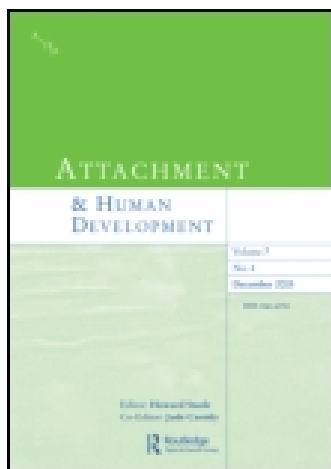


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### Enhancing positive parent-child interactions and family functioning in a poverty sample: a randomized control trial

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## Enhancing positive parent–child interactions and family functioning in a poverty sample: a randomized control trial

Mariana Negrão<sup>a,b</sup>, Mariana Pereira<sup>b</sup>, Isabel Soares<sup>b\*</sup> and Judi Mesman<sup>c</sup>

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This study tested the attachment-based intervention program Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD) in a randomized controlled trial with poor families of toddlers screened for professional's concerns about the child's caregiving environment. The VIPP-SD is an evidence-based intervention, but has not yet been tested in the context of poverty. The sample included 43 families with 1- to 4-year-old children: mean age at the pretest was 29 months and 51% were boys. At the pretest and posttest, mother–child interactions were observed at home, and mothers reported on family functioning. The VIPP-SD proved to be effective in enhancing positive parent–child interactions and positive family relations in a severely deprived context. Results are discussed in terms of implications for support services provided to such poor families in order to reduce intergenerational risk transmission.

**Keywords:** attachment; intervention; parenting; poverty; parent–child interaction; family functioning

Deprived high-risk circumstances often hamper parents' ability to provide optimal parenting (Evans, 2004). An important aspect of parenting is sensitivity which refers to a parent's ability to perceive child signals, interpret them correctly, and respond promptly and appropriately (Ainsworth, Blehar, Waters, & Wall, 1978). Sensitivity has been linked to several positive child outcomes (DeWolff & van IJzendoorn, 1997; Kochanska, 2002; Tamis-LeMonda, Bornstein, & Baumwell, 2001), and there is substantial evidence that parenting intervention programs can be effective in enhancing parental sensitivity (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003 for a meta-analysis). Specifically, the Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD; Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2008) has been found effective in improving parental sensitivity and child development in a variety of samples (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2014). However, although some of the samples were high-risk, the effectiveness of the VIPP-SD has not yet been examined in poverty samples. In the current study we examined the effects of the VIPP-SD on maternal and child behaviors in a sample of severely disadvantaged families using a randomized control design.

Parental sensitivity, a parent's ability to notice child signals, correctly interpret those signals and respond to these promptly and appropriately (Ainsworth et al., 1978), is one of the most well-documented determinants of attachment security (Bakermans-Kranenburg

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et al., 2003; DeWolff & van IJzendoorn 1997). Security of attachment in turn positively impacts children's current and future individual socio-emotional functioning (Sroufe, Egeland, Carlson, & Collins, 2005), whereas insecure and particularly disorganized attachment patterns are related to deleterious effects on development (Belsky, 2005; Sroufe et al., 2005; Steele & Steele, 2005). In effect, the importance of sensitivity goes beyond attachment, as it relates to other positive developmental outcomes such as self-regulation (e.g., Leerkes, Blankson, & O'Brien, 2009), social functioning (e.g., Kochanska, 2002), and cognitive competence (e.g., Tamis-LeMonda et al., 2001). In the last decades, attachment research focused on creating and examining the effectiveness of early intervention programs (e.g., Berlin, Ziv, Amaya-Jackson, & Greenberg, 2005). Meta-analytic evidence shows that programs aiming to enhance early attachments are most effective when they are focused on the behavioral level of parenting, are relatively short in duration, and employ video-feedback techniques (Bakermans-Kranenburg et al., 2003). The video-feedback facilitates parental observation of child behavior as well as their own behavior, and the recognition of (non)optimal interactions. One of the behaviorally focused attachment-based intervention programs using video-feedback is the Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD; Juffer et al., 2008), which has been shown effective in several randomized controlled trials. Previous studies have established it as a valid brief intervention approach, capable of influencing mother-child interaction in a multitude of countries and samples (Juffer et al., 2014). Although some of the samples were high-risk in terms of parental or child problems, no study has yet reported on the effectiveness of the VIPP-SD in poverty samples.

Parenting toddlers can be challenging for all parents but, for those who live in deprived high-risk contexts, this is even more demanding because factors such as economic adversity, impaired social support, increased life stress, and fragile relationships threaten the quality of parenting (Evans, 2004). In fact, dyadic interaction among high-risk, impoverished families is characterized by maternal heightened hostility, negative emotionality and coercion, i.e., aversive behavioral management techniques that reinforce negative behavior, as well as lower levels of involvement of the children towards mothers (e.g., Little & Carter, 2005; Moss, Rousseau, Parent, St-Laurent, & Saintonge, 1998; Stack et al., 2012). According to the Family Stress Model, economic pressures associated with low family income give rise to parental problems that in turn negatively influence marital relations and parenting, ultimately leading to negative child outcomes (Conger & Donnellan, 2007). In addition, there is evidence that, when they become adults, children of less competent parents are more likely to show inadequate parenting themselves, thus perpetuating the intergenerational high-risk pathway (e.g., Conger, Belsky, & Capaldi, 2009).

