

Chapter 5

Discussion and conclusion

Introduction

The general objective of this thesis was to test the effectiveness of an early intervention program aimed at reducing externalizing problems in 1- to 3-year-old children. The Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD) offers a systematically developed preventive intervention of early externalizing problems. Its strong theoretical foundation, based on a combination of insights derived from attachment theory (Bowlby, 1969) and coercion theory (Patterson, 1976, 1982), provides concrete indications of how externalizing child behaviors can be affected through enhancing specific parenting behaviors. In accordance with the directives for an ideal intervention study by Bakermans-Kranenburg, Van IJzendoorn, and Juffer (2003), the present study consisted of a large sample ($N = 237$), a random group assignment, a pretest that demonstrated successful randomization, a dummy-intervention for the control group through telephone calls without advice or information, and independent coding of child and maternal behaviors, by coders blind for group status. The study also had a longitudinal design to test for long-term effects, but results of the second posttest were not available for this thesis.

In this thesis the following specific research questions were addressed:

1. Can externalizing problems be assessed in children as young as 1 year old?
(Chapter 2)
2. Is child temperament a moderator of the association between parenting behaviors and externalizing problems in children aged 1 to 3 years?
(Chapter 3)
3. Is the VIPP-SD intervention effective in enhancing parental sensitivity and adequate discipline strategies and in decreasing the level of externalizing problems in children aged 1 to 3 years?
(Chapter 4)

Externalizing problems in infancy

For the first time, the Child Behavior Checklist for 1½ to 5 year old children (CBCL/1½-5; Achenbach & Rescorla, 2000) was used to investigate whether externalizing problems can be assessed in children as young as 1 year old. First, confirmatory factor analyses demonstrated that the compositions of the broadband Externalizing Problems syndrome and its three narrowband syndromes Oppositional, Aggressive, and Overactive (see Koot, Van den Oord, Verhulst,

& Boomsma, 1997) were applicable to 1-year-old children. Second, internal consistencies of these syndromes in 1-year-olds were found to be moderate to high. Third, moderate interparent agreement was found in this age group for all externalizing syndromes. Fourth, we reported moderate 1-year stability in 1-year-olds' externalizing problems. Finally, externalizing problems in 1-year-old children were embedded in the same context as has been found for older children. Together these findings provide first support for the reliable and valid assessment of externalizing problems in 1-year-old children with the Child Behavior Checklist, which makes it an even more useful measure to assess problem behaviors across the life span.

Consistent with expectations based on the developmental advances in cognitive, language, and motor skills in 1-year-olds, in combination with the developmental issues of individuation and autonomy that come into view (e.g., Sroufe, 1979; Sroufe & Rutter, 1984), our results showed that externalizing behaviors already occur in 1-year-old children. Some behaviors, e.g., "Quickly shifts activity", "Demanding", "Wants constant attention", were reported for more than half of all children. In addition, the level of externalizing behaviors at the age of 1 year was moderately predictive of externalizing behaviors displayed one year later. Campbell (1995) suggested that in order to categorize externalizing *behaviors* into externalizing *problems*, a pattern or constellation of symptoms should be present with at least short-term stability. The CBCL Externalizing Problems syndrome represents this 'pattern of symptoms' and in our study moderate 1-year stability of externalizing behaviors was demonstrated in 1-year-old children. Therefore, our results indicate that even in infancy externalizing *problems* are present. As treatment of behavior problems seems most effective at an early age (Kendziora, 2004), preventive intervention efforts may be aimed at parents of children as young as 1 year old. Future research should further investigate the longitudinal outcomes of externalizing problems at this young age.

