

University of Groningen

## Optimizing foster family placement for infants and toddlers

Van Andel, Hans ; Post, Wendy ; Jansen, Lucre ; Van der Gaag, Rutger Jan; Knorth, Erik ; Grietens, Hans

*Published in:*  
 American Journal of Orthopsychiatry

*DOI:*  
[10.1037/ort0000162](https://doi.org/10.1037/ort0000162)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
 Publisher's PDF, also known as Version of record

*Publication date:*  
 2016

[Link to publication in University of Groningen/UMCG research database](#)

### *Citation for published version (APA):*

Van Andel, H., Post, W., Jansen, L., Van der Gaag, R. J., Knorth, E., & Grietens, H. (2016). Optimizing foster family placement for infants and toddlers: A randomized controlled trial on the effect of the Foster Family Intervention. *American Journal of Orthopsychiatry*, 86(3), 332-344. [8].  
<https://doi.org/10.1037/ort0000162>

### **Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### **Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

# Optimizing Foster Family Placement for Infants and Toddlers: A Randomized Controlled Trial on the Effect of the Foster Family Intervention

**Hans Van Anandel**

Dimence Mental Health Care, Deventer, the Netherlands

**Wendy Post**

University of Groningen

**Lucrez Jansen**

VU University Medical Center

**Rutger Jan Van der Gaag**

University Centre St. Radboud & Karakter, University Medical Center

**Erik Knorth and Hans Grietens**

University of Groningen

The relationship between foster children and their foster carers comes with many risks and may be very stressful both for parents and children. We developed an intervention (foster family intervention [FFI]) to tackle these risks. The intervention focuses on foster children below the age of 5 years. The objective was to investigate the effects of FFI on the interactions between foster parents and foster children. A randomized control trial was carried out with a sample of 123 preschool aged children (mean age 18.8 months; 51% boys) and their foster carers. A pretest was carried out 6 to 8 weeks after placement and a posttest one half year later. Interactions were videotaped and coded using the Emotional Availability Scales (EAS). Foster carers were asked to fill in the Dutch version of the Parenting Stress Index. Morning and evening samples of children's salivary cortisol were taken. In the posttest, significantly positive effects were found on the following EAS subscales: Sensitivity, Structuring, Nonintrusiveness, and Responsiveness. We found no significant differences on stress levels of foster carers and children (Nijmeegse Ouderlijke Stress Index domains and salivary cortisol). This study shows that the FFI has a significant positive effect on parenting skills as measured with EAS and on Responsiveness of the foster child. Findings are discussed in terms of impact and significance relating to methodology and design of the study and to clinical relevance.

In many countries, including the United States [Child Welfare Information Gateway](http://www.childwelfare.gov/pubPDFs/foster.pdf) (2013; <https://www.childwelfare.gov/pubPDFs/foster.pdf>) as well as in several European countries (Hollin & Larkin, 2011), foster family placement is preferable to placement in a group home or institution. Yet, foster family placement faces many challenges which may endanger a successful placement

due to factors within the child as well as factors within the carer (Van Holen, Vanderfaeillie, & Omer, 2015). In this article, we report on the evidence of an intervention dealing with possible risk factors after placement by helping the foster carers to build a positive relationship with very young foster children placed in their homes.

## Challenges for Foster Carer and Foster Child After Placement

Placement in a foster family is a major life event for young children. It often happens unexpectedly and without a proper preparation. The loss of the nuclear family is a traumatic experience (Bruskas, 2008; Samuels & Pryce, 2008). Children have to deal with conflicting emotions and loyalty toward their biological parents (Leathers, 2003). Often a history of neglect is present, which influences the way a child interacts with the environment (Strijker & Knorth, 2007). Many foster children come from impoverished home situations and a large majority of them have experienced trauma, toxic stress, or both in the form of abuse and

---

Hans Van Anandel, Dimence Mental Health Care, Deventer, the Netherlands; Wendy Post, Faculty of Behavioural and Social Sciences, Centre for Special Needs Education and Youth Care, University of Groningen; Lucrez Jansen, Department of Child and Adolescent Psychiatry, VU University Medical Center; Rutger Jan Van der Gaag, Department of Child and Adolescent Psychiatry, University Centre St. Radboud & Karakter, University Medical Center; Erik Knorth and Hans Grietens, Faculty of Behavioural and Social Sciences, Centre for Special Needs Education and Youth Care, University of Groningen.

Correspondence concerning this article should be addressed to Hans Van Anandel, Dimence Mental Health Care, Pikeursbaan 3, 7411 GT Deventer, the Netherlands. E-mail: [h.vanandel@jeugdggz.com](mailto:h.vanandel@jeugdggz.com)

neglect (Bruce, Fisher, Pears, & Levine, 2009; Pears, Bruce, Fisher, & Kim, 2010).

The child may mourn on the loss of his or her nuclear family and has to develop new attachment relations in the foster family at the same time. The child may have loyalty problems, for example, because the biological parent does not agree to the placement or because of conflict between the biological parent and the foster carer.

Nonkinship foster carers and foster children do not have a joint history. It seems clear that the developing relationship between the foster carer and a young foster child is precarious in many ways. The foster carer may not notice the negative effects on the well-being of the child (Van Andel et al., 2015). The conflicting emotions of the child and the insecurity in the relation with the foster carer may lead to elevated stress levels in the child (Dozier, Manni, Gordon, & Peloso, 2006; Leathers, 2003). It is plausible that the stress in the foster child may go unnoticed because the child often reacts to the foster carer in a shut-down way.

### Foster Infants and Toddlers and (Chronic) Stress

Along with reactive features the hypothalamic-pituitary-adrenal (HPA)-system displays a circadian rhythm, with levels of cortisol being highest early in the morning and gradually declining during the day (Gunnar & Donzella, 2002). Infants and toddlers in child welfare often show a dysregulated stress response (Nelson & Spieker, 2013). The psychobiology of early maltreatment has been conceptualized as creating vulnerability to psychosocial stress and adversity. Young children in foster care may be unusually vulnerable to further dysregulation (De Bellis, 2005). Several studies on salivary cortisol focused on the relationship between attachment behavior patterns and cortisol reactivity and determined that children displaying insecure attachment patterns experienced HPA arousal in response to a separation from their caregiver (Gunnar, Brodersen, Nachmias, Buss, & Rigatuso, 1996). However, this response may be absent in foster children with caregivers they may have known for only a short time (Dozier, Peloso, Lewis, Laurenceau, & Levine, 2008). Several studies provide evidence that 'caregiver-based intervention' can help normalize the HPA-axis function in young foster children and that such changes co-occur with improved behavioral functioning (Fisher, Gunnar, Dozier, Bruce, & Pears, 2006). Dozier et al. (2006) describe a similar finding on improved behavior but this effect only tends to be statistical significant in their study. The findings suggest a positive relation between improved behavior of the child, normalization of salivary cortisol rhythm and quality of foster care. The HPA-axis seems to remain mutable over time and actually might be influenced by therapeutic interventions and other environmental changes (Fisher, Van Ryzin, & Gunnar, 2011). Gunnar and Donzella (2002) found that cortisol diurnal activity can react to variations in care quality among infants and toddlers. It is controversial at what age the stress system is fully matured. Researchers report a large variation in the age of appearance of the "adult" expression of the circadian rhythm, varying from as early as two months till the age of nine months (Antonini, Jorge, & Moreira, 2000; Edwards, Clow, Evans, & Hucklebridge, 2001; Kiess et al., 1995; Larson, White, Cochran, Donzella, & Gunnar, 1998; Lewis & Ramsay, 1995; Price, Close, & Fielding, 1983; Santiago, Jorge, &

Moreira, 1996; Spangler & Grossmann, 1993). Gunnar and Donzella (2002) concluded that significantly lower midafternoon than midmorning levels (which are characteristic in adult curves) cannot be obtained reliably until children are around 4 years of age.

As a result, children who enter foster care at an early age do so with a myriad of challenges, including dealing with (chronic) stress, developmental delays, mental and physical health problems, and attachment disorders (Dicker, Gordon, & Knitzer, 2001; Jonkman, Verlinden, Bolle, Boer, & Lindauer, 2013; Vig, Chinitz, & Shulman, 2005). Many foster children have adverse caregiving experiences and may therefore be at risk for multiple adversities, including neuroendocrine dysfunction (Cicchetti & Rogosch, 2001; Dozier et al., 2006), behavioral problems (Bernedo, Salas, Garcia-Martin, & Fuentes, 2012; Vanyukov et al., 1993), delay in intellectual development (Pears, Fisher, Bruce, Kim, & Yoerger, 2010), attachment problems (Cicchetti, Rogosch, & Toth, 2006; Pears et al., 2010) or somatic illness (Heim, Ehler, & Hellhammer, 2000). It is clear that many foster children have special needs that must be addressed to promote positive long-term outcome (Rork & McNeil, 2011).