Children growing up in deprived contexts are also exposed to multiple stressors that are more pervasive, accumulate over time, and relate to low parenting quality and child maltreatment than those growing up in more privileged contexts (Li, Godinet, & Arnsberger, 2011). Family characteristics that are common in families experiencing poverty include young maternal age, low education, substance abuse, single parenthood, and domestic violence, which have all been consistently shown to be significant risk factors for child abuse and neglect and problematic child development (e.g., Li et al., 2011; Sidebotham & Heron, 2006). Given that problematic marital relations are more common in high-risk families, this may serve as an additional risk factor threatening parenting quality in these families (Evans, 2004), as the importance of positive marital relation and spousal support in fostering optimal quality of parent-child interactions has been confirmed in several studies (Erel & Burman, 1995). It has also been suggested that it is not the type but the number of risk factors that is particularly predictive of child

adjustment problems (Appleyard, Egeland, Van Dulmen, & Sroufe, 2005; Rutter, 1979; Sameroff, 2000), and families under considerable socioeconomic strains are characterized by multiple stressors.

Considering the cumulative pathways of risk among poor families and the consequent danger for child development, early intervention in these contexts is crucial. However these families are hard to reach and therefore not often studied in empirical research. In addition, high attrition rates are a consistent concern of parent intervention research in high-risk samples (Friars & Mellor, 2009). Thus, although poor families are generally in high need of parenting support, they often do not receive it, which constitutes a major obstacle to the effective use of resources in mental health promotion.

### **Current study**

Low-income families are usually assisted in terms of material conditions needed for every-day life (e.g., social housing, subsidy). However, this assistance is often ineffective in terms of raising family households above the poverty line, and generally ignores intervening on social-emotional factors also entangled with these families' needs (e.g., assistance for parenting). In Portugal, social service professionals are challenged to assist impoverished families without having the tools to address their underlying problems. Portugal as yet does not have an established system of using empirically validated programs to enhance parenting competence and child development. The current study tested the effectiveness of the VIPP-SD in a sample of poor Portuguese mothers and their 1- to 4-year-old children using a randomized control design. We aim to test the VIPP-SD's ability to strengthen the parent-child relation, which involves both the enhancement of parenting behavior (directly targeted in the intervention) and positive child behaviors in response to parenting. This approach is consistent with the emotional availability framework that emphasizes dyadic interaction, and states that neither adult nor child can be considered in isolation (Biringen, 2008). Thus, we hypothesize that VIPP-SD will increase positive maternal and child behavior and enhance family functioning.

### **Method**

#### **Participants**

Participants were recruited through contacts with health and social work agencies, working mostly with low income families, in the North of Portugal. Staff members were asked to fill in a Portuguese short version of the Family Risks and Strengths Profile (Rodríguez, Camacho, Rodrigo, Martín, & Maiquez, 2006; PRF, Pereira, Negrão, Soares, Almeida, & Machado, 2009) for families with 1- to 4-year-old children in the case of concerns about the quality of the child's caregiving environment. The PRF includes 62 items about family exposure to risk factors in 7 risk clusters (economic conditions, housing conditions, mother and father risk status, family relations, parenting, pregnancy, child problems) and 1 protective cluster (social support). Families were eligible for this study if at least one out of the 23 risk items related to *quality of family relations* or *quality of parenting* was present (e.g., negligence regarding child's emotional needs; lack of limit setting; coercive discipline practices; marital violence).

To ensure a homogeneous sample, only Portuguese children living with their biological mother as primary caregiver were eligible for the study. Ethnic minorities and mothers

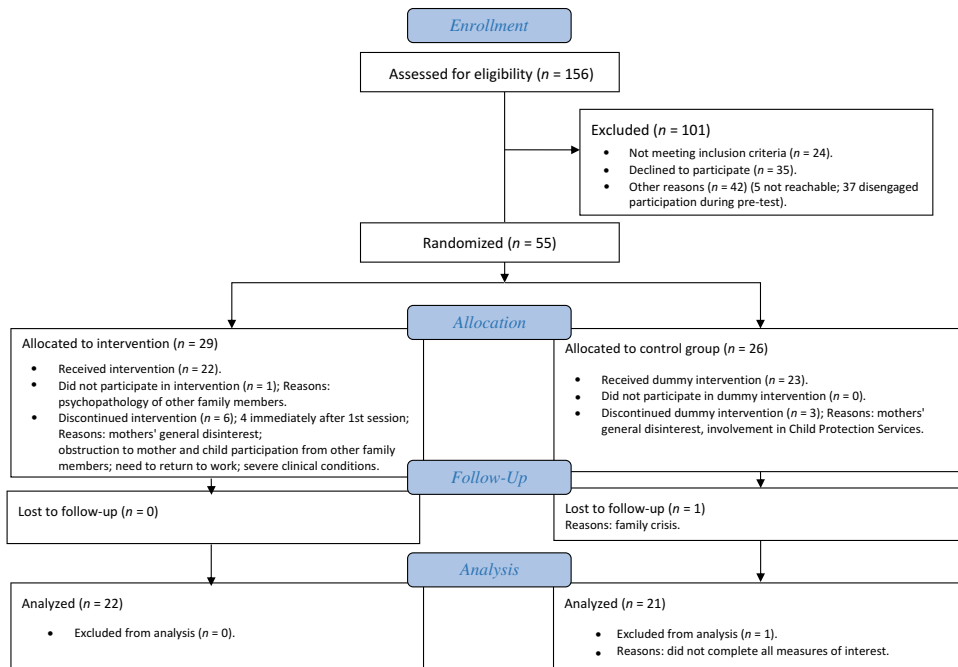


Figure 1. Consort flow for sample (dis)engagement in the study.

or children with severe medical conditions were excluded, as well as families receiving formal parenting training. Figure 1 details number and criteria for family (dis)engagement in the study.

