

EARLY PARENTING INTERVENTION AIMED AT MATERNAL SENSITIVITY AND DISCIPLINE: A PROCESS EVALUATION

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This study investigated the influence of the intervention process on the effectiveness of a program aimed at promoting positive parenting. The study involved a homogeneous intervention sample (N = 120) of mothers and their 1-, 2-, or 3-year-old children screened for high levels of externalizing problems. The alliance between mother and intervener, mothers' active skills implementation, and father involvement were examined in relation to changes in maternal sensitivity and positive discipline strategies. Results revealed that only alliance predicted change in positive parenting. Implications for future process evaluations and intervention programs are discussed. © 2008 Wiley Periodicals, Inc.

Studies on (preventive) parenting interventions in early childhood mainly focus on program outcome, determining whether an intervention results in the desired effects. Equally relevant but underreported are results on the processes of these programs

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through which the outcomes are achieved (e.g., Kazdin & Weisz, 1998; Olds & Korfmacher, 1998; Rossi, Lipsey, & Freeman, 2004). Testing for process moderators that can explain the outcomes should be a key element in prevention studies to improve interventions and facilitate implementation in clinical practice (Bernazzani, Côté, & Tremblay, 2001; Cicchetti & Hinshaw, 2002; Rossi et al., 2004). In addition, especially scarce are process evaluations of early childhood parenting interventions. This is a noticeable omission because the focus of parenting interventions has recently shifted to the early childhood years, particularly when externalizing child behaviors are concerned (e.g., Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2008; Webster-Stratton & Hammond, 1997). In this article, we investigate the influence of several aspects of the intervention process on the effectiveness of a preventive intervention program aimed at enhancing sensitivity and adequate discipline strategies for mothers of young children with high levels of externalizing problems.

PROCESS EVALUATIONS IN PARENTING INTERVENTION STUDIES

Although large numbers of parenting intervention studies have been conducted, evidence for intervention characteristics that are associated with effectiveness is scarce (Korfmacher, Kitzman, & Olds, 1998). We conducted a systematic search for process evaluations by reviewing the studies investigated in the meta-analysis of attachment-based parenting intervention studies by Bakermans-Kranenburg, Van IJzendoorn, and Juffer (2003). As in the present study, the focus in this meta-analysis is on sensitivity and changing parental behavior through early childhood preventive intervention. Of the 51 randomized control group studies with reported effects on sensitivity or attachment in the meta-analysis, only six studies included process investigations in some way. Two of these mention some aspects of the intervention process, but fail to investigate the association with intervention outcomes (Armstrong, Fraser, Dadds, & Morris, 1999; Zahr, 2000). The other four studies did investigate process characteristics in relation to intervention effectiveness.

Heinicke et al. (1999, 2000) showed that in the UCLA Family Development Project intervention mothers' involvement (defined as intervener ratings of positive connection with the home visitor, the ability to trust the intervener, and the ability to work on issues with the intervener) was related to increases in maternal sensitive responsiveness. Lieberman, Weston, and Pawl (1991) reported that intervener ratings of mothers' involvement (defined by mothers' use of active self-observation) were positively associated with better intervention outcomes in terms of maternal empathy, initiation of interaction with the child, and attitudes encouraging reciprocity, more attachment security, and more goal-corrected partnership. In the multisite Infant Health and Development Program (Spiker, Ferguson, & Brooks-Gunn, 1993) for low-birth-weight infants and their families, mothers' active participation during the intervention was associated with more positive outcomes of the home environment and higher child IQ scores (Berlin, Brooks-Gunn, McCarton, & McCormick, 1998; Ramey et al., 1992). In the Steps Toward Effective, Enjoyable Parenting program (STEEP; Egeland & Erickson, 1993), parents participating fully (at least in 60% of the activities), showed a better understanding of their children and of their relationship with their infants. In addition, they had lower levels of depression and anxiety, were more competent in managing their daily lives, and more responsive towards their

children (Egeland & Erickson, 2004; Egeland, Weinfield, Bosquet, & Cheng, 2000; Erickson, 1998).

In addition to these studies, a few others have reported on process evaluations of parenting programs. Tolan, Hanish, McKay, and Dickey (2002) showed that the alliance between mother and intervener in a preventive intervention program aimed at improving child mental health predicted a positive change in parenting, which, in turn, predicted a decrease in antisocial child behavior. A process evaluation of the Memphis New Mothers Study by Korfmacher and colleagues (1998) demonstrated that the quality of the relationship between intervener and parent was related to increases in empathic attitudes towards their child, albeit only for mothers with high levels of psychological resources. Level of participation and mothers' emotional engagement in the sessions, however, did not influence parenting outcomes, although a higher participation level was associated with an increase of responsive child behaviors. The relationship between mother and intervener was central to the process evaluation of Klein Velderman, Juffer, Bakermans-Kranenburg, and Van IJzendoorn (in press). They found that the intervener's positive rating of her contact with the mother during the first home visit was predictive of increases in maternal sensitivity. Process elements were also investigated in The Incredible Years Parent Training Program in socioeconomically disadvantaged samples of Head Start (Webster-Stratton, Reid, & Hammond, 2001). Results showed that program engagement as defined by the number of parent group sessions attended by the mother (i.e., program fidelity), percentage of home work completed, number of sessions attended, and intervener ratings of involvement, was positively related to parenting outcomes (Baydar, Reid, & Webster-Stratton, 2003; Reid, Webster-Stratton, & Baydar, 2004).