### Importance of Caregiver Characteristics

Foster carers have to deal with the child's (problem) behavior and to provide a secure and stable environment for the child (Zeanah, Shaffer, & Dozier, 2011). This is a complicated and relevant task. Recent research has shown that caregiver characteristics better predict placement stability and developmental outcomes than foster child characteristics do (O'Neill, Risley-Curtiss, Ayon, & Rankin Williams, 2012). Further, Leathers (2003) found that children who had been able to form secure relationships in their original home environment were less likely to disrupt in foster care and that these relationships moderated the effects of problem behavior. Children who felt supported by their caregivers developed less problem behavior after being placed in foster care (Denuwelaere & Bracke, 2007). Foster children in foster care placements where foster carers receive only routine support seldom show a reduction of at-risk behavior. This is a strong argument for developing foster families interventions (Van Holen, Vanderfaeillie, & Omer, 2015).

### Intervention Programs Families at Risk

Many existing intervention programs are practice based. Only a minor number of these programs can be used with infants and toddlers. Still less have been studied by means of an advanced research design like a randomized controlled trial (RCT; Van Andel, Strijker, Grietens, Van der Gaag, & Knorth, 2014). The current body of literature investigating the effectiveness of foster parent training programs is fraught with methodological limitations, making it difficult to establish adequate validity and reliability of the study results (Rork & McNeil, 2011).

In their review on existing interventions, Festinger and Baker (2013) conclude that it is safe to say "there is still somewhat a disconnection between the field's emphasis on the importance of training of foster carers and the lack of sufficient evidence based knowledge about the effectiveness of the programs offered" (p. 2,152). They discuss several multisession training programs in

which an RCT-design revealed at least some program effects. Two examples of evidence-based generic parenting programs are called *Incredible Years* (Webster-Stratton & Reid, 2003) and *Parent–Child Interaction Therapy* (Brinkmeyer & Eyberg, 2003). Both these interventions have been (adapted and) implemented in foster family care but with only moderate success (McNeil, Herschell, & Gurwitch, 2005). Multidimensional Treatment Foster Care for Preschoolers (MTFC-P; Jonkman, 2015) and Parent Management Training Oregon (PMTO; Chamberlain et al., 2008) have also been developed to be used in foster care, especially with behaviorally disturbed children, and are also well researched. PMTO showed a positive effect on behavioral symptoms in one study (Chamberlain et al., 2008), but this result could not be replicated (Jakobsen & Solholm, 2009). Recently Jonkman (2015) could not prove added value using MTFC-P compared with an already existing treatment foster care program in The Netherlands. The ‘Attachment Biobehavioral Catch-up’ (ABC) looks like a promising intervention (Dozier et al., 2009). This intervention teaches parents to follow the child’s lead, to appreciate the value of physical affection toward the child and to encourage emotional expression and understanding. However, the results may have capitalized on the small sample utilized (Rork & McNeil, 2011). Video-Feedback Intervention to Promote Positive Parenting has been initially developed in The Netherlands to help adoptive parents meet the needs of their child. It is based on attachment theory and coercion theory (Stolk et al., 2008). Its effectiveness has been tested with mothers and their infants and toddlers, showing relative high scores on externalizing behavior (Van Zeijl et al., 2006). It is yet unclear if it will also be effective in foster family care.

### Foster Carer–Foster Child Intervention (FFI)

Using meta-analytic techniques to synthesize the results of 77 published evaluations of parent training programs, Kaminski, Valle, Filene, and Boyle (2008) found that interventions on parenting were more effective when attention was paid to “increasing positive parent–child interactions” to “teaching emotional communicating skills to parents” and to “teaching consistency and how to use time out” (pp. 581–582). This also can be applied to foster family care. Many infants and toddlers in foster care react in avoidant or resistant ways, and foster carers often do not recognize what is needed and respond consequently as if the child does not need care (Dozier et al., 2009). As a result, they may not meet the child’s need for emotional security and not adequately manage the child’s stress. Family-based interventions are often developed and indicated when something is wrong in the interaction between carer and child.

We developed the FFI in 2009, thereby trying to support foster carers in recognizing and coping with the stress foster children under the age of 5 may experience after having been placed in their family while the child does not show overt symptoms of distress (Van Anandel, Grietens, & Knorth, 2012). The program has been developed from a preventive point of view and is among others based on the same items Kaminski et al. (2008) mentioned. By optimizing the interaction between foster carer and foster child, conditions will improve to develop a secure relationship between foster carer and foster child. Other interventions focus on problematic behavior and social competence in 3- to 7-year-old children (MTFC intervention; Fisher, Gunnar, Chamberlain, & Reid,

2000) and/or (imminent) attachment problems and stress (ABC intervention; Dozier et al., 2009). They are indicated when problems already have presented themselves. The FFI focuses on the interaction in the first weeks of the placement, when foster carer and foster child do not know each other and have to learn to build a reciprocal relationship. Especially infants and toddlers often react with avoidant behavior (Dozier et al., 2009). It is a risk for the child as well as for the budding relationship between carer and child, when the avoidant behavior is not properly understood or addressed. The FFI helps the foster carer understand what is going on and what can be done to support the child in its underlying emotional needs (van Anandel et al., 2012).

The core idea of the FFI is that by influencing the foster carer to be mindful and sensitive to the child, he or she in turn influences the foster child in a positive way (Brok & De Zeeuw, 2008; O’Neill et al., 2012). The intervention is designed with inclusion of principles from attachment theory, psycho-education, mindfulness therapy, and video reflection. Each session has a specific interrelational theme:

- Session 1: “Getting to know your child.” The foster carer learns to observe the child, learns what he or she feels and how to accept this.
- Session 2: “Emotional security.” The foster carer learns to be mindful and sensitive to the often covert signals of the child.
- Session 3: “Management of emotions.” The foster carer learns how to calm down the child and how to repair a broken contact or relationship.
- Session 4: “Dealing with feelings of insecurity and trauma.” The foster carer learns about the consequences of insecurity and its possible effects on attachment relations.
- Session 5: “Giving trust.” The foster carers learns to give age appropriate developmental help to the child.
- Session 6: “Surroundings and blind spots.” The foster carer is stimulated to reflect on his or her expectations as a foster carer, the attunement and collaboration with the biological parents, and the way the foster child adapts to his or her new family. Future plans are discussed.

The themes progress from an individual to a family focus and include more relaxed or nonthreatening and more tense or threatening situations (van Anandel et al., 2012).

According to Cooley and Petren (2011), many studies deal with foster parenting and foster parent training, but there is hardly research that specifically focuses on training parental competence and how this impacts foster child outcomes. They recommend that research should focus more on specific factors that make for successful foster parenting. The FFI is directed to enhancing the competence of foster carers in the relation with their foster child.

In this study, we investigate the outcomes and efficacy of the FFI compared with the outcomes of regular foster care in a care-as-usual group (CAU). The research questions are as follows: (1) What is the effect of the FFI on foster carers’ perception of the child?, (2) What is the effect of the FFI on foster carers’ behavior toward the child compared with CAU?, and (3) What is the effect of the FFI on the child’s reactions toward the foster carer and on the child’s level of stress compared with CAU?



## Method

### Design

We used a randomized controlled trial pretest/posttest design with a FFI group and a CAU group as the two conditions to be compared. The planned trial design should include 160 children as the estimated sample size needed to get an estimated effect size between 0.30 and 0.60 (medium-to-large effect), compared with existing interventions (Hulley, Cummings, Browner, Grady, & Newman, 2007; Van Andel et al., 2014). After registering potential cases, we first made sure that all inclusion criteria (see subsequent text) were met. Then, the child–foster carer couples entered our study by giving them the first available number from a computer-generated list, which randomly assigned the case to the FFI or CAU condition. The study was carried out with a first measurement (pretest, Time [T] 1) 6 to 8 weeks after placement and a second measurement one half year later (posttest, T2). The foster carers in the intervention group started the FFI 8 to 10 weeks after the child had been placed in foster care; the control group received care as usual (regular foster care support). It was agreed on that foster carers who received FFI did not receive CAU at the same time or vice versa. The foster care workers in the FFI group did not carry out CAU during the period of data collection.

Children and foster carers were included after informed consent was given by foster carers and biological parents. The expected duration of placement in the foster family had to be at least 6 months to be able to do the posttest in the RCT. Excluded were children with birth deficits, severe cognitive dysfunction, and problems leading to an indication for treatment as indicated by the foster care services (implicating that there was a high risk of placement breakdown if the child would be assigned to a “foster care as usual” condition and/or that evident attachment or psychiatric disorders were present in the child). On the basis of these criteria, 123 infants and toddlers were included. Data were collected between July 2009 and August 2013. We supervised data collection to help foster care workers use the protocol of our study properly. Foster care workers from all participating organizations (see subsequent text) reported it was a major problem to meet the deadline of 6 to 8 weeks, because it was a narrow time frame to get informed consent from biological parents. This was the reason why some foster children who potentially met the inclusion criteria could not participate in the study.

**CAU.** CAU consisted of home visits every 2 to 6 weeks to monitor the placement. The purpose is to support foster carers and to organize extra help where needed. In the first 6 weeks of the placement, a plan is made in which it is agreed upon how foster carers, biological parents and foster care will work together and which goals will be pursued.

**FFI.** In six 90-min home visits, foster care workers support foster carers by providing (background)information on interactional and attachment themes in starting relationships (“what and why,” which focuses on the carers’ perceptions of their interactions with the child; “how,” which focuses on other possible ways to interact with the child). We developed drawings based on the “circle of security” (Hoffman, Marvin, Cooper, & Powell, 2006) to help foster carers interpret the interaction with their child.