For the current study, only those families from whom complete data were available on all variables of interest were included, which resulted in a sample of 43 dyads. In this sample, 51.2% of children were boys and the majority of the children had siblings (81.4%). Mean age of the children at the pretest was 29.07 months ( $SD = 10.49$ ; range = 12–48). Mean age of the mothers at the pretest was 29.98 years ( $SD = 6.19$ ; range = 18–46). Socio-demographics also confirm the highly deprived and high risk nature of this sample: family educational level was low (72.1% of mothers and 86.1% of fathers did not complete Portuguese mandatory educational level, i.e., 9 school years), a high percentage of parents were unemployed (72.1% for mothers and 50% for fathers), most families were benefiting from welfare assistance (79.1% of families). There were no significant differences between all the targeted families who discontinued from the study ( $n = 88$ ) and the ones that remained ( $n = 44$ ) regarding child age and gender, maternal age and educational level, presence of siblings, family status and welfare assistance, nor total number of risk indicators' and total number of risk indicators' in the two eligibility clusters (all  $p$ -values  $>.21$ ). This study was approved by the Portuguese Data Protection Authority.

### Procedure

Participants were assessed at baseline in two pretest sessions that occurred at their own homes, because of difficulties in families' mobility and in order to increase retention in the study. The first session started with the clarification of research procedures and the signing

of informed consent, and mothers were also asked to fill in a set of questionnaires. The second session, within two weeks, consisted in videotaping several tasks, completed by both mother and child (1 hour). After pretest conclusion, researchers randomly assigned families to either intervention group ( $n = 22$ ) or control group ( $n = 21$ ), based on a computer-generated list, stratified by child's age group, gender, and temperament (considering Portuguese clinical cutoff scores of difficult temperament for the Infant Characteristics Questionnaire, ICQ; Bates, Freeland, & Lounsbury, 1979; Portuguese version: Carneiro et al., 2013; Veríssimo & Dias, 2012). Families in the intervention group received six home visits, and, parallel in timing, families in the control group received six telephone calls. Approximately 1 month after the last home visit/telephone call, families from both groups completed the posttest which included the same procedures and assessments as the pretest. Mean age of the children at the posttest was 35.27 months ( $SD = 10.70$  range = 18–54).

### ***Intervention program***

The mothers in the experimental group received the Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (Juffer et al., 2008). The VIPP-SD is a short term intervention program that relies on video-feedback technique to enhance parental sensitivity and positive discipline strategies. The intervention was implemented through standardized protocols of six home visits. For all visits, the protocol defines themes, tips, and exercises for mother and child; however, the initial mother–child interaction profile (derived from the videotaping captured at pretest) enables the tailoring of intervention to each specific dyad, within the boundaries of the protocol.

The VIPP-SD working method is divided into three steps: (1) Sessions 1 and 2 main goals are building a relationship with the mother, focusing on child behavior, and emphasizing positive interactions in the video feedback; (2) Sessions 3 and 4 actively work on improving parenting behaviors by showing the mother when her parenting strategies work and to what other situations she could apply these strategies; and (3) Sessions 5 and 6 (booster) aim to review feedback and information from the previous sessions in order to strengthen intervention effectiveness. Within each session, a first moment of mother and child interaction video-taping took place, followed by feedback of videos taped in the previous session. This feedback was prepared in advance by the intervener who selected specific moments of the film to comment on each of the sessions' main issues. Interveners reinforced positive mother–child interactions and effective parenting strategies in a pleasant atmosphere, and explicitly involved mothers as experts on their own child, inviting them to comment on the child's behavior.

The first four intervention sessions were scheduled at two-week intervals and examined the following specific contents: (1) the difference between attachment and exploration behavior, combined with distraction and induction as disciplinary strategies; (2) “speaking for the child” as a method of promoting mother's perceptions of child signals, combined with positive reinforcement as a disciplinary strategy; (3) “chain of sensitivity” as a way of describing the sensitivity cycle: child signal – mother recognition, interpretation, response – child reaction, combined with sensitive time-out as a disciplinary strategy; (4) importance of sharing emotions, combined with empathy and understanding of the child as disciplinary strategies. The last two (booster) sessions were scheduled 1 month apart and reviewed the most important tips for each family. Fathers were invited to participate in these last sessions, in order to generalize to other family members the recently acquired skills, however only two of them agreed to participate. At the end of

intervention, all mothers received a booklet resuming the main aspects. The VIPP-SD intervention program was delivered by a group of four interveners, all female, extensively trained in the intervention protocol and with a Master's degree in Psychology.

### ***Control condition***

Parallel to the intervention group, the mothers in the control group received six telephone calls at the same time intervals as the VIPP-SD sessions occurred. Each phone call revolved around a standard topic regarding child development (language, play, sleep, feeding, relations, overview of all previous topics). These phone calls lasted about 10 minutes and were always conducted by the same researcher for alliance purposes. Within each topic questions were posed, encouraging mothers to talk about the development of their child, but no tips or advice were provided from the researcher. Whenever mothers asked for specific advice they were encouraged to consult their regular practitioners and/or their health service agency. Respecting ethical principles, when mothers in the control condition ended their participation in the study, they were invited to participate in a parenting intervention program provided by interns of the Master in Psychology of the Portuguese Catholic University Clinic, supervised by the resident psychologists there.

