Externalizing problems in 1- to 3-year-old children

Screening, intervention, and the role of child temperament

Externaliserende problemen bij 1- tot 3-jarige kinderen

Screening, interventie en de invloed van temperament

Jantien van Zeijl

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Prof. dr. F. Juffer

Co-promotores:
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Referent:
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Diederik van Zeijl
Hanneke van Essen

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Geen berg te hoog...

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Chapter 1

General introduction

Introduction

These days, parenting support is a hot topic in the Netherlands. Television programs concerning parenting interventions, such as "The Nanny", are broadcasted on a regular basis, the Dutch government invests extensively in parenting and family support programs (e.g., "Opvoedimpuls" in 2004-2008, by the Ministry of Health, Welfare, and Sport and the Ministry of Justice, 2005), and the number of implemented preventive interventions is rapidly growing (see e.g., Prinsen & De Vries, 2005). Dutch society clearly acknowledges the facts that young children may show difficult behaviors, that parenting can be a difficult job, and that parents should be supported in fulfilling this task if necessary. Not only in the Netherlands there is a growing attention for parenting support, the acknowledgement that prevention programs are a sound investment in society's future is an international phenomenon (see e.g., Conroy, Hendrickson, & Hester, 2004; Weissberg, Kumpfer, & Seligman, 2003). However, both on a scientific level and from the view of field practitioners, several questions concerning the quality and effectiveness of parenting support programs remain to be answered. For example, Hinshaw (2002) indicates that the theoretical and conceptual foundations of treatments are often questionable, whereas Kendziora (2004) states that "too much work has focused on developing new programs at the expense of disseminating effective interventions" (p. 342).

Field practitioners are often enthusiastic about intervention programs. When implementing the programs, they meet parents who are happy with the support they are receiving for their problems and they may see progress in the child. In other words, they "feel" the intervention is having positive effects. Nevertheless, many intervention programs have not been studied for their effects, and intervention studies often suffer from methodological flaws. Bakermans-Kranenburg, Van IJzendoorn, and Juffer (2003) describe the ideal intervention study as consisting of large samples, a random group assignment, a dummy-intervention for the control group, a pretest to detect possible randomization failures, and a longitudinal design to test for long-term effects. The intervention itself should have a clear focus, should be carefully described in a protocol, and implementation and evaluation of the intervention should be independent. Moreover, research should not only focus on *whether* interventions work, but also on *what kind* of interventions and *which elements* of an intervention work for specifically *which type of children* and *what specific outcomes* are affected (Bakermans-Kranenburg et al., 2003; Campbell, 2002; Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005a; Kendziora, 2004).

Although interventions in early childhood often aim at enhancing parental sensitivity (see Bakermans-Kranenburg et al., 2003), there is a lack of comprehensive treatment for preschoolers with behavior problems (Campbell, 2002). Intervention efforts regarding behavior problems have traditionally targeted children at school age or in adolescence. In research practices, however, the prevalence and clinical relevance of behavior problems in early childhood, such as non-compliance, temper tantrums, and aggression (labeled as externalizing problems), is now widely recognized; especially with respect to early prevention efforts (Conroy et al., 2004; Kendziora, 2004).

In short, there is a need for systematically developed, preventive interventions of early externalizing problems, with a strong theoretical foundation and an evidence based evaluation of potential intervention effects.

Externalizing problems: A developmental psychopathology perspective

A growing number of studies have shown that externalizing problems, such as oppositional and aggressive behavior, increase the risk for future maladaptation, for example social and academic difficulties (for an overview, see Campbell, Shaw, & Gilliom, 2000). In order to develop focused preventive interventions, it should be investigated why some children develop normally, whereas others show these maladaptive developmental pathways. The developmental psychopathology perspective, defined by Sroufe and Rutter (1984) as "the study of the origins and course of individual patterns of behavioral maladaptation" (p. 18), focuses on determinants of individual differences in development. It considers continuity and change in the context of development, taking into account a broad range of biological, psychological, and social factors (Rutter & Sroufe, 2000; Sroufe, 1997; Sroufe & Rutter, 1984). According to this view, development is organized around a series of salient developmental issues a child must acquire (Sroufe, 1979; Sroufe & Rutter, 1984). Individual patterns of adaptation to those issues are crucial in the development of psychopathology. The developmental psychopathology perspective emphasizes the transaction between prior adaptation, maturational change, and subsequent developmental challenges. There is a constant transformation and reorganization of behavior in a developing child who is interacting with its environment. Moreover, in the developmental psychopathology perspective, the child and the environment are considered inseparable (Rutter & Sroufe, 2000; Sroufe, 1997; Sroufe & Rutter, 1984).

In the same vein, transactional models (e.g., Sameroff & Chandler, 1975) underline the multidirectional influences between the child and its caregiving environment. Campbell (2002) argues that it is the synergy among both risk and protective factors in the child and the environment that determines future child outcomes, such as the development of externalizing problems. Important to the intervention field is the fact that disorders are not regarded as arising from a singular, endogenous pathogen. The branching pathways model implies plasticity of the individual and the possibility of environmental manipulations in the treatment of externalizing problems (Sroufe, 1997).

Until relatively recently, externalizing problems in early childhood were often considered to be clinically irrelevant, as these problems were thought to be age-appropriate and transient. Indeed, certain externalizing behaviors are very common in preschool children (Achenbach & Rescorla, 2000; Koot & Verhulst, 1991). For example, Koot and Verhulst (1991) report that the prevalence (i.e., presence, irrespective of degree) in the Dutch general population of children aged 2 to 3 years is 78% for disobedience, 69% for angry moods, and 53% for temper tantrums. The first few years of life, which include the transition from infancy to preschool age, are an especially challenging period. The child experiences rapid developmental advances in cognitive, language, and motor skills. In combination with a growing need for autonomy and strive for independence, the new developmental accomplishments underlie the characteristically challenging and disruptive behaviors of preschoolers (Campbell, 2002). In most children, externalizing behaviors decline at school age (Achenbach & Rescorla, 2000; Tremblay et al., 1999), but not all children overcome their behavioral difficulties. Children who show high levels of multiple externalizing behaviors are at risk for a variety of problems in later childhood (Campbell et al., 2000; Mesman & Koot, 2001). Longitudinal studies have shown that the stability of externalizing problems is relatively high from the preschool period to school age and adolescence. Despite the overall decline in the *level* of behavior problems, children tend to maintain their rank order (Campbell, 1995). In addition, early externalizing problems are predictive of a range of negative child outcomes, including social, personal, and academic difficulties, delinquent behaviors, co-occurrence of internalizing problems, depression, and other forms of psychopathology (for an overview, see Campbell, 1995, 2002). Without intervention, early externalizing problems can become a lifelong concern (Kendziora, 2004).

As successful treatment of externalizing problems in school-aged children and adolescents becomes increasingly difficult (Kendziora, 2004), it is important to

examine from what age externalizing problems can be reliably assessed. Several studies have provided evidence that externalizing problems exist in children as young as 18-month-olds (e.g., Achenbach & Rescorla, 2000; Briggs-Gowan, Carter, Skuban, & Horwitz, 2001; Mathiesen & Sanson, 2000; Tremblay et al., 2004), and recent evidence even points to the existence of externalizing problem behaviors in children as young as 12 months old (Carter, Briggs-Gowan, Jones, & Little, 2003; Tremblay et al., 1999). Intervention at the earliest age may be most effective and may prevent harm to children, parents, teachers, and society at its earliest stage.

Parenting and the development of child externalizing problems

One of the most proximal environmental factors related to externalizing problems in early childhood is parenting behavior. There is substantial evidence that a negative parent-child relationship predicts child externalizing problems (see e.g., Campbell, 1995, 2002; Rothbaum & Weisz, 1994). Adequate parenting behavior takes a central place in child development by supporting children in mastering their developmental issues, whereas maladaptive parenting strategies negatively influence child development. Moreover, emerging behavior problems are more likely to persist and even worsen over time in the context of a negative family climate, including negative parenting styles (Campbell, 1995, 2002).

As child development involves specific developmental issues, Sroufe (1979) also describes which caregiving behaviors are required at each developmental stage. Salient parenting issues during early childhood center around sensitive responsiveness and parental discipline practices (Rothbaum & Weisz, 1994; Sroufe, 1979). Two theoretical frameworks that are especially relevant to these parenting issues are attachment theory and social learning theory. Both theories describe parental contributions to the development of externalizing problems and explicitly include developmental and transactional features (Shaw & Bell, 1993).

Attachment theory

Attachment theory (Bowlby, 1969) states that for evolutionary reasons all infants become attached to their primary caregiver(s). By showing attachment behaviors, such as crying and clinging, a child promotes and maintains proximity to its caregivers, who are the major source of comfort, protection, and support for the child in times of stress and fatigue. Attachment figures also provide the child with a secure base from which to explore the environment, by giving the child a

basic sense of security and trust. The degree to which the caregiver is available and sensitively responsive to the child's signals determines the quality of the attachment relationship (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969). Sensitive responsiveness comprehends the ability to accurately perceive children's attachment signals, and to respond to these signals in an adequate and prompt way (Ainsworth, Bell, & Stayton, 1974). Whereas secure attachment relationships are associated with positive child outcomes (e.g., Sroufe, Egeland, Carlson, & Collins, 2005), an insecure attachment relationship is predictive of less optimal child development (Greenberg, 1999). A number of empirical studies have shown that insecure attachment and parental insensitivity or unresponsiveness are both related to child externalizing problems (e.g., Denham et al., 2000; Greenberg, Speltz, DeKlyen, & Endriga, 1991; Olson, Bates, Sandy, & Lanthier, 2000; Shaw, Owens, Giovanelli, & Winslow, 2001).

Attachment theory suggests several processes associated with the development of externalizing problems (DeKlyen & Speltz, 2001). First, externalizing behaviors can be regarded as attachment strategies to gain attention and proximity to attachment figures that are unresponsive to other signals. In the short term, these behaviors may seem adaptive; however, in the long term they may contribute to the development of negative interaction processes and increase the likelihood of future maladaptive behaviors or externalizing problems. Second, externalizing behaviors may emerge because of the negative expectations an insecurely attached child holds regarding social interactions. Internal working models (i.e., representational models constructed from interaction patterns with attachment figures) serve to interpret and predict other people's behavior and to regulate the child's own behavior. As the internal working models affect perception, cognition, and motivation, they shape the way social situations will be approached (Bretherthon & Munholland, 1999). Hostile attributional biases, such as mistrust, anger, and anxiety, may predispose an insecurely attached child to the expression of externalizing behaviors. Related concepts include motivational processes and emotion regulation; once more, the quality of the attachment relationship determines how the child behaves in social interactions and whether externalizing behaviors will be displayed.

Social learning theory

Social learning models also describe how parenting behaviors influence children's behavior. Patterson's coercion theory (Patterson, 1976, 1982), based on social learning principles, states that a combination of coercive child behavior

and ineffective parental discipline skills set the stage for maladaptive child development. According to social learning principles, reinforcement processes determine whether behaviors will persist and increase over time or whether they will decrease or even fade away. From this perspective, behaviors will continue when they have been proven to be effective. In coercion theory, this principle is specified in the context of coercive interaction cycles: externalizing behaviors will be displayed when they have been successful in forcing others to give up unwelcome demands or requests, or in obtaining what was wanted in the first place. It is the reinforcement of these negative child behaviors as well as the lack of reinforcement of positive behaviors that contribute to the development of child externalizing problems. Similar to what has been described from the attachment perspective, both child and parental behaviors may seem effective in the short term, i.e. conflict situations are terminated. However, both the child and the parent are reinforced in their (maladaptive) behaviors, which sets the stage for coercive interaction patterns with more frequent escalations and the persistence of child externalizing problems. Several studies have demonstrated the relevance of reinforcement processes in the development and continuity of externalizing problems, but generally in school-aged children only (e.g., Patterson, 1982; Prinzie et al., 2003; Snyder, Cramer, Afrank, & Patterson, 2005).

In sum, both attachment and coercion theory provide a strong theoretical and empirical foundation to preventive intervention efforts aimed at reducing early externalizing problems, as well as concrete indications of which parenting behaviors should be targeted. Both theories emphasize the importance of contingent and non-aversive parent-child interactions in the prevention of externalizing problems (Patterson, 1982; Rothbaum & Weisz, 1994). From the point of view of attachment theory, intervention efforts should target parental insensitivity in daily parent-child interactions, whereas according to coercion theory the main intervention target variables are coercive and inconsistent parental discipline tactics in conflict situations. As Campbell (2002) summarized: "A warm and supportive parent-child relationship, paired with firm, reasonable, consistent, and flexible childrearing practices, and a generally positive emotional climate in the home are seen as particularly important factors that facilitate optimal child development, especially when young children are irritable and demanding" (p. 276).

Child temperament and the development of externalizing problems

Although children's development is embedded within their caregiving relationships, children are also active participants in their own experiences (Sroufe, 1979). Child temperament, generally defined as constitutionally-based individual differences in behavioral style, directly impacts on the child's development by predisposing the child to a certain, related developmental outcome (Goldsmith et al., 1987; Rothbart & Bates, 1998). For example, negative emotionality or a difficult temperament has been demonstrated to represent a predisposition for angry and aggressive behaviors (Sanson, Hemphill, & Smart, 2004). Also, some researchers have adopted the view that temperament extremes, for example extreme resistance to control, are equal to psychopathology (Bates, 1990; Rothbart & Bates, 1998). In that case, temperamental behaviors not only predispose children to the development of behavior problems, but become part of the problems. In addition to these direct influences on maladaptive outcomes, temperament is known for shaping children's environmental experiences; either through indirect processes, for instance by eliciting certain parenting behaviors, or through temperament-by-environment interactions, by heightening response strategies or buffering against risk factors (Rothbart & Bates, 1998).

It was Belsky (1997a, 1997b, 2005) who formulated a differential susceptibility theory, regarding the moderating effect of child temperament on the association between environmental influences and child outcomes. He argued that it makes evolutionary sense that some children are more susceptible to environmental influences than others. In a changing environment and an uncertain future, a diversification of investments (i.e., "fixed" versus "plastic" types of children) will reduce risk and maximize gain in the passing on of parental genes. Although some children may show mainly genotypically determined externalizing problems, environmentally reactive children mainly show externalizing behavior problems because of their rearing conditions. Belsky (1997b) speculates that negatively emotional children and children with difficult temperaments are most susceptible to rearing influences. If Belsky's theoretical assumptions would be proven to be true, intervention efforts should be especially targeted at parents of temperamentally difficult children, since these children will be especially vulnerable to maladaptive caregiving. In fact, Blair (2002) showed that an early intervention in low birth-weight, preterm infants was successful in changing the level of externalizing problems only among negatively emotional children, and she pleads for further

attention to child temperament in early intervention research. The present thesis presents the effectiveness of an early intervention of externalizing problems, taking into account the influences of child temperament.

The SCRIPT study

The Dutch SCRIPT study (Screening and Intervention of Problem behavior in Toddlerhood) aims at the early detection and intervention of externalizing problems in early childhood, with the purpose of preventing antisocial behaviors and its many serious consequences in childhood and adolescence (Mesman et al., in press; Van IJzendoorn & Juffer, 2000; Van Zeijl, Stolk, & Alink, 2005). The study investigates the effectiveness of an early intervention program (Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline: VIPP-SD) aimed at reducing externalizing problems in 1- to 3-year-old children by enhancing parental sensitivity and adequate discipline strategies. It consists of a screening phase in a general population sample and a randomized case-control intervention

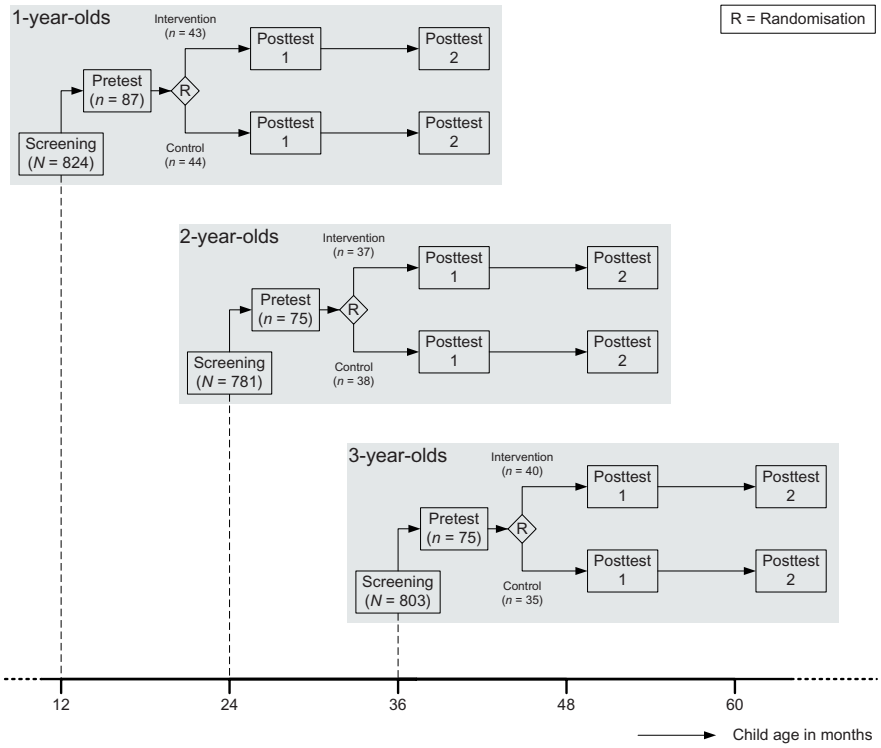

Figure 1.1: Design of the SCRIPT study (see Van IJzendoorn & Juffer, 2000)

phase in a selected subsample of children with high levels of externalizing behavior problems (see Figure 1.1, on page 18). To obtain a sample of 1-, 2-, and 3-year-old children showing externalizing problems, a general population screening was conducted using the Child Behavior Checklist for children aged 1½-5 years (CBCL/1½-5; Achenbach & Rescorla, 2000). Children with scores above the 75th percentile on the CBCL syndrome Externalizing Problems were selected and invited for a pretest in the laboratory. After the pretest, families were randomly assigned to either an intervention or a control group. Approximately one and two years after the pretest, families from both the intervention and control group visited the laboratory for a posttest. The SCRIPT study was specifically designed on the basis of current knowledge regarding early externalizing problems and intervention studies.

Aims of the study

The general aims of the SCRIPT study are (a) to test the effectiveness of the VIPP-SD intervention on parental sensitivity and discipline; (b) to test whether the enhancement of parental sensitivity and discipline abilities leads to a decrease in child externalizing problems and an increase in empathic concern; (c) to investigate whether earlier preventive interventions are more effective than interventions at preschool age; and (d) to study the development of externalizing problems from age 12 to 60 months. In this thesis the following specific research questions are addressed:

1. Can externalizing problems be assessed in children as young as 1 year old?

2. Is child temperament a moderator of the association between parenting behaviors and externalizing problems in children aged 1 to 3 years?

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?

Outline of the present thesis

Chapter 2 focuses on the assessment of externalizing problems in infancy and presents the occurrence, cross-informant agreement, 1-year stability, and context characteristics of externalizing behaviors in 1-year-old children, as compared to 2- and 3-year-olds. In *Chapter 3* Belsky's differential susceptibility theory is empirically

tested by examining the interaction of child temperament and maternal discipline strategies in the prediction of externalizing problems in 1- to 3-year-old children. *Chapter 4* describes the effectiveness of the VIPP-SD intervention program on both parental attitudes and behaviors regarding sensitivity and discipline as well as on child externalizing problems. The influences on possible intervention effects of child age (1 to 3 years) and child temperament were also investigated. Finally, in *Chapter 5*, the main findings regarding our research questions are integrated and discussed.

Chapter 2

Terrible ones? Assessment of externalizing behaviors in infancy with the Child Behavior Checklist

Jantien van Zeijl, Judi Mesman, Mirjam N. Stolk, Lenneke R.A. Alink, Marinus H. van IJzendoorn, Marian J. Bakermans-Kranenburg, Femmie Juffer, & Hans M. Koot
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Abstract

This study investigated the occurrence, cross-informant agreement, 1-year stability, and context characteristics of externalizing behaviors in 12-month-old children, as compared to 24- and 36-month-olds. In a general population sample of 786 12-month-olds, 720 24-month-olds, and 744 36-month-olds, the CBCL/1½-5 was obtained from mothers and fathers and again one year later for a subsample of 307 children. Mothers of 1,831 children also provided complete data on child, mother, and family characteristics.

Over three-fourths of the externalizing behaviors occurred in more than 10% of 12-month-olds, over one-third of the items in more than 25%. For almost all externalizing behaviors, the occurrence was significantly lower in 12-month-olds compared to 24- and 36-month-old children. Mother-father agreement and 1-year stability of externalizing behaviors in 12-month-old children were significant, but generally somewhat lower than in 24- and 36-month-olds. Context characteristics were related to externalizing behaviors in 12-month-olds as well as in older children. Some associations were less pronounced in 12-month-old children, but the overall pattern of correlates was similar across age groups.

The results of this study show that externalizing behaviors in 12-month-old children merit further research and can be assessed with the CBCL in a valid way.

Introduction

From a developmental perspective, a child's first birthday marks more than just the passing of one year on the calendar. During that year, the child has gone from lying down to rapidly advancing mobility, from diffuse to increasingly differentiated emotions, and from basic reflexes to goal-directed activity (Sroufe, 1995). Several of these developmental advances point to the relevance of examining the emergence of externalizing behaviors in 12-month-olds. Not only do 12-month-old children experience emotions such as frustration and anger, their cognitive and physical advances allow them to undertake a variety of coordinated goal-directed actions. These accomplishments are all crucial ingredients for the performance of externalizing behaviors, such as noncompliance, temper tantrums, and hitting others. However, very little is known about the prevalence rates, stability, and correlates of externalizing behaviors in 12-month-olds. The present study aims to investigate these issues in order to explore the nature of externalizing behaviors in 12-month-old children, as compared to children aged 24 and 36 months.

Recently, some studies have provided evidence for the existence of externalizing behaviors in 12-month-old children. Tremblay and colleagues (1999) showed that the age of onset of physical aggression lies around the age of 12 months, and that by age 17 months, approximately 80% of the children will have performed one or more physically aggressive behaviors. Unfortunately, because of the retrospective study design, reliable prevalence rates of aggression in children younger than 17 months were not available. Carter, Briggs-Gowan, Jones, and Little (2003), confirmed the existence of aggression in children aged 12 to 17 months, and further showed that defiance and impulsivity also occur in this age group. However, it is unclear to what extent these results apply to the youngest children in this age range.