The studies described above have identified process elements that may alter the outcomes of an intervention, including alliance between mother and intervener, level of participation or involvement, and differences in dosage. Another process element was suggested in the meta-analysis of Bakermans-Kranenburg et al. (2003). In their study they provided some evidence that the presence and involvement of fathers in the intervention was related to more positive intervention outcomes. Interventions that also involved the father were significantly more effective in enhancing sensitivity than those focusing on mothers only. This is consistent with the family systems approach, which emphasizes the combined effects of both mother-child and father-child relationships and effects of the interaction between the parents on child outcome (Cowan, 1997; Egeland et al., 2000; Heinicke, Beckwith, & Thompson, 1988). In the context of an intervention, fathers may strengthen mothers' motivation to participate and provide support for their attempts to practice new parenting skills in everyday family life. However, the results from the meta-analysis regarding father involvement were based on only three studies with small numbers of participants (Dickie & Gerber, 1980; Metzl, 1980; Scholz & Samuels, 1992) and remain equivocal. Studies specifically investigating the involvement of fathers as an intervention process variable are lacking, which leaves the question of the effect of fathers on intervention effectiveness unanswered.

In sum, there are several parenting intervention studies that have found evidence for the relevance of process characteristics to intervention effectiveness. Most of these process variables reflect the relationship between intervener and parent, also referred to as alliance (DiGuiseppe, Linscott, & Jilton, 1996; Martin, Garske, & Davis, 2000). Further, mothers' active participation and involvement has been found to predict greater intervention effectiveness, and there is some evidence that father involvement

may be related to more positive parenting outcomes. Other moderating aspects of the intervention process that have been found to predict positive outcomes are the extent to which the program was implemented as planned, regarding content of the intervention, and whether the number of planned contacts was reached. The term fidelity has been used to describe these aspects of the intervention process (e.g., Heinicke et al., 2000; Matthews & Hudson, 2001; Tolan et al., 2002).

Process evaluations may be especially important for early childhood parenting intervention programs. Externalizing problems in early childhood have been shown to be highly predictive of later adjustment problems (e.g., Shaw, Keenan, & Vondra, 1994), and, in turn, externalizing problems have been demonstrated to be predicted by parenting behaviors like coercive discipline and insensitivity (e.g., Reid, Patterson, & Snyder, 2002). These results stress the importance of effective early prevention and intervention programs, and the need to intervene at an early age. Thus, insight is needed in components that are related to success and failure in early childhood parenting intervention programs.

THE PRESENT STUDY

The present study reports on a process evaluation of a preventive intervention program to promote positive parenting in families with young children showing high levels of externalizing behavior. The intervention proved to be effective in enhancing some, but not all aspects of parenting that were targeted (see Van Zeijl et al., 2006). Specifically, the intervention succeeded in stimulating the use of positive discipline strategies, like induction and understanding (see Method section). In this study, we investigated whether the intervention effects for positive discipline strategies were related to variations in the intervention process. Further, we asked whether effectiveness on other parenting outcomes can be identified when taking intervention process into account. Finally, we examined maternal satisfaction with the intervention program to gain additional information on how the mothers experienced the intervention process. Based on previous studies, the process variables of interest were mother–intervener alliance, maternal active implementation of skills, father involvement, and program fidelity. In our study, program fidelity was high: all participants received six home visits, each session was standardized in manuals, and intervener skills were extensively trained and supervised. According to the literature, these are the main ingredients for ensuring program fidelity (e.g., Culp et al., 2004; Heinicke et al., 2000). Because of the lack of variation in the number of home visits and the way the intervention was administered, program fidelity was not a potential process variable in our study. Therefore, the present study investigated the role of mother–intervener alliance, maternal active implementation of skills, and father involvement in predicting positive parenting outcomes.

METHOD

Participants and Procedure

Participants were recruited in the Dutch SCRIPT study (Screening and Intervention of Problem Behavior in Toddlerhood), a randomized case-control intervention study.

