attachments and were more likely to be adopted than control children (Fisher & Kim, 2007; Fisher, Burraston, & Pears, 2005). Differences between Fisher's study and ours could account for the difference in findings. In particular, children in Fisher's study were on average four years younger than in the current study and were just entering their placement at the time of enrollment in the intervention. Foster home integration might have remained at the same level throughout our study due to the child's length of time in their placement; earlier in the placement, more change is likely to have occurred, but after an average of 1.5 years in the home, foster home integration might have stabilized. Additionally, foster parents might be more open to adoption of a younger child with emotional and behavioral issues, particularly early in the child's placement, and then become more set in their decision not to adopt a child as time passes even if an intervention is successful in decreasing behavior problems. Finally, in a cross-sectional sample, disruptions that occur because of the foster parent's low tolerance of behavior problems might have already occurred earlier in the placement. This would result in a greater proportion of foster parents who are more open to the possibility of adopting a child with significant behavior problems, as in this study, in which 48% stated that adoption was very likely despite their children's behavioral issues.

Other factors that may influence integration and willingness to adopt might include the foster parent's motivation for fostering, view of foster parenting, history of providing foster care, and commitment to children in their care. Dozier and Lindhiem's (2006) study of 84 foster parent-child dyads revealed that foster parents of young children who had fostered more children showed lower levels of commitment compared to those who had fostered fewer children. Foster parents also showed higher levels of commitment to children who were placed at younger compared to older ages, and higher levels of commitment were associated with greater likelihood of adoption or long-term placement. Adults who become foster parents may do so for a variety of reasons and making a permanent addition to their family through adoption may not be one, particularly for foster parents choosing to foster older children. Future research that measures and controls these motivations and reasons for fostering may more precisely assess the impact of behavioral, parenting, and coparenting interventions on foster family integration and permanency for foster parents with various initial levels of commitment to children, as well as the impact that these interventions and successful child behavioral management may have on foster parents' commitment to children.

Limitations

This study had several limitations that affect interpretation of its results. The small sample size restricted detection of smaller effects and tests of interactions between factors such as child and foster parent characteristics. The small sample size could also have affected the generalizability of the findings, as inaccurate results occur more frequently by chance in a small sample. Additionally, foster parents were not randomly assigned in the study. Their assignment to casework teams that were selected for the intervention and control groups was random and the services provided by the agency in each team were comparable, but unmeasured differences in the groups might have led to the differences in outcomes.

Other limitations of this study include its use of a cross-sectional sample, lack of follow up data beyond six months, the inability to model sibling effects or to test the assumption that missing data were ignorable, the inclusion of only one agency, and lack of children's reports of their perceptions of their relationships and foster home integration. The psychometric properties of the foster home integration measure were good and its associations with case managers' perceptions of foster home integration as well as adoption likelihood and behavior problems provides some validation of the measure, but the measure has not yet been validated in a large enough sample to adequately test its properties. Both foster home integration and adoption likelihood were rated very high at baseline, with 26% of foster parents rating integration at the highest possible level, suggesting that the range of foster home integration measured might have been truncated. A ceiling effect resulting from this could account for the lack of the intervention's effect on integration. It is possible that variation in the group rated at the highest level was present that was not detected by the measure, and given the high level assessed at baseline, relatively little gain in integration as it was measured may have been possible.

Assessment of attachment disorders and severity of abuse experiences would also contribute to knowledge in this area. It might be, for example, that the independent effects of externalizing behaviors and foster home integration would be partially accounted for by symptoms of trauma or attachment disorders. Finally, this study included only children in specialized foster care. Effects of foster home integration in kinship and traditional placements might vary. Addressing these limitations in larger studies will provide a more definitive test of the relationships between behavior problems, foster home integration, adoption, and the effects of different interventions on outcomes.

Implications and Conclusions

Results from this preliminary study provide further evidence of the negative effect that children's externalizing behavior problems have on adoption. Its findings also suggest that foster home integration is an important dimension of foster home adaptation that appears particularly relevant to foster parents' openness to adoption. Foster parents' perception that a child has close ties to family members and belongs in their family appears to be affected by behavior problems, but this perception is also an independent predictor of adoption likelihood. Understanding factors that contribute to foster home integration beyond behavior problems is an important area for future research. Consideration of foster home integration

in case planning and in future larger intervention studies focused on increasing permanency could potentially improve outcomes for children at risk for long term foster care.

Acknowledgments

This research was supported by NIMH K01 MH070580. The views expressed in this paper solely reflect the views of the authors and do not reflect the views of the National Institutes of Health.