While there is some evidence regarding the existence of externalizing behaviors in 12-month-olds, little is known about interparent agreement about these behaviors. In studies with 2- and 3-year-olds, correlations between mothers' and fathers' reports of child externalizing problems are around .65 (Achenbach & Rescorla, 2000; Koot, Van den Oord, Verhulst & Boomsma, 1997). A second important issue is the question whether these behaviors are merely transient or indicative of future (mal)adaptation. We did not find any studies that reported longitudinal stability of externalizing behaviors in children younger than 24 months of age. Studies in older toddlers report 1-year stability coefficients of .70 (Achenbach, Edelbrock, & Howell, 1987) and .66 (Achenbach & Rescorla, 2000). It is unclear whether these

findings regarding interparent agreement and longitudinal stability also apply to children younger than 24 months of age.

Another step in unraveling the nature of 12-month-olds' externalizing behaviors is examining how these behaviors relate to child and family functioning. The development of externalizing problems in older children is best explained by a combination of both child and environmental characteristics (Campbell, 2002). *Child factors* that have been associated with externalizing problems in young children in recent research include difficult temperament (Mathiesen & Sanson, 2000) and physical health problems (Najman, Bor, Andersen, O'Callaghan, & Williams, 2000). *Parent characteristics* related to externalizing behavior in young children in recent studies include feelings of parenting inefficacy (Carter, Briggs-Gowan, & Davis, 2004), a harsh and controlling parenting style, daily stresses, and low marital quality (Belsky, Woodworth, & Crnic, 1996), as well as maternal psychological health problems (Najman et al., 2000), lack of social support - in particular dissatisfaction with the level of social support - and low parental age (Anselmi, Piccinini, Barros, & Lopes, 2004). In addition, *family factors* associated with young children's externalizing problems include low levels of parental education and the presence of siblings (e.g., Anselmi et al., 2004). The use of day care has become increasingly common in this age group, and recent research has found that quantity of child care (considered an extra-familial influence) is associated with externalizing problems (NICHD, 2003).

We might expect both similarities and differences between correlates of externalizing behaviors in 12-month-olds and those found in older children. Finding similar associations would provide support for the construct validity of externalizing behaviors at this age. Such findings would show that the meaning of externalizing behavior in 12-month-olds is reflected in the same well-established pattern of associated factors in older children. Variations in the (strength of) associations between context characteristics and externalizing behaviors may, however, also be expected. Developmental differences between 12-month-olds and older children may be responsible for diverging patterns in different age groups. The developmental psychopathology perspective (e.g., Sroufe & Rutter, 1984) emphasizes the transaction between prior adaptation, maturational change, and subsequent developmental challenges. Consistent with this view, transactional models (e.g., Sameroff & Chandler, 1975) underline the multidirectional influences between child behavior and its caregiving environment. Older children have interacted with their environment for a longer period of time and the impact of (maladaptive) behavior patterns may have been more extensive than in

younger children, and lead to more pronounced associations between context and externalizing behaviors in older children as compared to those found in 12-month-olds. Another relevant mechanism involves the concept of developmental issues. Sroufe (1979) describes development as organized around a series of developmental issues, indicating which developmental tasks a child must acquire (e.g., exploration and mastery) and what caregiving behavior is accordingly required (e.g., providing a secure base). Developmental issues alternate in narrow intervals in infancy and toddlerhood. The child experiences rapid developmental advances in cognitive, linguistic, and motor skills, and parents need to continuously tune their caregiving behavior to their developing child. The qualitative changes in child and parental functioning in terms of salient developmental issues at several points in time during the first few years of life may result in different context factors associated with externalizing behavior at different ages.

One of the reasons that studies reporting data on the prevalence of externalizing behaviors in children younger than 2 years are so scarce has been the lack of suitable research instruments for the measurement of these behaviors in this age group. Most of the available questionnaires measuring behavior in very young children consist of very broad categories of functioning and do not differentiate between externalizing and other types of behaviors (e.g., Mouton-Simien, McCain, & Kelley, 1997; Squires, Bricker, & Potter, 1997). Tremblay et al. (1999) used only a short questionnaire consisting of physically aggressive behaviors rated on a 3-point scale by parents. The recently developed ITSEA (Infant-Toddler Social and Emotional Assessment) is aimed at children between ages 12 and 36 months and included externalizing problems (Briggs-Gowan & Carter, 1998; Carter et al., 2003). However, publications so far did not report on the prevalence and reliability of problem behavior in the youngest age group of 12-month-olds.

The most widely used questionnaire for the assessment of child behavior problems is the Achenbach System of Empirically Based Assessment (ASEBA), which includes the well known Child Behavior Checklist (CBCL) for different age groups (e.g., Achenbach & Rescorla, 2000, 2001). Recently, the CBCL for ages 2 to 3 years (CBCL/2-3; Achenbach, 1992) was revised to include a wider age range, resulting in the CBCL for ages 1½ to 5 years (CBCL/1½-5; Achenbach & Rescorla, 2000). The fact that the ASEBA is widely used and is specifically tailored to assess problem behavior across the life span makes it a prime candidate for the exploration of assessing externalizing behaviors in children as young as 12 months of age, with the possibility of another downward extension.

The aim of the present study was, first, to examine the occurrence, mother-father agreement, and 1-year stability of externalizing behaviors in 12-month-old children, using the CBCL/1½-5. The study also included 24- and 36-month-old children, to compare results across age groups. Consistent with the studies by Tremblay et al. (1999) and Carter et al. (2003), we expected externalizing behaviors to occur in 12-month-olds, but less often than in 24- and 36-month-old children. Based on studies in somewhat older children, we expected to find moderate to high interparent agreement and 1-year stability of externalizing behavior in 12-month-olds. Second, we examined which child, mother, and family characteristics were associated with externalizing behaviors in 12-month-old children, and whether these associations were similar to those found in 24- and 36-month-olds.

Method

The SCRIPT study

The Dutch SCRIPT study (Screening and Intervention of Problem behavior in Toddlerhood) is a collaboration between Leiden University (Centre for Child and Family Studies) and the Vrije Universiteit Amsterdam (Department of Developmental Psychology). The study investigates the effectiveness of an early intervention program aimed at reducing externalizing behaviors in 12- to 36-month-old children by enhancing maternal sensitivity and adequate discipline strategies. The data for the current paper were derived from the general population screening phase and the 1-year follow-up.

Sample and procedure

Addresses of children aged approximately 12 months, 24 months, and 36 months were obtained from the municipal registers of several cities and towns in the western region of the Netherlands. Because the screening phase of the SCRIPT study was designed to provide participants for the intervention study, sample homogeneity regarding cultural background (Dutch) was important. Therefore, children with both a non-Dutch surname and a non-Dutch first name were not included in the target sample. By mail, parents of 4,615 eligible children received two booklets with questionnaires, one for each parent. Data were obtained from the primary parents of 2,408 children (response rate 52%), as well as from the second caregivers in 87% of the cases. Unfortunately we were not able to collect detailed information on non-participating families, but there were no child age or child sex differences between responding and non-responding families (respectively $p = .11$ and $p = .38$).

For the present paper, only those children were included for whom the primary parent was the mother (biological or otherwise) and the second caregiver (if present) was the father (biological or otherwise). Three children aged 15 months were excluded in order to obtain a more homogeneous age group of children aged approximately 12 months. These selection criteria resulted in a sample of 2,250 children: 786 12-month-old children (M = 11.71 months, SD = 1.00, range 10 – 14), 720 24-month-olds (M = 23.80 months, SD = 0.99, range 22 – 27), and 744 36-month-olds (M = 35.77 months, SD = 1.09, range 33 – 40). The living situation of almost all children involved both biological parents (95%) and over half of the children had siblings (60%). The majority of the parents had a high educational level (one or both parents with Bachelor's or Master's degree in 65% of the sample).

Because of the large sample size, we used a critical p-value of $p < .01$ throughout this paper, in order to prevent capitalization on chance and on too small effect sizes.

Statistically significant, but small differences between age groups were found for parental educational level, $F(2, 2247) = 5.13$, $p < .01$, partial $\eta^2 = .005$. Post hoc tests showed that parents of 36-month-olds had a lower educational level than parents of 12-month-olds ($p < .01$). In addition, older children had siblings more often than younger children, overall $\chi^2(2, N = 2{,}250) = 121.40$, $p < .01$, partial $\eta^2 = .054$. There were no significant differences between age groups regarding living situation ($p = .40$).

A follow-up was conducted approximately 1 to 3 years after the screening phase, consisting of follow-up data from the primary parents of 60% of the screening sample (n = 1,351); in 79% of the cases data from the second caregivers were also obtained. The follow-up sample for the present paper was based on the following criteria: (1) We selected only those children for whom data were available from both parents at both times of assessment, to avoid informant effects on stability, n = 1,029; (2) Children who had received the study's intervention between the screening and follow-up (n = 81) were excluded to avoid interference of potential intervention effects; (3) To avoid unclear results because of large differences in follow-up intervals (range 8 – 41 months), we only included children for whom the follow-up interval was approximately 12 months (n = 307, M = 12.09, SD = 1.40, range 10 – 14 months). This selection resulted in a follow-up sample of 307 children: 114 12-month-olds, 94 24-month-olds, and 99 36-month-olds.

Parents of the children in the follow-up sample had a higher educational level than the unselected children, $F(1, 2248) = 30.25$, $p < .01$, partial $\eta^2 = .013$; and children in the follow-up sample all lived with both biological parents, while some of the unselected children did not $\chi^2(2, N = 2{,}250) = 17.58$, $p < .01$, partial $\eta^2 = .007$. Differences in initial level of externalizing behaviors were present, but effect sizes were very small: the selected follow-up sample had significantly lower scores on Externalizing Problems (average of mothers and fathers: $M = 10.39$, $SD = 0.43$ versus $M = 12.30$, $SD = 0.43$, $F[1, 1963] = 16.39$, $p < .01$, partial $\eta^2 = .008$), on Oppositional (average of mothers and fathers: $M = 6.38$, $SD = 0.29$ versus $M = 7.53$, $SD = 0.12$, $F[1, 1963] = 13.29$, $p < .01$, partial $\eta^2 = .007$), on Aggressive (average of mothers and fathers: $M = 2.03$, $SD = 0.11$ versus $M = 2.36$, $SD = 0.05$, $F[1, 1963] = 7.58$, $p < .01$, partial $\eta^2 = .004$), as well as on Overactive (average of mothers and fathers: $M = 1.98$, $SD = 0.09$ versus $M = 2.41$, $SD = 0.04$, $F[1, 1963] = 17.79$, $p < .01$, partial $\eta^2 = .009$). There were no differences between the follow-up sample and the unselected children regarding child age ($p = .68$) and presence of siblings ($p = .33$).

For the correlational analyses only those children were included for whom we had complete data on all child, mother, and family measures that were investigated, resulting in a subsample of 1,831 children (638 12-month-olds, 589 24-month-olds, and 604 36-month-old children). There were no significant differences between children in this subsample and children excluded because of missing data regarding age ($p = .94$), presence of siblings ($p = .03$), and level of externalizing problems ($p = .91$). Parents in this subsample had a higher educational level, $F(1, 2248) = 25.27$, $p < .01$, partial $\eta^2 = .013$; and children in the subsample were more often living with both biological parents, $\chi^2(1, N = 2{,}250) = 407.73$, $p < .01$, $\eta^2 = .068$.

Instruments

Scale scores were computed by summing item scores, except for the temperament measure, for which a scale score was computed by averaging item scores. Because we feel that externalizing behaviors in very young children can not be readily labeled as problematic, we use the term externalizing *behaviors* rather than externalizing *problems* throughout this paper. However, because the CBCL syndromes are officially labeled *problem* scales, we use the term *problems* when referring to this instrument.

Externalizing behaviors

The Child Behavior Checklist for ages 1½ to 5 (CBCL/1½-5; Achenbach & Rescorla, 2000) was used to assess externalizing behaviors and was obtained from both mothers and fathers. Parents indicated whether their child displayed any of the 100 behavioral descriptions in the last 2 months on a 3-point scale (0 *not true*, 1 *somewhat or sometimes true*, and 2 *very true or often true*). The previous version of the CBCL/1½-5 (the CBCL/2-3) was tested in a Dutch population of 2- to 3-year-olds by Koot et al. (1997) who identified a broadband Externalizing Problems syndrome (31 items) consisting of three narrowband syndromes: Oppositional (17 items), Aggressive (9 items), and Overactive (5 items). Internal consistencies exceeded .75 for all externalizing syndromes. In addition, Koot et al. reported good reliability and validity. Because the CBCL has not been previously used for children under 18 months old, we performed confirmatory factor analyses (LISREL, ULS) to find out if the factor structure as found for 2- to 3-year-olds by Koot et al. (1997) was also applicable for 12-month-old children. Results for a one-factor solution (broadband Externalizing Problems) showed acceptable to close fit: RMSEA = .042 (95% confidence interval (CI) .038 – .045), AGFI = .95, and RMR = .089. For the 3-factor solution (Oppositional, Aggressive, Overactive), the fit indices showed similar results: RMSEA = .036 (95% CI .033 – .040), AGFI = .95, and RMR = .083. We concluded that the same factor structure as found for older children was applicable to our sample of 12-month-old children.

In 12-month-old children, internal consistencies (Cronbach's alphas) for mother- and father-reported CBCLs were high for the broadband syndrome Externalizing Problems (.89 / .88) and the subsyndrome Oppositional (.86 / .84), and acceptable for Aggressive (.65 / .68). For Overactive, alphas were mediocre (.54 / .60). Alpha levels were similar for the older age groups, ranging from .67 (father-reported Overactive in 24-month-olds) to .91 (mother-reported Externalizing Problems in 36-month-olds).

Difficult temperament

Child temperament (as perceived by the mother) was measured with the Infant Characteristics Questionnaire (ICQ; Bates, Freeland, & Lounsbury, 1979). The ICQ was translated into Dutch and found reliable by Kohnstamm (1984). The Dutch ICQ contains 33 items, describing concrete behaviors in well defined situations. The items were rated on a 5-point scale, ranging from 0 *not true* to 4 *true*. Because the ICQ was used in combination with the aforementioned CBCL/1½-5, five items in the ICQ were discarded due to content-overlap between items of both questionnaires (see Table 2.1, on next page). Next, a one-component analysis was carried out in each age group to derive a general difficultness factor (more information can be

found in the appendix of this chapter: Table 2.7, on page 41). The difficultness factor consisted of 14 items in 12-month-old children, 18 items in 24-month-olds, and 16 items in 36-month-old children. Cronbach's alphas were .68, .76, and .75, respectively.

Table 2.1: Items from the Infant Characteristics Questionnaire (ICQ) removed because of content-overlap with items from the Child Behavior Checklist (CBCL)

ICQ items	CBCL items	correlation
How much does your child cry and fuss in general?	Cries a lot	.35**
How does your child typically respond to a new person?	Upset by new people or situations	.42**
How much does your child smile and make happy sounds?	Looks unhappy without good reason	.34**
How does your baby respond to disruptions and changes in everyday routine?	Disturbed by any change in routine	.40**
How changeable is your baby's mood?	Sudden changes in mood or feelings	.31**

Note: ** $p < .01$.

Child physical health problems

The number of physical health problems was assessed by asking mothers to indicate whether seven indicators did or did not apply to their child (e.g., physical handicap, chronic disease).

Parenting efficacy

The extent to which mothers characterized themselves as competent caregivers was measured with the Parental Efficacy Questionnaire (Caprara, personal communication, 1998; Van IJzendoorn, Bakermans-Kranenburg, & Juffer, 1999). The questionnaire consists of 20 items rated on a 5-point scale (ranging from -2, meaning *I am certainly not capable of doing this*, to +2, meaning *I am certainly capable of doing this*). Cronbach's alphas were .85 for 12- and 24-month-old children, and .86 for 36-month-olds.

Authoritarian control

The Dutch translation of the Child Rearing Practices Report (questionnaire-form) was used to assess mothers' authoritarian style in childrearing (CRPR; Block, 1965; Dekovic, Janssens, & Gerris, 1991). We used 11 of the 13 items measuring authoritarian control (see Dekovic, 1989), since 2 items were not applicable to our age groups ("I do not allow my child to say bad things about his teacher" and "I believe children should not have secrets from their parents"). Mothers were asked to rate statements regarding strict supervision, frequent use or threat of physical punishment, verbal reprimands, and prohibitions on a 5-point scale (0 *not true* – 4 *true*). Cronbach's alphas were .67 in 12-month-olds and .68 in 24- and 36-month-old children.

Daily hassles

To measure daily hassles, mothers were asked to rate the intensity of 45 indices of potentially stressful events on a 5-point scale (0 *no hassle* – 4 *big hassle*). The Parenting Daily Hassles questionnaire (Crnic & Greenberg, 1990) contains 20 items asking about typical everyday events in parenting and parent-child interaction, e.g., hard to find a babysitter, trouble at dinnertime. In addition to parenting daily hassles, 25 items asked about daily hassles related to life in general (Kanner, Coyne, Schaffer, & Lazarus, 1981), e.g., money problems, trouble at work. In the present study, Cronbach's alphas were .87, .85, and .82 for parenting daily hassles, and .88, .88, and .87 for general daily hassles, in 12-, 24-, and 36-month-old children respectively.

Marital discord

A subscale of the Dutch Family Problems Questionnaire (Koot, 1997) was used to assess marital discord. Mothers indicated on a 3-point scale whether five statements about their partner relationship were 0 *not true*, 1 *somewhat or sometimes true*, or 2 *true or often true*. In the present study, Cronbach's alphas were .63, .69, and .64, for respectively 12-, 24-, and 36-month-olds.

Well-being

Mothers rated their sense of well-being on the Cantrill Ladder (Cantrill, 1965), indicating how they had felt in the past month. This self-anchoring single item indicator was scored on a scale from 0 to 10 (*very poor – very good*). The Cantrill Ladder has been reported to have good validity, stability, and reasonable reliability (Atkinson, 1982).

Satisfaction with social support

Mothers' satisfaction with different sources of social support was measured with a social support questionnaire based on the Social Support Scale (Westgeest, 1985). Mothers were asked to indicate whether or not they received social support in 10 areas (e.g., friends, family, community) and subsequently rated their satisfaction with the support on a 5-point scale (0 *not satisfied* – 4 *very satisfied*). Internal consistencies for this satisfaction scale were .78 in both 12- and 36-month-old children, and .79 in 24-month-olds.

Sociodemographic data

Several questions were asked to obtain information on sociodemographic factors, e.g., maternal age, parental educational level (defined by the highest educational level of both parents on a 5-point scale, ranging from 1 *elementary school* to 5 *Master's degree*), number of siblings, and childcare arrangements (defined by the quantity of child care per week: 0 *no childcare arrangements* to 4 *more than 20 hours per week in child care*).

Results

Occurrence of externalizing behaviors

The occurrence of externalizing behaviors was examined using primary caregiver data (i.e., mothers in this study), since they spend the most time with their child. Results of individual items showed that the majority of items occurred in more than 10% of the 12-month-olds (percentages for all CBCL-items are reported in the appendix of this chapter: Table 2.8, on page 42). Over one-third of the items occurred in more than 25% of the 12-month-old children. The five most prevalent items were "Quickly shifts activity" (66%), "Demands must be met" (55%), "Can't wait" (51%), "Wants attention constantly" (52%), and "Can't sit still" (47%). Only five items occurred in less than 10% of the 12-month-old children. Analyses revealed that 12-month-olds scored significantly lower than 24- and/or 36-month-olds on 27 of the 31 items (*F*-values significant at $p < .01$).

Table 2.2 shows the mean scores for the mother-reported CBCL externalizing syndromes for each age group. To test for age differences, ANOVAs and post hoc Tukey tests were performed using residual CBCL syndrome scores to correct for age differences in parental educational level and presence of siblings. For all externalizing syndromes, significant age differences were found, with differences being largest for Oppositional and smallest for Overactive. Post hoc analyses revealed that for all syndromes, 12-month-olds had significantly lower scores than 24- and 36-month-olds. A significant sex by age interaction was only found for the Aggressive syndrome, $F(2, 2244) = 6.25$, $p < .01$, partial $\eta^2 = .006$, with smaller sex differences in younger than in older children.

Table 2.2: Mother-reported mean scores for externalizing CBCL syndromes for ages 12, 24, and 36 months

Age in months (*N*)	12 (786)	24 (720)	36 (744)		Age differences		
	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*	*F*-value	12 ≠ 24	12 ≠ 36	24 ≠ 36
Externalizing	8.57 (6.98)	13.97 (8.49)	15.16 (9.33)	124.52	**	**	ns
Oppositional	4.82 (4.66)	8.49 (5.51)	9.73 (6.19)	149.32	**	**	**
Aggressive	1.58 (1.79)	3.06 (2.57)	2.90 (2.48)	79.33	**	**	ns
Overactive	2.18 (1.68)	2.42 (1.88)	2.52 (2.06)	11.33	**	**	ns

Note: Age effects were investigated using ANOVAs and post hoc Tukey tests, with residual CBCL syndrome scores to correct for age differences in parental educational level and presence of siblings. All *F*-values were significant at $p < .01$. Significant post hoc tests are indicated by ** ($p < .01$). ns = non-significant.

Interparent agreement and 1-year stability

The agreement between mother and father reports of child externalizing problem behaviors is summarized in Table 2.3. For 12-month-olds, the results show significant mother-father agreement for all externalizing syndromes, ranging from .39 to .49. For Aggressive and Overactive, the agreement between mothers and fathers was significantly higher in 36-month-old children than in 12-month-old children. For Aggressive, interparent agreement was also higher in 24-month-olds than in 12-month-old children.

Table 2.3: Mother-father agreement for externalizing CBCL syndromes in each age group

Age in months (*n*)	12 (683)	24 (635)	36 (647)	Age differences (Z_{diff})		
		Pearson *r*		12 ≠ 24	12 ≠ 36	24 ≠ 36
Externalizing	.48	.54	.56	1.47	2.00	0.51
Oppositional	.49	.51	.51	0.48	0.49	0.00
Aggressive	.39	.55	.51	3.74**	2.74**	1.00
Overactive	.40	.47	.58	1.56	4.34**	2.72**

Note: All correlations were significant at $p < .01$. Significant age differences are indicated by ** ($p < .01$).