### ***Measures***

#### ***Mother-child interaction***

Maternal parenting behavior and child behavior towards mother was assessed at home, in a 10-min unstructured free play episode with toys provided by the researchers, and in a 5-min problem-solving task in which the mother was instructed to assist her child as she would normally do. Interactions were coded with the 4th Edition of the Emotional Availability Scales (EA scales; Biringen, 2008). The EA scales contain four parental scales (Sensitivity, Structuring, Nonintrusiveness and Nonhostility) and two child scales (Child Responsiveness and Child Involvement), each consisting of seven subscales, two with score ranges of 1–7 and five with score ranges of 1–3 (total potential score range for each scale 7–29, which then translates to a 7-point scale according to a standardized table). *Sensitivity* refers to the parent's ability to be emotionally connected with the child, as shown by positive affect, accurate perceptions, and appropriate responsiveness, as well as conflict negotiation. *Structuring* refers to the parent's attempts to appropriately and effectively structure and scaffold the child's environment and play, as well as setting appropriate limits. *Nonintrusiveness* refers the parent's ability to follow child's lead and to wait for optimal breaks to enter interaction. *Nonhostility* measures the lack of covert and overt hostility, indicating the parent's ability to interact without impatience, threatening, or frightening behaviors. *Child Responsiveness* assesses the degree to which the child responds to parental bids and expressions, by showing positive affect and organized behaviors. *Child involvement* indicates the extent to which the child invites and engages the parent in to play, without evidence of negative or overinvolving behaviors.

A team of raters, unaware of experimental condition and other data concerning the participants, independently coded the mother and child scales. Pretest and posttest were also coded independently. All coders obtained reliability with an expert EA scales coder. The average intraclass correlation (single rater, absolute agreement) for intercoder reliability for all separate pairs of three coders on the mother variables was .87 (range = .72–.95;



$n = 7$ ) and for all separate pairs of three coders on the child variables was .89 (range = .81–.99;  $n = 7$ ). For this study each scale was averaged across the two tasks.

### *Family relations*

Quality of family relations was measured using the Relation dimension of the Family Environment Scale (FES; Moos & Moos, 1986; Portuguese version: Matos & Fontaine, 1992) filled in by mothers. This dimension includes three subscales: cohesion, expressiveness, and conflict. *Cohesion* evaluates the support and involvement that family members perceive from each other. *Expressiveness* measures the extent to which family members are encouraged to express their feelings. *Conflict* refers to the degree that open expression of anger and disagreement characterizes family dynamics. Each of the three scales encompasses nine items that are rated in a 6-point Likert scale. The conflict subscale was recoded so that higher ratings indicate better family functioning. Cronbach's alphas were as follows: cohesion .84 for pretest and .83 for posttest; expressiveness .61 for pretest and .73 for posttest; conflict .67 for pretest and .53 for posttest.

### *Data analysis*

The data was analyzed in accordance with procedures used in other parenting intervention studies testing the effectiveness of the VIPP-SD program (e.g., Van Zeijl et al., 2006.) The research question regarding differences in the quality of mother–child interaction and family functioning in response to treatment condition was tested by conducting a repeated-measures analysis of variance with experimental condition as a between-subjects factor and time as a within-subject factor.

## **Results**

### *Preliminary analyses*

We found no outliers in any of the pretest and posttest variables of interest (i.e., EA scales and FES subscales). Random assignment to the control and intervention groups was checked by conducting *t*-tests and chi-square tests for demographic and pretest variables of interest. There were no differences between the control and intervention groups regarding maternal age or education, child age or gender, and family structure ( $ps = .07$  to .66), nor for any of the pretest variables ( $ps = .19$  to .81).

Correlations between the pretest parenting variables were computed and revealed high intercorrelations for the four EA parent scales ( $rs = .52$  to .77), the two EA child scales ( $r = .92$ ) and the three FES scales ( $rs = .72$  to .77), as presented in Table 1. Therefore, we conducted Principal Component Analyses for the EA scales at pretest that revealed two clear components: parenting (loadings .78 to .88), and child behavior (loadings .94 and .97), explaining 83% of the variance. The same analysis was conducted for the pretest FES, revealing a single underlying component (loadings .90 to .92), explaining 83% of the variance. Based on these analyses we created three new variables: Positive parenting (averaging the four EA parenting scales), Positive child behavior (averaging the two EA child scales), and Family relational functioning (summing the three FES scales). Descriptive statistics for the separate scales and composite variables are presented in Table 2.

Table 1. Correlations among all variables.

Variable	1	2	3	4	5	6	7	8	9
<b>EAS</b>									
1. Sensitivity	–	.72**	.78**	.69**	.47**	.42**	–.07	–.09	–.08
2. Structuring		–	.62**	.56**	.41**	.36**	–.07	–.15	–.19
3. Nonintrusiveness			–	.57**	.47**	.38**	–.23	–.21	–.24
4. Nonhostility				–	.19	.09	–.23	–.19	–.26
5. Child Responsiveness					–	.92**	–.01	–.14	–.08
6. Child Involvement						–	.05	–.10	–.01
<b>FES</b>									
7. Cohesion							–	.77**	.75**
8. Expressiveness								–	.72**
9. Conflict									–