Foster care workers also support foster carers by helping to reflect on videotaped recordings of parent–child interactions (first three sessions with successful and relaxed interactions, next three sessions with unsuccessful and more stressful ones). To help foster carers reflect, we used the drawings and we developed structured questions for each session based on clinical-assisted videofeedback exposure sessions (Schechter, et al., 2006). Foster care workers also support foster carers by discussing homework assignments (suggested reading: Brok & De Zeeuw, 2008).

The sessions follow a fixed protocol and are led by trained foster care workers (see De Zeeuw, Brok, & Van Andel, 2010). The home visits take place once every 2 weeks, covering a period of maximum 3 months.

### Sample

A convenience sample of 12 foster care organizations in The Netherlands (out of a total of 28 organizations) participated in the study. The Ethical Commission on Human Research of the University Centre St. Radboud, Nijmegen, The Netherlands, approved all procedures.

In the pretest, we obtained 123 video recordings on foster carer–foster child interactions, 110 foster carer questionnaires, and 104 × 2 (morning and evening) samples of foster children’s salivary cortisol (see subsequent text for specifics on instruments). Information from case files was collected on demographics (age, gender), placement characteristics (number of replacements, [non] kinship care, duration of placement, possible maltreatment of child), and foster family characteristics (experience in foster care, other children present in foster family, contact with biological parents). The information was used to assess comparability of the intervention and control group.

Missing values in the posttest group were largely due to replacement of the foster child (dropout) before posttest data could be collected ( $N = 27$ ). As a result, 96 video recordings in the posttest could be included. In addition to dropout, 10 foster carer questionnaires were not filled in correctly, resulting in 86 questionnaires in the posttest dataset. Thirty-seven salivary cortisol results were missing in the posttest because foster carers did not collect the material or the child was not able to participate, resulting in 59 × 2 (morning, evening) samples of salivary cortisol in the posttest dataset. Missing values were equally distributed between FFI and CAU in pretest and posttest.

### Instruments

As a primary outcome measure, we used the Emotional Availability Scales (EAS); (Biringen, 2008). This instrument evaluates videotaped interactions between carers and children. To evaluate foster carers’ perceptions of the child, including the stress experienced while raising the child, they were asked to complete the Dutch version of the PSI (Abidin, Jenkins, & McGaughey, 1992) called the Nijmeegse Ouderlijke Stress Index, Revised (NOSI-R; De Brock, Vermulst, Gerris, Veerman, & Abidin, 2010). As a secondary measurement, we evaluated biological markers of foster children’s stress levels with samples of salivary cortisol

**EAS.** The EAS refers to a semistructured procedure used to assess dyadic interactions between an adult and a child (Biringen,

2008). Parental and child associations among EAS subscales characterize the global emotional quality of the parent–child relationship. The instrument covers six dimensions to be rated. Four dimensions relate to the adult’s contribution in the interaction: sensitivity, structuring, nonintrusiveness, and nonhostility. Two dimensions focus on the child’s part: responsiveness and involvement. All six scales can be scored from 7 to 29 points. Scores above 18 are considered to be acceptable to good (Biringen, 2008), which implies a positive interaction between parent and child and a sufficient engagement to each other. Acceptable psychometric properties have been reported on the EAS, including interrater reliabilities of the scales in the range of .76–.96. Studies have confirmed hypothesized relations between EAS scores and child–mother attachment and attachment to professional caregivers (Biringen et al., 2012). Other studies have affirmed the expected links between EAS profiles and characteristics of caregivers (e.g., mental health) and children (e.g., children with disabilities) (Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014).

Foster carer–foster child interactions were videotaped, both in the pretest and in the posttest, and were afterward rated using the EAS guidelines. The tapes were scored twice by two independent groups of trained professionals (two people, licensed by Biringen to use EAS, 4th ed.) and trained students (four to six people; in-company training on EAS, 4th ed.). If scores per dimension between the two groups differed by more than five points, the tape was analyzed a third time with both groups together and a consensus score was established after discussion. If scores per dimension differed by fewer than five points, the mean score was taken.

**NOSI-R.** The Dutch version of the PSI (Abidin, Jenkins, & McCaughey, 1992), called the NOSI-R (De Brock et al., 2010), is a self-report questionnaire measuring stress in the family. The NOSI-R contains 75 items, describing the degree of stress experienced by parents in two domains: (1) the parent domain, rating the extent of stress the parent experiences in his or her role as a parent; and (2) the child domain, rating parents’ estimation of child factors that contribute to stress in the parent–child relationship. The items are rated on a 4-point scale, ranging from 1 (*totally not true*) to 4 (*totally true*). The total score in the two domains is compared with a norm score in which the age of the child is taken into account. Scores above the norm indicate stress in the relation between child and carer. The reliability between parents (parent domain = .94; child domain = .95) is high and validity of the NOSI-R has been assessed as sufficient to good (Evers, Van Vliet-Mulder, & Groot, 2000).

**Salivary cortisol.** Our review (Van Anandel, Jansen, Grietens, Knorth, & van der Gaag, 2014) indicated that a twice-a-day measurement of diurnal cortisol is a useful method to evaluate changes in the circadian rhythm of salivary cortisol. The “wake up” measurement is the most significant in this regard, because the cortical awakening response seems to decrease most in children with chronic stress (Bernard, Butzin-Dozier, Rittenhouse, & Dozier, 2010; Dozier et al., 2006; Fisher, Gunnar, Chamberlain, & Reid, 2000). Children’s saliva was routinely collected twice, once in the morning and once in the afternoon to assess diurnal variation in cortisol levels (Kiess et al., 1995). The first sample was obtained in the morning within 30 min after awakening; the second sample was obtained before going to sleep in the evening of the same day.

Foster carers followed a standardized written instruction. In the written instruction, we emphasized that samples should be taken on an ordinary day with no acute stressors present or to be expected (e.g., illness, visits of biological parents). Furthermore, it was emphasized not to brush teeth within 30 min before the measurement (possible contamination with blood) and to carry out the second measurement at least 30 min after dinner on the same day as the first measurement.

Children’s saliva was collected using Salivettes with polyester wad (Sarstedt Ltd., Germany) and subsequently analyzed using Ultra Performance LC<sup>1</sup>, followed by tandem quadrupole mass spectrometer (Waters, Milford, MA). The lower detection limit was 0.68 nmol/l, mean intraassay, and interassay coefficients of variation were respectively 2.6% and 5.9%. Only a small amount of saliva is needed to measure cortisol (Srivastava, Sharma, Uttam, & Neha, 2010).

## Data Analysis

First, we tested whether there were differences between the FFI and CAU groups with regard to the independent variables, clustered in demographic, placement, and foster family groups, thereby using chi-square tests and *t* tests. Furthermore, we compared all dependent variables in the pretest using independent *t* tests. Cronbach’s alphas were included to explore the expected correlations among EAS items. The linear relationships within and between EAS and NOSI-R domains were explored using Pearson correlation coefficients.

To analyze the effect of the intervention on EAS, NOSI-R, and cortisol values, multilevel linear regression models were used with children as the highest level and the measures (pretest and posttest) as the lowest level to account for dependencies between measures within children. We started for all dependent variables by applying an empty model (a model without explanatory variables). This was followed by a final model with time (pretest vs. posttest measures) and the interaction between time and group (FFI, CAU) as explanatory variables. In the model analyzing the role of cortisol we also included the explanatory variables time of the day (morning vs. evening measures), together with the interaction between time and time of the day.

We did not include group as a main effect in the models to force them to estimate equal pretest means for both groups (which might be expected under randomization). Fixed as well as random effects were included. The difference in deviances of the empty model and the corresponding final model was used to determine whether the final model was better (in terms of fit) than the empty model; *p* values <0.05 were considered to be significant. Hence we calculated the effect sizes (ES) of the intervention effect.

To address the first question, we used this procedure on NOSI-R parent, NOSI-R child, and NOSI-R total outcome. To address the second question, we used this procedure on EAS Sensitivity, EAS

<sup>1</sup>UPLC is a chemistry technique that combines the physical separation capabilities of liquid chromatography with the mass analysis capabilities of mass spectrometry. UPLC has very high sensitivity and selectivity. Generally its application is oriented towards the general detection and potential identification of chemicals (i.e. cortisol) in the presence of other chemicals (in a complex mixture).

Structuring, and EAS Nonintrusiveness outcomes. We did not include the domain nonhostility because this did not differentiate. All parents scored more than 20 points in both groups in the pretest as well as in the posttest without significant differences. To address the third question, we used the same procedure on the child domains of the EAS and on salivary cortisol. For the cortisol measures, we used a log transformation to account for the profound difference in dispersion between morning and evening measures; indeed, cortisol concentrations were not normally distributed and showed a variable dispersal with many outliers. The transformation was not completely successful because the resulting distribution was not a normal one. Multilevel analysis was performed in MLwin (2011; Version 2.23). All other analyses were performed in SPSS (IBM, 2013; Version 22.0).