The original sample consists of 237 families with children aged 1 to 3 years showing high levels of externalizing problems. Sample characteristics and procedures have been reported previously (see Van Zeijl et al., 2006). The current study focuses on the 120 mothers and children who received the intervention, including 43 one-year-old children (age at pretest: $M = 15.58$ months, $SD = 1.19$), 37 two-year-olds (age at pretest: $M = 27.71$ months, $SD = 1.08$), and 40 three-year-olds (age at pretest: $M = 39.41$ months, $SD = 1.07$). The sample consisted of 59 boys and 61 girls: 53% were first-born and 60% had one or more siblings. Mean age for mothers was 33.16 years, $SD = 4.39$, range = 20–45. Fifty-two percent of the mothers and 55% of the fathers had a high educational level (Bachelor's or Master's degree).

The pretest laboratory sessions were conducted by female instructors and assistants, unknown to the mothers and children. Activities and tasks included solving puzzles, free play, cleaning up, not touching toys, and waiting for a treat, coded afterwards from videotapes by coders unaware of the experimental condition. During the pretest, the mothers completed several questionnaires. After the pretest, children from each age group were randomly assigned to the intervention group, $n = 120$, or the control group, $n = 117$. During the intervention phase, the experimental group received six home visits over a period of 8 months, and the control group received six phone calls. One year after the pretest, the families visited the laboratory to complete the posttest, using the same procedures as in the pretest. Two weeks after the posttest, evaluation forms were sent to the mothers of the intervention group by mail. The forms were sent by a senior researcher who did not have any contact with the participating mothers, to prevent mothers from feeling obliged to provide positive evaluations. Questions concerned program satisfaction and implementation of skills learned during the intervention.

Intervention Program

For the intervention group, a female intervener went into the homes of the families to provide personal feedback on parenting, using videotaped mother–child interactions, as well as information on the development of young children in general. Ten interveners were extensively trained to implement the intervention and received weekly feedback sessions with trainers during the intervention phase. Three of the interveners had a university degree in Education and Child Studies or Psychology; the other seven interveners were Psychology students in a Master's program. The duration of each home visit was approximately 1½ hours. The first four intervention sessions took place every month, the last two sessions every other month.

Video-feedback intervention to promote positive parenting. The SCRIPT study applied the video feedback method known as the video-feedback intervention to promote positive parenting (VIPP; for a full description see Juffer et al., 2008). The VIPP program was extended to include information and advice regarding parental discipline, in addition to the focus on parental sensitivity, resulting in VIPP-sensitive discipline (VIPP-SD). The VIPP-SD program aims at enhancing maternal observation skills, knowledge of parenting and the development of young children, empathy for the child, sensitivity, and sensitive discipline strategies. The intervention was implemented using standardized protocols (see Juffer et al., 2008). For all six home visits, the protocol described the structure, themes, tips, and exercises for mother and child (see Mesman et al., 2008, and Van Zeijl et al., 2006, for a full description of the VIPP-SD intervention sessions). Although the content for every intervention session was the

same for all families, the video feedback and practical presentation of the intervention was adjusted to the individual needs of the specific mother–child dyad. Each of the first four sessions had its own theme. The last two sessions (booster sessions) were aimed at enhancing intervention effects by reviewing all tips and feedback. During these booster sessions, 2 and 4 months, respectively, after the first four monthly intervention sessions, fathers were also invited to participate (all other intervention sessions took place in the presence of only mother, child, and intervener). At the end of the last session, all mothers received a booklet with the tips and advice as given during the intervention. After each home visit, the interveners completed a semistructured logbook on their experiences with the particular family.

Measures

Maternal sensitivity. The mothers' sensitive responsiveness was assessed during structured play in the laboratory sessions. Mother and child were asked to solve puzzles that were generally too difficult considering the age of the child, using different puzzles for each age group. Mothers were instructed to help their children as they would normally do. The mothers' supportive presence and intrusiveness were rated with the Erickson scales (Egeland, Erickson, Moon, Hiester, & Korfmacher, 1990). *Supportive presence* referred to a mother's positive regard and emotional support to the child by acknowledging the child's accomplishments, encouraging the child, reassuring and calming, or giving a physical sense of support while the child completed the puzzles. Supportive presence was coded on a 7-point scale ranging from 1 (*completely failing to be supportive*) to 7 (*skillfully providing support*). *Intrusiveness* referred to a mother's lack of respect of the child's autonomy when exploring or in problem-solving situations, by interfering with the child's needs, desires, interests, or behaviors. Intrusiveness was also coded on a 7-point scale, ranging from 1 (*nonintrusive*) to 7 (*highly intrusive*). For both the pretest and posttest, scale scores were computed by averaging the scores for the separate puzzles. Four coders, unaware of other data concerning the participants, each coded one scale for either the pretest or posttest. The mean intraclass correlation (single rater, absolute agreement) for intercoder reliability (for all separate pairs of coders and of each coder with the expert) was for supportive presence .78 (range: .75–.80, $n = 60$), and for intrusiveness .76 (range: .73–.78, $n = 60$). For our analyses the scores on intrusiveness were reversed to reflect level of nonintrusiveness.