### Intervention effectiveness

Of the demographic variables only maternal education was positively related to positive parenting, at pretest,  $r(44) = .32$   $p$  .05, and posttest  $r(44) = .33$   $p$  .05. Consequently, maternal education was used as covariate in the analyses to establish intervention effectiveness. We conducted a Repeated Measures MANCOVA with experimental condition as a between-subjects factor and time as a within-subject factor (with maternal education as covariate). The Condition  $\times$  Time interaction was significant,  $F(3, 38) = 5.68$ ,  $p < .01$ , partial  $\eta^2 = .31$ . Further we conducted a power analysis for Condition  $\times$  Time interaction with GPower that returned  $\lambda = 19.32$ , a critical F-value of  $F(1) = 4.08$ , and a statistical power of  $1 - \beta = .99$ . Univariate tests showed significant effects on positive parenting, positive child behavior, and family relational functioning. On all three variables, dyads in the intervention group showed better functioning from pretest to posttest, whereas dyads in the control group showed no improvement, or even signs of worsening. Having established overall significant intervention effects on the composite variables, we conducted a series of post-hoc tests for each of the separate scales (see Table 2). For the EA scales, the Condition  $\times$  Time interactions was significant for maternal nonintrusiveness as well as child responsiveness and involvement. For the FES, the Condition  $\times$  Time interaction was significant only for the cohesion subscale.

### Discussion

Our study provides evidence for the effectiveness of the attachment-based VIPP-SD parenting intervention in enhancing positive parent–child interactions, and positive family relations in a sample of poor families. The VIPP-SD program has previously been found effective in families with at-risk children or at-risk parents (Juffer et al., 2014). The present study adds to this body of literature by showing that the VIPP-SD is also effective in socioeconomically disfavored families who struggle with multiple stress factors.

The VIPP-SD proved to be effective in enhancing the overall quality of the interaction style between mothers and their children. Significant improvement was identified in maternal nonintrusiveness, child responsiveness, and involvement, but effects on maternal sensitivity, structuring, and nonhostility failed to reach significance. However they all evolved in the expected direction, with higher posttest scores than pretest scores in the experimental group. Simultaneously, for the control group changes in sensitivity and structuring were in the opposite direction, i.e., decreased from pretest to posttest,

Table 2. Descriptives and group differences for all variables.

	Control group <i>n</i> = 21 <i>M</i> ( <i>SD</i> )		Intervention group <i>n</i> = 22 <i>M</i> ( <i>SD</i> )		<i>F</i>	partial $\eta^2$
	Pre	Post	Pre	Post		
EAS Positive Parenting	4.77 (.96)	4.60 (.92)	4.41 (.99)	4.85 (.98)	5.29*	.14
Sensitivity	4.60 (.96)	4.45 (1.02)	4.42 (1.20)	4.74 (1.19)	2.40	.06
Structuring	4.77 (1.06)	4.65 (1.02)	4.30 (1.25)	4.63 (1.30)	1.72	.04
Nonintrusiveness	4.50 (1.33)	4.02 (.98)	3.92 (1.07)	4.59 (1.10)	14.97**	.28
Nonhostility	5.20 (1.02)	5.25 (1.08)	5.01 (1.19)	5.44 (1.89)	1.26	.03
EAS Positive Child Behavior	4.51 (1.33)	4.41 (1.44)	4.22 (1.39)	5.02 (1.00)	7.85*	.16
Responsiveness	4.65 (1.27)	4.55 (1.44)	4.33 (1.40)	5.19 (1.03)	8.38*	.17
Involvement	4.36 (1.44)	4.27 (1.47)	4.11 (1.43)	4.85 (1.03)	5.77*	.12
FES Family Relational Functioning	41.11 (6.65)	38.75 (7.85)	39.65 (6.57)	41.08 (5.05)	5.57*	.12
Cohesion	42.71 (8.44)	38.05(10.11)	40.32 (8.44)	43.72 (7.60)	10.46*	.20
Expressiveness	41.24 (5.58)	40.48 (8.10)	39.82 (5.56)	39.64 (6.38)	0.09	.00
Conflict	39.38 (7.32)	37.71 (7.90)	38.82 (8.12)	39.86 (4.10)	2.01	.05

Note: \* $p < .05$ ; \*\* $p < .001$ .

suggesting that mother and child interactive qualities may actually decline in disadvantaged families as time goes by if no support is provided. Congruently, this same pattern was found for the self-reported family functioning, also suggesting a decrease of families' capacity to communicate, avoid conflict, and be cohesive, in the time course and in the absence of support. This is likely to be due to the chronic and corrosive impact of multiple stressors and risks present in these families' daily lives in conjunction with the growing demands of parenting a developing child (Bornstein, 2002; Conger & Donnellan, 2007). None of the families in our study were receiving assistance in terms of social-emotional stressors for which they clearly needed support. Thus, in a context of no support and assistance (other than material) it seems that the quality of parenting deteriorates in high-risk families, what strongly emphasizes the need for intervention efforts to stop the downward spiral of negative parent-child interactions.