## Results

### Pretest Sample Characteristics

In total, 123 children were included, 51% of them were boys. The mean age of the children at the entry of the study was 18.8 months ( $SD = 14.5$  months), with 36% being younger than 9 months. Sixty-five children received the FFI intervention, 58 children received regular foster care (CAU).

Table 1 shows characteristics of the FFI and CAU group in the pretest. They are listed in three different clusters: demographic, placement, and foster family characteristics. Variables were considered as missing when not found in the files of the foster care agency. No significant differences between the FFI and CAU group were found. Cronbach's alphas were computed for the EAS (EAS parent scales:  $\alpha = 0.81$ ; EAS child scales:  $\alpha = 0.88$ ; all scales total:  $\alpha = 0.86$ ).

Table 2 shows the means and standard deviations of EAS scores on pretest in the FFI and CAU groups. With  $t$  tests, we calculated the significance of pretest differences between FFI and CAU. Notable is that all pretest domains show a significant positive difference except for the domain nonintrusiveness.

All subscales of the EAS positively intercorrelated (Pearsons'  $r = .36-.83$ ;  $N = 123$ ,  $p < .01$ ). No correlation was found between NOSI-R subscales and EAS subscales (Pearsons'  $r =$

$-.04-.74$ ;  $N = 107$ ,  $p > .05$ ). We did not find differences in mean and standard deviations between NOSI-R FFI and CAU groups in pretest or posttest using  $t$  tests ( $p > .05$ ).

### Intervention Effects on Foster Carer and Foster Child

After applying the empty model on the EAS parent and child domains, we included time (pretest/posttest) and Time  $\times$  Group (FFI, CAU) as explanatory variables in our final model. The analysis showed there was no main effect of time (see final model in Table 3), indicating that there was no significant difference in time scores. The outcomes of the analysis revealed a significant effect between conditions on all EAS domains (except involvement) after having participated in the intervention group, which indicates that the effect over time is more positive for the FFI group.

Figures 1–5 shows a graphical presentation of the model estimates for the variable effects on the three EAS domains between CAU and FFI in the final model, with time and group as explanatory variables.

In the posttest, the differences between the FFI intervention and CAU condition on sensitivity, structuring, nonintrusiveness, responsiveness, and involvement are in favor of the first (only in the domain Involvement not significant). ES can be computed by dividing the estimated intervention effect with the pooled standard deviation. In this case, the ES is 0.82 for sensitivity, for structuring the ES is 0.73, for nonintrusiveness it is 0.60, for responsiveness it is 0.46, and for involvement it is 0.18. Mean scores on NOSI-R parent, child, and total domains in the FFI and CAU group did not differ significantly between pretest and posttest. Table 4 shows the final model in MLwin on NOSI-R outcomes with time (pretest measures vs. posttest measures) and the interaction between time and group (FFI, CAU) as explanatory variables. No significant differences were found over time in NOSI-R parent, NOSI-R child, or NOSI-R total scores between FFI and CAU groups, indicating that there is no intervention effect.

Salivary cortisol levels were not significantly different between pretest and posttest ( $p > .05$ ) using  $t$  test, except posttest evening cortisol concentration in the FFI group, which showed a rather

**Table 1.** Demographic, Placement, and Foster Family Characteristics for Pretest Foster Family Intervention (FFI) Group and Care-As-Usual (CAU) Group

Variable	FFI ( $n = 65$ )	CAU ( $n = 58$ )	Statistics
Characteristics: Foster child			
Gender (% boys)	49	51	$\chi^2 = .69$ , $df = 1$ , $p = .41$
Age: Mean in months ( $M \pm SD$ )	$19.7 \pm 14.4$	$17.9 \pm 14.7$	$t = -.65$ , $df = 121$ , $p = .52$
Age: <9 months (%)	34	38	$\chi^2 = .22$ , $df = 1$ , $p = .64$
Placement characteristics			
None or one replacement (%; $n = 117$ )	77	88	$\chi^2 = 2.17$ , $df = 1$ , $p = .14$
Nonkinship foster placement (%; $n = 115$ )	85	83	$\chi^2 = .08$ , $df = 1$ , $p = .78$
Long-term placement (%; $n = 114$ )	65	62	$\chi^2 = .14$ , $df = 1$ , $p = .71$
Maltreatment of the child (%; $n = 114$ )	93	89	$\chi^2 = .70$ , $df = 1$ , $p = .40$
Foster family characteristics			
No former experience as foster carers (%; $n = 91$ )	68	63	$\chi^2 = .21$ , $df = 1$ , $p = .65$
Other children living in foster family (%; $n = 92$ )	58	74	$\chi^2 = 2.52$ , $df = 1$ , $p = .11$
Contact with biological parents (%; $n = 89$ )	79	88	$\chi^2 = 1.18$ , $df = 1$ , $p = .39$

**Table 2.** Means and Standard Deviations in Emotional Availability Scales (EAS) Domains in Pretest and Posttest

Measure EAS	FFI <i>M</i> ± <i>SD</i> ( <i>n</i> = 65)	Pretest CAU <i>M</i> ± <i>SD</i> ( <i>n</i> = 58)	Difference FFI–CAU on pretest <i>t</i> test
Sensitivity	19.20 ± 3.69	21.55 ± 3.39	<i>t</i> = 3.66, <i>df</i> = 121, <i>p</i> < .001
Structuring	19.28 ± 3.43	21.31 ± 2.93	<i>t</i> = 3.52, <i>df</i> = 121, <i>p</i> = .001
Nonintrusiveness	20.38 ± 3.34	21.36 ± 3.53	<i>t</i> = 1.58, <i>df</i> = 121, <i>p</i> = .12
Responsivity	17.09 ± 3.13	18.72 ± 3.40	<i>t</i> = 2.77, <i>df</i> = 121, <i>p</i> = .006
Involvement	15.98 ± 3.53	17.45 ± 3.58	<i>t</i> = 2.28, <i>df</i> = 121, <i>p</i> = .024

Note. FFI = foster family intervention group; CAU = care-as-usual group.

high mean and standard deviation, significantly different from pretest FFI (*t* = −2.57, *df* = 55, *p* = .013).

Multilevel analyses with salivary cortisol were carried out to determine pretest–posttest, time–group, morning–evening, and time–time of day effects. In the final model, we included the explanatory variables time of the day (morning vs. evening, pretest measures vs. posttest measures) and the interaction between time and group (FFI, CAU) as explanatory variables (see Table 5).

The final model on logcort does not show any significant interaction effects between groups, time, or time of day, indicating that there is no significant difference between both groups at the posttest. The *t* test difference in the evening cortisol concentrations is likely a false positive because of many outliers.

### Discussion

As far as we know, this study is one of the first that attempts to collect evidence on an intervention aimed at improving mutual relationships in family foster care. Furthermore, the study is quite unique in targeting infants and toddlers in a foster care setting. The study focuses on looking for evidence on the effect of the FFI regarding improvement of the mutual relationship between the

child and its foster carers. It showed a positive effect on interactional outcomes as measured in the EAS, which was the primary outcome measure (see figures 1–5).

We found a positive effect on the parent domains of sensitivity, structuring, and nonintrusiveness. The difference between FFI and CAU scores on these domains in the posttest is approximately 1.5 point, which is not a large difference. But when we consider the difference between pretest and posttest scores, FFI scores grew much more than did CAU scores. The ES vary between 0.60 and 0.82, which corresponds with a medium-to-large effect, according to Cohen (1992).

We also found a positive effect on the EAS child domains: Mean scores on responsiveness and involvement have more improved between pretest and posttest in FFI compared with CAU. ES were 0.46 and 0.18, respectively, which corresponds with a small-to-medium effect, according to Cohen (1992). The results indicate that not only the carers in the FFI group benefit from the intervention but the children do as well. The more favorable scores on responsiveness (and involvement to a lesser degree) in the FFI group might indicate that the child benefits from improved parenting practices of foster carers. This points to an overall intervention effect on all of the relevant EAS domains.

**Table 3.** Estimates for the Variable Effects on Emotional Availability Scales (EAS) Domains Between Care-as-Usual (CAU) Group and Foster Family Intervention (FFI) Group for Different Models

	Sensitivity Estimate ( <i>SE</i> )	Structuring Estimate ( <i>SE</i> )	Nonintrusiveness Estimate ( <i>SE</i> )	Responsivity Estimate ( <i>SE</i> )	Involvement Estimate ( <i>SE</i> )
Empty model					
Fixed part					
Intercept	21.03 (.26)	20.96 (.24)	21.15 (.25)	19.05 (.24)	17.92 (.26)
Random part					
Variance					
Level 2	2.76 (1.31)	2.22 (1.31)	3.73 (1.15)	.00 (.00)	0.00 (.00)
Level 1	9.90 (1.41)	8.64 (1.23)	7.08 (1.02)	12.45 (1.20)	14.22 (1.37)
Deviance	1167.50	1129.41	1120.47	1163.02	1191.93
Final model					
Fixed part					
Intercept	20.30 (.34)	20.23 (.30)	20.85 (.31)	17.86 (.30)	16.68 (.32)
Time <sup>a</sup>	0.49 (.44)	.61 (.43)	−.15 (.44)	2.02 (.54)	2.57 (.57)
Time × Group <sup>b</sup>	2.49 (.56)*	2.16 (.55)*	1.77 (.55)*	1.44 (.64)*	.61 (.69)
Deviance	1131.17	1096.80	1104.89	1123.32	1156.75

Note. Random effects are not included.