In comparison with 2- and 3-year-old children, the occurrence of almost all externalizing behaviors was significantly lower in 1-year-olds, as were the levels of interparental agreement, 1-year stability, and associations with some contextual characteristics. The developmental psychopathology perspective (see e.g., Rutter & Sroufe, 2000; Sroufe, 1997; Sroufe, Egeland, Carlson, & Collins, 2005; Sroufe & Rutter, 1984) provides an explanatory framework to these findings. Salient developmental issues and rapid developmental changes during the first few years of life set the stage for the *development* of externalizing behaviors. Apparently, these behaviors first emerge at the age of 1 year, but generally increase during the

second and third year of life. Based on retrospective maternal reports, Tremblay et al. (1999) presented a clear increase in the prevalence of aggressive behaviors between 12 and 17 months of age, whereas most children were reported to inhibit these behaviors when entering kindergarten. The gradual shift in salient developmental issues also brings about changes in caregiving challenges, which explains differences in associations between contextual characteristics and externalizing behaviors in 1-year-old children as compared to older children. It is the developmental process itself that brings about more change and less continuity in behaviors over time. In 1-year-old children, transactions between prior adaptation, maturational change, and developmental challenges (see Sroufe & Rutter, 1984), as well as transactions between the child and its environment (e.g., Sameroff & Chandler, 1975), have taken place for a relatively short period of time, causing more fluctuations both in the occurrence and context embeddedness of externalizing behaviors of these young children.

The developmental psychopathology perspective does not easily explain why interparental agreement was lower in 1-year-old children as compared to older children. Since the items of the CBCL/1½-5 were not specifically tailored to this age group, problems may have arisen in the interpretation of certain behaviors in very young children. For example, parents may vary in their willingness to ascribe aggressive behaviors, such as hitting people and destroying objects, to their 1-year-old child, depending on whether they include intent in their interpretation of these behaviors. One parent may take the item at face value and indicate that the behavior is present regardless of intent, while the other parent may be more inclined to view the behavior as not applicable because his own criterion of intent was not met. If this is the case, it may be advisable to emphasize in the instructions for parents of very young children the importance of taking the items at face value. Since the preschool CBCL appears to be a useful measure of externalizing problems in infancy, future research should give more insight in the motivational processes to parental answers on the CBCL in this age group.

Child temperament and the development of externalizing problems

Although associations between child temperament and externalizing problems have been frequently demonstrated (e.g., Rothbart & Bates, 1998; Sanson, Hemphill, & Smart, 2004), there has been a lot of colloquial debate regarding contamination of measurements (see Bates, 1990; Lemery, Essex, & Smider, 2002; Lengua, West, & Sandler, 1998; Sanson, Prior, & Kyrios, 1990). Measurement confounding is

especially relevant when temperament and externalizing problems are studied simultaneously through parental reports, since items sometimes reflect a similar content. Consequently, the association between both constructs may be artificially inflated and research findings may not adequately represent actual processes. It is essential to deal with possible measurement confounding before drawing (inadequate or meaningless) conclusions.

In the SCRIPT study, a decontaminated temperament measure was used; that is, temperament items that showed clear and literal overlap with items from the CBCL/1½-5 (Achenbach & Rescorla, 2000) were removed before construction of the temperament dimension. After removal of the overlapping items, internal consistency of the temperament measure remained satisfactory and the association between temperament and externalizing problems remained relatively high. In addition to this direct association between temperament and externalizing problems, results of the present study confirmed the presence of certain temperament-by-environment interactions. Empirical evidence for Belsky's differential susceptibility hypothesis (Belsky, 1997a, 1997b, 2005) was provided by showing that children with difficult temperaments were more vulnerable to the negative discipline strategy prohibition as compared to children with relatively easy temperaments, and were also more influenced by the positive discipline strategy distraction, indicated by their levels of externalizing problems. In addition, temperament as a moderator of the association between distraction and mother-reported externalizing problems was confirmed using an observational measure of child aggression. Contrary to our expectations, we were not able to demonstrate that temperamentally difficult children were differentially affected by the intervention, as compared to children with relatively easy temperaments. The intervention was successful in decreasing the children's level of overactive behaviors, regardless of their temperament type (see page 98).