The VIPP-SD resulted in a significant decrease in intrusiveness. This means that mothers learned to be less over-stimulating, to interfere less with the child's initiatives, and to encourage age-appropriate autonomy. This significant improvement reflects a distinctive aspect of the VIPP-SD: from the first session onwards the distinction between attachment and exploration behaviors and the correspondent adequate parent responses are emphasized. In addition, the third session includes an activity specifically designed to practice nonintrusive interactions, and to discuss its merits: mothers are asked to follow her child by responding only when the child takes the initiative to invite her into play. Also, intrusive behaviors are relatively concrete in that they refer to behaviors that interfere with the child's ongoing activities. It may be that such behaviors are easier to identify in a video and therefore more likely to be discussed in the intervention sessions than appropriate responsiveness. In contrast, the notion of sensitivity is much more abstract as it depends entirely on the context and the child's signals and may therefore be less easy to change. In addition, the EA sensitivity scale in particular focuses on positive affect, an aspect of parenting that may also be harder to change. Nevertheless, since maternal sensitivity and nonintrusiveness are related constructs, improvements in the latter holds promise for enhancing sensitivity in the longer term as well. Further, since maternal intrusiveness has been shown to be related to disorganized attachment (e.g., Ziv, Aviezer, Gini, Sagi, & Karie, 2000), and harsh parenting (Joosen, Mesman, Bakermans-Kranenburg, & van IJzendoorn, 2012; Lyons-Ruth, Connell, Zoll, & Stahl, 1987), the decrease in intrusiveness that resulted from the VIPP-SD intervention suggests that this short-term behaviorally focused intervention may be effective in diverting mother-child interactive behavior from a path of maladaptive parent-child interactions, potentially contributing to breaking the cycle of abuse often present in poor high-risk families. The potential to fundamentally change patterns of parent-child interactions is also suggested by the increase of positive child behavior, and the positive change in mother's perceptions of their family relations as a result of the VIPP-SD.

Our findings should also be viewed from a process perspective: it is vital to reflect on the elements that could have been decisive in producing the results attained. In our perception, the video-feedback method was a central component in the success of this program. The use of video allows for a heightened conscience of the child's emotions and signals and of the impact of the mother's behavior on the child (Fukkink, 2008; Juffer et al., 2008). In this sense, it is the focus on the child's behavior and its interpretation, sensitively guided by the intervener, which leads parents to understand the effects of their actions on the child's behavior. This non-prescriptive approach allows the intervener to forge with parents a *collaborative* rather than *expert* approach that these families are used to in the context of multi-assistance (Madsen, 2007). This collaborative approach enables

the development of a trusting relationship that we believe is especially relevant to poor families with a history of “being told what to do” by professionals from various institutions. A methodological approach based on video is also valuable with this type of sample because images are often more powerful than words and enable stronger reinforcement of positive interactions. Also, both parent and intervener have a continuous tool of evaluation where progress is easily and immediately noted. Finally, the home-based rather than clinic-based experience was also an important feature for the success of the program, not only to encourage retention and involvement but also to ensure the promotion of the caregiving quality in the families’ natural environment. These considerations are not only consistent with our own observations, but also congruent with the literature on crucial components of attachment-based interventions in maltreating families (Tarabulsky et al., 2008).

Strengths of the present study include the randomized control pretest-posttest design, the use of standardized observational measures, and the unique sample in terms of the level of socioeconomic deprivation. There are also some limitations, namely the small sample size that may have limited the statistical power to detect significant changes in some specific areas of parenting. As previously mentioned, all observational and self-report data evolved in the expected direction and might have reached significance in a larger sample. The number of participants was rather low because of the special nature of the sample and dropout rates, which remains a major concern as it constrains mental health services efficacy (Friars & Mellor, 2009). At first we faced some difficulties with the recruitment of these families, in part due to the work overload of the agencies, and also to resistance of the families to embrace the intervention study. Second, and in line with other studies with high-risk samples (Armbruster & Fallon, 1994; Friars & Mellor, 2009), this study also experienced a considerable attrition rate. However it is important to note that, contrary to other intervention studies in high-risk samples, attrition in our study occurred mostly at the beginning stages, before the program started. This means that the VIPP-SD approach was able to engage these highly stressed mothers once they had started the program, which is promising for the implementation of this program in high-risk samples. However, we do acknowledge the widely encountered problem of engaging at-risk families in research and intervention programs. It is thus worthwhile to invest in new approaches to increase the attractiveness of participation for these families.

In line with the difficulties to involve families, it should also be noted that only two of the 44 fathers attended at least one of the booster sessions for which they were all invited. This is a very small rate of participation when compared to prior studies that reported attendance of 52% of fathers (Stolk et al., 2008) and is unfortunate in light of evidence that the marital relationship is crucial for promoting better parent-child relationships (Cowan, Cowan, Pruett, Pruett, & Wong, 2009). This low paternal participation rate is likely to reflect the self-withdrawal of fathers from childrearing responsibilities that seems to be common in these low SES, high risk families (Carlson & Magnuson, 2011). Accordingly, involving fathers in all assessments and process of a research design like ours is certainly a challenge, and future research should try to develop strategies to overcome difficulties in the participation of fathers. However it should also be noted that meta-analytic findings report that father’s presence is not necessarily helpful as far as mother’s improvement in parenting is concerned (Bakermans-Kranenburg et al., 2003). Considering the often very problematic marital relations in deprived samples, it may even be that working almost exclusively with mothers enhanced the program’s impact by offering interveners the opportunity to build a positive relationship with the mothers without the interference of potential interparental disagreement and arguing.

Future research with bigger samples is required to clarify whether the program can also be effective in the enhancement of other dimensions of mother–child interaction in high-risk dyads. The relatively low internal consistency of the conflict scale also calls for a replication of the study with a larger sample. Also further studies should collect longer-term follow-up data to investigate whether intervention effects are retained over the course of time in family contexts characterized by heightened stress; should consider strengthening the RCT design by providing home visits to the control-group families as well; and should also focus on deepening the understanding of the processes and components of the VIPP-SD program that contribute the most to its efficacy. Finally, in order to better establish what works in mental health promotion, future studies on the VIPP-SD following an RCT design, should consider, from the start, guidelines to report this trials, soon to be adapted to social and psychological interventions (Gardner et al., 2013).