<sup>a</sup> Pretest is reference category for times. <sup>b</sup> CAU is reference category for group.

\* *p* < .05.



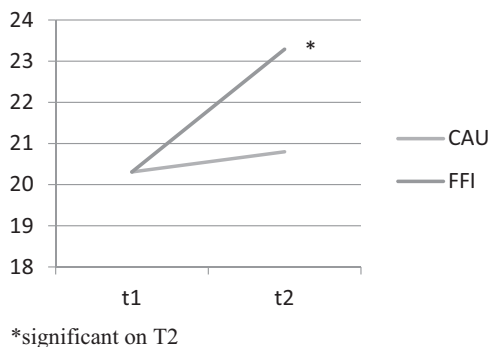


Figure 1. EAS sensitivity.

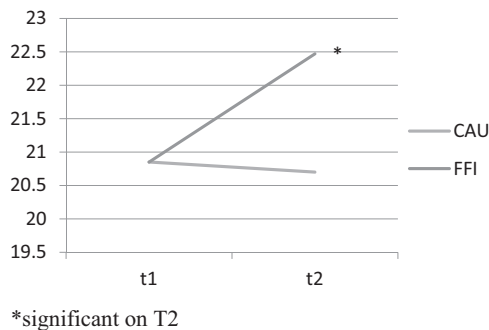


Figure 3. EAS nonintrusiveness.

At the same time, however, we did not find an intervention effect on the secondary outcome measures (i.e., the NOSI-R domains and salivary cortisol). In trying to understand these findings we should realize that the mean EAS pretest outcome scores on parent domains were all above 19 points. This indicates that the quality of the foster parenting skills on average is sufficient to good (Biringen, 2008). It is also notable that mean cortisol levels were not very high, which may implicate that the children are not so stressed as we expected them to be. These combined results may—at least in part—explain why we did not find an intervention effect on salivary cortisol. It is possible that foster carers are able to “contain” the child’s stress because they have well-developed parenting skills; it is also possible that the child does not suffer from stress or that both possibilities count. This also might explain why the majority of the foster carers do not report stress in the relationship with their foster child.

Our intervention group was composed of a younger age than we expected when starting this study, with 34% younger than 9 months of age. Therefore, another factor that might explain the findings is that the NOSI-R may not distinguish stress symptoms at this very young age because it primary focuses on children older than 2 years of age. It is rather difficult to find a reliable questionnaire focusing on infants and toddlers. Staal, van den Brink, Hermanns, and Schrijvers (2011) concluded that assessment of (or early signs of) parenting and developmental problems in very young children, in which we were interested, always proves difficult as no well-validated instruments are available.

With regard to salivary cortisol it is important to note that the cortisol data were not normally distributed, even after using log-cort transformation. Therefore, it is difficult to interpret the results. However, it is notable that children in both the FFI as the CAU groups developed a decrease of morning salivary cortisol and a slight increase of evening cortisol. We see a time effect, but we do not see an intervention effect. A cortisol response may have been absent because the foster children knew their caregivers for only a short period of time (Dozier et al., 2008). Also, the very young age of the children in our study may have been a factor to influence salivary cortisol outcome. Researchers report a large variation in the age of appearance of the adult expression of the circadian rhythm, varying from as early as 2 months until the age of 9 months (Antonini, Jorge, & Moreira, 2000; Edwards, Clow, Evans, & Hucklebridge, 2001; Gunnar & Donzella, 2002).

A surprising result was that the EAS scores between the FFI and CAU group appeared to differ significantly in the pretest (significantly lower in FFI group). We cannot explain this observation satisfactorily. We have been very scrupulous in our methodological approach to the RCT; the cases were randomized blindly on forehand. The pretest differences have been found in all EAS domains except nonintrusiveness, which is not surprising because all EAS domains intercorrelate highly and measure the same construct (high Cronbach’s alpha). NOSI-R domains and salivary cortisol do not show significant differences in pretest en posttest. Apparently not all coincidence can be excluded from research. With this in mind a random randomization may not have been the best of choices. A stratification after assessing pretest data could

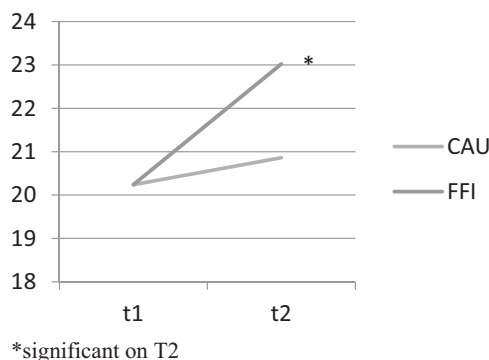


Figure 2. EAS structuring.

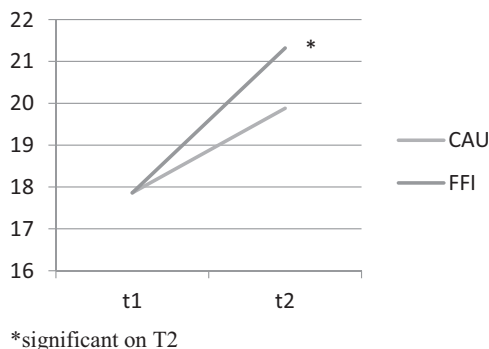


Figure 4. EAS responsivity.

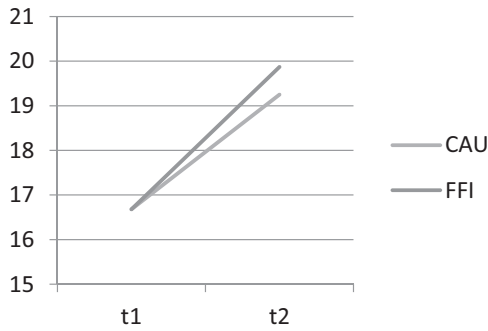


Figure 5. EAS involvement.

possibly solve the problem of different groups (Kernan, Viscoli, Makuch, Brass, & Horwitz, 1999).

### Strengths and Limitations

This study has some strengths. Applying an RCT-design to evaluate the effects of a preventive intervention aimed at enhancing safe attachment between very young foster children and their temporary carers is important. Many interventions in foster care still are practice-based (Van Andel et al., 2014). Furthermore, research on effectiveness of training programs often is fraught with methodological limitations (Rork & McNeil, 2011). It is promising that we found an intervention effect on parental EAS domains.

The definitions of “increasing positive parent–child interactions,” “teaching emotional communicating skills to parents,” and “teaching consistency and how to use time out” (Kaminski et al., 2008; pp. 580–581) do overlap with the definition of the EAS domains of sensitivity, structuring, and nonintrusiveness. They found that interventions on parenting capacities were the most effective element in training programs. The results suggest this is also the case in foster care and that the FFI helps to enhance parenting capacities.

Researching interventions is important for several reasons. Quite a lot of foster care placements have an unfortunate ending because of a mismatch between foster carer and foster child. This mismatch may arise because of high expectations in idealistic foster carers or a lack of basic knowledge of the “quasi adaptation” that very young foster children may show as a coping strategy (Van Andel et al., 2015). It is important that foster carers learn to observe the child and learn to act in a sensitive way toward the child. The present study presents an evidence base indicating the FFI can be indicated for this purpose.

This study has some limitations. A first limitation refers to the smaller than planned sample size, limiting statistical power to find statistical differences. As a second limitation of the study it has to be mentioned that pretest mean differences in FFI and CAU groups exist (except nonintrusiveness). It would have been preferable if both groups had shown the same results and this is the reason that statistical results have to be interpreted with some caution. Nevertheless, from a clinical point of view, it is interesting to note that the carer–children dyads with relatively lower scores on EAS domains profit largely from the intervention.

Another limitation may be that the secondary outcome research instruments do not show the same positive result as in EAS, which

was our primary outcome measure. NOSI-R and salivary cortisol do not show an intervention effect. EAS domains do show a positive intervention effect but the domains have to be rated from a video observation and thus could be susceptible to interpretational bias. We minimized this risk by using a strict protocol. Some foster children who potentially met the inclusion criteria could not participate in the study because the deadline to enter the study was 6 to 8 weeks after placement of the child in the foster family. The process to meet the criteria, obtaining informed consent from biological parents as well as foster carers, was delegated to the foster care organizations. We only received general feedback on dropouts. Although we think it improbable (dropouts were in both groups), we cannot rule out this may have influenced the data selection.

### Conclusion

The FFI focuses as a preventive intervention on the budding relationship between carer and child and can be carried out by foster family workers through the use of a protocol. The results on the effectiveness of the FFI, obtained within this study, were gathered in an RCT with an intervention group (FFI) and a care-as-usual group (CAU). This study showed a positive effect on relational parameters between foster carers and very young foster children after following a short relational-based intervention (FFI), targeting foster carers’ ability to observe the child, to interpret his or her behavior, and to act in a sensitive way. While focusing on enhancing these capacities in foster carers, the (very young) foster child also reacts in a positive way by being more responsive to the carer. The results indicate that the FFI may help to build a secure relationship between foster carer and foster child in a positive way.