For the longitudinal analyses, the average of mother- and father-reported syndrome scores was used, to minimize informant effects on stability figures. Correlations between scores of both assessments were computed for the mother-father composite scores to investigate the 1-year stability of externalizing problems in young children (Table 2.4). Stability coefficients for 12-month-old children ranged from .36 to .48. For all externalizing syndromes, stabilities of 12-month-olds were significantly lower compared to 36-month-old children. For Overactive, the 1-year stability in 12-month-olds was also lower than in 24-month-olds.

Table 2.4: 1-year stability for externalizing CBCL syndromes in each age group

Age in months (*n*)	12 (114)	24 (94)	36 (99)	Age differences (Z_{diff})		
		Pearson *r*		12 ≠ 24	12 ≠ 36	24 ≠ 36
Externalizing	.45	.65	.82	2.05	4.82**	2.61**
Oppositional	.46	.61	.82	1.50	4.73**	3.06**
Aggressive	.48	.60	.73	1.20	2.91**	1.61
Overactive	.36	.63	.72	2.58**	3.81**	1.14

Note: All correlations were significant at $p < .01$. Significant age differences are indicated by ** ($p < .01$).

Context characteristics

All context characteristics were reported by the mother. To avoid informant effects, the mother-father composite scores were used and analyses were repeated for father-reported externalizing behaviors. Correlations among child, mother, and family variables were lower than .50 in all age groups, except for the correlation between parenting daily hassles and general daily hassles, which ranged from .60 ($p < .01$), in 12-month-olds, to .64 ($p < .01$), in 36-month-olds (correlations between all context characteristics are reported in the appendix of this chapter: Tables 2.9 – 2.11, on pages 44 – 46). In Table 2.5 means and standard deviations of child, mother, and family characteristics are presented for each age group. To test for age differences ANOVAs and post hoc Bonferroni tests were performed.

Table 2.5: Differences between 12-, 24-, and 36-month-old children on child, mother, and family characteristics

Age in months (*n*)	**12 (638)**		**24 (589)**		**36 (604)**		**Age differences**	
	Mean	***SD***	**Mean**	***SD***	**Mean**	***SD***	***F*-value**	
Child								
Externalizing behaviors	8.22	5.78	13.45	7.36	14.55	7.96	143.15	12 < 24 / 36**
Difficult temperament	1.55	0.55	1.27	0.50	1.35	0.53	47.62	12 > 24 / 36**
Physical health problems	0.50	1.00	0.55	0.97	0.44	0.94	(2.10)	ns
Mother								
Parenting efficacy	21.66	7.74	24.11	7.69	25.01	7.76	31.29	12 < 24 / 36**
Authoritarian control	20.38	6.18	21.79	6.04	21.80	6.01	11.34	12 < 24 / 36**
Parenting daily hassles	11.10	8.61	13.40	8.59	15.03	8.14	34.09	12 < 24 < 36**
General daily hassles	13.40	10.16	13.91	10.50	13.92	9.90	(0.54)	ns
Marital discord	1.20	1.42	1.46	1.64	1.53	1.56	8.01	12 < 24 / 36**
Well-being	7.43	1.40	7.20	1.46	7.28	1.43	(4.00)	ns
Satisfaction social support	32.24	4.99	31.76	4.94	32.07	4.78	(1.51)	ns
Age	32.67	4.15	33.76	4.00	34.91	4.11	46.93	12 < 24 < 36**
Family								
Parental educational level	4.07	0.99	4.00	1.03	3.90	1.06	(4.43)	ns
Number of siblings	0.62	0.79	0.84	0.79	1.00	0.76	36.54	12 < 24 < 36**
Quantity of child care	2.51	1.50	2.50	1.52	2.72	1.31	(4.28)	ns

Note: Results from post hoc tests were only reported when *F*-values were significant at $p < .01$, which was true for over half of all *F*-values, except for those printed between brackets. Significant post hoc tests are indicated by ** ($p < .01$). ns = non-significant.

The table shows significant age differences for over half of all variables. For variables showing significant age differences, means were always lower for 12-month-olds than for older children, except for difficult temperament on which mean scores were higher in 12-month-olds than in older children. Parenting daily hassles, maternal age, and numbers of siblings were lower in 24-month-olds than in 36-month-olds as well.

To examine correlates of externalizing behavior in each age group, correlations between the externalizing composite score and all child, mother, and family characteristics were computed (Table 2.6, page 36). Nearly all correlations were significant in 12-month-old children. Only associations with child physical health problems, parenting efficacy, parental educational level, and quantity of child care did not reach statistical significance. This pattern was very similar in 24- and 36-month-old children. All associations were in the expected directions. Fisher's *Z*-tests were performed to test for age differences in the strength of associations between context characteristics and externalizing behaviors. Because of the large number of statistical analyses, we applied Bonferroni corrections for each set of analyses (i.e., for each age comparison). Age differences in the strength of associations with externalizing behaviors were found for three variables. The association between externalizing behaviors and parenting efficacy was lower in 12-month-old children than in 24-month-olds (Z_{diff} = 4.26, $p < .0008$). The association between externalizing behaviors and parenting daily hassles was lower in 12-month-old children than in 36-month-old children (Z_{diff} = 3.73, $p < .0008$), as was the association with parental educational level (Z_{diff} = 3.72, $p < .0008$). Post hoc, the analyses were repeated for father-reported externalizing behaviors and the overall results were similar.

To test whether the pattern of independent associations was similar across age groups, three sets of hierarchical multiple regression analyses were performed (from proximal to distal: first entering child characteristics, then maternal, and finally family variables). In Table 2.6 results of the final step of the regression analyses are presented for each age group. The proportions of explained variance were .38 for 12-month-olds, .50 for 24-month-olds and .51 for 36-month-old children. Multiple *R* was significantly lower in 12-month-olds than in 24-month-olds (Z_{diff} = 2.75,$p < .01$) and in 36-month-old children (Z_{diff} = 2.94, $p < .01$). Change statistics per block were similar across age groups; R^2-change ranged from .31 to .44, .04 to .06, and .02 to .03, for respectively child, mother, and family characteristics (all *p*s < .01).

Table 2.6: Correlations and standardized beta-weights for child, mother, and family characteristics in relation to externalizing behaviors

Age in months (*n*)	12 (638)	24 (589)	36 (604)		12 (638)	24 (589)	36 (604)
	Pearson correlation (*r*)			Age differences	Unique β		
R^2					.38**	.50**	.51**
Child							
Difficult temperament	.55**	.66**	.65**	ns	.49**	.54**	.53**
Physical health problems	.07	.15**	.05	ns	.01	.03	.03
Mother							
Parenting efficacy	-.08	-.32**	-.23**	12 < 24 †	.02	-.11**	-.03
Authoritarian control	.15**	.14**	.18**	ns	.08	.06	.12**
Parenting daily hassles	.27**	.42**	.46**	12 < 36 †	.13**	.21**	.14**
General daily hassles	.29**	.24**	.31**	ns	.09	-.05	.00
Marital discord	.14**	.18**	.23**	ns	.07	.06	.03
Well-being	-.14**	-.16**	-.25**	ns	.06	.01	-.07
Satisfaction social support	-.14**	-.15**	-.22**	ns	.03	.08	-.03
Age	-.16**	-.18**	-.17**	ns	-.12**	-.08	-.10**
Family							
Parental educational level	-.02	-.12**	-.23**	12 < 36 †	-.04	-.06	-.08
Number of siblings	-.16**	-.04	-.06	ns	-.13**	-.05	-.02
Quantity of child care	.02	-.00	-.07	ns	.02	.09	-.01

Note: ** $p < .01$. Bonferroni corrections were applied when testing for age differences over 13 constructs, resulting in † ($p < .0008$). ns = non-significant.

In order to test whether the three age groups showed a similar fit of the regression model, all regression equations were cross-validated in each of the other age groups. The three different regression equations (for each age group) were used to estimate externalizing behaviors at each age. Results of Fisher's *Z*-tests indicated that all equations cross-validated without significant shrinkage, implying that correlations between the estimated scores derived from each regression equation and the true externalizing scores were equal across each of the age groups. Correlations ranged from .58 to .62 in 12-month-olds, from .67 to .71 in 24-month-olds, and from .68 to .71 in 36-month-old children. Moreover, to investigate the sensitivity of the estimated scores with respect to the exact form of the regression equation, estimated scores for externalizing behaviors from all three regression equations were correlated within each age group. Estimated

scores from all regression models were similar at each age (all *r*s > .94). When all analyses were repeated for father-reported externalizing behaviors, similar results were obtained.

Discussion and conclusion

The aim of the present study was to investigate externalizing behaviors in 12-month-old children in terms of occurrence, mother-father agreement, 1-year stability, and contextual correlates, and comparing these to externalizing behaviors in 24- and 36-month-old children.

Results showed that externalizing behaviors did occur in 12-month-old children, with some behaviors being reported for more than half of the children in this age group. These findings confirm the preliminary evidence of the existence of externalizing behaviors in children as young as 12 months of age, as reported by Tremblay et al. (1999) and Carter et al. (2003). However, as expected, the occurrence of almost all externalizing behaviors was significantly lower in 12-month-olds than in the older age groups. This result extends findings by Tremblay et al. (1999) who reported a steep increase in the prevalence of physical aggression between ages 12 and 17 months.

The agreement between mothers and fathers of 12-month-olds regarding externalizing behaviors was significant, albeit lower than in the older children in our sample. This finding may reflect problems in the interpretation of certain behaviors in very young children, resulting in more differences between informants. Our results also showed that the 1-year stability of externalizing behaviors in 12-month-olds was significant, but moderate, and significantly lower than the stabilities found for the 36-month-olds in our study. It is possible that the rapid developmental changes that take place in the second year of life, including language development, the first signs of individuation and autonomy, and the emergence of self-concept (e.g., Sroufe, 1995) result in more change and less continuity of behaviors over time in 12-month-olds compared to preschool children. In addition, parents' specific interpretations of behaviors in 12-month-olds (as suggested above), may influence stabilities in this age group. Nonetheless, the 1-year stability of externalizing behaviors was significant in the youngest children, showing that the behaviors at that age are at least moderately predictive of future behavior. Additional analyses showed that the interparent agreement and 1-year stability of 24- and 36-month-olds in our sample was not significantly different from findings reported by other studies of children of that age (Achenbach

et al., 1987; Achenbach & Rescorla, 2000; Koot et al., 1997), suggesting that the lower interparent agreement and stability for 12-month-olds was not due to characteristics of our sample or methods.

Our findings showed that the correlates of externalizing behaviors consistently found in preschool children also applied to 12-month-olds. Although subtle age differences were present, the overall model was similar in all age groups. These results give tentative support for the construct validity of externalizing behaviors in 12-month-old children. Externalizing behaviors in 12-month-olds were embedded in the same context as in older children, suggesting similar underlying mechanisms and a similar construct connotation. Nonetheless, some differences between 12- and 24-/36-month-old children were found. Associations with parenting efficacy, parenting daily hassles, and parental educational level were less pronounced in 12-month-old children as compared to older children. The stronger association of externalizing behaviors with parental educational level may be explained by the different developmental demands regarding caregiving. Anselmi et al. (2004) posited that parents with a higher educational level consider development as a complex process and have greater knowledge of children's developmental needs. In the developmental stage of 12-month-olds, caregiving issues center around responsive availability and providing a secure base, whereas in the older age groups the caregiving role is focused on complex issues, such as firm support and clear roles and values (Sroufe, 1979). Therefore, caregiving qualities of higher educated parents may be more indispensable in the older age groups, resulting in stronger negative associations with externalizing behaviors. The findings that parenting daily hassles and low parenting efficacy were more strongly associated with externalizing behaviors in older children can result from these different challenges older children pose to mothers compared to younger children, but may also be due to a longer process of negative parent-child interactions in the case of older children. More parenting stresses and less parenting self-esteem interfere with appropriate parenting, and hence will act upon the development of child behavior problems, which in turn will influence parenting, stress, and self-esteem (Crnic & Greenberg, 1990; Mash & Johnston, 1983). This perpetuating transactional process may result in more pronounced associations after several years of maladaptive caregiving interactions in older as compared to younger children (Campbell, 1995).

The lower proportion of explained variance of the combination of all child, mother, and family correlates in 12-month-olds compared to older children, suggests that predictors of externalizing behaviors at this age may consist also of other

correlates than the ones studied here. Early predictors that were not assessed in this study, such as insecure attachment and parental sensitivity, as well as factors from innovative research areas, such as genetic factors, might add to the prediction of externalizing behaviors in 12-month-old children (Campbell, 2002). At the same time the less frequent occurrence and shorter history of externalizing behaviors in 12-month-old children may reflect more fluctuating and temporary problems, and as a consequence show less context-embeddedness.

Although this study was the first to extend our knowledge concerning the nature of externalizing behavior in children as young as 12 months old, there were some limitations. The first regards selective sample attrition. Response percentages were moderate at both times of assessment and non-response data were lacking. The moderate response may be due to the large number of questionnaires, the relatively impersonal approach of sending questionnaires by mail, and the fact that participation was voluntary, without payment or reward. Low participation rates may have resulted in an underestimation of the occurrence of externalizing behaviors, which precludes conclusions about population prevalence rates, and stability figures. Regarding sample characteristics, parents with low educational levels were underrepresented as were families from non-Dutch ethnic backgrounds (exclusion criterion in consideration of the intervention phase). Considering previous findings that low socioeconomic status is related to higher levels of externalizing problems (Achenbach & Rescorla, 2000; Koot et al., 1997), this may have resulted in underestimations of the occurrence of externalizing behaviors. Nevertheless, since we corrected for differences between age groups regarding parental educational level, the age differences in occurrence can not be ascribed to this variable. Further, it is unlikely that interparent agreement and stability are affected by parental educational level, since results for the oldest children in our sample were very similar to those found in other, more representative samples. In addition, sample characteristics are not likely to have influenced results concerning age differences in associated factors. A second limitation is the fact that mothers were the only informants of the child, mother, and family correlates. We do not know whether contextual variables, especially the ones that are not objectively quantifiable, reflect the real context of the child's externalizing behavior. Parents who notice or report externalizing behaviors of their child may be more inclined to report other problems as well. Nevertheless, associations were also found when father-reported externalizing behaviors were related to mother-reported context characteristics.

Despite its limitations, our study may provide the incentive for further investigations of externalizing behaviors in 12-month-old children. Salient issues include parents' interpretations of certain problem behaviors in this age group, the long-term stability of externalizing behaviors, and the association with internalizing behaviors at this young age. Additional research may also shed further light on the concept of externalizing behavior at this age by investigating other correlates than the ones studied here, using multiple informants for both externalizing behaviors and contextual correlates, including observational data, and studying the influence of correlates in a longitudinal perspective. The findings from the present study suggest that the preschool CBCL may be particularly useful to investigate these issues. Finally, this study points to the relevance of exploring the usefulness of preventive interventions of externalizing behaviors in 12-month-old children.

Appendix

Table 2.7: Composition of the Infant Characteristics Questionnaire (ICQ) Difficultness factors in each age group

ICQ Items
In all age groups
How easy or difficult is it for you to know what is bothering your child when he/she cries or fusses?
How easily does your child get upset?
When your child gets upset, how vigorously or loudly does he/she cry and fuss?
How does your child react when you are dressing him/her?
On the average, how much attention does your child require, other than for caregiving (feeding, diaper changes, etc.)?
How does your child react to being confined (as in a car seat, infant seat, playpen, etc.)?
How easy or difficult is it to take your child to places?
Does your child persist in playing with objects when he/she is told to leave them alone?
Does your child continue to go someplace even when told something like “stop”, “come here”, or “no-no”?
When removed from something he/she is interested in but should not be getting into, does your child get upset?
How persistent is your child in trying to get your attention when you are busy?
How many times per day, on the average, does your child get fussy and irritable - for either short or long periods of time?
Only in 12-month-olds
How consistent is your child in sticking to his/her sleeping routine?
When left alone, does your child play well by himself/herself?
Only in 24-month-olds
How easy or difficult is it to calm or soothe your child when he/she is upset?
How consistent is your child in sticking to his/her sleeping routine?
How does your child typically respond to new playthings?
How much does your child smile and make happy sounds?
How much does your child want to be held?
How excited does your child become when people play with or talk to him/her?
Only in 36-month-olds
How easy or difficult is it to calm or soothe your child when he/she is upset?
How excited does your child become when people play with or talk to him/her?

Note: Principal component solution, one component specified:
12-month-olds (*N* = 732), 14 items, eigenvalue = 3.19, Cronbach’s alpha = .68.
24-month-olds (*N* = 687), 18 items, eigenvalue = 3.97, Cronbach’s alpha = .76.
36-month-olds (*N* = 709), 16 items, eigenvalue = 3.73, Cronbach’s alpha = .75.

Table 2.8: Mother-reported prevalence of CBCL Externalizing items (% sometimes and % often) for ages 12, 24, and 36 months and age differences

Age in months (*N*)	12 (786)		24 (720)		36 (744)			Age differences		
	% sometimes	% often	% sometimes	% often	% sometimes	% often	*Wald*	12 ≠ 24	12 ≠ 36	24 ≠ 36
Oppositional										
8. Can't wait	43.0	8.3	55.1	16.1	50.7	19.9	56.55	**	**	ns
13. Cries much	14.7	1.3	17.9	1.0	22.2	2.5	12.89	ns	**	**
16. Demanding	46.0	8.8	63.9	14.6	58.2	17.9	115.61	**	**	ns
29. Easily frustrated	24.9	2.2	39.3	5.7	46.8	6.3	100.71	**	**	**
30. Easily jealous	15.6	2.2	44.9	6.5	37.6	7.7	199.06	**	**	**
33. Feelings easily hurt	5.8	0.8	24.0	2.0	30.9	5.1	145.81	**	**	**
36. Gets into everything	13.7	3.7	36.7	7.6	43.8	13.5	246.72	**	**	**
44. Angry moods	23.1	1.8	47.2	5.0	49.3	9.2	169.19	**	**	ns
66. Screams	16.7	2.9	26.7	4.4	33.5	6.3	59.59	**	**	**
69. Selfish	8.9	2.2	29.4	2.8	27.4	2.4	100.70	**	**	ns
81. Stubborn	16.4	1.0	39.1	4.0	47.9	6.3	172.94	**	**	**
82. Mood changes	16.9	1.8	22.8	2.2	26.3	3.0	25.10	ns	**	ns
83. Sulks	16.4	0.6	36.4	1.7	45.6	3.9	163.49	**	**	**
85. Temper tantrums	18.1	2.4	40.0	6.3	38.9	8.7	139.72	**	**	ns
88. Uncooperative	24.5	1.3	43.8	1.1	52.0	3.1	137.17	**	**	**
96. Wants attention	40.6	11.1	50.3	13.2	49.3	17.4	77.33	**	**	ns
97. Whining	29.0	1.4	38.6	2.2	38.2	4.1	30.33	**	**	ns

(Table 2.8 continues on next page)

(Table 2.8 continued)

Age in months (*N*)	12 (786)		24 (720)		36 (744)			Age differences		
	% sometimes	% often	% sometimes	% often	% sometimes	% often	*Wald*	12 ≠ 24	12 ≠ 36	24 ≠ 36
Aggressive										
14. Cruel to animals	5.7	0.5	7.0	0.4	7.8	0.9	(2.91)	ns	ns	ns
17. Destroys own things	10.9	1.3	22.4	3.0	24.5	2.1	48.31	**	**	ns
18. Destroys others' things	13.0	1.2	21.5	2.5	20.3	1.5	15.40	**	**	ns
20. Disobedient	42.2	4.7	70.1	7.4	70.2	9.0	213.54	**	**	ns
35. Fights	2.0	0.3	12.0	1.1	14.3	1.7	50.99	**	**	ns
40. Hits others	9.5	0.8	48.8	4.4	44.8	2.8	267.80	**	**	**
42. Hurts unintentionally	32.2	5.0	33.9	2.9	23.3	1.3	29.39	ns	**	**
53. Attacks people	3.7	0.1	19.4	1.8	15.1	0.8	77.78	**	**	**
91. Loud	10.7	0.1	19.7	2.2	24.7	2.6	59.48	**	**	ns
Overactive										
5. Can't concentrate	33.7	3.2	40.3	3.2	37.5	5.0	14.15	**	**	ns
6. Can't sit still	38.2	8.9	37.5	8.8	37.0	8.6	(0.07)	ns	ns	ns
11. Seeks help a lot	22.0	4.0	32.5	1.4	37.6	2.6	37.64	**	**	ns
59. Quickly shifts activity	48.0	17.6	51.1	18.9	49.7	16.4	(7.44)	ns	ns	ns
62. Refuses active games	7.5	0.5	14.6	0.7	21.9	1.8	71.91	**	**	**

Note: The age effects were analyzed using logistic regression analyses with presence of siblings and parental educational level as predictors in block 1, and age group as a categorical predictor with contrasts (simple) in block 2. For these analyses, item scores were dichotomized so that a positive score reflected the presence of the behavior (i.e., score 1 *somewhat or sometimes true* and score 2 *very true or often true*). Results from the post hoc contrasts were only reported if the overall *Wald* statistic was significant at $p < .01$, which was true for almost all items, except for those printed between brackets. Significant post hoc contrasts are indicated by ** ($p < .01$). ns = non-significant.

Table 2.9: Correlations between child, mother, and family characteristics in 12-month-old children

n = 638	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
Child													
1. Difficult temperament	-					.							
2. Physical health problems	.10	-											
Mother													
3. Parenting efficacy	-.17**	-.11**	-										
4. Authoritarian control	.01	-.01	.01	-									
5. Parenting daily hassles	.33**	.02	-.16**	.06	-								
6. General daily hassles	27**	.03	-.16**	.11**	.61**	-							
7. Marital discord	.11**	.05	-.17**	.02	.35**	.42**	-						
8. Well-being	-.20**	-.07	.24**	-.02	-.35**	-.50**	-.33**	-					
9. Satisfaction social support	-.15**	-.08	.17**	-.05	-.37**	-.45**	-.47**	.41**	-				
10. Age	-.03	-.04	-.04	-.22**	.20**	.09	.16**	-.06	-.05	-			
Family													
11. Parental educational level	.10**	-.01	-.05	-.25**	.08	.05	-.06	-.02	.01	.29**	-		
12. Number of siblings	-.06	-.04	-.03	-.15**	.34**	.01	.15**	.02	-.05	.34**	-.01	-	
13. Quantity of child care	-.01	.05	-.03	-.04	-.07	.07	-.01	-.05	.03	.11**	.29**	-.23**	-

Note: ** $p < .01$.