In conclusion, the current study suggests that the VIPP-SD can be a valuable program for the enhancement of positive parent–child interactions in poor families struggling with many problems. Effects were found for a self-report measure of family functioning and, more importantly, on observations of both parental and child behavior, supporting the importance of the dyadic focus of this intervention program. Given that parenting quality is a major mediator between poverty and maladaptive child development (Conger & Donnellan, 2007), this study shows that the VIPP-SD can contribute to the strengthening of families' resilience to the impact of socioeconomically disadvantaged environments and provides an evidence-based approach to supporting such deprived families.

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### References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment. A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Earlbaum.
- Appleyard, K., Egeland, B., Van Dulmen, M. H. M., & Sroufe, L. A. (2005). When more is not better: The role of cumulative risk in child behavior outcomes. *Journal of Child Psychology and Psychiatry*, *46*, 235–245. doi:10.1111/j.1469-7610.2004.00351.x
- Armbruster, P., & Fallon, T. (1994). Clinical, sociodemographic and systems risk factors for attrition in a children's mental health clinic. *American Journal of Orthopsychiatry*, *64*, 577–585. doi:10.1037/h0079571
- Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, *129*, 195–215. doi:10.1037/0033-2909.129.2.195
- Bates, J. E., Freeland, C. A., & Lounsbury, M. L. (1979). Measurement of infant difficultness. *Child Development*, *50*, 794–803. doi:10.2307/1128946
- Belsky, J. (2005). Attachment theory and research in ecological perspectives: Insights from the Pennsylvania infant and family developmental project and the NICHD study of early child care. In K. E. Grossman, K. Grossman, & E. Waters (Eds.), *Attachments from infancy to adulthood: The major longitudinal studies* (pp. 71–97). New York, NY: Guilford Press.
- Berlin, L., Ziv, Y., Amaya-Jackson, L., & Greenberg, M. (2005). *Enhancing early attachments: Theory, research, intervention and policy*. London: Guilford Press.

- Biringen, Z. (2008). *The emotional availability (EA) scales* (4th ed.). Retrieved from [www.emotionalavailability.com](http://www.emotionalavailability.com)
- Bornstein, M. (2002). Parenting Infants. In M. Bornstein (Ed.), *Handbook of parenting - vol 1 children and parenting* (2nd ed., pp. 3–44). London: Lawrence Erlbaum Associates.
- Carlson, M. J., & Magnuson, K. A. (2011). Low income fathers' influence on children. *The Annals of the American Academy of Political and Social Science*, *635*, 95–116. doi:10.1177/0002716210393853
- Carneiro, A., Dias, P., Magalhães, C., Soares, I., Rangel-Henriques, M., Silva, J., & Baptista, J. (2013). Avaliação do temperamento aos 13 e aos 24 meses através do relato da mãe: Validação da versão portuguesa do Infant Characteristics Questionnaire [Evaluation of temperament at 13 and 14 months through mother report: Validation of the Portuguese version of the Infant Characteristics Questionnaire]. *Revista Brasileira de Crescimento e Desenvolvimento Humano*, *23*, 71–79.
- Conger, R. D., Belsky, J., & Capaldi, D. M. (2009). The intergenerational transmission of parenting: Closing comments for the special section. *Developmental Psychology*, *45*, 1276–1283. doi:10.1037/a0016911
- Conger, R. D., & Donnellan, M. B. (2007). An Interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology*, *58*, 175–199. doi:10.1146/annurev.psych.58.110405.085551
- Cowan, P., Cowan, C., Pruett, M., Pruett, K., & Wong, J. (2009). Promoting fathers' engagement with children: Preventive interventions for low-income families. *Journal of Marriage and Family*, *71*, 663–679. doi:10.1111/j.1741-3737.2009.00625.x
- DeWolff, M., & van IJzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development*, *68*, 571–591. doi:10.2307/1132107
- Erel, O., & Burman, B. (1995). Interrelatedness of marital relations and parent-child relations: A meta-analytic review. *Psychological Bulletin*, *118*, 108–132.
- Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist*, *59*, 77–92. doi:10.1037/0003-066X.59.2.77
- Friars, P., & Mellor, D. (2009). Drop-out from parenting training programmes: a retrospective study. *Journal of Child and Adolescent Mental Health*, *21*, 29–38. doi:10.2989/JCAMH.2009.21.1.5.807
- Fukkink, R. G. (2008). Video-feedback in widescreen: A meta-analysis of family programs. *Clinical Psychology Review*, *28*, 904–916. doi:10.1016/j.cpr.2008.01.003
- Gardner, F., Mayo-Wilson, E., Montgomery, P., Hopewell, S., MacDonald, G., Moher, D., & Grant, S. (2013). Editorial perspective: The need for new guidelines to improve the reporting of trials in child and adolescent mental health. *Journal of Child Psychology and Psychiatry*, *54*, 810–812. doi:10.1111/jcpp.12106
- Joosen, K. J., Mesman, J., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2012). Maternal sensitivity to infants in various settings predicts harsh discipline in toddlerhood. *Attachment & Human Development*, *14*, 101–117. doi:10.1080/14616734.2012.661217
- Juffer, F., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (Eds.). (2008). *Promoting positive parenting: An attachment-based intervention*. London: Lawrence Erlbaum Associates.
- Juffer, F., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2014). Attachment-based interventions: Sensitive parenting is the key to positive parent-child relationships. In P. Holmes & S. Farnfield (Eds.), *The Routledge Handbook of Attachment: Implications and Interventions*. New York: Routledge.
- Kochanska, G. (2002). Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science*, *11*, 191–195. doi:10.1111/1467-8721.00198
- Leerkes, E. M., Blankson, A. M., & O'Brien, M. (2009). Differential effects of maternal sensitivity to infant distress and nondistress on social-emotional functioning. *Child Development*, *80*, 762–775. doi:10.1111/j.1467-8624.2009.01296.x
- Li, F., Godinet, M. T., & Arnsberger, P. (2011). Protective factors among families with children at risk of maltreatment: Follow up to early school years. *Children and Youth Services Review*, *33*, 139–148. doi:10.1016/j.childyouth.2010.08.026
- Little, C., & Carter, A. (2005). Negative emotional reactivity and regulation in 12-month-olds following emotional challenge: Contributions of maternal-infant emotional availability in a low-income sample. *Infant Mental Health Journal*, *26*, 354–368. doi:10.1002/imhj.20055