In general, moderator effects are difficult to detect, especially in homogeneous samples characterized by reductions in range of variances of the moderator and predictor variables (McClelland & Judd, 1993). This might have resulted in the fact that we were not able to prove all expected associations and that interactions between temperament and some of the maternal discipline strategies (i.e., authoritarian control, reinforcing alternative activities, understanding, and giving in) only showed non-significant trends in the expected direction.

In our study, child temperament was conceptualized by the broad temperament dimension 'difficultness', since Belsky (1997b) suggested that "it may be negatively emotional and even difficult infants who are most susceptible to rearing influence"

(p. 600). Possibly, our decontaminated difficult temperament measure did not fully reflect negative emotionality as intended by Belsky, which may have restricted our findings. Research has shown that other temperamental dimensions are also important in the differential susceptibility to caregiving influences, for example impulsivity (Lengua, Wolchik, Sandler, & West, 2000), fearfulness (Kochanska, 1995), and emotional reactivity (Klein Velderman, Bakermans-Kranenburg, Juffer, & Van IJzendoorn, in press). It may also be the goodness-of-fit between *specific* temperament dimensions and *specific* parental practices that is important to the prediction of *specific* child outcomes (see Thomas & Chess, 1977). For example, Colder, Lochman, and Wells (1997) found that it was the specific combination of harsh parental discipline with a child's fearful temperament that was relevant to the prediction of child aggression. It seems crucial to carefully consider the definition, measurement, and composition of temperament dimensions in testing the differential susceptibility hypothesis.

An explanation for the incongruence between differential susceptibility during the pretest laboratory session and the undifferentiated intervention effects might have been the fact that temperament was assessed only once, during the screening phase, which directly preceded the pretest session, but which was approximately 1½ years before the posttest assessment. Although a longitudinal approach entails protection against situation specific bias and confounding in temperament measurement (Lemery, Essex, & Smider, 2002), it does not acknowledge the plasticity of child temperament (Lengua & Kovacs, 2005; Rothbart & Bates, 1998). Transactional interaction patterns may have altered aspects of the child's temperament, which we did not measure. In order to entirely grasp the role of temperament in child development, future research should assess child temperament at several points in time.

Effects of the VIPP-SD intervention program

Since our findings showed that the development of externalizing problems is especially relevant in the first few years of life, that externalizing problems can be assessed from the age of 1 year, and that child temperament may be a moderator of the association between parenting behaviors and externalizing problems, it is important to examine whether an intervention program at this early age can be effective in reducing the level of externalizing problems, taking into account the influences of child temperament. The effectiveness of the VIPP-SD intervention program was tested in a randomized pretest-posttest control group design. In a group of 1- to 3-year-old children showing high levels of externalizing problems,

the intervention program was effective in improving maternal attitudes towards sensitivity and sensitive discipline, enhancing components of actual maternal sensitive discipline practices (i.e., induction and understanding), and decreasing the level of overactive behaviors in the children. The intervention similarly affected boys and girls, temperamentally difficult and relatively easy children, and children in all age groups. Effect sizes were modest (for the discipline strategy understanding) to medium (for attitude towards sensitivity), according to Cohen's (1977) criteria. In terms of the Binomial Effect Size Display (i.e., the change in success ratio as a result of an intervention; McCartney & Rosenthal, 2000), intervention effects were quite substantial, indicating that the VIPP-SD intervention program, with its rather short duration and relatively modest training, can make a substantial difference in the lives of young children and their parents struggling with externalizing behavior problems.