Table 2.10: Correlations between child, mother, and family characteristics in 24-month-old children

n = 589	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
Child													
1. Difficult temperament	-												
2. Physical health problems	.17**	-											
Mother													
3. Parenting efficacy	-.33**	.01	-										
4. Authoritarian control	.07	.03	-.03	-									
5. Parenting daily hassles	.43**	.10	-.33**	.07	-								
6. General daily hassles	.28**	.10	-.25**	-.01	.61**	-							
7. Marital discord	.19**	-.01	-.20**	-.01	.30**	.39**	-						
8. Well-being	-.22**	-.08	.20**	-.06	-.32**	-.47**	-.28**	-					
9. Satisfaction social support	-.23**	.04	.27**	.00	-.34**	-.44**	-.53**	.35**	-				
10. Age	-.13**	-.08	-.02	-.29**	.04	.03	.03	-.00	.02	-			
Family													
11. Parental educational level	-.11**	-.03	-.02	-.27**	.07	.04	-.08	-.03	.07	.31**	-		
12. Number of siblings	.01	-.06	-.11	-.07	.23**	.07	.03	.06	-.01	.29**	.03	-	
13. Quantity of child care	-.08	.04	.11	-.22**	-.02	.07	-.03	.08	.13**	.14**	.32**	-.16**	-

Note: ** $p < .01$.

Table 2.11: Correlations between child, mother, and family characteristics in 36-month-old children

n = 604	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
Child													
1. Difficult temperament	-												
2. Physical health problems	.02	-											
Mother													
3. Parenting efficacy	-.28**	-.01	-										
4. Authoritarian control	.04	-.01	.08	-									
5. Parenting daily hassles	.48**	.03	-.33**	.04	-								
6. General daily hassles	.32**	-.01	-.29**	-.04	.64**	-							
7. Marital discord	.25**	-.03	-.21**	-.08	.35**	.43**	-						
8. Well-being	-.22**	-.05	.21**	.08	-.39**	-.48**	-.33**	-					
9. Satisfaction social support	-.19**	.03	.23**	.06	-.37**	-.41**	-.49**	.38**	-				
10. Age	-.05	-.05	-.10	-.27**	.03	.05	.09	-.03	-.03	-			
Family													
11. Parental educational level	-.17**	-.03	-.02	-.27**	-.02	.03	.06	-.00	-.02	.29**	-		
12. Number of siblings	-.02	-.06	-.04	-.06	.05	.01	.02	.02	.04	.27**	.09	-	
13. Quantity of child care	-.03	-.05	-.08	-.12**	-.03	.08	.07	.02	-.04	.09	.30**	-.26**	-

Note: ** $p < .01$.

Chapter 3

Differential susceptibility to discipline: The moderating effect of child temperament on the association between maternal discipline and early childhood externalizing problems

Jantien van Zeijl, Judi Mesman, Mirjam N. Stolk, Lenneke R.A. Alink, Marinus H. van IJzendoorn, Marian J. Bakermans-Kranenburg, Femmie Juffer, & Hans M. Koot
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Abstract

This study investigated the interaction of child temperament and maternal discipline in the prediction of externalizing problems in early childhood. Participants included 227 1- to 3-year-old children with high externalizing problems scores on the CBCL/1½-5. Maternal reports and observational data were obtained regarding maternal discipline, child temperament, and externalizing problems. Results indicated that children with difficult temperaments were more susceptible to negative discipline (i.e., they showed more externalizing problems), as well as more susceptible to positive discipline (i.e., showing less externalizing problems), as compared to children with relatively easy temperaments. These findings provide empirical evidence for the differential susceptibility hypothesis and suggest directions for enhancing the effectiveness of interventions aimed at reducing early childhood externalizing problems.

Introduction

According to Belsky's differential susceptibility hypothesis (1997a), children vary in their tendency to develop externalizing problems when faced with coercive or more nurturant parenting. Children with difficult temperaments seem to be most susceptible to rearing influences (Belsky, 1997b). As Collins, Maccoby, Steinberg, Hetherington, and Bornstein (2000) argue, contemporary research should underscore the fact that "statistical interactions and moderator effects are the rule, not the exception" (p. 228). Empirical evidence for the moderating effect of child temperament on the relation between parenting and child externalizing problems is emerging. However, most research concerns school-aged children, whereas the literature shows that high levels of externalizing problems in early childhood are predictive of a variety of negative outcomes in later childhood, and that early discipline may play a role in determining whether early behavior problems continue or decrease (e.g., Campbell, Shaw, & Gilliom, 2000). In order to provide further empirical evidence for the differential susceptibility hypothesis, the aim of the present study was to investigate the interaction between difficult temperament and maternal discipline in the prediction of externalizing behavior problems in 1- to 3-year-old children, while addressing methodological limitations of previous research.

Temperament research highlights the child's contribution to its own development. Although different approaches to temperament can be adopted, child temperament is generally considered to refer to constitutionally based, individual differences in behavioral style, that are visible from early childhood (Goldsmith et al., 1987; Rothbart & Bates, 1998). There is ample evidence for the relation between temperament and child behavior problems (see for a recent review Sanson, Hemphill, & Smart, 2004). Difficult temperament, also conceptualized as negative emotionality and low effortful control, has been frequently associated with externalizing problems. Although direct relations exist, temperament seems to have its greatest impact when other risk factors are also present, such as a poor parent-child relationship (Sanson, Oberklaid, Pedlow, & Prior, 1991). As early as in 1968, Thomas, Chess, and Birch pointed out that infant characteristics interact with parenting to produce good or poor child outcomes. In his differential susceptibility theory, Belsky (1997a, 1997b) emphasizes the evolutionary rationale for a varying susceptibility to environmental influences in different children. The probabilities of passing on one's genes in a changing environment and an uncertain future will be greater with a diversification of investments, which includes bearing offspring with a differential susceptibility to that environment. Based on studies by

Crockenberg (1981), Kochanska (1993), Van den Boom (1994), and Suomi (1995), Belsky suggests that negatively emotional or difficult infants may be most affected by rearing influences (1997b). Research that does not account for the moderating effects of child temperament may both over- and underestimate environmental effects. Currently, a growing number of studies confirm the moderating role of temperament in the association between parenting and child development (e.g., Blair, 2002; Warren & Simmens, 2005).

Belsky (1997a) speculates that some children will engage in externalizing behaviors because they are born that way (i.e., have an inherited propensity to exhibit externalizing problems), while others are made that way (i.e., have an inherited propensity to be environmentally reactive); the latter referring to differential susceptibility to rearing influences. Since Belsky's formulation of a differential susceptibility hypothesis, a few studies have examined the influences of child temperament and personality on the association between parenting practices and externalizing behaviors. Colder, Lochman, and Wells (1997) found that harsh discipline predicted high levels of aggression in 4th and 5th grade boys characterized by moderate to high fear, whereas for boys characterized by high activity levels poor parental monitoring predicted high levels of aggression. Results of the study by Belsky, Hsieh, and Crnic (1998) in 3-year-old firstborn boys showed that negative mothering (i.e., intrusiveness and negative affect) contributed to the development of externalizing problems only among children high in negative emotionality. Data from Paterson and Sanson (1999) indicated an interaction between temperamental inflexibility and punitive parenting in the development of externalizing behavior problems in 5- and 6-year-olds. Lengua, Wolchik, Sandler, and West (2000) reported that parental rejection was more strongly related to conduct problems for 9- to 12-year-old children of divorce who were low in positive emotionality, whereas inconsistent discipline was more strongly related to adjustment problems for children high in impulsivity. In a sample of 4th grade boys, an interaction between the level of temper tantrums and unskilled maternal discipline in the prediction of growth in externalizing behaviors was shown by Stoolmiller (2001). Finally, Morris and colleagues (2002) pointed out that among 1st and 2nd graders high in irritable distress or with poor effortful control, maternal hostility was associated with externalizing problems. In addition, Bates, Pettit, Dodge, and Ridge (1998) tentatively concluded that the predictiveness of maternal restrictive control in the development of externalizing behaviors was slightly greater when the children, aged 7 to 11 years, were low in perceived resistance to control than when they were perceived to be high in resistance. Moreover, some studies have presented evidence that child personality moderates the relation between parenting and

externalizing problems (e.g., Prinzie et al., 2003; Van Leeuwen, Mervielde, Braet, & Bosmans, 2004). In sum, despite the fact that the studies varied in their strengths and limitations, sample size and characteristics, statistical analyses, and the operationalization of both temperament and parenting, the abovementioned studies provide some evidence for the moderating effect of child temperament on the association between parenting and externalizing behavior problems.

From a developmental perspective, parental discipline strategies become increasingly important for managing child behavior during the toddler years (e.g., Belsky, Woodworth, & Crnic, 1996). By the end of the first year, when children experience rapid developmental advances in cognitive, linguistic, and motor skills, parenting issues shift from primarily providing nurturance and protection to caregiving issues such as firm support, limit setting, and the use of effective control strategies (Sroufe, 1979). Several studies have shown that parental discipline is associated with externalizing problems. Negative discipline, including coercive, physical, and inconsistent discipline, is associated with higher levels of behavior problems (e.g., Gardner, 1989; Gershoff, 2002; Patterson, 1982). At the same time, positive discipline techniques, such as induction or empathy, and discipline in the context of a positive affective relationship predict lower levels of externalizing problems (Maccoby & Martin, 1983; Rothbaum & Weisz, 1994). It is therefore interesting to note that the studies examining the moderating effect of child temperament on the relation between parenting and externalizing problems mainly concentrated on the negative consequences of negative parenting for children with a vulnerable temperament, while one could argue likewise that these children will also be more positively affected by positive parenting due to their 'sensitive' temperament. In the differential susceptibility theory, it is suggested that the susceptibility to parental influence is for better, in the case of positive caregiving, or for worse, in the case of less positive or negative caregiving (Belsky, 2005). The study by Belsky et al. (1998) was the only one to separate positive and negative parenting, but they concluded that it was negative rather than positive mothering that accounted for the variance in externalizing problems. Their study was also unique in its sample of preschool children, but they did not specifically concentrate on discipline, and only boys were studied. Stoolmiller (2001) was the only one to study discipline skills (in parents of, again, boys only), but an overall coercive discipline measure was used, with no differentiation in specific discipline strategies.

Most of the studies on parenting-by-temperament interactions in the prediction of externalizing problems attempted to avoid informant effects by using parent, child, and/or teacher data. However, the majority of studies relied on questionnaire data. Belsky and colleagues (1998) and Stoolmiller (2001) were the only ones to also use observational data. Sole reliance on questionnaires increases the probability of measurement confounding or method bias, which is especially relevant when simultaneously studying temperament and externalizing behavior problems (see e.g., Lemery, Essex, & Smider, 2002; Sanson, Prior, & Kyrios, 1990). Only in the studies by Paterson and Sanson (1999) and Lengua et al. (2000) item overlap between questionnaires tapping both constructs was explicitly reduced, whereas Morris et al. (2002) partly addressed this issue.

In sum, research regarding children's differential susceptibility to specific discipline strategies, both positive and negative, in the development of externalizing problems in early childhood is limited and studies are hampered by several methodological issues. Moreover, Bates et al. (1998) and Belsky et al. (1998) stress the need for replication of temperament by environment interactions. The aim of the present study was to investigate whether the relation between positive as well as negative maternal discipline strategies and externalizing problems is moderated by child difficult temperament in 1- to 3-year-old children. A multi-method measurement strategy was used to address this question, including both questionnaire and observational data for predictor and outcome measures. In addition, efforts were made to reduce content-overlap between measures of externalizing problems and difficult temperament. Based on the available literature, children with difficult temperaments were expected to be more susceptible to the negative consequences of negative discipline strategies and also more influenced by positive discipline as compared to children with relatively easy temperaments.

Method

The SCRIPT study

The Dutch SCRIPT study (Screening and Intervention of Problem behavior in Toddlerhood) is a collaboration between Leiden University (Centre for Child and Family Studies) and the Vrije Universiteit Amsterdam (Department of Developmental Psychology). The study investigates the effectiveness of an early intervention program aimed at reducing externalizing problems in 1- to 3-year-old children by enhancing maternal sensitivity and adequate discipline strategies. It consists of a screening phase in a general population sample and a randomized

case-control intervention phase in a selected subsample of children with high levels of externalizing behavior problems. In the intervention phase, children from both the intervention and control group were seen in the laboratory for a pretest and two posttests (respectively one and two years later). Data for the current paper were derived from the screening and pretest phase.

Sample and procedure

Participants were recruited from community records of several cities and towns in the western region of the Netherlands. Children born in a specific time period were selected in order to obtain a group of 1-, 2-, and 3-year-old children (respectively 10 – 15, 22 – 27, and 33 – 40 months old). Children were not eligible to participate in the screening phase if they had non-Dutch first names as well as non-Dutch family names (implying a possible lack of familiarity with the Dutch language and meeting exclusion criteria for the intervention phase regarding ethnic background). In the screening phase, parents of 4,615 children were sent questionnaire booklets by mail. We obtained 2,408 questionnaires from primary caregivers (response rate 52%). Unfortunately we were not able to collect detailed information on non-participating families, but there were no age or sex differences between responding and non-responding families (respectively $p = .11$ and $p = .38$). The large majority of children (95%) were living with two parents; with the biological mother as the primary caregiver and a father figure (biological or stepfather) as the second caregiver. To ensure a homogenous sample, only children living in these families were eligible for the intervention study. This selection and the application of several other exclusion criteria (e.g., twins, serious medical condition in child or mother) resulted in the exclusion of 454 cases, leaving a target selection sample of 1,954 children. For each age group, children with scores above the 75th percentile on the CBCL syndrome Externalizing Problems (age 1 year: scores ≥ 13; age 2 years: scores ≥ 19; age 3 years: scores ≥ 20) were selected for the intervention study.

Of the 438 selected families, parents of 237 children (54%) agreed to participate in the entire intervention study and were invited for a visit to the laboratory. During the 1½-hour laboratory session, mother and child completed several tasks (coded afterwards from videotapes with observational measures) and mothers were asked to fill in some questionnaires. The average time between the screening and the laboratory session was 3.85 months ($SD = 0.96$, range 0.83 – 6.37). There were no significant differences between selected families who agreed to participate in the entire intervention phase and those who did not regarding initial level of child externalizing problems ($p = .99$), child and maternal age ($p = .18$ and $p = .07$), child

sex (p = .84), and presence of siblings (p = .98). The only statistically significant, but very small difference was that participating parents had a somewhat higher educational level than non-participating parents, $F(1, 434) = 12.70$, $p < .01$, partial $\eta^2 = .03$.

For the present paper, only those children for whom complete data were available on all variables of interest were included. This selection resulted in a sample of 227 children (mean age = 27.40 months, *SD* = 9.90, range 13.58 – 41.91). Fifty-six percent of the children were boys and over half of the children had siblings (59%). Mean age of the mothers was 33 years and the majority of the parents had a high educational level (one or both parents with Bachelor's or Master's degree in 64% of the sample).

Instruments

Internal consistencies of questionnaire data were assessed in the general population screening sample (N = 2,408).

Difficult temperament

Child temperament (as perceived by the mother) was measured during the screening phase with the Infant Characteristics Questionnaire (ICQ; Bates, Freeland, & Lounsbury, 1979). The ICQ was translated into Dutch and found reliable by Kohnstamm (1984). The Dutch ICQ contains 33 items, describing concrete behaviors in well-defined situations. The items were rated on a 5-point scale, ranging from 0 *not true* to 4 *true*. Because the ICQ was used in combination with the Child Behavior Checklist (CBCL/1½-5; Achenbach & Rescorla, 2000), five items in the ICQ were discarded because of content-overlap between items of both questionnaires. Next, a one-component analysis was carried out in each age group to derive an overall difficultness factor. The difficultness factor consisted of 14 items in 1-year-old children, 18 items in 2-year-olds, and 16 items in 3-year-old children. Internal consistencies (Cronbach's alphas) were .68, .76, and .75, respectively. A total score was computed by averaging item scores.

Childrearing practices

The Dutch translation of the Child Rearing Practices Report (questionnaire-form) was used in the screening phase to assess mothers' attitudes toward childrearing (CRPR; Block, 1965; Dekovic, Janssens, & Gerris, 1991). Mothers were asked to rate their values and behaviors on a 5-point scale (0 *not true* – 4 *true*). For the current study we used a subscale measuring authoritarian control described by Dekovic (1989). We had to remove 2 of the 13 items, since they were not applicable to

our age group ("I do not allow my child to say bad things about his teacher" and "I believe children should not have secrets from their parents"). A total score was computed by summing item scores; internal consistency (Cronbach's alpha) was .68.

Maternal discipline

Specific maternal discipline strategies were observed during the laboratory session, in a 10-minute 'don't' task. The child was shown a treat, which was subsequently given to the mother with the (written) instruction to refrain from giving the treat to the child until the end of the session, 10 minutes later. During this task, the mother was asked to fill in a questionnaire, while the child was offered no toys for the first 5 minutes and was allowed to play with toys available in the room for the last 5 minutes. All maternal discipline strategies were coded, whether or not they concerned the forbidden treat (e.g., they could also concern the toys). Coding procedures were based on Kuczynski, Kochanska, Radke-Yarrow, and Girnius-Brown (1987), and Van der Mark, Van IJzendoorn, and Bakermans-Kranenburg (2002). The following maternal discipline strategies were observed: Distraction, Reinforcing alternative activities, Induction, Understanding (positive strategies), Prohibition, Physical obstruction, and Giving in (negative strategies). *Distraction* was coded when mothers redirected the child's attention by giving an alternative to the present situation or the child's behavior. When *Reinforcing alternative activities*, mothers gave an encouraging response to the child's initiative not concerning the treat, in order to keep the child distracted. *Induction* referred to mothers' explanations of why the child was not allowed to do something or of the consequences of the child's behavior. *Understanding* was coded when mothers displayed interest in or understanding of the child's feelings or thoughts. *Prohibition* concerned any prohibition, command, or disapproval with respect to the child's behavior. *Physical obstruction* was coded when mothers in any way physically obstructed the child from getting the treat. Finally, *Giving in* was coded when mothers did not follow through on (part of) a prohibition, either by actively or passively giving in. Coding was ended before the intended 10-minute duration if mothers completely gave in by handing the child the treat. For 1-year-old children, the duration of this task was, beforehand, set at 8 minutes, because of the fatiguing length of the laboratory session for children in this age group. Therefore, the exact duration of the 'don't' task varied from 4 to 10 minutes and all frequencies were recomputed to a standard 10-minute duration. The average intraclass correlation (single rater, absolute agreement) for intercoder reliability (for all separate pairs of five coders) was .85 (range .61 – .95; $n = 30$).

Externalizing problems

The Child Behavior Checklist for 1½- to 5-year-old children (CBCL/1½-5; Achenbach & Rescorla, 2000) was used to measure externalizing problems, and was completed by the mother during the laboratory session. Mothers indicated whether their child displayed any of the 100 behavioral descriptions in the last 2 months on a 3-point scale (0 *not true*, 1 *somewhat or sometimes true*, and 2 *very true or often true*). Using confirmatory factor analysis, Van Zeijl et al. (in press; see chapter 2) found that the broadband Externalizing Problems syndrome reported for 2- and 3-year-olds by Koot, Van den Oord, Verhulst and Boomsma (1997) was also applicable to 1-year-old children. The internal consistency (Cronbach's alpha) for mother-reported externalizing problems was .91. Scale scores were computed by summing item scores.

Physical aggression

Physical aggression was measured during the laboratory session on a 5-point rating scale, accounting for both the frequency and intensity of aggressive acts during 3 different episodes: a break (mother and child having a snack and a drink without further specific instructions), a cleaning-up task, and a task in which the child was not allowed to touch several attractive toys (Mesman et al., 2005). Behaviors that were coded as aggression included hitting, kicking, biting, pinching, scratching, shaking, pushing, stamping, throwing, and physically threatening to perform any of these behaviors. The context of the behavior, as well as the child's facial and verbal expressions, was also taken into account. In this paper, the mean score of the ratings for mother-directed aggression and object-directed aggression was used ($r = .37$, $p < .01$), which was significantly correlated with the CBCL Externalizing Problems syndrome ($r = .22$, $p < .01$). The average intraclass correlation (single rater, absolute agreement) for intercoder reliability (for all separate pairs of seven coders) was .85 (range .73 – .93; $n = 45$).

Statistical analyses

To test for moderator effects, Holmbeck (1997) recommends using variables in their continuous forms in multiple regression techniques. In the regression equation, predictor and moderator are entered first, followed by the interaction of the predictor and moderator. All variables were 'centered' (i.e., sample means were subtracted from individual scores) to avoid problems of multicollinearity. We tested all main and interactions effects together in one multivariate analysis, in order to prevent capitalization on chance findings and to select variables for further analyses.

For the interpretation of significant interactions, regression lines were plotted for high and low moderator values, as recommended by Aiken and West (1991). The sample was split in a group of temperamentally difficult children and a group of children with relatively easy temperaments. An a priori split was made on the 82.7th percentile in the general population sample, in accordance with the commonly used borderline/clinical cut-off for the CBCL/1½-5 (see also Klein Velderman, Bakermans-Kranenburg, Juffer, & Van IJzendoorn, in press). Because the three age groups differed in their temperament levels, splits were made separately in each age group. There were no differences between groups of children with relatively easy or difficult temperaments on any of the sociodemographic variables (*p*s > .10).

When univariate outliers ($z > |3.29|$) were Winsorized (i.e., "moved in close to the good data"; Hampel, Ronchetti, & Rousseeuw, 1986, p. 69) by replacing all outlying scores ($n = 20$) with the next highest value (with a $z < |3.29|$) in the distribution, results were similar.

Results

Preliminary analyses

In Table 3.1 (see next page) means and standard deviations for all variables of interest are presented, as well as group differences between children with relatively easy (< P82.7) and difficult temperaments (> P82.7) on each variable. The use of maternal discipline strategies was similar in both temperament groups. The only significant group differences were on externalizing problems (partial $\eta^2 = .13$) and physical aggression (partial $\eta^2 = .04$); scores were lower in children with relatively easy temperaments as compared to temperamentally difficult children.

There was one significant correlation among the main predictor variables (see Table 3.2, on page 58). Authoritarian control was significantly and negatively correlated with the observed discipline strategy understanding ($r = -.14$, $p < .05$). The highest correlation among observed maternal discipline strategies was .50 ($p < .01$), for prohibition and physical obstruction. It should be noted that positive discipline strategies were not necessarily negatively correlated with negative strategies. In fact, this was only true for reinforcing alternative activities and physical obstruction ($r = -.20$, $p < .01$).