Maternal discipline. During both the pre- and posttest, maternal discipline strategies were observed in a 10-minute "don't" task. In this task, the child was shown a treat, but it was given to the mother with the (written) instruction to refrain from giving the child the treat until the end of the session 10 minutes later. During the task, the mother completed a questionnaire as a competing demands task. Meanwhile, during the first 5 minutes of the task, there were no toys in the room, and for the last 5 minutes the child did get toys to play with. All maternal discipline strategies were coded, including strategies that did not concern the treat (e.g., they could also concern the toys). The coding procedures were based on Kuczynski, Kochanska, Radke-Yarrow, and Girnius-Brown's (1987), and Van der Mark, Bakermans-Kranenburg, and Van IJzendoorn's (2002) studies. The following strategies were observed: *Induction* referred to mother's explanations of why the child was not allowed to do something or of the consequences of the child's behavior. *Understanding* was coded when a mother displayed interest in or understanding of the child's feelings, thoughts, or behaviors. *Distraction* referred to

mothers redirecting the child's attention by giving an alternative to the present situation or child's behavior. *Reinforcing alternative activities* was coded when mothers gave an encouraging response to the child's initiative not concerning the treat to keep the child distracted. When mothers gave in and handed the child the treat before the end of the task the coding was ended. The don't task varied in duration from 4 to 10 minutes. Because of the varying duration, all frequencies were recomputed to reflect standard 10-minute durations. Coders were unaware of other data concerning the participants, and the mean intraclass correlation (single rater, absolute agreement) for intercoder reliability for all separate pairs in a group of five coders for distraction was .80 (range: .67–.90, $n = 30$), for reinforcing alternative behaviors—.93 (range: .87–.97, $n = 30$), for induction—.78 (range: .64–.88, $n = 30$), and for understanding—.76 (range: .61–.88, $n = 30$).

Alliance. The alliance between interveners and mothers was measured using semistructured logbooks in which interveners noted their impressions of the sessions. In the present article, we used the following closed-ended questions from the logbook of the first intervention session: (a) "How pleasant was the contact with the mother?," (b) "Can this mother be influenced?," (c) "Did the mother show a cooperative attitude during the intervention?," and (d) "Did the mother show an open attitude during the intervention?" These questions were rated on a scale from 1 to 5, with 5 being assigned to the most positive rating. Because these questions showed high internal consistency (Cronbach's $\alpha = .80$), an alliance scale was constructed by computing the mean score of the four questions ($M = 3.86$, $SD = 0.56$, range: 2.50–5.00). Repeated measures analyses showed that alliance scores did not change significantly across the six sessions, $F(5, 115) = 0.16$, $p = .98$.

We also measured alliance as perceived by mothers by asking them how they perceived their contact with the intervener. Because this variable showed very little variation (90% of the mothers described the contact with the intervener as pleasant or very pleasant), we did not include this question in our analyses.

Maternal active implementation of skills. After the last posttest, mothers were sent a questionnaire asking about their experiences with and implementation of the intervention. For the present study, we used the following four questions: (a) "Did you practice tips or advice given during the discussion of the videotape?," (b) "Did you discuss the content of the home visits with a family member after the home visits?," (c) "Did you discuss the content of the home visits with friends or acquaintances after the home visits?," and (d) "Did you read the booklet with tips after completion of the six home visits?" The scores on these questions, 0 (no) and 1 (yes), were summed to form an active implementation scale ($M = 2.54$, $SD = 1.02$, range: 0–4). Complete information concerning active implementation was obtained from 90 of the 120 mothers in the intervention group (response rate of 75%). There were no differences between the intervention group mothers who did return the questionnaires and the intervention group mothers who did not return the questionnaires on any of the following child and parent characteristics: age of the child, sex of the child, pretest child externalizing problems, presence of siblings, first-born child, quantity of childcare, maternal age, and educational levels of mother and father (range: ps .06–.98). Missing values were substituted with the mean or modus score (depending on the type of distribution) for intervention families matched on child sex, child age, and maternal educational level. Our analyses with and without substituted missing values on the active implementation

scale yielded similar results. Therefore, we report on the maximum sample with substituted missings to avoid the use of different samples sizes for different analyses.

Father involvement. Fathers were invited to be present for the fifth and sixth intervention sessions (booster sessions). In 48% of the intervention sample, fathers did not make use of this invitation. Thirty-one percent of fathers were present in one intervention session, and 21% were present in both booster sessions.