- Lyons-Ruth, K., Connell, D. B., Zoll, D., & Stahl, J. (1987). Infants at social risk: Relations among infant maltreatment, maternal behavior, and infant attachment behavior. *Developmental Psychology, 23*, 223–232. doi:10.1037/0012-1649.23.2.223
- Madsen, W. C. (2007). *Collaborative therapy with multi-stressed families* (2nd ed.). New York, NY: Guilford Press.
- Matos, P. M., & Fontaine, A. M. (1992). *Validation of the Portuguese version of the family environment scale*. Unpublished manuscript. University of Porto.
- Moos, R. H., & Moos, B. S. (1986). *Family environment scale manual*. Palo Alto, CA: Consulting Psychologists Press.
- Moss, E., Rousseau, D., Parent, S., St-Laurent, D., & Saintonge, J. (1998). Correlates of attachment at school-age: Maternal-reported stress, mother-child interaction and behavior problems. *Child Development, 69*, 1390–1405. doi:10.2307/1132273
- Pereira, M., Negrão, M., Soares, I., Almeida, A. T., & Machado, C. (2009). *Portuguese short-version of the family risks and strengths profile*. Unpublished manuscript. University of Minho.
- Rodriguez, G., Camacho, J., Rodrigo, M. J., Martin, J. C., & Maiquez, M. L. (2006). Evaluación del riesgo psicosocial en familias usuarias de servicios sociales municipales [Evaluation of psychosocial risk in families using municipal social services]. *Psicothema, 18*, 200–206.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. W. Kent & J. E. Rolf (Eds.), *Primary prevention of psychopathology: Vol. 3. Social competence in children* (pp. 49–74). Hanover, NH: University Press of New England.
- Sameroff, A. J. (2000). Dialectical processes in developmental psychopathology. In A. Sameroff, M. Lewis, & S. Miller (Eds.), *Handbook of developmental psychopathology* (2nd ed., pp. 23–40). New York, NY: Kluwer Academic/Plenum.
- Sidebotham, P., & Heron, J. (2006). Child maltreatment in the “children of the nineties”: A cohort study of risk factors. *Child Abuse & Neglect, 30*, 497–522. doi:10.1016/j.chiabu.2005.11.005
- Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York, NY: Guilford Press.
- Stack, D. M., Serbin, L. A., Girouard, N., Enns, L. N., Bentley, V., Ledingham, J. E., & Schwartzman, A. E. (2012). The quality of the mother-child relationship in high-risk dyads: Application of the emotional availability scales in an intergenerational, longitudinal study. *Development and Psychopathology, 24*, 93–105. doi:10.1017/S095457941100068X
- Steele, H., & Steele, M. (2005). Understanding and resolving emotional conflict: The London parent-child Project. In K. E. Grossman, K. Grossman, & E. Waters (Eds.), *Attachments from infancy to adulthood: The major longitudinal studies* (pp. 137–164). New York, NY: Guilford Press.
- 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. doi:10.1002/jcop.20280
- Tamis-LeMonda, C. S., Bornstein, M. H., & Baumwell, L. (2001). Maternal responsiveness and children's achievement of language milestones. *Child Development, 72*, 748–767. doi:10.1111/1467-8624.00313
- Tarabulsy, G. M., Pascuzzo, K., Moss, E., St-Laurent, D., Bernier, A., Cyr, C., & Dubois-Comtois, K. (2008). Attachment-based intervention for maltreating families. *American Journal of Orthopsychiatry, 78*, 322–332. doi:10.1037/a0014070
- Van Zeijl, J., Mesman, J., van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Juffer, F., Stolk, M.N., ... Alink, L. R. (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. doi:10.1037/0022-006X.74.6.994
- Veríssimo, M., & Dias, P. (2012). *Validation of the Portuguese version of infant characteristics questionnaire from 33 to 71 months of age*. Unpublished manuscript. Instituto Superior de Psicologia Aplicada (ISPA).
- Ziv, Y., Aviezer, O., Gini, M., Sagi, A., & Koren-Karie, N. (2000). Emotional availability in the mother-infant dyad as related to the quality of infant-mother attachment relationship. *Attachment & Human Development, 2*, 149–169. doi:10.1080/14616730050085536