Table 3.1: Descriptive statistics and differences between temperament groups

	Total sample (*N* = 227)		Easy children (*n* = 129)		Difficult children (*n* = 98)		Differences	
	Mean	***SD***	**Mean**	***SD***	**Mean**	***SD***	***t*-value**	
Difficult temperament	1.88	0.53	1.53	0.28	2.35	0.39	-17.98	** easy < difficult
Mother-reported externalizing problems	25.21	8.33	22.62	6.51	28.62	9.23	-5.49	** easy < difficult
Observed physical aggression	0.59	0.72	0.46	0.55	0.76	0.88	-3.02	** easy < difficult
Mother-reported authoritarian control	22.25	5.39	22.41	5.65	22.04	5.04	0.50	ns
Observed discipline strategies								
Distraction	4.87	5.31	4.93	5.56	4.80	5.00	0.17	ns
Reinforcing alternatives	9.80	7.51	10.05	7.64	9.47	7.35	0.57	ns
Induction	2.91	2.63	2.79	2.40	3.07	2.91	-0.82	ns
Understanding	4.40	5.08	4.64	5.07	4.06	5.10	0.85	ns
Prohibition	8.58	6.41	8.41	6.17	8.79	6.74	-0.44	ns
Physical obstruction	5.95	6.28	5.87	6.05	6.06	6.59	-0.23	ns
Giving in	0.57	1.02	0.61	1.15	0.52	0.83	0.72	ns

Note: ** $p < .01$. ns = non-significant.

Table 3.2: Correlations between all predictor variables

***N* = 227**	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**
1. Child difficult temperament	-								
2. Authoritarian control	-.05	-							
Observed discipline strategies									
3. Distraction	.09	-.11	-						
4. Reinforcing alternative activities	-.11	-.00	-.01	-					
5. Induction	.04	.06	.21**	.12	-				
6. Understanding	.05	-.14*	.39**	.06	.20**	-			
7. Prohibition	.02	.00	.31**	-.06	.30**	.03	-		
8. Physical obstruction	.10	-.07	.38**	-.20**	.28**	.12	.50**	-	
9. Giving in	-.03	-.05	.14*	.00	.01	.14*	.21**	.09	-

Note: * $p < .05$. ** $p < .01$.

Moderator effects

To select those variables that significantly predicted externalizing problems, we performed one multiple regression analysis (forced entry) including child sex, child temperament, authoritarian childrearing practices, and all observed maternal discipline strategies, as well as all discipline-by-temperament interactions as predictor variables. Results are presented in Table 3.3. A significant regression model was found (R^2 = .29, F [18, 208] = 4.71, p < .01). Difficult temperament, distraction, and prohibition showed a main effect in the prediction of externalizing problems. The interactions of temperament with the observed discipline strategies distraction and prohibition were also significant predictors of externalizing problems. All significant associations were in the expected directions.

Table 3.3: Multiple regression analysis predicting externalizing problems from all predictor variables and discipline-by-temperament interactions

Prediction of externalizing problems (N = 227) R = .54, R^2 = .29, F = 4.71**	***B***	**β**	***t*-value**
Child sex	-0.73	-.04	-0.70
Child difficult temperament	5.75	.36	6.00 **
Authoritarian control	-0.10	-.06	-0.99
Distraction	-0.47	-.30	-4.23 **
Reinforcing alternative activities	-0.02	-.02	-0.33
Induction	0.11	.03	0.50
Understanding	-0.09	-.05	-0.78
Prohibition	0.25	.19	2.65 **
Physical obstruction	-0.07	-.02	-0.33
Giving in	0.68	.08	1.35
Authoritarian control * temperament	-0.07	-.02	-0.32
Distraction * temperament	-0.67	-.21	-2.79 **
Reinforcing alternative activities * temperament	-0.27	-.13	-1.90
Induction * temperament	0.31	.06	0.73
Understanding * temperament	-0.00	.00	-0.01
Prohibition * temperament	0.69	.24	3.13 **
Physical obstruction * temperament	-0.18	-.07	-0.82
Giving in * temperament	0.51	.03	0.47

Note: ** p < .01.

Subsequently, we tested the maternal discipline variables showing a significant interaction with temperament more extensively in separate hierarchical multiple regression analyses (forced entry). Controlling for main effects, the addition of the interaction effect significantly improved the prediction of externalizing problems for distraction ($R^2_{change} = .03$, F_{change} [1, 222] = 7.91, $p < .01$) and prohibition ($R^2_{change} = .02$, F_{change} [1, 222] = 4.89, $p < .05$). The interpretation of significant interaction effects can be inferred from the plotted regression lines for children with relatively easy versus difficult temperaments (see Figure 3.1). The simple slope of distraction was significant in both relatively easy children ($B = -0.22$, $\beta = -.18$, $p < .05$) and in difficult children ($B = -0.62$, $\beta = -.33$, $p < .01$). The simple slope of prohibition approached significance in children with difficult temperaments ($B = 0.25$, $\beta = .19$, $p = .07$), but was far from significant in children with relatively easy temperaments ($B = 0.00$, $\beta = .00$, $p = 1.00$). Children with difficult temperaments were more positively influenced by the positive discipline strategy distraction and more negatively affected by the negative discipline strategy prohibition as compared to children with relatively easy temperaments. It should be noted that the plotted regression lines for authoritarian control and the discipline strategies reinforcing alternative activities, understanding and giving in showed similar, albeit non-significant interactions in the expected directions.

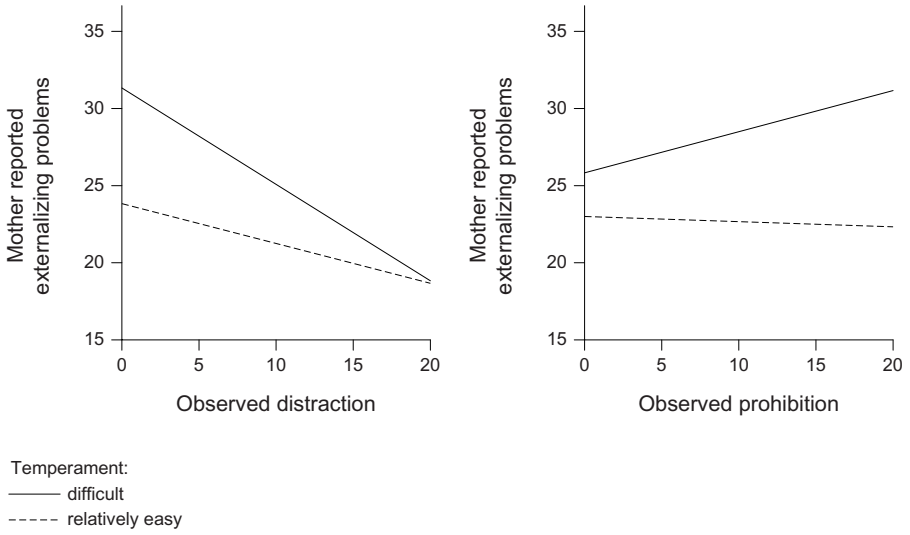

Figure 3.1: Regression lines for significant moderator effects of temperament on the relations between maternal discipline and child externalizing problems

When the analyses were repeated for observed physical aggression as child outcome measure, there was a main effect for difficult temperament and the discipline strategy distraction, as well as a distraction-by-temperament interaction (see Table 3.4). A significant regression model was found (R^2 = .15, F [18, 208] = 2.02, p < .05).

Table 3.4: Multiple regression analysis predicting physical aggression from all predictor variables and discipline-by-temperament interactions

Prediction of physical aggression (N = 227) R = .39, R^2 = .15, F = 2.02*	***B***	**β**	***t*-value**
Child sex	-0.18	-.12	-1.78
Child difficult temperament	0.24	.17	2.62 *
Authoritarian control	0.01	.07	1.06
Distraction	-0.03	-.18	-2.37 *
Reinforcing alternative activities	-0.01	-.09	-1.36
Induction	0.03	.11	1.54
Understanding	0.01	.04	0.48
Prohibition	0.01	.06	0.69
Physical obstruction	0.00	.01	0.09
Giving in	0.05	.07	1.09
Authoritarian control * temperament	0.03	.11	1.51
Distraction * temperament	-0.06	-.22	-2.67 **
Reinforcing alternative activities * temperament	0.00	.01	0.17
Induction * temperament	-0.07	-.14	-1.64
Understanding * temperament	0.00	.01	0.14
Prohibition * temperament	0.02	.08	0.91
Physical obstruction * temperament	0.02	.10	1.11
Giving in * temperament	0.06	.04	0.54

Note: * p < .05. ** p < .01.

Controlling for main effects, the addition of the interaction effect significantly improved the prediction of observed aggression for distraction (R^2_{change} = .04, F_{change} [1, 222] = 8.84, p < .01). The simple slope of distraction was significant in children with difficult temperaments (B = -0.05, β = -.28, p < .01), but not in children with relatively easy temperaments (B = 0.00, β = .02, p = .83). Children with difficult temperaments were positively influenced by the positive discipline strategy

distraction, whereas distraction was unrelated to physical aggression in children with relatively easy temperaments (see Figure 3.2). The plotted regression lines for authoritarian control and the discipline strategies understanding, prohibition, and giving in showed similar albeit non-significant interactions in the expected directions.

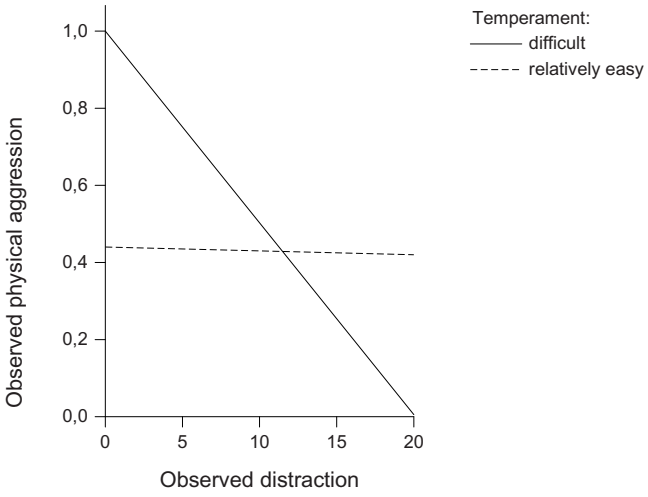

Figure 3.2: Regression lines for significant moderator effect of temperament on the relation between maternal discipline and child physical aggression

Discussion and conclusion

This study showed that maternal discipline strategies are related to early childhood externalizing problems, but also that the effects of these strategies are dependent on the child's temperament. Results of the present study provide empirical evidence for the differential susceptibility hypothesis (Belsky, 1997a, 1997b). Our findings showed that children with difficult temperaments (i.e., highly negatively emotional) were more vulnerable to the negative discipline strategy prohibition as compared to children with relatively easy temperaments. The former group showed more mother-reported externalizing behavior problems in the context of maternal prohibitions. As an important additional finding, children with difficult temperaments were also more influenced by the positive discipline strategy distraction than children with relatively easy temperaments. The difficult children showed less mother-reported externalizing behavior and observed physical aggression when mothers frequently distracted their children. Interactions between temperament and most of the other maternal discipline strategies (i.e., authoritarian control, reinforcing alternative activities, understanding, and giving in) showed non-significant trends in the expected directions.

Because of the cross-sectional nature of this study, directionality cannot be established with certainty and possible cause-effect sequences cannot be disentangled. Previous studies indicated a complex model of the relation between parenting, child temperament, and their mutual role in the development of child externalizing behaviors (Lengua & Kovacs, 2005). Children with difficult temperaments may evoke maladaptive caregiving and these caregiving behaviors in their turn increase difficultness. However, in our sample of 1- to 3-year-old children, no differences in maternal discipline strategies were found between children with difficult temperaments and relatively easy children. This finding may be caused by the fact that transactional interaction patterns have taken place for a relatively short period of time, as compared to, for example, school-aged children.

It should be noted that our sample consisted only of children with high initial levels of mother-reported externalizing problems and parents with low educational levels as well as families from non-Dutch ethnic backgrounds were underrepresented. Moderator effects are most difficult to detect statistically in homogeneous samples characterized by reductions in range of variances of the moderator and predictor variables (McClelland & Judd, 1993). Therefore, interactions that were non-significant but showed trends in the expected directions might be considered as potential evidence in favor of the differential susceptibility hypothesis. The fact that physical obstruction did not differentially relate to externalizing problems in temperamentally difficult and relatively easy children may be ascribed to the direct link with the maternal discipline task (taking away the treat), in contrast to the other discipline strategies that are more common in (other) daily life situations. Why our results failed to support the hypothesized temperamentally moderated influence of induction remains an open issue, but might be related to the children's young age and associated cognitive abilities.

In contrast to the study by Belsky et al. (1998), we found that both positive and negative maternal discipline strategies were related to mother-reported externalizing problems, and both were moderated by child temperament. This may be attributed to differences in sample characteristics, such as including both boys and girls in our sample versus a sample consisting only of boys in Belsky's study. Our findings support the notion from the differential susceptibility hypothesis that parental influences act in two ways: more positively in the context of positive caregiving and more negatively when parenting is less positive (Belsky, 2005).

In the present study, significant temperament-by-maternal-discipline interactions accounted for 2 to 4% of the variance of in externalizing behavior problems, beyond that accounted for by the main effects. This effect size is consistent with

results from other studies investigating parenting-by-temperament interactions in the development of externalizing problems. Only the studies by Colder et al. (1997) and Morris et al. (2002) presented interactions accounting for 13 to 15% of the total variance. Nevertheless, because of the difficulties in detecting moderator effects, Evans (1985) stated that even those moderator effects explaining as little as 1% of the total variance should be considered important.

The present study addressed several limitations of previous research. First, a multi-method measurement strategy was used by combining mother-reported and observational data. Therefore, significant interactions that were found cannot be ascribed to informer or method bias. In fact, results showed that it was not mother-reported authoritarian control, but rather the observed maternal discipline techniques that interacted with mother-reported temperament in the prediction of mother-reported externalizing behavior problems. Moreover, the interaction of observed distraction and mother-reported temperament was replicated for observed physical aggression. Unfortunately, we did not have an observational supplement to mother-reported temperament. However, mothers reported on their child's temperament on average 4 months before they reported on their child's externalizing problems and before physical aggression and maternal discipline techniques were observed, reducing the probability of informer or method bias. Second, we used a measure of difficult temperament, which Belsky (1997b) indicated to be the temperament dimension most likely to cause differential susceptibility. Other studies used a variety of temperament dimensions, ranging from impulsivity to fearfulness. Our temperament measure was also decontaminated for confounding with the externalizing problems measure. While conceptual overlap may remain an issue in this research area, item overlap is not likely to have influenced our results. Third, both positive and negative maternal discipline strategies were assessed and both turned out to have a more pronounced influence in children with difficult temperaments as compared to children with relatively easy temperaments. Finally, the present paper's sample size was relatively large, consisted of very young children, and included boys as well as girls.

Despite these strengths and the fact that this study was the first to provide empirical evidence of young children's differential susceptibility to specific maternal discipline strategies in the development of externalizing behavior problems, there were some limitations. The first regards our sample's characteristics, which possibly restrict the generalizability of the study. Future studies should ideally include more representative samples. A second limitation is the fact that, in general, measures

were concurrently assessed; only child temperament and maternal authoritarian control were assessed 1 to 6 months before the other measures. Therefore, firm inferences about the direction of effects cannot be made. Future research should examine the effect of discipline in the development of externalizing behavior problems controlling for children's initial temperament in longitudinal studies as well as in intervention studies (Collins et al., 2000). The third limitation concerns the fact that only mothers were involved in this study. Further tests of the differential susceptibility hypothesis should also include father data.

The current findings suggest that the assessment of child difficult temperament may serve as an important screening tool to identify children at risk for developing externalizing problems. Since children with difficult temperaments are especially vulnerable to maladaptive caregiving, parents of these children are in particular need of being supported in maintaining or developing effective discipline strategies. Indeed, research suggests that children with difficult temperaments benefit most from intervention efforts (Blair, 2002; Klein Velderman et al., in press; Van den Boom, 1994). Nevertheless, a question that arises from the present findings and that was also raised by Maziade (1989) concerns the developmental prognosis of children with relatively easy temperaments who show externalizing problems (in this paper's sample about 15% of the children). If maternal discipline is not associated with externalizing problems in this group, it is important to know if and how levels of externalizing behavior problems can be reduced, and where intervention efforts should be targeted at in this specific group.

In conclusion, this paper provides empirical evidence for the children's differential susceptibility to parenting hypothesis. More specifically, our results confirmed the hypothesis that children with difficult temperaments are more susceptible to maternal discipline, for better and for worse: compared to children with relatively easy temperament they showed fewer externalizing problems in the context of positive discipline, whereas they showed more problems when exposed to negative discipline. Future research may provide further empirical evidence for the applicability of the differential susceptibility hypothesis regarding maternal discipline in an intervention context.

Chapter 4

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

Jantien van Zeijl, Judi Mesman, Marinus H. van IJzendoorn, Marian J. Bakermans-Kranenburg, Femmie Juffer, Mirjam N. Stolk, Hans M. Koot, & Lenneke R.A. Alink
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Abstract

In a randomized controlled trial with 237 families screened for their 1- to 3-year-old children's high scores on externalizing behavior, the home-based intervention program Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD) was tested. VIPP-SD, based on attachment theory and coercion theory, focuses on mirroring and discussing actual parent-child interactions in six 1½-hour sessions with individual families at home. VIPP-SD proved to be effective in enhancing parental attitudes towards sensitivity and sensitive discipline, and in promoting sensitive discipline interactions. Moreover, it resulted in a decrease of overactive problem behaviors in the children. It is concluded that VIPP-SD should become an essential module in attachment-based interventions.

Introduction

One of the most compelling research themes regarding the development of externalizing problems (overactive, oppositional, and aggressive behavior) is the role of early maladaptive parent-child interaction patterns (Burke, Loeber, & Birmaher, 2002; Hinshaw, 2002). Externalizing problems in preschoolers are predictive of a variety of problems in later childhood (Campbell & Ewing, 1990; Mesman & Koot, 2001). Even in 1-year-old children externalizing problems show (at least) short-term stability (Van Zeijl et al., in press; see chapter 2). However, little is known about the role played by parents in the origin of these problems and the possibilities for prevention in the first years of life, emphasizing the importance of investigating the role of early childhood parenting. To date, two main theoretical frameworks have inspired research into maladaptive parent-child interactions: attachment theory and coercion theory.

According to attachment theory, infants are biologically predisposed to use their parent as a haven of safety to provide comfort and protection when they are distressed, and as a secure base from which they can explore the environment (Bowlby, 1969). Attachment theory focuses on the quality of early parental care, in terms of sensitivity and responsiveness, as an important contributor to salient socialization processes in the first years of life (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969). Secure child-parent attachment relationships in infancy predict positive outcomes in later life, for example social competence (e.g., Fagot, 1997; Sroufe, Egeland, Carlson, & Collins, 2005). Also, a number of longitudinal studies have shown that attachment *in*security and parental *lack of* warmth in early childhood are associated with externalizing problems in later childhood and adolescence (e.g., Belsky, Woodworth, & Crnic, 1996; Greenberg, Speltz, DeKlyen, & Endriga, 1991; Olson, Bates, Sandy, & Lanthier, 2000). Several mechanisms underlying the association between early parental care and child behavioral (mal-)adjustment have been proposed (DeKlyen & Speltz, 2001; Greenberg, 1999), including the formation of negative social expectations, a lack of motivation to internalize rules, poor self-regulation skills, and negative attention-seeking on the part of the child.

Coercion theory is based on the social learning perspective and focuses on ineffective parental discipline (Patterson, 1976, 1982; Snyder, 1995). Specifically, coercion theory states that child externalizing problems are more likely to emerge when a child is reinforced for responding with negative behavior to parental requests or demands. The child is trying to 'coerce' the parent into terminating the

undesired request and the parent's repeated attempts to obtain child compliance are met with increasingly difficult behavior. If this process ultimately leads to the withdrawal of the parent's request, the child's aversive behaviors are negatively reinforced (i.e., rewarded by termination of the undesirable stimulus). Related processes include inconsistent parental discipline and a failure to provide positive reinforcement for compliant and prosocial child behaviors. Several studies have shown that negative reinforcement processes are relevant to the development of externalizing problems in school-aged children (e.g., Patterson, 1982; Prinzie et al., 2003).

By definition, externalizing problems are socially disruptive and may even cause harm to other people. Conversely, the emergence of empathic concern and compliance with parental requests are salient issues in the development of socially appropriate behaviors (see Van IJzendoorn, 1997). In the second year of life, individual differences in empathic feelings and in compliance with parental demands arise (Kagan & Lamb, 1987). Hoffman (1984) suggested that by creating a warm atmosphere and, at the same time, strictly and consistently forbidding behavior that is damaging to others, parents pave the way for feelings of empathy in their children. The type of discipline most fostering empathy is known as induction, with as essential feature that the reasons for a prohibition or parental intervention are made explicit (Eisenberg, 1992; Zahn-Waxler, Radke-Yarrow, & King, 1979). Induction is the opposite of coercive parenting as described by Patterson (1976), which involves overreactive and harsh discipline in response to aversive child behavior, leading to conflict escalation. Several studies documented the effectiveness of inductive discipline (e.g., Grusec & Goodnow, 1994). Londerville and Main (1981) found that mothers of secure infants used inductive discipline more than mothers of insecure infants; mothers of secure infants also used gentler physical interventions and warmer tones in giving commands. Child compliance and cooperation were positively related to the mother's use of inductive and sensitive discipline (Londerville & Main, 1981). Kochanska (1995) found that gentle maternal discipline de-emphasizing power predicted toddlers' committed compliance, in particular for fearful children. In our own lab, we found that mothers' gentle discipline was associated with their daughters' compliance to maternal prohibitions (Van der Mark, Van IJzendoorn, & Bakermans-Kranenburg, 2002). Thus, the combined theoretical frameworks of attachment theory and coercion theory provide the leads for an optimal approach to the development of early childhood intervention.