Maternal satisfaction with program. Mothers' experience of the intervention process was examined with a questionnaire, which they received at home approximately 2 weeks after the first posttest. Mothers were asked to evaluate different aspects of the intervention, including the total duration, based on a 5-point scale ranging from 1 (*too short*) to 5 (*too long*); the video recordings in terms of pleasantness, difficulty, and interest value (each rated on a 3-point scale); the video feedback intervention in terms of pleasantness, difficulty, and instructiveness (each rated on a 5-point scale); and the brochure with tips and advice given during the intervention, in terms of instructiveness, clarity, interest value, and redundancy (each rated on a 5-point scale). Complete information on these questions was obtained from 85 of the 120 intervention mothers. Because not all mothers completed this questionnaire, we tested whether the mothers who did complete the questionnaire differed from mothers who did not, and whether our results adequately reflect the sample's satisfaction with the intervention program. Results showed no differences between the intervention group mothers who did return the questionnaires and the intervention group mothers who did not return the questionnaires on any of the following child and parent characteristics: age of the child, sex of the child, child pretest and posttest externalizing problems, presence of siblings, first-born, quantity of childcare, maternal age, and educational levels of the mother and father (range: ps .08–.96). Additionally, the intervention mothers did not differ on alliance ($p = .35$), presence of father in the booster sessions ($p = .11$), and on the posttest sensitivity and discipline measures (range: ps .20–.56). These results suggest that the nonresponse was not related to relevant child, parenting, and family characteristics. Further, all 120 intervention mothers did complete the intervention and visited the institute for the posttest, and the attrition was not specific to a particular intervener ($p = .76$). In sum, although the absence of differential sample attrition based on mothers' evaluation of the intervention program cannot be proven, such differential attrition seems unlikely to have occurred.

Statistical Analyses

There was some missing data on the pretest and posttest outcome measures and on alliance ($n = 1$ for posttest maternal sensitivity, $n = 4$ for pretest maternal discipline, $n = 2$ for posttest maternal discipline, and $n = 3$ for alliance). These missing data were substituted with the mean score on the variable for intervention families matched on child sex, child age, and maternal educational level.

Data analyses revealed several outliers. Keppel and Wickens (2004) stated that “any distribution of data is likely to contain some extreme scores. Real data often are a little more scattered than a normal distribution. These observations are a valid part of the distribution and should be included in the analysis” (p. 146). Hence, as recommended by Keppel and Wickens, outliers were included in the dataset. Additional analyses showed no differences in results when univariate outliers were winsorized (i.e., “moved in close to the good data”; Hampel, Ronchetti, & Rousseeuw,

1986, p. 69) by replacing all outlying scores with the next highest value (with a $z < |3.29|$) in the distribution. No multivariate outliers were found.

RESULTS

Univariate Associations Between Process Variables and Parenting Outcomes

Table 1 shows the means and standard deviations for mother–intervener alliance, maternal active implementation of skills, and father involvement, and parenting variables, as well as the correlations between these variables. Older mothers showed less active implementation, and were significantly more nonintrusive at the posttest. No significant correlations were found between the three process variables. The process variable alliance was related to pre- and posttest sensitivity, but not to pre- or posttest discipline strategies, with a more positive alliance resulting in higher levels of supportive presence and non-intrusiveness. Mothers who reported more active implementation showed less supportive presence and more understanding at the posttest. Significant correlations in the expected directions were found between the two sensitivity measures at both pretest and posttest, and for three out of six pairs of discipline strategies at both assessments. Further, positive longitudinal correlations (pretest to posttest) were found for both sensitivity scales, and for the discipline strategies distraction and reinforcing alternatives.

Maternal Satisfaction With the Intervention Program

Ratings of mothers' satisfaction with the intervention showed strong indications of satisfaction with the program. Regarding the duration of the intervention, including pretest and posttest, 94% of mothers reported that this was not too long and not too short. Six percent of the mothers would have liked to participate longer. None of the mothers thought the intervention took too much of their time. The number of home visits was perceived as sufficient by 78% of the mothers. Further, the video recording of interactions between mother and child was generally perceived as pleasant (85%), not difficult (80%), and interesting (65%). Similarly, the majority of the mothers experienced watching and discussing the videotape of previous interactions with their child as (very) pleasant (78%), not difficult (86%), and (very) instructive (82%). The brochure of tips and advice as discussed during the home visits was evaluated as (very) instructive (64%), (very) clear (86%), (very) interesting (69%), and not redundant (60%). In contrast, very few mothers found the brochure not instructive ($n = 3$), boring ($n = 2$), not interesting ($n = 5$), and redundant ($n = 6$).

Multivariate Associations Between Process Variables and Parenting Outcomes

Six regression analyses were performed, one for each parenting outcome variable (Table 2). In Block 1, the matching pretest parenting variable was entered. In Block 2, we entered maternal age (in years) because it was significantly correlated with both a process variable (active implementation, $r = -.21$, $p < .05$) and a posttest parenting variable (non-intrusiveness, $r = .27$, $p < .01$), and therefore a potential confounding factor. Finally, we entered the three process variables in Block 3 of the regression analyses.