Table 4. Estimates for the Variable Effects on Nijmeegse Ouderlijke Stress Index, Revised (NOSI-R) Domains Between Care-as-Usual (CAU) Group and Foster Family Intervention (FFI) Group for Different Models

	NOSI-R		
	Parent Estimate (SE)	Child Estimate (SE)	Total Estimate (SE)
Empty model			
Fixed part			
Intercept	54.73 (1.9)	57.78 (1.62)	112.54 (2.66)
Random part			
Variance			
Level 2	159.00 (25.28)	235.64 (40.64)	663.32 (107.27)
Level 1	46.22 (7.22)	99.82 (15.47)	207.52 (32.21)
Deviance	1515.47	1630.97	1801.39
Final model			
Fixed part			
Intercept	54.990 (1.30)	57.18 (1.68)	112.18 (2.70)
Time <sup>a</sup>	−1.52 (1.50)	3.15 (2.16)	1.78 (3.19)
Time × Group <sup>b</sup>	1.81 (2.05)	−2.96 (2.92)	−1.37 (4.34)
Deviance	1512.24	1627.74	1799.38

Note. Random effects are not included.

<sup>a</sup> Pretest is reference category for times. <sup>b</sup> CAU is reference category for group.

**Table 5.** Estimates for the Variable Effects on Logcort Between Care-as-Usual (CAU) Group and Foster Family Intervention (FFI) Group for Different Models Without Random Effects

	Empty model Estimates (SE)		Final model Estimates (SE)
Fixed part		Fixed part	
Intercept	.92 (.07)	Intercept	1.67 (.11)
Random part		Variance	
Level 2	.00 (.00)	Time <sup>a</sup>	.04 (.22)
Level 1	1.52 (.12)	Time of day <sup>b</sup>	-1.53 (.11)
Deviance	847.97	Time × Time of Day	-.26 (.22)
		Time × Group <sup>c</sup>	.08 (.25)
		Time × Time of the Day × Group	.38 (.26)
		Deviance	847.97

Note. Random effects are not included.

<sup>a</sup> Pretest is reference category for times. <sup>b</sup> Morning is reference category for time of day. <sup>c</sup> CAU is reference category for group.

## Recommendations for Future Research

We want to underline the importance of developing evidence-based interventions for children being placed in foster care because these children are at risk. The present study indicates that the FFI may be an intervention reducing these risks for young foster children. Still the results have to be replicated in future research with larger groups. After the results have been replicated in larger groups, this will support the FFI as an effective intervention to be used in the early stages of placement to help build a secure relationship between foster carer and foster child. Thus, the FFI can be of value as a preventive intervention in all new placements in foster care with young children. Another recommendation may be to develop research using the FFI to facilitate reunification with birth parents. In The Netherlands, it is custom to reunify very young children with their birth parents when it is deemed to be possible and safety is ensured. The principles used in the FFI to facilitate the relationship between foster carer and child can also be applied to the relationship between birth parent and child. Using these principles properly with birth parents and their children may help to prevent a new out of home placement in the future.

**Keywords:** foster family care; infants; evidence based intervention

## References

- Abidin, R. R., Jenkins, L., & McGaughey, M. C. (1992). The relationship of early family variables to children's subsequent behavioral adjustment. *Journal of Clinical Child Psychology, 21*, 60–69. [http://dx.doi.org/10.1207/s15374424jccp2101\\_9](http://dx.doi.org/10.1207/s15374424jccp2101_9)
- Allen, J., & Vostanis, P. (2005). The impact of abuse and trauma on the developing child. An evaluation of a training programme for foster carers and supervising social workers. *Adoption & Fostering, 29*, 68–81. <http://dx.doi.org/10.1177/030857590502900308>
- Antonini, S. R., Jorge, S. M., & Moreira, A. C. (2000). The emergence of salivary cortisol circadian rhythm and its relationship to sleep activity in preterm infants. *Horomon To Rinsho, 52*, 423–426. <http://dx.doi.org/10.1046/j.1365-2265.2000.00935.x>
- Bernard, K., Butzin-Dozier, Z., Rittenhouse, J., & Dozier, M. (2010). Cortisol production patterns in young children living with birth parents vs. children placed in foster care following involvement of Child Protective Services. *Archives of Pediatrics & Adolescent Medicine, 164*, 438–443. <http://dx.doi.org/10.1001/archpediatrics.2010.54>
- Bernedo, M., Salas, M. D., Garcia-Martin, M. A., & Fuentes, M. J. (2012). Teacher assessment of behavior problems in foster care children. *Children and Youth Services Review, 34*, 615–621. <http://dx.doi.org/10.1016/j.childyouth.2011.12.003>
- Biringen, Z. (2008). *Emotional Availability Scales manual* (4th ed.). Retrieved from <http://www.emotionalavailability.com/>
- Biringen, Z., Altenhofen, S., Aberle, J., Baker, M., Brosal, A., Bennett, S., . . . Swaim, R. (2012). Emotional availability, attachment, and intervention in center-based child care for infants and toddlers. *Development and Psychopathology, 24*, 23–34. <http://dx.doi.org/10.1017/S0954579411000630>
- Biringen, Z., Derscheid, D., Vliegen, N., Closson, L., & Easterbrooks, A. E. (2014). Emotional availability (EA): Theoretical background, empirical research using the EA Scales and clinical applications. *Developmental Review, 34*, 114–167. <http://dx.doi.org/10.1016/j.dr.2014.01.002>
- Brinkmeyer, M., & Eyberg, S. M. (2003). Parent–child interaction therapy for oppositional children. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 204–223). New York, NY: Guilford Press.
- Brok, C., & De Zeeuw, M. (2008). *Er zijn voor je kind: Hoe ouders veiligheid en emotionele beschikbaarheid kunnen bieden* [Being there for your child: How parents can offer safety and emotional availability]. Assen, The Netherlands: Van Gorcum.
- Brok, C., & Van Doesum, K. T. M. (1998). Positieve interactie tussen depressieve moeders en hun baby's [Positive interaction between depressed mothers and their offspring]. *Maandblad voor Geestelijke Volksgezondheid, 53*, 835–845.
- Bruce, J., Fisher, P. A., Pears, K. C., & Levine, S. (2009). Morning cortisol Levels in preschool-aged foster children: Differential effects of maltreatment type. *Developmental Psychobiology, 51*, 14–23. <http://dx.doi.org/10.1002/dev.20333>
- Bruskas, D. (2008). Children in foster care: A vulnerable population at risk. *Journal of Child and Adolescent Psychiatric Nursing, 21*, 70–77. <http://dx.doi.org/10.1111/j.1744-6171.2008.00134.x>
- Chamberlain, P., Price, J., Leve, L. D., Laurent, H., Landsverk, J. A., & Reid, J. B. (2008). Prevention of behavior problems for children in foster care: Outcomes and mediation effects. *Prevention Science, 9*, 17–27. <http://dx.doi.org/10.1007/s11121-007-0080-7>
- Child Welfare Information Gateway. (2013). *Foster care statistics*. Retrieved from <https://www.childwelfare.gov/pubPDFs/foster.pdf>