References

- Achenbach, TM. Integrative guide to the 1991 CBCL/4-18, YSR, and TRF profiles. Burlington, VT: University of Vermont, Department of Psychology; 2001.
- Aspelmeier JE, Elliot AN, Smith CH. Childhood sexual abuse, attachment, and trauma symptoms: The moderating role of attachment. *Child Abuse & Neglect*. 2007; 31:549–566. [PubMed: 17391758]
- Barth RP, Lloyd EC, Green RL, James S, Leslie L, Landsverk J. Predictors of placement moves among children with and without emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders*. 2007; 15:46–55.
- Barth RP, Weigensberg EC, Fisher PA, Fetrow B, Green RL. Reentry of elementary aged children following reunification from foster care. *Children and Youth Services Review*. 2008; 30:353–364. [PubMed: 21765570]
- Barth RP, Crea TM, John K, Thoburn J, Quinton D. Beyond attachment theory and therapy: Towards sensitive and evidence-based interventions with foster and adoptive families in distress. *Child and Family Social Work*. 2005; 10:257–268.
- Blakey JM, Leathers SJ, Lawler M, Washington T, Natschke C, Strand T, Walton Q. A review of how states are addressing placement stability. *Children and Youth Services Review*. (in press).
- Chamberlain, P. Treating chronic offenders: Advances made through the Oregon Multidimensional Treatment Foster Care model. Washington, DC: American Psychological Association; 2003.
- Chamberlain P, Price JM, Reid JB, Landsverk J, Fisher PA, Stoolmiller M. Who disrupts from placement in foster and kinship care? *Child Abuse & Neglect*. 2006; 30:409–424. [PubMed: 16600372]
- Chamberlain P, Price J, Leve LD, Laurent H, Landsverk JA, Reid JB. Prevention of behavior problems for children in foster care: Outcomes and mediation effects. *Prevention Science*. 2008; 9:17–27. [PubMed: 18185995]
- Child Welfare Information Gateway. Foster Care Statistics 2009. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau; 2011.
- Cohen JA, Berliner L, Mannarino A. Trauma focused CBT for children with co-occurring trauma and behavior problems. *Child Abuse & Neglect*. 2010; 34:215–224. [PubMed: 20304489]
- Connell CM, Katz KH, Saunders L, Tebes JK. Leaving foster care - The influence of child and case characteristics on foster care exit rates. *Children and Youth Services Review*. 2006; 28:780–798.
- Cox ME, Cherry DJ, Orme JG. Measuring the willingness to foster children with emotional and behavioral problems. *Children and Youth Services Review*. 2011; 33:59–65.
- Dozier M, Lindhiem O. This is my child: Differences among foster parents in commitment to their young children. *Child Maltreatment*. 2006; 11:338–345. [PubMed: 17043318]
- Duchovic CA, Gerkenmeyer JE, Wu J. Factors associated with parental distress. *Journal of Child and Adolescent Psychiatric Nursing*. 2009; 22:40–48. [PubMed: 19200291]
- Fanshel, D. On the Road to Permanency. New York: Child Welfare League of America; 1982.
- Fingerman K, Miller L, Birditt K, Zarit S. Giving to the good and the needy: Parental support of grown children. *Journal of Marriage and Family*. 2009; 71:1220–1233. [PubMed: 20161599]
- Fisher PA, Kim HK, Pears KC. Effects of multidimensional treatment foster care for preschoolers (MTFC-P) on reducing permanent placement failures among children with placement instability. *Children and Youth Services Review*. 2009; 31:541–546. [PubMed: 19430545]
- Fisher PA, Kim HK. Intervention effects on foster preschoolers' attachment-related behaviors from a randomized trial. *Prevention Science*. 2007; 8:161–170. [PubMed: 17340186]