Attachment-based interventions

The favorable child outcomes of secure attachment relationships and the hypothesis that early interventions may be most effective in preventing less optimal or even deviant developmental pathways in children have led to the development of many early preventive interventions focusing on positive parenting (Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005a). Usually, these attachment-based intervention programs were aimed at enhancing parental sensitivity, which refers to the ability to accurately perceive children's attachment signals, and to respond to these signals in an adequate and prompt way (Ainsworth, Bell, & Stayton, 1974). In a meta-analysis, including 70 studies representing 88 intervention effects on parental sensitivity and/or children's attachment security, interventions that specifically focused on promoting sensitive parental behavior proved to be rather effective in changing insensitive parenting as well as infant attachment insecurity (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003). Moreover, interventions with a modest number of intervention sessions (up to 16) appeared to be more effective than interventions with larger numbers of sessions, and this was true for clinical as well as for non-clinical groups (Bakermans-Kranenburg et al., 2003).

Based on this meta-analytic evidence, we developed a short-term, behaviorally focused intervention program: Video-feedback Intervention to promote Positive Parenting (VIPP; Juffer, Bakermans-Kranenburg, & Van IJzendoorn, in press). In the VIPP program, parent and child are videotaped during daily situations at home. Video feedback provides the opportunity to focus mother's attention on her child's videotaped signals and expressions, thereby stimulating the parent's observational skills and empathy for her own child. It also enables positive reinforcement of the parent's moments of sensitive behavior shown on the videotape, thus addressing both parts of Ainsworth's definition of sensitivity: (1) accurately perceiving child signals, and (2) adequately responding to them (Ainsworth et al., 1974). Studies using the VIPP approach showed positive effects on parental sensitivity and/or attachment security in non-clinical groups, for example in adoptive families (Juffer, Van IJzendoorn, Bakermans-Kranenburg, in press), and in a childcare setting (Elicker, Georgescu, & Bartsch, in press), as well as in at risk and clinical groups, such as mothers with an insecure representation of attachment (Klein Velderman, Bakermans-Kranenburg, Juffer, & Van IJzendoorn, in press), families with preterm babies and infants affected by atopic dermatitis (Cassiba et al., in press), and mothers with eating disorders and their infants (Woolley, Stein, & Hertzmann, in press).

Recently, the VIPP approach was extended with the objective to include not only parental sensitivity but also parental discipline, resulting in the intervention program Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD). From a developmental perspective, parental discipline strategies become increasingly important for managing child behavior during the toddler years (e.g., Belsky et al., 1996). By the end of the first year, when children experience rapid developmental advances in cognitive, linguistic, and motor skills, parenting issues shift from primarily providing nurturance and protection to parenting issues such as firm support, limit setting, and the use of effective control strategies (Sroufe, 1979). Despite their differences, attachment theory and coercion theory show agreement regarding the conceptualization of early parent-child interactions. Both emphasize the importance of contingencies in the socialization process, and both describe a transactional developmental process, focusing on the appropriateness of parents' responses to child behaviors (Ainsworth et al., 1974; Patterson, 1982; Rothbaum & Weisz, 1994).

VIPP-SD thus aims at enhancing parental sensitivity as well as sensitive discipline, that is, parents' ability to take into account the child's perspective and signals (the essential part of parental sensitivity) when discipline is required. Sensitive discipline includes the adoption of more adequate and child-oriented discipline methods, such as induction (Hoffman, 1984) and empathy for the child when he or she is frustrated or angry (Lieberman, 2004).

Differential susceptibility

One of the intervention studies using VIPP showed a differential treatment effect depending on children's temperamental reactivity: parental sensitivity and attachment security were significantly more enhanced in families with highly reactive children than in families with less reactive children (Klein Velderman et al., in press). Moreover, highly reactive infants were more susceptible to their mothers' changes in maternal sensitivity. These outcomes support Belsky's (1997a, 1997b, 2005) hypothesis of differential susceptibility, namely that children vary in their susceptibility to parental rearing because of evolutionary reasons, with some children being highly responsive and others being less or not at all responsive. Belsky (1997b) suggested that negatively emotional or difficult infants may be most affected by rearing influences. Currently, a growing number of studies appear to confirm the moderating role of temperament in the association between parenting and child development (e.g., Blair, 2002; Klein Velderman et al., in press). More specifically, Kochanska (1995) illustrated the interplay between parental

discipline and temperament for children's committed compliance. As described before, in particular fearful children reacted positively to the gentle discipline of their mother. Therefore, we examined whether child temperament moderated the effectiveness of our VIPP-SD intervention on either parenting or child outcomes.

In the current study, the intervention program VIPP-SD was tested in a large sample of families screened for their children's high scores on externalizing behavior in a randomized trial. We tested the following hypotheses: First, we expected the intervention to be effective in changing parental attitudes about sensitive discipline into an attitude of greater acceptance of gentle but firm regulation of the child's behavior in times of conflict. Second, the intervention was expected to be effective in enhancing the parent's sensitive discipline in actual prohibition settings (e.g., refrain from touching a treat). Third, we expected the intervention to decrease the children's externalizing problem behaviors, in particular those externalizing behaviors that are less severe and more common, as the current intervention is of modest duration and intensity. Fourth, intervention effects on the children's problem behaviors were supposed to be mediated by the changes in parenting. Lastly, we tested the influence of child characteristics on the effectiveness of the intervention. Because the age of the children in our study ranged from one to three years, we examined whether intervention with younger children was more effective than intervention starting at a later age. Similarly, we tested whether children with difficult temperaments would be more susceptible to the intervention efforts than relatively easy children.

Method

The SCRIPT study

The Dutch SCRIPT study (Screening and Intervention of Problem behavior in Toddlerhood) is a collaboration between Leiden University (Centre for Child and Family Studies) and the Vrije Universiteit Amsterdam (Department of Developmental Psychology). The study investigates the effectiveness of an early intervention program aimed at reducing externalizing problems in 1- to 3-year-old children by enhancing maternal sensitivity and adequate discipline strategies. It consists of a screening phase in a general population sample and a randomized case-control intervention phase in a selected subsample of children with high levels of externalizing behavior problems. The study was conducted in compliance with Leiden University Medical Center Internal Review Board, and informed consent was obtained from all participants.

Sample selection

Participants were recruited from community records of several cities and towns in the western region of the Netherlands. Children born in a specific time period were selected in order to obtain a group of 1-, 2-, and 3-year-old children. Children were not eligible to participate in the screening phase if they had non-Dutch first names as well as non-Dutch family names (implying a possible lack of familiarity with the Dutch language and meeting exclusion criteria for the intervention phase regarding ethnic background). In the screening phase, parents of 4,615 children were sent questionnaire booklets by mail. We obtained 2,408 questionnaires from primary caregivers (response rate 52%). Unfortunately we were not able to collect detailed information on non-participating families, but there were no child age or child sex differences between responding and non-responding families (respectively $p = .11$ and $p = .38$). To ensure a homogenous sample, only children living with two parents (with the biological mother as the primary caregiver and a father figure - biological or stepfather - as the second caregiver) were eligible for the intervention study (95% of the sample). This selection and the application of several other exclusion criteria (e.g., twins, serious medical condition in child or mother) resulted in the exclusion of 454 cases, leaving a target selection sample of 1,954 children. For each age group, children with scores above the 75th percentile on the CBCL syndrome Externalizing Problems (age 1 year: scores ≥ 13; age 2 years: scores ≥ 19; age 3 years: scores ≥ 20) were selected for the intervention study.

Of the 438 selected families, parents of 246 children (56%) agreed to participate in the intervention study. During the intervention phase, 9 families withdrew from the study, leaving 237 children and their mothers in the intervention sample. Fifty-six percent of the children were boys and over half of the children had siblings (59%). Mean age of the mothers was 33 years and the majority of the parents had a high educational level (one or both parents with Bachelor's or Master's degree in 64% of the sample). There were no significant differences between selected families who agreed to participate in the entire intervention phase and those who did not regarding initial level of child externalizing problems ($p = .99$), child and maternal age ($p = .18$ and $p = .07$), child sex ($p = .84$), and presence of siblings ($p = .98$). The only statistically significant difference was that participating parents had a somewhat higher educational level than non-participating parents, $F(1, 434) = 12.70$, $p < .01$.

Procedure

Participating families were invited for a pretest in the laboratory. The mean time between the screening and the pretest was 3.85 months (*SD* = 0.96, range 0.83 – 6.37); mean age of the children at the pretest was 26.99 months (*SD* = 9.98, range 13.58 – 41.91). During the 1½-hour laboratory session, mother and child completed several tasks (coded afterwards from videotapes with observational measures, by coders unaware of experimental condition) and mothers were asked to fill in some questionnaires.

After the pretest, families were randomly assigned to either the control ($n = 117$) or the intervention ($n = 120$) group. There were no differences between both groups regarding initial level of child externalizing problems ($p = .13$), parental educational level ($p = .46$), child and maternal age ($p = .85$ and $p = .97$), and presence of siblings ($p = .67$). The only statistically significant difference was the percentage of girls, which was higher in the intervention group (51%) as compared to the control group (38%), $\chi^2(1, N = 237) = 4.20$, $p < .05$. Families in the intervention group received six home visits and, parallel in timing, families in the control group received six telephone calls. Approximately one year after the pretest ($M = 12.41$ months, $SD = 1.14$, range 8.25 – 19.49), families from both the intervention and control group visited the laboratory for the posttest, using the same procedures as the pretest. Mean age of the children at the posttest was 39.41 months ($SD = 10.11$, range 25.31 – 56.97).

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 masters students. 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.

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., in press). 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.

VIPP-SD

The VIPP-SD intervention was implemented by trained female interveners using standardized protocols (based on the VIPP protocol; Juffer et al., in press). For each home visit, the protocol described the structure, themes, tips, and exercises for mother and child (see also Mesman et al., in press, for a full description of the VIPP-SD intervention sessions). Although the structure and content for every intervention session was the same for all families, the video feedback and practical presentation of the intervention were adjusted to the individual needs of the specific mother-child dyad.

Each intervention session started with videotaping standardized mother-child interactions (e.g., reading a book together), in order to prevent filming mother-child interaction immediately after giving the video feedback. In between home visits, the interveners selected specific video fragments and prepared comments based on the themes of each specific intervention session (see next page). After collecting video material to be used in the next home visit, feedback was given on the video fragments of the previous session, and information and tips were provided with respect to the general themes of sensitivity and discipline. Feedback on themes of previous intervention sessions was always integrated into every new session. The last two sessions (booster sessions) were aimed at enhancing intervention effects by reviewing all tips and feedback. During these booster sessions, two and four months after the first four intervention sessions, fathers were also invited to participate (all other intervention sessions took place in the presence of only mother, child, and intervener).

The VIPP-SD intervention trajectory can be divided into three steps: (1) getting acquainted with the mother and building a relationship, with an emphasis in the video feedback on *child* behavior (sessions 1 and 2); (2) actively working on improving *parenting* behaviors, by showing the mother at what moments her parenting strategies work and to what other situations she could apply these strategies (sessions 3 and 4); and (3) 'booster sessions' *reviewing* all feedback and information from the previous intervention sessions (sessions 5 and 6). Interveners reinforced positive mother-child interactions and effective parenting strategies in a pleasant atmosphere, and the mothers were explicitly involved as the experts on their own child. At the end of the intervention program, the mothers received

a brochure with information on the key issues discussed during the home visits, including the tips and exercises. By giving parents access to this information after the intervention trajectory, we aimed at further enhancement of intervention effects.

The first four intervention sessions each had their own theme with respect to sensitivity and discipline. Session 1 focused on exploration versus attachment, by recognizing and acknowledging the differences between explorative behavior and contact seeking (sensitivity), and the importance of distraction and induction as non-coercive responses to difficult child behavior or potentially conflict evoking situations (discipline). The second session centered around "speaking for the child" (Carter, Osofsky, & Hann, 1991), to draw the mother's attention to the child's (subtle) signals and expressions (sensitivity), and positive reinforcement, by praising the child for positive behavior and ignoring negative attention seeking (discipline). In the third session, the importance of adequate and prompt responses to the child's signals was stressed, by showing interaction chains consisting of three components: the child's signal, the mother's sensitive response, and the child's positive reaction to that response (sensitivity). The third session's discipline theme concerned the use of a 'sensitive time-out', to sensitively de-escalate temper tantrums. Sharing emotions (sensitivity) and promoting empathy for the child, in particular while using consistent discipline and clear limit setting (discipline), were the central themes of session 4.

Control condition

Parallel to the intervention sessions, the mothers in the control group received six telephone calls from the interveners, as a dummy-intervention (Juffer et al., 2005a), in order to keep in contact with the mothers and to prevent attrition. In these telephone calls, mothers were invited to talk about the general development of their child. Using a semi-structured interview, several developmental topics were reviewed (e.g., eating, sleeping, playing). Control group mothers received no advice or information about child development in general or (the development of) problem behavior in their child.

Instruments

Internal consistencies of questionnaire data were assessed in the general population screening sample (N = 2,408).

Daily hassles

In the screening phase, the mothers were asked to rate the intensity of 25 indices of potentially stressful events (Kanner, Coyne, Schaffer, & Lazarus, 1981). The intensity of hassle experienced by the mothers was rated on a 5-point scale for each event (0 *no hassle* – 4 *big hassle*). Items asked about daily hassles related to life in general, e.g., money problems or trouble at work. A total score was computed by summing all item scores; Cronbach's alpha was .88.

Marital discord

A subscale of the Dutch Family Problems Questionnaire (Koot, 1997) was used to assess marital discord during the screening phase. The mothers indicated on a 3-point scale whether five statements about their partner relationship and partner support were 0 *not true*, 1 *somewhat or sometimes true*, or 2 *true or often true*. The internal consistency (Cronbach's alpha) was .66. A total score was computed by summing item scores.

Well-being

In the screening phase, the mothers rated their sense of well-being on the Cantrill Ladder (Cantrill, 1965), indicating how they had felt in the past month. This self-anchoring, single item indicator was scored on a scale from 0 to 10 (*very poor – very good*). The Cantrill Ladder has been reported to have good validity, stability, and reasonable reliability (Atkinson, 1982).

Difficult temperament

Child temperament (as perceived by the mother) was measured during the screening phase with the Infant Characteristics Questionnaire (ICQ; Bates, Freeland, & Lounsbury, 1979). The ICQ was translated into Dutch and found reliable by Kohnstamm (1984). The Dutch ICQ contains 33 items, describing concrete behaviors in well-defined situations. The items were rated on a 5-point scale, ranging from 0 *not true* to 4 *true*. Because the ICQ was used in combination with the Child Behavior Checklist (CBCL/1½-5; Achenbach & Rescorla, 2000), five items in the ICQ were discarded because of content-overlap between items of both questionnaires. Next, a one-component analysis was carried out in each age group to derive an overall difficultness factor. The difficultness factor consisted of 14 items in 1-year-old children, 18 items in 2-year-olds, and 16 items in 3-year-old children. Internal consistencies (Cronbach's alphas) were .68, .76, and .75, respectively. For the current study, the sample was split in a group of temperamentally difficult children and a group of children with relatively easy temperaments, in order to test whether children with difficult temperaments were more susceptible to the intervention efforts than relatively easy children. An a priori split was made on the 82.7th

percentile in the general population sample, in accordance with the commonly used borderline/clinical cut-off for the CBCL/1½-5 (see also Klein Velderman et al., in press). Because the three age groups differed in their temperament levels, splits were made separately in each age group.

Externalizing problems

The Child Behavior Checklist for 1½- to 5-year-old children (CBCL/1½-5; Achenbach & Rescorla, 2000) was used to measure externalizing problems, and was completed by the mothers during the laboratory sessions. The mothers indicated whether their child displayed any of the 100 behavioral descriptions in the last 2 months on a 3-point scale (0 *not true*, 1 *somewhat or sometimes true*, and 2 *very true or often true*). Using confirmatory factor analysis, Van Zeijl et al. (in press; see chapter 2) found that the broadband Externalizing Problems syndrome reported for 2- and 3-year-olds by Koot, Van den Oord, Verhulst, and Boomsma (1997) was also applicable to 1-year-old children. To investigate to what extent specific aspects of externalizing problems were affected by the intervention, the three narrowband Externalizing Problems syndromes were used in this paper, i.e., Overactive (5 items), Oppositional (17 items), and Aggressive (9 items). The internal consistencies (Cronbach's alpha) were .66, .89, and .75, respectively.

Maternal attitudes towards sensitivity and sensitive discipline

Two weeks after the posttest, the mothers completed a questionnaire regarding their attitude towards parenting (Bakermans-Kranenburg & Van IJzendoorn, 2003). They were asked to indicate their attitudes' position on a 10 cm line, ranging from *totally disagree* to *totally agree*. Two attitude subscales were extracted: attitude towards sensitivity, consisting of 9 items (e.g., "In my opinion, I should praise my child at least once every day"), and attitude towards sensitive discipline, consisting of 10 items (e.g., "My child must learn that I will get angry when he/she does not listen to me", reversed). Total scores were computed by summing item scores. Cronbach's alphas were .54 and .58 for attitudes towards sensitivity and sensitive discipline, respectively.

Maternal sensitivity

The mothers' sensitive responsiveness was assessed during structured play in the laboratory sessions. In the pretest, dyads were given three problem-solving tasks during a total time of 15 minutes; in the posttest they were given two tasks in 10 minutes. The mothers' Supportive presence, Intrusiveness, and Clarity of instruction were rated on 7-point scales, using the Erickson scales (Egeland, Erickson, Moon, Hiester, & Korfmacher, 1990). In principle, the problem-solving tasks were too difficult for children of these ages (different toys were used in each

age group) and mothers were instructed to help their child in the way they would usually do. The average intraclass correlation (single rater, absolute agreement) for intercoder reliability (for all separate pairs of seven coders) was .75 (range .71 – .80; $n = 30$). An overall sensitivity rating was computed. To this end, Intrusiveness scores were reversed and because the three subscales were not equally distributed, the three subscale scores were standardized before adding up.

Maternal discipline

Specific maternal discipline strategies were observed during the laboratory sessions in a 10-minute 'don't' task. The child was shown a treat, which was subsequently given to the mother with the (written) instruction to refrain from giving the treat to the child until the end of the session, 10 minutes later. During this task, the mother was asked to fill in a questionnaire, while the child was offered no toys for the first 5 minutes and was allowed to play with toys available in the room for the last 5 minutes. All maternal discipline strategies were coded, whether or not they concerned the forbidden treat (e.g., they could also concern the toys). Coding procedures were based on Kuczynski, Kochanska, Radke-Yarrow, and Girnius-Brown (1987), and Van der Mark and colleagues (2002). The following maternal discipline strategies were observed: Distraction, Reinforcing alternative activities, Induction, Understanding (positive strategies), Prohibition, Physical obstruction, and Giving in (negative strategies). *Distraction* was coded when mothers redirected the child's attention by giving an alternative to the present situation or the child's behavior. When *Reinforcing alternative activities*, mothers gave an encouraging response to the child's initiative not concerning the treat, in order to keep the child distracted. *Induction* referred to mothers' explanations of why the child was not allowed to do something or of the consequences of the child's behavior. *Understanding* was coded when mothers displayed interest in or understanding of the child's feelings or thoughts. *Prohibition* concerned any prohibition, command, or disapproval with respect to the child's behavior. *Physical obstruction* was coded when mothers in any way physically obstructed the child from getting the treat. Finally, *Giving in* was coded when mothers did not follow through on (part of) a prohibition, either by actively or passively giving in. Coding was ended before the intended 10-minute duration if mothers completely gave in by handing the child the treat. For 1-year-old children (both in the pre- and posttest), the duration of this task was set at 8 minutes, because of the fatiguing length of the laboratory session for children in this age group. Therefore, the exact duration of the 'don't' task in the pre- and posttest varied from 3 to 10 minutes and all frequencies were recomputed to a standard 10-minute duration. The average intraclass correlation (single rater, absolute agreement) for intercoder reliability (for all separate pairs of five coders) was .85 (range .61 – .95; $n = 30$).

Statistical analyses

There were some missing data on the posttest outcome measures (1 for maternal sensitivity, 3 for maternal discipline, and 13 for maternal attitudes). These missing data were substituted with the mean score on the variable for children with the same sex, age, parental educational level, and experimental condition.

Outliers were only found for observed maternal discipline strategies. When these outliers ($z > |3.29|$) were Winsorized (i.e., "moved in close to the good data"; Hampel, Ronchetti, & Rousseeuw, 1986, p. 69) by replacing the outlying scores with the next highest value (with a $z < |3.29|$) in the distribution, results were similar.

Results

Preliminary analyses

In order to describe the intervention sample (both experimental and control group) in relation to the general population, independent sample *t*-tests were conducted on several child and parent variables (see Table 4.1).

Table 4.1: Group differences for screening versus intervention sample

	Screening sample (n = 2,032[a])		Intervention sample (n = 237)		Group differences
	Mean	*SD*	Mean	*SD*	*t*-value
Child difficult temperament	1.35	0.52	1.89	0.52	-14.85 **
Child externalizing					
Overactive	2.17	1.80	4.10	1.66	-16.82 **
Oppositional	6.77	5.33	14.95	5.07	-22.46 **
Aggressive	2.21	2.19	4.88	2.66	-14.86 **
Family background					
Parental educational level	3.93	1.05	3.92	1.07	0.11
Maternal age	33.71	4.26	33.15	4.22	1.91
Number of siblings	0.81	0.81	0.76	0.77	0.88
Daily hassles	13.48	9.98	20.47	12.70	-8.18 **
Marital discord	1.37	1.56	2.13	1.84	-6.09 **
Maternal well-being	7.30	1.48	6.74	1.54	5.44 **

Note: [a] Because of missing data , $n_{screening}$ ranges from 1,927 to 2,032 and $n_{intervention}$ ranges from 229 to 237. ** $p < .01$.

Table 4.2: Correlations among all outcome measures and child age

N = 237	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Child characteristics														
1. Child age	-													
Child externalizing														
2. Overactive	.12	-												
3. Oppositional	.27**	.49**	-											
4. Aggressive	.01	.28**	.49**	-										
Maternal sensitivity[a] and discipline[b]														
5. Sensitivity	.04	-.21**	-.10	-.14*	-									
6. Distraction	-.41**	-.07	-.11	-.05	.00	-								
7. Reinforcing alternatives	-.11	-.08	-.09	-.04	.10	.13*	-							
8. Induction	-.06	.10	.10	.16*	.04	.31**	.03	-						
9. Understanding	-.13*	-.07	-.10	-.04	.16*	.25**	.24**	.10	-					
10. Prohibition	-.31**	.09	.02	.25**	-.14*	.29**	-.04	.37**	-.03	-				
11. Physical obstruction	-.32**	.04	-.03	.17*	-.23**	.33**	-.14*	.23**	-.01	.49**	-			
12. Giving in	-.04	.10	.03	.17*	-.06	.15*	-.19**	.35**	-.05	.42**	.29**	-		
Maternal attitudes[c]														
13. Towards sensitivity	.11	.04	.05	-.01	.09	.11	.00	.10	.07	-.06	-.08	-.07	-	
14. Towards sensitive discipline	.09	-.12	-.11	-.18**	.00	-.02	.08	-.06	.07	-.10	-.11	-.02	.09	-

Note: [a] $n = 236$. [b] $n = 234$. [c] $n = 224$. * $p < .05$. ** $p < .01$.