In addition to clinical relevance, intervention studies provide theoretical relevance in providing empirical evidence to extant theories and prove to hypothesized causal relations (Bakermans-Kranenburg et al., 2003; Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005a). As suggested by the developmental psychopathology perspective (Sroufe, 1997), our study showed that environmental manipulations can alter child development. Since the child and the environment are considered inseparable (Rutter & Sroufe, 2000; Sroufe, 1997; Sroufe & Rutter, 1984), parenting support is supposed to enhance children's social and emotional development. The general assumption underlying this hypothesis is that parenting behaviors influence child behaviors. Another assumption relevant to intervention processes is that parenting attitudes determine parenting behaviors (e.g., Holden, 1995). Therefore, parenting interventions are supposed to affect parenting attitudes first and intervention effects on parenting behaviors are hypothesized to be reached before effects on child outcomes (Juffer et al., 2005a). In our study, we were successful in enhancing maternal attitudes to both intervention themes (i.e., sensitivity and sensitive discipline), but we did not find a relation between attitudes and actual maternal behaviors, nor were we able to demonstrate that the changes in maternal attitudes or behaviors were mediating the change in children's overactive behaviors. The precise mechanism through which the children's behavior problems were affected remained unclear. These intriguing findings are comparable with results of the intervention study by Klein Velderman and colleagues (2005), who reported that effects on externalizing problems were not mediated by effects on maternal sensitivity. The authors argued that their sensitivity measure might not have captured all aspects of positive maternal caregiving relevant to the development of preschool behavior problems. Since

our intervention specifically and solely focused on enhancing maternal sensitivity and adequate discipline strategies, we assume that changes in maternal parenting behaviors have resulted in the decrease of overactive behaviors in the child. However, our measures were apparently not sufficient to capture all changes in the mothers, especially those associated with changes in the child. Furthermore, the laboratory situations in which maternal behaviors were assessed may not have been similar enough to daily life situations. More extensive, multi-method measurements are needed to fully uncover the mechanisms underlying the effect of parenting behaviors on child outcomes.

The assumption that effects on parental attitudes precede effects on parenting and child behaviors may imply that other intervention effects might become apparent in the future (cf. Van Lier, Vuijk, & Crijnen, 2005). Klein Velderman et al. (2005) showed effects of the VIPP intervention on child behavior problems almost 3 years after the start of the intervention. Results of longitudinal assessments will demonstrate whether current intervention effects are sustained in the long run and whether the intervention will eventually affect more maternal parenting behaviors (e.g., sensitivity and negative discipline strategies, which presently were not affected) and whether child effects will be extended to oppositional and aggressive behaviors. However, since the VIPP-SD program is rather brief, it is conceivable that more intensive treatment is required for these more severe problem behaviors. In that case, VIPP-SD can provide an intervention module that addresses the most common problems in the child, whereas an extended intervention involving the wider family context (e.g., social support, marital problems, poverty) may be implemented to meet the needs of more seriously disturbed families.

In previous research, the VIPP intervention has shown positive effects on maternal sensitivity (e.g., Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005b; Klein Velderman et al., in press). In our study, we were able to enhance maternal attitudes towards sensitivity, but not actual sensitive behaviors. It may be that in our sample of children with high levels of externalizing problems, because of their specific clinical needs, parents are more open to adapt their discipline strategies in conflict situations than to apply sensitive practices in other situations. Adequate discipline strategies probably have more direct effects on challenging child behaviors, whereas effects of sensitive parenting may be less easy to notice for parents of children with high levels of externalizing problems. For our sample, we explicitly extended the VIPP intervention with the Sensitive Discipline component, but we were unable to test whether it was this component that was specifically relevant to the intervention effects. In addition, we do not know the explicit effects

of the two booster sessions or whether more booster sessions would have yielded more effects. Inclusion of other intervention groups, for instance with only a VIPP component and different numbers of booster sessions, might give more insight in which elements of the intervention were crucial to its effectiveness. However, the fact that the intervention program affected two of the maternal sensitive discipline behaviors that we specifically focused on in the VIPP-SD intervention (i.e., induction and understanding) may be an indication that the Sensitive Discipline extension has been essential for our sample of children with externalizing problems. In order to prevent 'training-to-the-test', we assessed maternal behaviors during structured tasks in the laboratory, whereas videotaped mother-child interactions during the intervention sessions were play situations in the home. Furthermore, in almost all cases, the posttest laboratory sessions were conducted by an instructor other than the intervener, who was situated behind a one-way-screen during the mother-child tasks. The fact that not only maternal, but also child behaviors have been affected by the intervention strengthens our interpretation of the findings.