- Fisher PA, Burraston B, Pears K. The early intervention foster care program: Permanent placement outcomes from a randomized trial. *Child Maltreatment*. 2005; 10:61–71. [PubMed: 15611327]
- George C. A representational perspective of child abuse and prevention: Internal working models of attachment and caregiving. *Child Abuse & Neglect*. 1996; 20:411–424. [PubMed: 8735377]
- Gibbons D, Hedeker I, Elkin C, Waternaux Kraemer H, Greenhouse J, et al. Some conceptual and statistical issues in analysis of longitudinal psychiatric data: Application to the NIMH treatment of depression collaborative research program dataset. *Archives of General Psychiatry*. 1993; 50:739–750. [PubMed: 8357299]
- Hedeker D, Gibbons RD, Flay BR. Random-effects regression models for clustered data with an example from smoking prevention research. *Journal of Consulting and Clinical Psychology*. 1994; 62:757–765. [PubMed: 7962879]
- Hedeker, D.; Gibbons, RD. *Wiley Series in Probability and Statistics*. Hoboken, NJ: Wiley-Interscience; 2006. *Longitudinal data analysis*.
- Jensen PS, Hoagwood KE, Roper M, Arnold LE, Odbert C, Crowe M, Molina BSG, Hechtman L, Hinshaw SP, Hoza B, Newcorn J, Swanson J, Wells K. The Services for Children and Adolescents-Parent Interview: Development and performance characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2004; 43:1334–1344. [PubMed: 15502592]
- Kirton D, Beecham J, Ogilvie K. Adoption by foster carers: A profile of interest and outcomes. *Child and Family Social Work*. 2006; 11:139–146.
- Landsverk J, Davis I, Ganger W, Newton R. Impact of child psychosocial functioning on reunification from out of home placement. *Children and Youth Services Review*. 1996; 18:447–462.
- Lawder EA, Poulin JE, Andrews RG. A study of 185 foster children 5 years after placement. *Child Welfare: Journal of Policy, Practice, & Program*. 1986; 65:241–251.
- Leathers SJ. Foster children's behavioral disturbance and detachment from caregivers and community institutions. *Children and Youth Services Review*. 2002; 24:239–268.
- Leathers SJ. Parental visiting, conflicting allegiances, and emotional and behavioral problems among foster children. *Family Relations: Journal of Applied Family & Child Studies*. 2003; 52:53–63.
- Leathers SJ. Placement disruption and negative placement outcomes among adolescents in long-term foster care: The role of behavior problems. *Child Abuse & Neglect*. 2006; 30:307–324. [PubMed: 16519937]
- Leathers SJ, Falconnier L, Spielfogel JE. Predicting family reunification, adoption, and subsidized guardianship among adolescents in foster care. *American Journal of Orthopsychiatry*. 2010; 80:422–431. [PubMed: 20636947]
- Leathers SJ, Spielfogel JE, McMeel LS, Atkins MS. Use of a parent management training intervention with urban foster parents: A pilot study. *Children and Youth Services Review*. 2011; 33:1270–1279. [PubMed: 21686093]
- Leslie L, Hurlburt M, Landsverk J, Barth R, Slymen D. Outpatient mental health services for children in foster care: A national perspective. *Child Abuse & Neglect*. 2004; 28:697–712.
- Leslie LK, Raghavan R, Hurley M, Zhang J, Landsverk Aarons G. Investigating geographic variation in use of psychotropic medications among youth in child welfare. *Child Abuse & Neglect*. 2011; 35:333–342. [PubMed: 21620160]
- Linares LO, Montalto D, Li M, Oza VS. A promising parenting intervention in foster care. *Journal of Consulting and Clinical Psychology*. 2006; 74:32–41. [PubMed: 16551141]
- McNeil CB, Herschell AD, Gurwitsch RH, Clemens-Mowrer L. Training foster parents in parent-child interaction therapy. *Education and Treatment of Children*. 2005; 28:182–196.
- Mennen FE, O'Keefe M. Informed decisions in child welfare: The use of attachment theory. *Children and Youth Services Review*. 2005; 27:577–593.
- Milot T, Ethier LS, St-Lauren D, Provost MA. The role of trauma symptoms in the development of behavioral problems in maltreated preschoolers. *Child Abuse & Neglect*. 2010; 34:225–234. [PubMed: 20303174]
- Newton RR, Litrownik AJ, Landsverk JA. Children and youth in foster care: Disentangling the relationship between problem behaviors and number of placements. *Child Abuse & Neglect*. 2000; 24:1363–1374. [PubMed: 11075702]