Families participating in the intervention study were significantly different from the other families in the original screening sample regarding child difficult temperament, marital discord, daily hassles, and of course child externalizing problems (all showing higher levels in the intervention sample than in the original screening sample). Maternal well-being was lower in the intervention sample than in the original screening sample. Parental educational level, maternal age, and number of siblings were similar in both groups, as was child sex, $\chi^2(1, N = 2{,}408) = 1.86$, $p = .17$. Thus, the families involved in the current trial were from similar backgrounds, but struggled with more problematic child behavior as well as a more stressful family life in general.

To check the random group assignment and to establish the initial similarity of the intervention and control group, independent sample *t*-tests were applied to the pretest values of all outcome measures. There were no significant differences between the intervention and control group on any of the outcome measures (all *p*s > .17).

Correlations among all variables of interest are presented in Table 4.2 (page 82). Oppositional child behavior was not correlated to any maternal behavior or attitude, overactive behavior was only significantly correlated with observed maternal sensitivity ($r = -.21$, $p < .01$), but aggressive behavior was significantly correlated to observed maternal sensitivity ($r = -.14$, $p < .05$), induction ($r = .16$, $p < .05$), prohibition ($r = .25$, $p < .01$), physical obstruction ($r = .17$, $p < .05$), giving in ($r = .17$, $p < .05$), and maternal attitude towards sensitive discipline ($r = -.18$, $p < .01$). It should be noted that maternal attitudes were not significantly correlated to the observed maternal behaviors. Furthermore, positive discipline strategies were not necessarily negatively correlated with negative strategies. In fact, this was only true for reinforcing alternative activities with physical obstruction ($r = -.14$, $p < .05$) and with giving in ($r = -.19$, $p < .01$) .

For the dichotomous child characteristics sex and difficult temperament, independent sample *t*-tests were performed to establish relations with the outcome variables. The only significant difference between boys ($n = 132$) and girls ($n = 105$) was the higher level of aggressive behavior in boys, $t(234) = 4.80$, $p < .01$, partial $\eta^2 = .08$. Differences between children with difficult ($n = 102$) and relatively easy ($n = 135$) temperaments were found on the following variables: oppositional, $t(235) = -3.27$, $p < .01$, partial $\eta^2 = .04$; aggressive, $t(184) = -3.51$, $p < .01$, partial $\eta^2 = .05$; and overactive child behavior, $t(192) = -2.61$, $p < .05$, partial $\eta^2 = .03$; as well as on the maternal discipline strategy understanding, $t(208) = 2.48$,

Table 4.3: Descriptive statistics for all outcome measures

	Total sample (*N* = 237)		Control group (*n* = 117)				Intervention group (*n* = 120)				Control versus Intervention group
			Boys (*n* = 73)		Girls (*n* = 44)		Boys (*n* = 59)		Girls (*n* = 61)		
Outcome measures	**Mean**	***SD***	**Mean**	***SD***	**Mean**	***SD***	**Mean**	***SD***	**Mean**	***SD***	***F*-value[d]**
Child externalizing											
Overactive	3.81	1.90	3.93	1.79	4.25	2.08	3.66	1.84	3.49	1.91	4.41 *
Oppositional	14.35	5.68	14.45	6.10	15.05	5.53	13.81	5.56	14.23	5.46	1.15
Aggressive	4.84	3.10	5.38	3.43	4.09	2.43	5.95	3.14	3.64	2.55	0.02
Maternal sensitivity[a]											
Sensitivity	0.00	2.31	-0.08	2.61	0.13	2.14	-0.29	2.35	0.29	2.01	0.01
Maternal discipline[b]											
Distraction	4.14	4.39	3.34	3.61	4.64	4.81	4.24	5.17	4.68	4.09	1.12
Reinforcing alternatives	14.79	9.44	15.64	10.41	16.25	9.67	14.42	9.13	13.05	8.19	3.27
Induction	3.40	3.01	2.72	2.70	3.27	2.66	3.68	3.46	4.03	3.05	4.82 *
Understanding	2.04	3.45	1.67	2.67	1.48	2.98	3.03	4.78	1.95	2.93	4.20 *
Prohibition	7.62	6.60	8.14	7.07	7.23	5.33	7.32	6.01	7.54	7.43	0.04
Physical obstruction	2.54	3.75	3.10	4.10	1.75	2.52	2.74	4.01	2.25	3.75	0.04
Giving in	0.40	0.97	0.40	1.09	0.47	1.00	0.39	1.01	0.37	0.78	0.21
Maternal attitudes[c]											
Towards sensitivity	62.15	10.39	61.03	9.85	56.20	9.12	65.05	10.48	64.96	9.95	25.22 **
Towards sensitive discipline	59.05	11.46	57.74	10.97	56.73	12.19	61.50	10.07	59.91	12.52	3.87

Note: [a] Standardized values, $n = 236$. [b] $n = 234$. [c] $n = 224$. [d] $df = 1$, $df_{error} = 223$. * $p < .05$. ** $p < .01$.

$p < .05$, partial $\eta^2 = .02$. Children with difficult temperaments showed higher levels of externalizing problems and their mothers used less understanding as a discipline technique as compared to children with relatively easy temperaments.

Intervention effects

To assess intervention effects, a 2 x 2 (sex by experimental condition) MANCOVA was performed on child externalizing problems (overactive, oppositional, and aggressive), observed maternal sensitivity, observed maternal discipline (seven different discipline techniques), and maternal attitudes (towards sensitivity and sensitive discipline). Child age was entered as a covariate, because of the broad age range: 25 to 57 months. According to Wilks' criterion, the combined dependent variables were significantly affected by the intervention, $F(13, 220) = 4.06$, $p < .01$, partial $\eta^2 = .19$, and were significantly related to child sex, $F(13, 220) = 4.14$, $p < .01$, partial $\eta^2 = .20$, but the interaction between child sex and experimental condition was not significant, $F(13, 220) = 1.03$, $p = .43$. The combined dependent variables were also significantly related to child age, $F(13, 220) = 8.31$, $p < .01$, partial $\eta^2 = .33$. Univariate tests (see also Table 4.3, on page 84) revealed that children in the intervention condition showed significantly less overactive behavior (partial $\eta^2 = .02$) as compared to control group children, and that intervention mothers used significantly more understanding (partial $\eta^2 = .02$) and induction (partial $\eta^2 = .02$) when disciplining their child as compared to mothers in the control condition. Intervention mothers had also a more favorable attitude towards sensitivity (partial $\eta^2 = .10$) than control group mothers, and they tended to be more favorable to sensitive discipline as well ($p = .05$, partial $\eta^2 = .02$). The intervention similarly affected boys and girls. There were no different intervention effects for interveners with and without a university degree. Parental attitudes towards sensitive discipline and sensitive discipline behaviors did not mediate the change in children's overactive problem behavior as they were not associated with this outcome variable.

To test whether the intervention was more successful in one of the age groups (1-, 2-, or 3-year-olds), we repeated the abovementioned analysis as a 3 x 2 x 2 (age group by sex by experimental condition) MANOVA. In this analysis, the interaction between age group and experimental condition was not significant, $F(26, 426) = 0.86$,$p = .65$, as was the three-way-interaction between age group, child sex, and experimental condition, $F(26, 426) = 1.14$, $p = .29$. The intervention was not more effective in one of the three age groups.

In a 2 x 2 x 2 (temperament by sex by experimental condition) MANCOVA, with child age as covariate, we tested whether temperamentally difficult children were differentially affected by the intervention as compared to children with relatively easy temperaments. The interaction between child temperament and experimental condition was not significant, $F(13, 216) = 0.92$, $p = .54$. The three-way-interaction between child temperament, sex, and experimental condition was not significant either, $F(13, 216) = 0.94$, $p = .51$. The intervention was not differentially effective in children with difficult or relatively easy temperaments.

Discussion and conclusion

In a randomized controlled trial with families screened for children's high scores on externalizing behavior, the attachment-based intervention program VIPP-SD proved to be effective. The intervention program, based on a combination of insights derived from attachment and coercion theory about sensitive discipline, did improve parental attitudes towards sensitivity and sensitive discipline, it enhanced some components of actual parental sensitive discipline interactions, and it resulted in a decrease of externalizing behaviors, in particular overactive behaviors in the children. We were not able to demonstrate that the parental attitudes and behaviors as assessed in the current study were indeed causally mediating the change in children's overactive problem behavior.

The VIPP-SD intervention proved to be effective in stimulating positive parental attitudes towards sensitive childrearing and sensitive discipline, which is the first goal of the program; but changing attitudes does not necessarily imply a similar change in parental behaviors toward the child. Like in numerous other parenting studies (Holden, 1995), the current investigation documented the divergence between parental attitudes and practices, as we did not find any relation between attitudes towards sensitivity or sensitive discipline and actual parental sensitive (discipline) behaviors. Nevertheless, the VIPP-SD intervention also enhanced parental practices, in particular positive sensitive discipline strategies, i.e., induction and understanding. Induction has been emphasized as a crucial parental approach to discipline in a variety of theories focusing on the development of children's empathy and morality (e.g., Hoffman, 1984). In our study, induction refers to parental explanations during parent-child interaction of why the child was not allowed to act in a certain way, for example because of the negative consequences for other persons. The second strategy, understanding, is reflected in the mothers' display of interest in or understanding of the child's feelings or thoughts. Mothers' empathic concern for the children's needs is not only a prerequisite for sensitivity

in general, but it also may be a model for the child's development of empathic concern (Van IJzendoorn, 1997). The intervention program was not effective in decreasing the number of observed negative discipline strategies, such as prohibition, physical obstruction, or giving in to the child's demands.

The VIPP-SD program was effective in decreasing the rate of overactive problem behaviors in the children, but it did not manage to affect oppositional or aggressive problem behaviors. From a close look at the CBCL items constituting the three scales for externalizing problem behaviors, it is evident that overactive behaviors indicate the child's inclination for disruptive behavior but to a less severe degree than in the items included in the oppositional or aggressive syndromes. Because our VIPP-SD program was restricted to six sessions, its effectiveness may have been limited to the less severe problem behaviors, but further investigations with varying numbers of intervention sessions are needed to test this conjecture. Furthermore, these effects may only become apparent or larger during the course of the child's later development (cf. Van Lier, Vuijk, & Crijnen, 2005).

We failed to detect the precise mechanism through which the children's problem behaviors are affected. More favorable attitudes towards sensitive discipline and enhanced sensitive discipline behaviors did not appear to be related to overactive problem behaviors in the children. Although we have used a focused intervention approach and should therefore be better able to indicate the effective ingredient of the intervention than in a broadband approach, the specific parental behaviors mediating the change in the children's problem behaviors have not been assessed in the current investigation. The findings point to a 'transmission gap' (Van IJzendoorn, 1995), in that the VIPP-SD program affected parenting attitudes and behaviors as well as children's overactive problem behavior, but it did not uncover the link between parenting and child behavior. Because we applied intervention strategies focusing on parent-child interactive behaviors (through the use of video feedback and the mirroring of behavior), we have some evidence for the idea that parents of children with externalizing behavior problems profit from teaching them to carefully observe their children, to respond to them in an appropriate way, and to discipline their rule-breaking behaviors in a gentle but consistent way, even without extending the support system of the parents or discussing their cognitive representations of attachment (Bakermans-Kranenburg et al., 2003). Elsewhere, we argued for a piecemeal approach to constructing effective interventions, starting with testing the effectiveness of small building blocks or intervention modules that after successful evaluations might be combined into an even more effective overall program (Van IJzendoorn, Bakermans-Kranenburg, & Juffer, 2005). Also, the

modular approach fits nicely into a stepwise upgrading of intervention intensity in which one might start with a single intervention module addressing the most common problems, and continue with more specific modules if earlier intervention efforts do not bear fruit in supporting more seriously disturbed families.

The effectiveness of the VIPP-SD intervention did not appear to be dependent on child age: families with younger children did not profit more from the intervention than families with older children. It should however be noted that the intervention was conducted with a rather age-homogeneous sample of infants and toddlers, and that we cannot exclude the possibility that much earlier or later interventions would be more successful. According to a meta-analysis of attachment-based interventions the idea of 'earlier is better' could not be substantiated (Bakermans-Kranenburg et al., 2003).

In the current study, we did not find support for the theory of differential susceptibility (Belsky, 1997a, 1997b, 2005). Children with difficult temperaments were not differentially affected by the intervention compared to children with relatively easy temperaments. The use of the ICQ (Bates et al., 1979) to assess temperament limits the temperamental dimension included in the current intervention to difficultness. Other dimensions may be more important from the perspective of differential susceptibility, such as behavioral inhibition (Kagan, Reznick, & Gibbons, 1989), fearfulness (Kochanska, 1995), or emotional reactivity (Klein Velderman et al., in press). Belsky (2005) suggested that especially *highly negatively* emotional infants may be more susceptible to rearing influences than infants with lower levels of reactivity. Difficultness may not fully reflect negative emotionality, and the existing data show that proof of the differential susceptibility hypothesis critically depends on the definition and measurement of the pertinent temperamental dimension.

The VIPP-SD intervention program showed statistically significant effects on various parental attitudes and sensitive discipline behaviors, as well as on children's overactive problem behaviors. The question is, however, whether its effectiveness is sizeable as well. We would argue that the program indeed affected the families in a substantial way. Effect sizes ranged from $d = 0.67$ for attitudes towards sensitivity, to $d = 0.27$ for parental understanding as a discipline strategy. The latter of these two may seem a rather modest outcome, but it should be noted that VIPP-SD certainly can make a substantial difference in the lives of numerous young children and their parents struggling with externalizing problem behaviors. In terms of the Binomial Effect Size Display (BESD; McCartney & Rosenthal, 2000),

defined as the change in success ratio as a result of an intervention, the effect size $d = 0.27$ indicates a success ratio in the experimental group of .50 + .07 = .57; the success ratio in the control group would be .50 - .07 = .43. The difference of 14% between the experimental and control group would amount to a difference that is quite substantial if we translate this outcome to the millions of children and their families who might profit from a rather small and focused program. In terms of odds ratio, the effect size of $d = 0.28$ for overactive behavior problems amounts to 1.66; that is, the risk for overactive behavior problems is 1.66 times larger without the VIPP-SD compared to the situation in which the program would be available to the families screened for externalizing behavior problems. Of course, our VIPP-SD is rather brief and the problem behaviors addressed quite complex. Exaggerated expectations about its effectiveness should therefore be tempered. However, the effect size found in this study is similar to what in the medical sciences is regarded as a substantial treatment effect (McCartney & Rosenthal, 2000).

The feasibility of VIPP-SD on a large-scale basis is facilitated by its rather short duration, detailed protocol, and the relatively modest training required for implementing the intervention. We found that in total 170 hours of instruction and practice in VIPP-SD for 10 interveners was sufficient to adequately implement the intervention. The VIPP-SD intervention proved to be equally effective when implemented by undergraduate students, or by PhD students in child development. Since the intervention trajectory is limited to six sessions in an 8-month period, families are not confronted with high staff turnover (Spieker, Nelson, DeKlyen, & Staerkel, 2005). It remains to be tested to what population our findings regarding the effectiveness may be generalized. The families participating in the intervention study showed higher levels of child externalizing problems, marital discord, and daily hassles, as well as lower levels of maternal well-being compared to the other families in the original screening group, but families from higher socio-economic backgrounds were overrepresented in that population as well as in our intervention study group. The next step is to test whether our intervention program would be similarly effective in more troubled families from lower socio-economic backgrounds. Clearly, further research into the generalizability of our findings is necessary.

The last two sessions of the VIPP-SD intervention are aimed at enhancing intervention effects by reviewing all previous feedback. During these booster sessions, the fathers were invited to participate along with the mothers, as their involvement may enhance intervention effects through their support to implement the newly acquired skills (Bakermans-Kranenburg et al., 2003). Only

few attachment-based interventions included both parents (Dickie & Gerber, 1980; Metzl, 1980; Scholz & Samuels, 1992; see also Bakermans-Kranenburg et al., 2003) and their effectiveness was rather disappointing. In one study mothers even seemed to suffer from greater intervention participation by their partners (Dickie & Gerber, 1980). Nevertheless, attachment theory stresses the child's attachments to both mother and father, as well as the importance of secure attachments between the parents, and the need for working with the whole family system in case of problems (Byng-Hall, 1999). Our families suffered more from marital discord and daily hassles than families from the general population, which may be sufficient reason to address both parents in VIPP-SD. Because paternal attitudes or behaviors were not assessed as outcome measures, we cannot evaluate the effectiveness of this specific ingredient of the intervention.

In sum, the VIPP-SD intervention program, based on attachment theory and coercion theory, was rigorously tested in a randomized trial using a detailed intervention protocol, a dummy-treatment for the control group, and independent coders unaware of group status of the participants. VIPP-SD proved to be effective in enhancing parental attitudes towards sensitivity and sensitive discipline, ctual sensitive discipline interactions, and it resulted in a decrease in overactive behaviors in the children.

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 trough 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 extant 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.

Chapter 6

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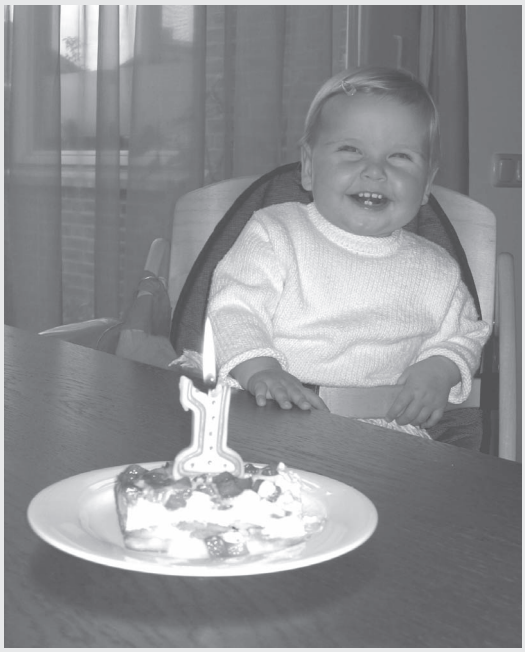
Appendices



For the first time, the Child Behavior Checklist was used to investigate whether externalizing problem behaviors can be assessed in children as young as 1 year old.

Changes from pretest to posttest were assessed in 1½-hour laboratory sessions to test the effectiveness of the VIPP-SD intervention program.

Het is de bedoeling dat uw kind dit doosje rozijntjes met de daarop geplakte bloem pas aan het einde, over ongeveer 10 minuten, krijgt.

We willen graag kijken hoe kinderen van deze leeftijd er mee omgaan als ze iets niet direct mogen hebben.

Als u het idee heeft dat het niet anders gaat, kunt u het ook eerder geven, maar het liefst pas aan het einde.

Maternal discipline strategies were assessed during the laboratory sessions in a 10-minute 'don't' task, in which the child was not allowed to have a treat (box of raisins).

Each intervention session started with videotaping standardized mother-child interactions to be used for video feedback in the next home visit.

Hundreds of videotaped laboratory episodes were coded by independent observers who were unaware of each dyad's experimental condition.

Appendix A

Samenvatting
(Summary in Dutch)

Externaliserende problemen bij 1- tot 3-jarige kinderen

Screening, interventie en de invloed van temperament[1]

Introductie

Opvoedingsondersteuning staat de laatste tijd erg in de belangstelling. Negatieve ontwikkelingen in de maatschappij worden toegeschreven aan problemen in de opvoeding, wekelijks worden op televisie verschillende opvoedprogramma's uitgezonden en de Nederlandse overheid investeert doelgericht in programma's voor opvoedingsondersteuning. Hoewel er steeds nieuwe ondersteuningsprogramma's worden geïmplementeerd, blijven vragen over de kwaliteit en de effectiviteit ervan helaas vaak onbeantwoord. Zo is de theoretische basis van sommige programma's twijfelachtig. Ook worden programma's geïmplementeerd zonder eerst te zijn geëvalueerd, of zit effectiviteitsonderzoek methodologisch niet goed in elkaar.[2] Opvallend is daarnaast dat programma's ter voorkoming of vermindering van gedragsproblemen zich voornamelijk richten op schoolkinderen of adolescenten, terwijl uit onderzoek blijkt dat gedragsproblemen al op zeer jonge leeftijd voorkomen.[3] Preventieprogramma's op jonge leeftijd blijken bovendien nog de meeste kans van slagen te hebben.[4] Er is dan ook behoefte aan systematisch ontwikkelde interventieprogramma's gericht op het voorkomen van gedragsproblemen op jonge leeftijd, opgezet vanuit een duidelijke theoretische achtergrond en met aangetoonde effectiviteit.