Table 1. Univariate Correlations Among Process Variables and Parenting Variables at Pretest and Posttest (N = 120)

	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>Demographics</i>																
1. Maternal age (in years)	33.16 (4.39)	-														
<i>Process variables</i>																
2. Alliance	3.86 (0.56)	.06	-													
3. Active implementation	2.51 (0.91)	-.21*	.02	-												
4. Father present	0.73 (0.79)	.07	.04	.06	-											
<i>Pretest sensitivity</i>																
5. Supportive presence	4.79 (0.95)	.06	.25**	-.08	.03	-										
6. Nonintrusiveness	5.17 (0.74)	.00	.21*	.10	.06	.36**	-									
<i>Posttest sensitivity</i>																
7. Supportive presence	5.15 (1.06)	.14	.29**	-.19*	-.10	.39**	.18	-								
8. Nonintrusiveness	4.99 (1.24)	.27**	.25**	-.04	-.04	.08	.35**	.33**	-							
<i>Pretest discipline strategies</i>																
9. Distraction	4.64 (5.28)	.02	-.01	.07	-.05	.04	.16	.20*	.05	-						
10. Reinforcing alternatives	10.28 (7.63)	.00	.04	-.10	-.06	.01	-.08	.18	-.03	.08	-					
11. Induction	2.88 (2.69)	-.06	-.16	.04	-.10	-.09	-.03	.05	.06	.32**	.13	-				
12. Understanding	4.25 (4.80)	-.07	.05	.21*	.05	.03	.08	-.13	.14	.37**	.05	.30**	-			
<i>Posttest discipline strategies</i>																
13. Distraction	4.44 (4.60)	.04	.00	.02	.11	.11	.25**	.09	.01	.32**	.01	.21*	.10	-		
14. Reinforcing alternatives	13.78 (8.63)	-.02	.04	.11	-.06	-.05	.15	.06	.08	.25**	.25**	.21*	.21*	.14	-	
15. Induction	3.88 (3.24)	.06	.04	.16	.05	-.01	.00	.03	-.07	.21*	.02	.11	.19*	.37**	.09	-
16. Understanding	2.50 (3.95)	.11	-.13	-.16	-.14	.02	.05	.17	.03	.28**	.09	.15	-.13	.38**	.22*	.14

Note. Father present: 0 = Not present; 1 = present during one intervention session; 2 = present during two intervention sessions. * $p < .05$; ** $p < .01$.

Table 2. Results of Multiple Linear Regression Analyses (Method Enter): Betas for Predictors of Posttest Parenting (N = 120)

	Posttest sensitivity		Posttest discipline strategies			
	Supportive presence	Nonintrusiveness	Distraction	Reinforcing alternatives	Induction	Understanding
<i>Block 1 (pretest parenting)</i>	($R^2 = .15^{**}$)	($R^2 = .12^{**}$)	($R^2 = .11^{**}$)	($R^2 = .06^{**}$)	($R^2 = .01$)	($R^2 = .02$)
Matching pretest parenting variable	.33**	.32**	.33**	.26**	.12	-.09
<i>Block 2 (demographic variables)</i>	($\Delta R^2 = .01$)	($\Delta R^2 = .07^{**}$)	($\Delta R^2 = .00$)	($\Delta R^2 = .00$)	($\Delta R^2 = .01$)	($\Delta R^2 = .06$)
Maternal age (in years)	.07	.26**	.04	.01	.11	.08
<i>Block 3 (process variables)</i>	($\Delta R^2 = .07^*$)	($\Delta R^2 = .03$)	($\Delta R^2 = .02$)	($\Delta R^2 = .02$)	($\Delta R^2 = .04$)	($\Delta R^2 = .04$)
Alliance	.22*	.17	-.00	.03	.04	-.13
Active implementation	-.14	-.01	-.01	.14	.18	-.11
Presence of father	-.11	-.05	.13	-.05	.05	-.11

Note. The betas are derived from the final block of the regression model.

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

Table 2 shows the results from the final regression models. For four of the six regression analyses, the posttest parenting variable was significantly predicted by the matching pretest parenting variable. The R^2_{change} statistics for the third block with the process variables was only significant for supportive presence. Of the process variables, only alliance was a significant (positive) predictor of posttest supportive presence after taking into account pretest supportive presence, maternal age, and the other two process variables.

Contrary to our expectations, we found no significant results for the use of active implementation and father involvement, even though the power to detect an effect size of $r = .20$ in our sample was sufficient, .72 ($\alpha = .05$, one-tailed).