Study limitations and implications for future research

The main limitation of this study concerns sample characteristics. In the screening phase, response rates were moderate and non-response data were lacking. Due to these moderate response percentages, the occurrence of externalizing behaviors in our sample can not be generalized to population prevalence rates. Also, families from higher socio-economic backgrounds were overrepresented in our sample. Therefore, it remains to be tested to what population our findings may be generalized. Our findings do show that externalizing behaviors occur in substantial proportions of 1-year-old children, but the low participation rates and high socioeconomic status of participants may have resulted in an underestimation of the occurrence and stability of externalizing problems. Even though families participating in the intervention study did show higher levels of child externalizing problems, marital discord, and daily hassles, as well as lower levels of maternal well-being compared to families in the screening group, it remains to be tested whether the VIPP-SD intervention program is similarly effective in more troubled families from lower socio-economic backgrounds. Further research into the generalizability of our findings is necessary.

A second limitation pertains to the fact that mothers were the main participants in our study (although we did measure father-reported externalizing problems at several time points and fathers were involved during the booster sessions of the intervention). Even though research has consistently shown that fathers play an

important role in their child's development, there is an apparent neglect of fathers in studies on developmental psychopathology (Vetere, 2004). Unfortunately, in our study we were also unable to involve fathers to the same extent as mothers. The focus of our sample selection has been on primary caregivers, since they spend the most time with their child. Despite the generally supposed shift towards a more equal division in household and caregiving activities (see also Pool & Lucassen, 2005), in our sample 95% of the primary caregivers were mothers. In order to be able to draw sound conclusions, we could only focus on mothers as primary caregivers. Apart from information received through objective, observational measures, mothers were the main informants of parenting practices, child, family, and other contextual characteristics. Therefore, we cannot determine to what degree we assessed the real context of the children's externalizing problems or whether maternal perceptions have played a part in our research findings. Such an informant bias may nonetheless reflect exactly those transactional interactions that place the child at elevated risk for (future) behavior problems (Campbell, 1995) and may be especially relevant to the screening of families in need of support. Unfortunately, we were not able to investigate associations between father characteristics and child externalizing problems, and whether paternal attitudes or behaviors might have been affected by the VIPP-SD intervention. Future research should extend our findings by including fathers.

Another limitation concerns our measurements. We attempted to assess relevant aspects in the development of externalizing problems through both parental reports and observational measures at several points in time. However, not all constructs could be measured at all times, because of the potential overload to parents and children. Child temperament, for example, was only assessed during the screening phase, and we did not have an observational measure to complement mother-reported difficult temperament. Also, the divergence between maternal attitudes and behaviors may have arisen from the fact that attitudes were only assessed through maternal reports, while maternal behaviors were solely assessed through observational measures. Furthermore, our measures were not sufficient to capture those changes in maternal behaviors that caused the decrease in overactive child behaviors. The present findings may have been constrained by the fact that there were no home observations of parenting and child behaviors, and that observations during the laboratory assessments were inevitably of a rather short duration. To further uncover the mechanisms of the development and prevention of externalizing problems in early childhood, we recommend extending the measurements used in the present study with repeated and more extensive, multi-method, multi-informant measurements.

Conclusion

The present thesis provided first support for the reliable and valid assessment as well as preventive intervention of externalizing problems in early childhood. Externalizing behaviors do occur in 1-year-old children and are moderately predictive of externalizing problems one year later. Furthermore, child temperament appears to be a moderator in the association between maternal discipline strategies and externalizing problems. Finally, the VIPP-SD intervention was effective in improving maternal attitudes towards sensitivity and sensitive discipline, enhancing components of actual maternal sensitive discipline practices, and decreasing the level of overactive behaviors in children with originally high levels of externalizing problems. These findings provide the incentive for further study of the development and prevention of externalizing behavior problems in very young children.