- Cicchetti, D., & Rogosch, F. A. (2001). The impact of child maltreatment and psychopathology on neuroendocrine functioning. *Development and Psychopathology*, *13*, 783–804.
- Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Development and Psychopathology*, *18*, 623–649. <http://dx.doi.org/10.1017/S0954579406060329>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159. <http://dx.doi.org/10.1037/0033-2909.112.1.155>
- Cooley, M. E., & Petren, R. E. (2011). Foster parent perceptions of competency: Implications for foster parent training. *Children and Youth Services Review*, *33*, 1968–1974. <http://dx.doi.org/10.1016/j.childyouth.2011.05.023>
- De Bellis, M. D. (2005). The psychobiology of neglect. *Child Maltreatment*, *10*, 150–172. <http://dx.doi.org/10.1177/1077559505275116>
- De Brock, A. J. L. L., Vermulst, A. A., Gerris, J. R. M., Veerman, J. W., & Abidin, R. R. (2010). *NOSI-R, opvoeding in gezin en andere primaire leefvormen* [NOSI-R, raising children in variable child carer circumstances]. Amsterdam, The Netherlands: Pearson.
- Denuwelaere, M., & Bracke, P. (2007). Support and conflict in the foster family and children's well-being: A comparison between foster and birth children. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, *56*, 67–79. <http://dx.doi.org/10.1111/j.1741-3729.2007.00440.x>
- De Zeeuw, M., Brok, C., & Van Anandel, H. W. H. (2010). *Handboek Pleegouder-Pleegkind Interventie voor Pleegzorgwerkers* [Foster carer-foster child intervention manual for foster care workers]. Deventer, The Netherlands: Authors.
- Dicker, S., Gordon, E., & Knitzer, J. (2001). *Improving the odds for the healthy development of young children in foster care*. New York, NY: National Center for Children in Poverty, Columbia University Mailman School of Public Health.
- Dozier, M., Albus, K., Fisher, P. A., & Sepulveda, S. (2002). Interventions for foster parents: Implications for developmental theory. *Development and Psychopathology*, *14*, 843–860. <http://dx.doi.org/10.1017/S0954579402004091>
- Dozier, M., Lindhiem, O., Lewis, E., Bick, J., Bernard, K., & Peloso, E. (2009). Effects of a foster parent training program on young children's attachment behaviors: Preliminary evidence from a randomized clinical trial. *Child and Adolescent Social Work Journal*, *26*, 321–332. <http://dx.doi.org/10.1007/s10560-009-0165-1>
- Dozier, M., Manni, M., Gordon, K. G., & Peloso, E. (2006). Foster children's diurnal production of cortisol: An exploratory study. *Child Maltreatment*, *11*, 189–197.
- Dozier, M., Peloso, E., Lewis, E., Laurenceau, J. P., & Levine, S. (2008). Effects of an attachment-based intervention on the cortisol production of infants and toddlers in foster care. *Development and Psychopathology*, *20*, 845–859. <http://dx.doi.org/10.1017/S0954579408000400>
- Dozier, M., Peloso, E., Lindhiem, O., Gordon, M. K., Manni, M., Sepulveda, S., . . . Levine, S. (2006). Developing evidence-based interventions for foster children: An example of a randomized trial with infants and toddlers. *Journal of Social Sciences*, *62*, 767–785.
- Edwards, S., Clow, A., Evans, P., & Hucklebridge, F. (2001). Exploration of the awakening cortisol response in relation to diurnal cortisol secretory activity. *Life Sciences*, *68*, 2093–2103. [http://dx.doi.org/10.1016/S0024-3205\(01\)00996-1](http://dx.doi.org/10.1016/S0024-3205(01)00996-1)
- Evers, A., Van Vliet-Mulder, J. C., & Groot, C. J. (2000). *Documentatie van tests en testresearch in Nederland, deel I en deel II* [Documentation of tests and testresearch in the Netherlands, part I and part II]. Assen, The Netherlands: Van Gorcum.
- Festinger, T., & Baker, A. J. L. (2013). The quality of evaluations of foster parent training: An empirical review. *Children and Youth Services Review*, *35*, 2147–2153. <http://dx.doi.org/10.1016/j.childyouth.2013.10.009>
- Fisher, P. A., Gunnar, M. R., Chamberlain, P., & Reid, J. B. (2000). Preventive intervention for maltreated preschool children: Impact on children's behavior, neuroendocrine activity, and foster parent functioning. *Journal of the American Academy of Child & Adolescent Psychiatry*, *39*, 1356–1364. <http://dx.doi.org/10.1097/00004583-200011000-00009>
- Fisher, P. A., Gunnar, M. R., Dozier, M., Bruce, J., & Pears, K. C. (2006). Effects of therapeutic interventions for foster children on behavioral problems, caregiver attachment, and stress regulatory neural systems. *Annals of the New York Academy of Sciences*, *1094*, 215–225. <http://dx.doi.org/10.1196/annals.1376.023>
- Fisher, P. A., Van Ryzin, M. J., & Gunnar, M. R. (2011). Mitigating HPA axis dysregulation associated with placement changes in foster care. *Psychoneuroendocrinology*, *36*, 531–539. <http://dx.doi.org/10.1016/j.psyneuen.2010.08.007>
- Gunnar, M. R., Brodersen, L., Nachmias, M., Buss, K., & Rigatuso, J. (1996). Stress reactivity and attachment security. *Developmental Psychobiology*, *29*, 191–204. [http://dx.doi.org/10.1002/\(SICI\)1098-2302\(199604\)29:3<191::AID-DEV1>3.0.CO;2-M](http://dx.doi.org/10.1002/(SICI)1098-2302(199604)29:3<191::AID-DEV1>3.0.CO;2-M)
- Gunnar, M. R., & Donzella, B. (2002). Social regulation of the cortisol levels in early human development. *Psychoneuroendocrinology*, *27*, 199–220. [http://dx.doi.org/10.1016/S0306-4530\(01\)00045-2](http://dx.doi.org/10.1016/S0306-4530(01)00045-2)
- Heim, C., Ehler, U., & Hellhammer, D. H. (2000). The potential role of hypocortisolism in the pathophysiology of stress-related bodily disorders. *Psychoneurology*, *25*, 1–35. [http://dx.doi.org/10.1016/S0306-4530\(99\)00035-9](http://dx.doi.org/10.1016/S0306-4530(99)00035-9)
- Hoffman, K. T., Marvin, R. S., Cooper, G., & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The circle of security intervention. *Journal of Consulting and Clinical Psychology*, *74*, 1017–1026. <http://dx.doi.org/10.1037/0022-006X.74.6.1017>
- Hollin, G., & Larkin, M. (2011). The language and policy of care and parenting: Understanding the uncertainty about key players' roles in foster care provision. *Children and Youth Services Review*, *33*, 2198–2206. <http://dx.doi.org/10.1016/j.childyouth.2011.07.004>
- Hulley, S. B., Cummings, S. R., Browner, W. S., Grady, D. G., & Newman, T. B. (2007). *Designing clinical research*. Philadelphia, PA: Lipincott, Williams & Wilkins.
- IBM. (2013). *SPSS Statistics for Windows* (Version 22.0) [Computer software]. Armonk, NY: Author.
- Jakobsen, R., & Solholm, R. (2009). *Evaluering av PMTO-kurs for forsterforeldre—En effektstudie*. Bergen, The Netherlands: Ubifob Helse.
- Jonkman, C. J. (2015). *Young children in treatment foster care: Intervening in problematic behavior, disturbed attachment, trauma, and atypical neurobiological functioning* (Doctoral dissertation). Enschede, the Netherlands: Ipskamp Drukkers.
- Jonkman, C. S., Verlinden, E., Bolle, E. A., Boer, F., & Lindauer, R. J. L. (2013). Traumatic stress symptomatology after child maltreatment and single traumatic events: Different profiles. *Journal of Traumatic Stress*, *26*, 225–232. <http://dx.doi.org/10.1002/jts.21792>
- Juffer, F., Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2005). The importance of parenting in the development of disorganised attachment. *Journal of Child Psychology and Psychiatry*, *46*, 263–274. <http://dx.doi.org/10.1111/j.1469-7610.2004.00353.x>
- Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology*, *36*, 567–589. <http://dx.doi.org/10.1007/s10802-007-9201-9>
- Kernan, W. N., Viscoli, C. M., Makuch, R. W., Brass, L. M., & Horwitz, R. I. (1999). Stratified randomization for clinical trials. *Journal of Clinical Epidemiology*, *52*, 19–26. [http://dx.doi.org/10.1016/S0895-4356\(98\)00138-3](http://dx.doi.org/10.1016/S0895-4356(98)00138-3)
- Kiess, W., Meidert, A., Dressendörfer, R. A., Schriever, K., Kessler, U., König, A., . . . Strasburger, C. J. (1995). Salivary cortisol levels through-