DISCUSSION

In the present article, we evaluated intervention process elements in relation to parenting outcomes in a randomized case-control intervention study aimed at enhancing maternal sensitivity and adequate discipline strategies. We investigated alliance between mother and intervener, active implementation of learned skills by mothers, and father involvement in the booster sessions. We found no evidence that the use of positive discipline strategies was predicted by variations in process. However, we did find that alliance was related to greater change in parenting, although limited to mothers' use of supportive presence, referring to mothers' positive regard and

emotional support to the child. Higher quality of the relationship between intervener and mother resulted in an increased use of supportive presence.

Although the literature provides some evidence for the significance of the intervention process in determining the intervention outcome, most previous studies have ignored the relation between process and program effectiveness. Our search for process evaluations resulted in a limited number of studies, especially considering the large number of parenting intervention studies conducted. This may reflect a lack of relevant data for process evaluation. It is possible that most studies neglect to document aspects of process because of their focus on the central parenting outcomes. Alternatively, the lack of parenting intervention studies reporting on process evaluations may also point to what has been called the “file drawer problem” (Rosenthal, 1979). There may have been more studies to investigate intervention processes, but if they did not yield significant results, the researchers may have decided not to submit these results for publication or report on them. Even though the importance of possible associations between process and outcome in early childhood intervention programs has been acknowledged (e.g., Korfmacher et al., 1998), the limited information leaves the field of parenting interventions with an unclear picture of the usefulness of assessing and controlling certain aspects of the intervention process. Hauser-Cram, Erickson Warfield, Upshur, and Weisner (2000) outlined the value of understanding program evaluation in early childhood intervention, suggesting to record implementation information in a more systematic manner. They suggest reviewing program purpose, underlying theories and materials, identifying how well program components are defined, specified, and carried out, by means of qualitative data collection through interviews with staff and live observations of program implementation. This information can then be used to identify program elements that need modification. In addition, in an article describing experience with the Triple P–Positive Parenting Program, Sanders and Turner (2005) emphasize the need to provide information of implementation failure and success to facilitate future implementation. Overall, there seems to be agreement on the importance of justified program implementation in combination with outcome assessment to understand the effectiveness of an intervention program.

In our study, alliance was related to change in parenting in our intervention group. This finding is consistent with findings of meta-analytic studies on alliance in psychotherapy. However, except for a few parenting interventions studies (e.g., Berlin et al., 1998; Heinicke et al., 2000; Korfmacher et al., 1998) most of the evidence regarding the role of alliance in predicting intervention effects stems from therapeutic services (Hoagwood, 2005). Two meta-analytic studies on child, adolescent, and adult therapy both revealed a substantial association ($r = .22$) between therapeutic alliance and outcomes (Martin et al., 2000; Shirk & Karver, 2003), with only a few studies reporting no association (e.g., Motta & Lynch, 1990). Further, in a parenting intervention study comparable to ours (Klein Velderman et al., in press), alliance during the first visit has been found to predict change in maternal sensitivity as measured with the Ainsworth’s rating scale for sensitivity (Ainsworth, Bell, & Stayton, 1974). Noting that our study used a somewhat different rating scale for sensitivity, our results partly confirm this effect, reflected by a modest association between alliance and maternal supportive presence. As opposed to Klein Velderman et al. (2008), the first home visit in our study was preceded by a pretest laboratory session, in almost all cases conducted by the intervener, which may have affected how the intervener prepared for the first visit and perceived the contact. In this study, alliance was found to be

related to *change* in sensitivity, and it was limited to only one parenting outcome, maternal supportive presence. It must be noted that intervention effects were not found for supportive presence, only for positive discipline strategies (for details see Van Zeijl et al., 2006). Therefore, no causal inferences can be made, as alliance is inextricably tied to the intervention process. The relationship between the intervener and the mother may serve as a model for how the mother may interact with her child. A better alliance could then stimulate more supportive presence in the mother. At the same time, mothers who are more inclined to show supportive presence, may also elicit a more positive alliance with the intervener.

The possible bidirectional role of alliance in our study highlights an important limitation in research efforts to link alliance to intervention outcomes. Ratings of alliance between intervener and participants are usually not explored in their own right, leaving many questions about why the intervener or participant perceive the alliance as either positive or negative, and which intervener or maternal characteristics are important for establishing a good working relationship during the intervention. In a study on effective treatment relationships with psychiatric clients, Tyrrell, Dozier, Teague, and Fallot (1999) found that concordance in attachment representations of client and case manager predicted working alliance and client functioning. Attunement between parent and intervener in interventions appears to be of equal importance for preventive parenting intervention effectiveness. The parent-intervener relationship remains open for further investigation to fully understand the nature of alliance ratings as they were used in our process evaluation.