- Nilsen W. Fostering futures: A preventive intervention program for school-age children in foster care. *Clinical Child Psychology and Psychiatry*. 2007; 12:45–63. [PubMed: 17378079]
- Poulin JE. Long term foster care, natural family attachment, and loyalty conflict. *Journal of Social Service Research*. 1985; 9:17–29.
- Price JM, Chamberlain P, Landsverk J, Reid J. KEEP foster-parent training intervention: Model description and effectiveness. *Child and Family Social Work*. 2009; 14:233–242.
- Price JM, Chamberlain P, Landsverk J, Reid JB, Leve LD, Laurent H. Effects of a foster parent training intervention on placement changes of children in foster care. *Child Maltreatment*. 2008; 13:64–75. [PubMed: 18174349]
- Raviv T, Taussig HN, Culhane SE, Garrido EF. Cumulative risk exposure and mental health symptoms among maltreated youth placed in out-of-home care. *Child Abuse & Neglect*. 2010; 34:742–751. [PubMed: 20932576]
- Riggs WR, Augoustinos M, Delfabbro PH. Role of foster family belonging in recovery from maltreatment. *American Psychologist*. 2009; 44:166–173.
- Ross CN, Blanc HM, McNeil CB, Eyberg SM, Hembree-Kigin TL. Parenting stress in mothers of young children with oppositional defiant disorder and other severe behavior problems. *Child Study Journal*. 1998; 28:93–110.
- Samuels GM. Ambiguous loss of home: The experience of familial (im)permanency among youth adults with foster care backgrounds. *Children and Youth Services Review*. 2009; 31:1229–1239.
- Schofield G. The significance of a secure base: A psychosocial model of long-term foster care. *Child and Family Social Work*. 2002; 7:259–272.
- Schofield G, Beek M. Providing a secure base: Parenting children in long-term foster family care. *Attachment & Human Development*. 2005; 71:3–25. [PubMed: 15981613]
- Styron T, Janoff-Bulman R. Childhood attachment and abuse: Long-term effects on adult attachment, depression and conflict resolution. *Child Abuse & Neglect*. 1997; 21:1015–1023. [PubMed: 9330802]
- Testa MF. Subsidized guardianship: Testing an idea whose time has finally come. *Social Work Research*. 2002; 26:145–158.
- Timmer SG, Urquiza AJ, Zebell N. Challenging foster-caregiver maltreated child relationships: The effectiveness of parent-child interaction therapy. *Children and Youth Services Review*. 2005; 28:1–19.
- Timmer SG, Urquiza AJ, Herschell AD, McGrath JM, Zebell NM, Porter AL, et al. Parent-child interactions therapy: Application of an empirically supported treatment to maltreated children in foster care. *Child Welfare League of America*. 2006; 135:919–939.
- Wells K, Guo S. Reunification and reentry of foster children. *Children and Youth Services Review*. 1999; 21:273–294.
- Zinn A. Foster Family Characteristics, Kinship, and Permanence. *The Social Service Review*. 2009; 83:185–219.

Highlights

- Examined behavior problems, foster home integration, and adoption chances over time
- Behavior problems predicted lower foster home integration
- Foster home integration and behavior problems independently predicted adoption
- The intervention did not significantly increase foster home integration
- Integration is potentially critical to foster home adaptation and adoption chances

Table 1

Demographic Information for Children and Foster Parents

Variable	<i>M (SD)</i>	%
Child (<i>N</i> = 31)		
Age at baseline	8.58 (2.41)	
Male gender		72
African American		97
Years in foster care	2.61 (1.39)	
Years in foster home	1.5 (1.37)	
Foster parent (<i>N</i> = 25)		
Age at baseline	49.09 (11.21)	
Female gender		100
African American		96
Employment		
Full time		36
Part time		12
Not working		52
Income		
0–\$20,000		20
\$21,000–\$40,000		32
\$41,000–\$60,000		20
Over \$60,000		24

Table 2

Mixed Regression Results: Prediction of Foster Home Integration by Externalizing Behavior Problems

Predictor	<i>B</i>	<i>SE</i>
Intercept	4.64	.37
Time	.04	.03
Externalizing behavior problems	-.01*	<.01
Psychotropic medication	.31*	.16
Years in placement	.19**	.06

Note.

* $p < .05$.

** $p < .01$.

Variance component in each model included a random intercept (.19, $SE = .06$, $p < .01$).

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Mixed Regression Results: Prediction of Adoption Likelihood by Externalizing Behavior Problems and Foster Home Integration

Predictor	<i>B</i>	<i>SE</i>
Intercept	.50	1.11
Time	.04	.06
Externalizing behavior problems	-.02*	<.01
Foster home integration	.73**	.17
Reunification likelihood	-.28**	.10

Note.

* $p < .05$.

** $p < .01$.

Variance component in each model included a random intercept (.31, $SE = .11$, $p < .01$).

Table 4

Mixed Regression Results: Prediction of Foster Home Integration and Adoption Across Time by Intervention

Predictor	Foster Home Integration		Adoption	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	4.10	.34	1.76	.37
Intervention group	.13	.21	.63	.44
Time trend	.04	.05	.14	.11
Intervention time trend	<.01	.07	-.19	.15
Years in placement	.18	.06**	-.05	.02 ^a

Note.

^a $p < .10$.

** $p < .01$.

Variance component in each model included a random intercept (Foster Home Integration, .14, $SE = .05$, $p < .01$; Adoption, .52, $SE = .17$, $p < .01$). Foster Home Integration analysis included age and psychotropic medication as control variables; Adoption included reunification likelihood.