- out childhood and adolescence: Relation with age, pubertal stage, and weight. *Pediatric Research*, 37, 502–506. <http://dx.doi.org/10.1203/00006450-199504000-00020>
- Larson, M. C., White, B. P., Cochran, A., Donzella, B., & Gunnar, M. (1998). Dampening of the cortisol response to handling at 3 months in human infants and its relation to sleep, circadian cortisol activity, and behavioral distress. *Developmental Psychobiology*, 33, 327–337. [http://dx.doi.org/10.1002/\(SICI\)1098-2302\(199812\)33:4<327::AID-DEV4>3.0.CO;2-S](http://dx.doi.org/10.1002/(SICI)1098-2302(199812)33:4<327::AID-DEV4>3.0.CO;2-S)
- Leathers, S. J. (2003). Parental visiting, conflicting allegiances, and emotional and behavioral problems among foster children. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 52, 53–63. <http://dx.doi.org/10.1111/j.1741-3729.2003.00053.x>
- Leslie, L. K., Gordon, J. N., Ganger, W., & Gist, K. (2002). Developmental delay in young children in child welfare by initial placement type. *Infant Mental Health Journal*, 23, 496–516. <http://dx.doi.org/10.1002/imhj.10030>
- Leslie, L. K., Hurlburt, M. S., Landsverk, J., Rolls, J. A., Wood, P. A., & Kelleher, K. J. (2003). Comprehensive assessments for children entering foster care: A national perspective. *Pediatrics*, 112, 134–142. <http://dx.doi.org/10.1542/peds.112.1.134>
- Lewis, M., & Ramsay, D. S. (1995). Developmental change in infants' responses to stress. *Child Development*, 66, 657–670. <http://dx.doi.org/10.2307/1131941>
- Malik, N. M., Lederman, C. S., Crowson, N. M., & Osofsky, J. D. (2002). Evaluating maltreated infants, toddlers, and preschoolers in dependency court. *Infant Mental Health Journal*, 23, 576–592. <http://dx.doi.org/10.1002/imhj.10034>
- McCarthy, G., Janeway, J., & Geddes, A. (2003). The impact of emotional and behavioural problems on the lives of children growing up in the care system. *Adoption & Fostering*, 27, 14–19. <http://dx.doi.org/10.1177/030857590302700305>
- McNeil, C. B., Herschell, A. D., & Gurwitch, R. H. (2005). Training foster parents in parent–child interaction therapy. *Education & Treatment of Children*, 28, 182–196.
- MLwin. (2011). *Centre for Multilevel Modelling version* (Version 2.23) [Computer software]. Retrieved from <http://www.bristol.ac.uk/cmm/software/mlwin>
- Nelson, E. M., & Spieker, S. J. (2013). Intervention effects on morning and stimulated cortisol responses among toddlers in foster care. *Infant Mental Health Journal*, 34, 211–221. <http://dx.doi.org/10.1002/imhj.21382>
- O'Neill, M., Rislely-Curtiss, C., Ayon, C., & Rankin Williams, L. (2012). Placement stability in the context of child development. *Children and Youth Services Review*, 34, 1251–1258. <http://dx.doi.org/10.1016/j.childyouth.2012.02.018>
- Pears, K. C., Bruce, J., Fisher, P. A., & Kim, H. K. (2010). Indiscriminate friendliness in maltreated foster children. *Child Maltreatment*, 15, 64–75. <http://dx.doi.org/10.1177/1077559509337891>
- Pears, K. C., Fisher, P. A., Bruce, J., Kim, H. K., & Yoerger, K. (2010). Early elementary school adjustment of maltreated children in foster care: The roles of inhibitory control and caregiver involvement. *Child Development*, 81, 1550–1564. <http://dx.doi.org/10.1111/j.1467-8624.2010.01491.x>
- Price, D. A., Close, G. C., & Fielding, B. A. (1983). Age of appearance of circadian rhythm in salivary cortisol values in infancy. *Archives of Disease in Childhood*, 58, 454–456. <http://dx.doi.org/10.1136/adc.58.6.454>
- Rork, K. E., & McNeil, C. B. (2011). Evaluation of foster parent training programs: A critical review. *Child & Family Behavior Therapy*, 33, 139–170. <http://dx.doi.org/10.1080/07317107.2011.571142>
- Samuels, G. M., & Pryce, J. M. (2008). “What doesn't kill you makes you stronger”: Survivalist self-reliance as resilience and risk among young adults aging out of foster care. *Children and Youth Services Review*, 30, 1198–1210. <http://dx.doi.org/10.1016/j.childyouth.2008.03.005>
- Santiago, L. B., Jorge, S. M., & Moreira, A. C. (1996). Longitudinal evaluation of the development of salivary cortisol circadian rhythm in infancy. *Clinical endocrinology*, 44, 157–161. <http://dx.doi.org/10.1046/j.1365-2265.1996.645466.x>
- Schechter, D. S., Myers, M. M., Brunelli, S. A., Coates, S. W., Zeanah, C. H., Jr., Davies, M., . . . Liebowitz, M. R. (2006). Traumatized mothers can change their minds about their toddlers: Understanding how a novel use of videofeedback supports positive change of maternal attributions. *Infant Mental Health Journal*, 27, 429–447. <http://dx.doi.org/10.1002/imhj.20101>
- Spangler, G., & Grossmann, K. E. (1993). Biobehavioral organization in securely and insecurely attached infants. *Child Development*, 64, 1439–1450. <http://dx.doi.org/10.2307/1131544>
- Srivastava, B., Sharma, B. K., Uttam, S. B., & Neha, S. (2010). Ultra performance liquid chromatography (UPCL): A chromatography technique. *International Journal of Pharmaceutical Quality Assurance*, 2, 19–25.
- Staal, I. I. E., van den Brink, H. A. G., Hermans, J. M. A., Schrijvers, A. J. P., & van Stel, H. F. (2011). Assessment of parenting and developmental problems in toddlers: Development and feasibility of a structured interview. *Child: Care, Health and Development*, 37, 503–511. <http://dx.doi.org/10.1111/j.1365-2214.2011.01228.x>
- Stolk, M. N., Mesman, J., Van Zeijl, J., Alink, L. R. A., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., . . . Koot, H. M. (2008). Early parenting intervention aimed at maternal sensitivity and discipline: A process evaluation. *Journal of Community Psychology*, 36, 780–797. <http://dx.doi.org/10.1002/jcop.20280>
- Strijker, P., & Knorth, E. J. (2007). Family fostering behind the dykes: Practise and research. In H. Grietens, E. J. Knorth, P. Durning, & J. Dumas (Eds.), *Promoting competence in children and families* (pp. 125–148). Leuven, the Netherlands: Leuven University Press.
- van Anel, H. W. H., Grietens, H., & Knorth, E. J. (2012). Foster carer–foster child intervention (FFI): An intervention designed to reduce stress in young children placed in a foster family. *Adoption & Fostering*, 36, 19–28. <http://dx.doi.org/10.1177/030857591203600203>
- van Anel, H. W. H., Jansen, L. M. C., Grietens, H., Knorth, E. J., & van der Gaag, R. J. (2014). Salivary cortisol: A possible biomarker in evaluating stress and effects of interventions in young foster children? *European Child & Adolescent Psychiatry*, 23, 3–12. <http://dx.doi.org/10.1007/s00787-013-0439-1>
- Van Anel, H. W. H., Post, W. J., Jansen, L. M. C., Kamphuis, J. S., Van der Gaag, R. J., Knorth, E. J., & Grietens, H. (2015). The developing relationship between recently placed preschool-age foster children and foster carers: Do demographic factors, placement characteristics and biological stress markers matter? *Children and Youth Services Review*, 58, 219–226.
- Van Anel, H. W. H., Strijker, J., Grietens, H., Van der Gaag, R. J., & Knorth, E. J. (2014). Searching for effective interventions for foster children under stress: A meta-analysis. *Child & Family Social Work*, 19, 149–155. <http://dx.doi.org/10.1111/j.1365-2206.2012.00885.x>
- Van Holen, F., Vanderfaillie, J., & Omer, H. (2015). Adaptation and evaluation of a nonviolent resistance intervention for foster parents: A progress report. *Journal of Marital and Family Therapy*, 33, 139–170.
- Vanyukov, M. M., Moss, H. B., Plail, J. A., Blackson, T., Mezzich, A. C., & Tarter, R. E. (1993). Antisocial symptoms in preadolescent boys and in their parents: Associations with cortisol. *Journal of Abnormal Psychology*, 46, 9–17. [http://dx.doi.org/10.1016/0165-1781\(93\)90003-Y](http://dx.doi.org/10.1016/0165-1781(93)90003-Y)
- Van Zeijl, J., Mesman, J., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Juffer, F., Stolk, M. N., . . . Alink, L. R. A.

- (2006). Attachment-based intervention for enhancing sensitive discipline in mothers of 1-to 3-year-old children at risk for externalizing behavior problems: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*, 994–1005. <http://dx.doi.org/10.1037/0022-006X.74.6.994>
- Vig, S., Chinitz, S., & Shulman, L. (2005). Young children in foster care: Multiple vulnerabilities and complex service needs. *Infants and Young Children, 18*, 147–160. <http://dx.doi.org/10.1097/00001163-200504000-00007>
- Webster-Stratton, C., & Reid, M. J. (2003). Treating conduct problems and strengthening social emotional competence in young children: The Dina Dinosaur Treatment Program. *Journal of Emotional and Behavioral Disorders, 11*, 130–143. <http://dx.doi.org/10.1177/10634266030110030101>
- Zeanah, C. H., Shaffer, C., & Dozier, M. (2011). Foster care for young children: Why it must be developmentally informed. *Journal of the American Academy of Child & Adolescent Psychiatry, 50*, 1199–1201. <http://dx.doi.org/10.1016/j.jaac.2011.08.001>

### **Members of Underrepresented Groups: Reviewers for Journal Manuscripts Wanted**

If you are interested in reviewing manuscripts for APA journals, the APA Publications and Communications Board would like to invite your participation. Manuscript reviewers are vital to the publications process. As a reviewer, you would gain valuable experience in publishing. The P&C Board is particularly interested in encouraging members of underrepresented groups to participate more in this process.

If you are interested in reviewing manuscripts, please write APA Journals at [Reviewers@apa.org](mailto:Reviewers@apa.org). Please note the following important points:

- To be selected as a reviewer, you must have published articles in peer-reviewed journals. The experience of publishing provides a reviewer with the basis for preparing a thorough, objective review.
- To be selected, it is critical to be a regular reader of the five to six empirical journals that are most central to the area or journal for which you would like to review. Current knowledge of recently published research provides a reviewer with the knowledge base to evaluate a new submission within the context of existing research.
- To select the appropriate reviewers for each manuscript, the editor needs detailed information. Please include with your letter your vita. In the letter, please identify which APA journal(s) you are interested in, and describe your area of expertise. Be as specific as possible. For example, “social psychology” is not sufficient—you would need to specify “social cognition” or “attitude change” as well.
- Reviewing a manuscript takes time (1–4 hours per manuscript reviewed). If you are selected to review a manuscript, be prepared to invest the necessary time to evaluate the manuscript thoroughly.

APA now has an online video course that provides guidance in reviewing manuscripts. To learn more about the course and to access the video, visit <http://www.apa.org/pubs/authors/review-manuscript-ce-video.aspx>.