Maternal active implementation of the skills taught by the intervener yielded no significant associations with parenting outcomes in our study. Only two mothers reported not to have used the skills provided by the intervener, whereas over half of the mothers in our study reported implementing the skills, reading the booklet with tips, and discussing the intervention with others. In several studies, active involvement and participation level as measured during the intervention have been linked to intervention effectiveness (e.g., Heinicke et al., 2000; Lieberman et al., 1991). In contrast, Korfmacher and colleagues (1998) found no link between level of participation and outcomes. It may be that the use of maternal reports of active implementation presents specific problems. Some mothers may have provided socially desirable answers, overreporting actual implementation. It is important to note that the mothers in our study were selected based on their ratings of externalizing child behaviors, not because they were referred for child problem behaviors, or because they were seeking advice. Therefore, if actual implementation was lower than reported by mothers, this may partly have been due to a lack of motivation to learn new skills to decrease difficult child behaviors, for they did not actively seek advice (Hoagwood, 2005). They may have been reluctant to implement new skills because they may have felt this implied that they apparently needed new skills, not doing a good job before. Active use of learned skills by mothers, as measured in our study, may be an index of mothers' level of involvement, demonstrating mothers' willingness to improve her parenting practices. The diverging effects of maternal involvement make this process variable an intriguing concept for further investigation.

To our knowledge, father involvement has not been previously investigated as a process variable in parenting intervention studies. In our study, we found no associations between father involvement and any of the parenting outcomes. Some equivocal evidence for positive effects of father involvement was reported by Bakermans-Kranenburg et al. (2003), but the studies involved did not specifically

investigate the involvement of fathers related to maternal outcomes. In addition, in these studies, fathers were involved during all home visits, as opposed to our study where fathers were only invited for the last two home visits. Fathers may thus have felt left out because they were only asked to participate in the last two intervention sessions. This may have reduced the positive effects of their presence. Second, the two booster sessions for which fathers were invited aimed at repeating the information of the first four sessions. Because the information was not new to the mothers, the involvement of fathers may have led mothers to focus more on the reactions of their partners than on the implications for their own parenting behaviors. Additionally, some interveners noted that fathers were sometimes unsupportive and critical during the sessions, which may have had a negative rather than a positive effect on the intervention process. Unfortunately, this aspect of father involvement was not systematically recorded, so we were unable to test whether the way the father was involved was more predictive than his mere presence during intervention sessions. Scholz and Samuels (1992) demonstrated that involvement of fathers may have some negative consequences. Paternal sensitivity increased more than maternal sensitivity, with maternal sensitivity actually being negatively affected by the intervention (Scholz & Samuels, 1992). Our results suggest that future research on the influence of father involvement on intervention effectiveness needs to address questions regarding the nature of fathers' involvement and mothers' perception of his involvement. Whether father involvement is a positive, negative, or neutral factor in parenting interventions may very well depend on the quality of his (supportive) presence.

A limitation of our study is the low response rate in both the screening and intervention sample (see Van Zeijl et al., 2006). In the screening phase, this may have been due first to the fact that the screening questionnaire was rather long and included many questions about a variety of topics. Second, parents who were invited for the intervention study may have been unwilling to commit to a full year of participation. However, the response and nonresponse group only differed on educational level of both parents, with higher education for participating families. No differences were found for other demographic variables or for levels of child externalizing problems. Third, the participants were not self-referred for child externalizing behaviors. Parents in our study may not have perceived their children's behavior and their interactions with their child as problematic, even though they reported the child as displaying high levels of externalizing behaviors, and they may therefore have been less motivated to change their parenting style (Hoagwood, 2005; Kitzman, Cole, Yoos, & Olds, 1997). However, although the nonresponse in our study was high between the invitation letter and the pretest, only nine mothers ended their participation *after* the pretest. All mothers who received the first home visit completed the five succeeding home visits as well.

CONCLUSION

Understanding of what makes an intervention succeed or fail, and what mechanisms cause differential effectiveness can be enhanced by including process evaluation as a standard component of intervention studies. Our process evaluation investigated several process elements. The effects of intervention programs may vary for different families because of differences in family context, characteristics of participants and interveners, and quality of the relationship between participant and intervener. This

makes the process of delivery of an intervention equally important as the intervention itself. Because of the neglect of process evaluations in the literature on early childhood parenting interventions, causal mechanisms of successful interventions have largely remained unexplained. Our process evaluation demonstrated that alliance, highlighted as an essential element in therapeutic processes (Martin et al., 2000), is also of some importance in early childhood parenting interventions.

Much more work is needed to clarify the nature and assessment of the intervention process, as well as its impact on program effectiveness, to facilitate implementation processes and enhancing effectiveness. To this end, we suggest that intervention studies should include standardized (self-report and observational) measurements of process variables (DiGuiseppe et al., 1996; Martin et al., 2000) and provide detailed reports of these measurements and their relation to intervention outcomes. Only through careful study of the intervention process can causal mechanisms underlying program effectiveness be uncovered.

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