Het belangrijkste doel van dit proefschrift is het onderzoeken van de effectiviteit van een opvoedingsondersteuningsprogramma gericht op het verminderen van externaliserende gedragsproblemen (bijvoorbeeld ongehoorzaamheid, driftbuien, slaan) bij 1- tot 3-jarige kinderen. De *Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline* (VIPP-SD) beoogt externaliserende problemen te verminderen door het verhogen van de ouderlijke sensitiviteit en het verbeteren van ouderlijke disciplineringsstrategieën. Deze VIPP-SD-interventie is tot stand gekomen op basis van wetenschappelijke inzichten over de oorsprong en ontwikkeling van externaliserende problemen bij jonge kinderen. De uitgevoerde effectiviteitstudie (SCRIPT; *Screening and Intervention of Problem*

1 Voor een volledig overzicht van referenties, zie de betreffende hoofdstukken in dit proefschrift
2 Zie Hinshaw, 2002; Kendziora, 2004
3 Zie bijvoorbeeld Achenbach & Rescorla, 2000; Briggs-Gowan, Carter, Skuban, & Horwitz, 2001
4 Zie Kendziora, 2004

behavior in Toddlerhood) voldoet aan de methodologische voorwaarden om gevonden effecten ook daadwerkelijk aan de interventie toe te schrijven (o.a. een grote steekproef, een gerandomiseerd en longitudinaal design met een voor- en nameting, een 'dummy-interventie' voor de controlegroep).[5] Binnen de SCRIPT-studie kunnen verschillende onderzoeksvragen beantwoord worden. De vragen die in dit proefschrift zijn onderzocht, luiden:

1. Kunnen externaliserende gedragsproblemen (zoals agressief, overactief en oppositioneel gedrag) al worden vastgesteld bij kinderen van 1 jaar oud? (*Hoofdstuk 2*)

2. Is temperament, dat wil zeggen de gedragsstijl van een kind, een moderator van het verband tussen ouderlijk disciplineren en externaliserende gedragsproblemen bij kinderen van 1 tot 3 jaar? (*Hoofdstuk 3*)

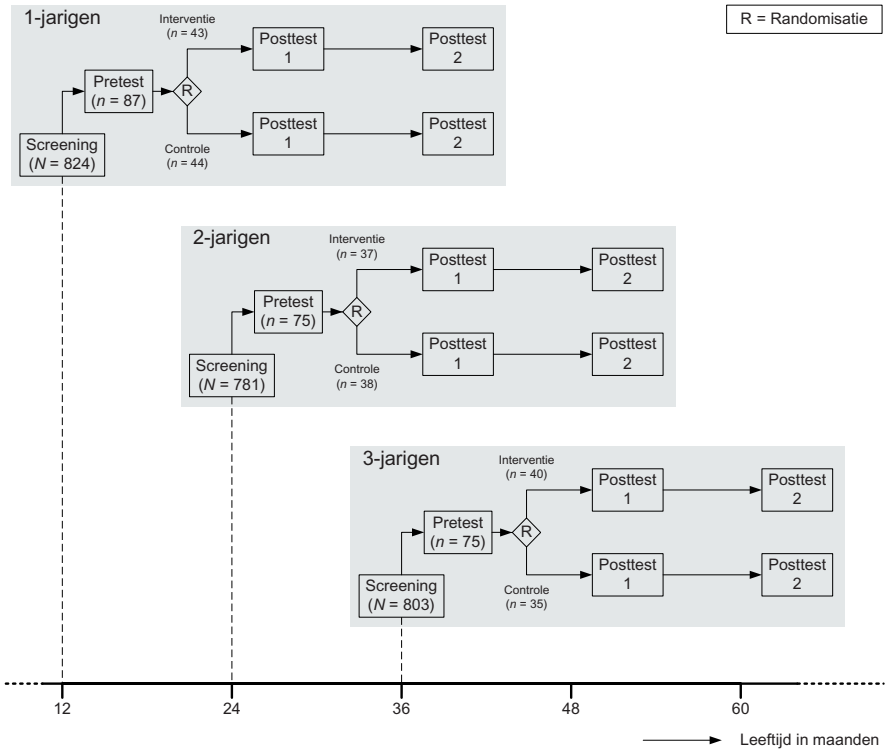
3. Is de VIPP-SD-interventie effectief in het verbeteren van de ouderlijke sensitiviteit en disciplineringsstrategieën, en in het verminderen van externaliserend probleemgedrag bij kinderen van 1 tot 3 jaar? (*Hoofdstuk 4*)

De SCRIPT-studie

De SCRIPT-studie bestond uit een screening in een grote steekproef uit de algemene bevolking, gevolgd door een voormeting, een interventie (of controle-conditie) en twee nametingen, bij een geselecteerde groep van 1- tot 3-jarige kinderen die relatief veel externaliserende gedragsproblemen vertoonden (zie Figuur A, op pagina 123).

Verschillende gemeenten in de omgeving van Leiden hebben adressen verstrekt van gezinnen met een kind van 1, 2, of 3 jaar oud. Deze gezinnen ontvingen een vragenlijst voor de ouder die de meeste tijd met het betreffende kind doorbrengt (de 'primaire' ouder) en een vragenlijst voor de zogenoemde 'tweede' ouder. In totaal stuurden 2408 primaire ouders (52%) de vragenlijst ingevuld retour. Van 87% van deze kinderen werd ook de vragenlijst van de tweede ouder teruggestuurd. In de meeste gevallen was de primaire ouder de (biologische) moeder en de tweede ouder de (biologische) vader; de meeste kinderen (95%) woonden bij beide biologische ouders. Het opleidingsniveau van de deelnemende ouders was over

5 Zie Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003



Figuur A: Opzet van de SCRIPT-studie[6]

het algemeen hoog (in 65% van de gezinnen had minimaal één van de ouders een opleiding op HBO-niveau of hoger) en alle gezinnen hadden een Nederlandse achtergrond.

De screening van de kinderen voor de interventiestudie vond plaats met de *Child Behavior Checklist*[7], een vragenlijst naar probleemgedrag bij kinderen van 1½ tot 5 jaar. De kinderen met de 25% hoogste scores op de schaal Externaliserende Problemen werden geselecteerd en uitgenodigd voor de interventiestudie. Samen met hun moeder (de primaire ouder) brachten de kinderen een bezoek aan de spelkamer van de Universiteit Leiden voor een gestandaardiseerde voormeting, die met videocamera's werd vastgelegd. Tijdens het bezoek deden moeder en kind verschillende spelletjes en opdrachten om diverse constructen te meten, zoals sensitiviteit, disciplinering, agressie en temperament. De video-opnamen werden naderhand door onafhankelijke observatoren, die niet op hoogte waren van de experimentele conditie of andere gegevens van het moeder-kind-paar,

6 Zie Van IJzendoorn & Juffer, 2000
7 Achenbach & Rescorla, 2000

gecodeerd. Na de voormeting werden de kinderen aselect toegewezen aan de interventie- of de controlegroep. De interventiegroep kreeg zes huisbezoeken en parallel daaraan werden zes telefoongesprekken met de controlegroep gevoerd. Ongeveer een jaar na de voormeting kwam zowel de interventie- als de controlegroep weer naar de spelkamer van de Universiteit Leiden voor een nameting, die vergelijkbaar was met de voormeting. In totaal hebben 237 kinderen meegedaan aan de gehele interventiestudie (87 1-jarige kinderen, 75 2-jarigen en 75 3-jarigen).

De VIPP-SD-interventie

De VIPP-SD-interventie maakt gebruik van een videofeedbackmethode die in eerdere onderzoeken effectief is gebleken in het verhogen van de sensitieve responsiviteit van ouders[8]: de *Video-feedback Intervention to promote Positive Parenting* (VIPP). Sensitieve responsiviteit verwijst naar het juist opmerken van signalen van een kind en daar prompt en adequaat op reageren. Voor de SCRIPT-studie is de VIPP-methode uitgebreid met ondersteuning op het gebied van sensitieve disciplinering (resulterend in VIPP-SD), dat wil zeggen: invoelend, duidelijk en consistent zijn bij het disciplineren van een kind. Door ook expliciet aandacht te besteden aan adequate disciplineringsstrategieën wordt beoogd te voldoen aan de behoeften van de specifieke doelgroep, namelijk gezinnen met kinderen die veel externaliserende gedragsproblemen vertonen.

In het VIPP-programma worden moeder en kind gefilmd tijdens dagelijkse situaties thuis, bijvoorbeeld tijdens het samen spelen. De videoband wordt vervolgens gedetailleerd bekeken door een ondersteuner om commentaar en adviezen voor te bereiden voor het volgende huisbezoek. Tijdens dat huisbezoek bekijken de moeder en de ondersteuner samen de opnamen van het vorige bezoek, bespreekt de ondersteuner met de moeder de verschillende fragmenten en komen adviezen en suggesties aan bod. Naast algemene informatie over de opvoeding en ontwikkeling van kinderen, wordt tijdens elk bezoek specifieke informatie gegeven rondom de thema's sensitiviteit en disciplinering. Tevens krijgen de moeders enkele tips waarmee zij kunnen gaan oefenen in de periode tot het volgende bezoek. De VIPP-interventie wordt uitgevoerd door een getrainde ondersteuner, met behulp van een gedetailleerde handleiding. In deze handleiding zijn de opbouw, thema's, tips en opdrachten voor moeder en kind voor elk huisbezoek vastgelegd. Op deze manier krijgt elk gezin hetzelfde gestandaardiseerde VIPP-programma.

8 Zie bijvoorbeeld Juffer, Van IJzendoorn, Bakermans-Kranenburg, in druk

Hoewel de basis van de interventie daarmee voor ieder gezin gelijk is, wordt de feedback bij de videobeelden afgestemd op het specifieke moeder-kind-paar.

Het VIPP-SD-programma bestaat in totaal uit zes huisbezoeken. De eerste vier bezoeken vinden elke maand plaats, de laatste twee (zogeheten 'herhalingsbezoeken') om de twee maanden. Tijdens deze laatste twee bezoeken worden ook de vaders uitgenodigd. De betrokkenheid van vaders kan de invloed van een interventie vergroten, bijvoorbeeld door hun steun aan de moeders om datgene wat zij tijdens de interventie geleerd hebben ook in het dagelijks leven toe te passen. Ook met het overhandigen van een brochure aan het einde van het interventietraject wordt beoogd interventie-effecten te versterken. In deze brochure staan alle tips die in de interventie aan bod zijn gekomen, zodat ouders na afloop van het interventietraject de informatie kunnen nalezen. Parallel aan het VIPP-SD-traject worden met de moeders uit de controlegroep zes telefoongesprekken gevoerd, waarin geen begeleiding of opvoedingsadvies wordt gegeven. Doordat er gerichte vragen worden gesteld over de algemene ontwikkeling van de kinderen (bijvoorbeeld eten, slapen en spelen), wordt voorkomen dat de moeders opvoedingsadvies vragen. Wanneer dit wel gebeurt, worden de moeders doorverwezen naar hun huisarts of bijvoorbeeld een consultatiebureau.

Externaliserende gedragsproblemen bij 1-jarige kinderen

Vroeger ging men er vanuit dat externaliserende gedragingen van jonge kinderen (bijvoorbeeld veel aandacht vragen, schreeuwen, slaan) 'bij de leeftijd' horen en vanzelf weer overgaan. Uit onderzoek blijkt echter dat sommige kinderen deze gedragingen wèl blijven vertonen. Bovendien is aangetoond dat kinderen die op jonge leeftijd veel externaliserende problemen vertonen ook een grote kans hebben op diverse problemen op latere leeftijd, bijvoorbeeld leerproblemen, delinquent gedrag, of depressie.[9] Om te voorkomen dat externaliserende problemen een levenslange zorg worden, is interventie op een zo vroeg mogelijke leeftijd erg belangrijk. Veel onderzoek naar externaliserende problemen bij jonge kinderen heeft zich gericht op 2- en 3-jarige kinderen, maar onlangs hebben enkele studies aangetoond dat externaliserende gedragsproblemen al voorkomen bij kinderen van 1½ jaar oud.[10] Twee studies duiden er zelfs op dat deze gedragingen kunnen voorkomen bij kinderen van 1 jaar oud.[11]

9 Zie bijvoorbeeld Campbell, Shaw, & Gilliom, 2000; Mesman & Koot, 2001
10 Zie bijvoorbeeld Achenbach & Rescorla, 2000; Mathiesen & Sanson, 2000
11 Carter, Briggs-Gowan, Jones, & Little, 2003; Tremblay et al., 1999

In *hoofdstuk 2* is onderzocht of externaliserende problemen inderdaad al kunnen worden vastgesteld bij 1-jarige kinderen en of zo'n meting ook werkelijk iets zegt over de ontwikkeling van een kind. Nagegaan is of de verschillende externaliserende gedragingen voorkomen bij 1-jarige kinderen (en zo ja, in welke mate), of beide ouders hetzelfde gedrag van hun 1-jarige kind rapporteren en of de mate van het probleemgedrag op 1-jarige leeftijd iets zegt over datzelfde gedrag een jaar later. Ook is onderzocht hoe de externaliserende gedragingen zijn ingebed in de omgeving van 1-jarige kinderen. Deze uitkomsten zijn vergeleken met die van 2- en 3-jarige kinderen, bij wie het bestaan van externaliserende gedragsproblemen evenals de relevantie ervan alom is geaccepteerd. Ten eerste bleek de *Child Behavior Checklist* op eenzelfde wijze het probleemgedrag van 1-jarige kinderen te meten als van 2- en 3-jarigen, en bovendien op een betrouwbare manier. Ten tweede bleken de meeste externaliserende gedragingen al voor te komen bij 1-jarige kinderen, maar over het algemeen in iets mindere mate dan bij 2- en 3-jarige kinderen. Ten derde stemden ouders overeen in hun rapportage van de externaliserende gedragingen van hun 1-jarige kind en werd er stabiliteit gevonden van de externaliserende problemen op 1-jarige leeftijd en een jaar later. De overeenstemming tussen beide ouders en de stabiliteit van het probleemgedrag bleken iets lager bij 1-jarigen dan bij 2- en 3-jarige kinderen. Tot slot bleek het externaliserende gedrag van 1-, 2- en 3-jarige kinderen over het algemeen samen te hangen met dezelfde omgevingskenmerken. Dit wijst er op dat externaliserende gedragsproblemen in deze drie leeftijdsgroepen eenzelfde betekenis hebben en dat de ontwikkeling van de gedragsproblemen voortkomt uit vergelijkbare (omgevings)processen. Al met al duiden deze resultaten op het belang van verder onderzoek naar externaliserende gedragsproblemen op heel jonge leeftijd en naar het ontwikkelen van preventieve interventies voor deze jonge kinderen.

Temperament en de ontwikkeling van externaliserende gedragsproblemen

Met het temperament van kinderen worden de individuele verschillen tussen kinderen bedoeld wat betreft hun gedragsstijl, die in oorsprong een biologische basis heeft. Het temperament van een kind blijkt mede bepalend te zijn voor de ontwikkeling. Een kind kan vanwege zijn temperament geneigd zijn tot bepaalde gedragingen, zoals agressief of overactief gedrag. Ook kan het temperament van een kind bij anderen bepaald gedrag oproepen, bijvoorbeeld irritatie of een hardhandige opvoeding. In de *differential susceptibility*-theorie[12] wordt bovendien

12 Belsky, 1997a, 1997b, 2005

benadrukt dat sommige kinderen vanwege hun temperament meer beïnvloedbaar zijn door de omgeving dan andere kinderen. Of een kind bepaald gedrag zal gaan vertonen als gevolg van invloeden uit zijn omgeving, hangt volgens deze theorie af van het temperament van het kind. Zo zullen sommige kinderen vanwege hun temperament ontvankelijk zijn voor negatieve omgevingskenmerken en als gevolg daarvan externaliserende problemen gaan vertonen. Resultaten van verschillende onderzoeken suggereren dat kinderen met een moeilijk temperament of kinderen met een hoge mate van negatieve emotionaliteit het meest ontvankelijk zijn voor omgevingsinvloeden.[13]

In *hoofdstuk 3* is de *differential susceptibility*-theorie empirisch getoetst. Er is onderzocht of het temperament van een kind de relatie tussen ouderlijk disciplineren en het vertonen van externaliserende gedragsproblemen modereert. Anders gezegd, er is onderzocht of de relatie tussen disciplineren en externaliserende problemen verschillend is voor kinderen met een moeilijk en kinderen met een relatief gemakkelijk temperament. Het bleek inderdaad zo te zijn dat kinderen met een moeilijk temperament meer te beïnvloeden zijn door de manier waarop hun moeders disciplineren, zowel in positieve als in negatieve zin. Voor kinderen met een relatief gemakkelijk temperament maakte het niet zo veel uit op welke manier hun moeders disciplineerden. Wanneer moeders veel gebruik maakten van de negatieve disciplineringsstrategie 'verbieden', vertoonden kinderen met een moeilijk temperament meer externaliserende problemen dan kinderen met een gemakkelijker temperament. Maar kinderen met een moeilijk temperament vertoonden ook minder externaliserende problemen en minder agressief gedrag dan kinderen met een relatief gemakkelijk temperament wanneer hun moeders veel gebruik maakten van de positieve disciplineringsstrategie 'afleiden'. Dit werd zowel gevonden op basis van rapportage door de moeder, als door het observeren van het gedrag van het kind tijdens het bezoek aan de spelkamer. Ook andere gemeten disciplineringsstrategieën (negatief: autoritair oudergedrag en toegeven; positief: het bekrachtigen van alternatief kindgedrag en het tonen van begrip) vertoonden dergelijke, maar niet-significante, trends in de voorspelde richtingen. Deze resultaten leveren empirisch bewijs voor de *differential susceptibility*-theorie en wijzen er bovendien op dat opvoedingsondersteuning vooral belangrijk kan zijn voor kinderen met een moeilijk temperament. Deze kinderen bleken immers het meest kwetsbaar voor negatieve omgevingsinvloeden en zullen dan ook mogelijk de meeste baat hebben bij positieve veranderingen in oudergedrag.

13 Zie bijvoorbeeld Crockenberg, 1981; Kochanska, 1993; Van den Boom, 1994; Suomi, 1995

Effectiviteit van de VIPP-SD-interventie

Onderzoek heeft uitgewezen dat negatief oudergedrag en een negatieve ouder-kind-relatie samenhangen met de ontwikkeling van externaliserende gedragsproblemen.[14] Belangrijke aspecten in de opvoeding van jonge kinderen zijn sensitieve responsiviteit en adequate disciplineringsstrategieën. De gehechtheidstheorie en de sociaal-leren-theorie besteden uitgebreid aandacht aan deze aspecten van oudergedrag. De gehechtheidstheorie[15] beschrijft dat ieder kind een gehechtheidsrelatie ontwikkelt met zijn primaire opvoeder(s). De opvoeder zorgt voor een gevoel van veiligheid op momenten van o.a. stress en vermoeidheid en biedt een veilige basis van waaruit de omgeving kan worden geëxploreerd. De mate waarin een opvoeder beschikbaar is en adequaat reageert op de signalen van het kind bepaalt de kwaliteit van de gehechtheidsrelatie. Een onveilige gehechtheidsrelatie blijkt samen te hangen met de ontwikkeling van externaliserende problemen.[16] Ook de sociaal-leren-theorie beschrijft hoe kindgedrag wordt beïnvloed door het gedrag van ouders. Als gedrag is beloond en effectief is gebleken, zal een kind dat gedrag ook in de toekomst blijven vertonen. Meer specifiek beschrijft de *coercion*-theorie[17] (die gebaseerd is op de sociaal-leren-theorie) dat het bekrachtigen van negatief gedrag, het niet bekrachtigen van positief gedrag en het inconsistent disciplineren kunnen leiden tot de ontwikkeling van externaliserende problemen. Hoewel de gehechtheidstheorie en de sociaal-leren-theorie een verschillende grondslag hebben, zijn de uitgangspunten met betrekking tot ouder-kind-interacties goed te combineren. De VIPP-SD-interventie is opgesteld op basis van deze theoretische (en empirisch bevestigde) inzichten en de concrete indicaties van welke oudergedragingen centraal moeten staan.

In *hoofdstuk 4* is de effectiviteit van de VIPP-SD-interventie onderzocht. Daarbij ging het om effecten op de houding en ideeën van de moeders, het daadwerkelijke opvoedingsgedrag en het gedrag van de kinderen. Ook is onderzocht of de interventie verschillende effecten opleverde voor kinderen die verschilden in temperament, leeftijd of geslacht. Na de interventie bleek de houding ten aanzien van sensitiviteit en sensitief disciplineren van de interventiemoeders te zijn verbeterd in vergelijking met de moeders uit de controlegroep. Ook toonden interventiemoeders meer sensitief gedrag bij het disciplineren van hun kind: zij gebruikten meer inductie (dat wil zeggen: uitleg geven aan het

14 Zie bijvoorbeeld Campbell, 1995, 2000; Rothbaum & Weisz, 1994
15 Bowlby, 1969
16 Zie bijvoorbeeld Greenberg, Speltz, DeKlyen, & Endriga, 1991
17 Patterson, 1976, 1982

kind waarom iets niet kan of iets niet mag) en zij toonden meer begrip dan moeders uit de controlegroep. Hoewel de moeders uit de interventiegroep vaker positief disciplineringsgedrag lieten zien dan de controlegroep, gebruikten zij na de interventie niet minder negatief disciplineringsgedrag. Tot slot bleken de kinderen uit de interventiegroep na afloop van de interventie minder overactief gedrag te vertonen dan de kinderen uit de controlegroep. In tegenstelling tot de verwachtingen op basis van hoofdstuk 3, werden er geen verschillen gevonden in de effectiviteit van de interventie voor kinderen met een moeilijk versus een relatief gemakkelijk temperament. Ook waren er geen verschillen voor jongens versus meisjes en jongere versus oudere kinderen. Opvallend is dat de houding en de ideeën van de moeders niet significant samenhingen met het daadwerkelijke gedrag dat zij tijdens de nameting lieten zien. Ook hebben we niet kunnen achterhalen hóe het kindgedrag veranderd is: het (verminderde) overactieve gedrag van de kinderen hing namelijk niet samen met het (veranderde) gedrag van de moeder bij de nameting. De resultaten duiden er op dat de kortdurende, laagdrempelige VIPP-SD-interventie een belangrijke rol kan spelen in het verbeteren van opvoedingsvaardigheden van ouders en het verminderen van probleemgedrag van jonge kinderen.

Beperkingen van het onderzoek

De belangrijkste beperking van het onderzoek betreft de steekproef. De respons was niet erg hoog, gezinnen waren relatief hoog opgeleid en alle gezinnen hadden een Nederlandse achtergrond. Meer onderzoek is nodig naar de generaliseerbaarheid van de gevonden resultaten. Een tweede beperking is het feit dat alleen moeders in het onderzoek zijn betrokken (vanwege de selectie van primaire ouders). Toekomstig onderzoek zou ook meer aandacht moeten besteden aan gegevens van en over vaders. Een derde beperking ligt in de meetinstrumenten die zijn gebruikt. Vanwege de zware belasting voor ouders en kinderen konden niet alle constructen op alle tijdstippen worden gemeten. Bovendien bleken de gebruikte meetinstrumenten niet geschikt om vast te stellen hóe de interventie gericht op het opvoedingsgedrag het overactieve kindgedrag heeft verminderd. In de toekomst zouden uitgebreidere en herhaalde metingen moeten plaatsvinden aan de hand van verschillende meetmethoden en meerdere informanten.

Conclusie

Dit proefschrift heeft tot verschillende nieuwe inzichten geleid, zowel op theoretisch als praktisch gebied. De resultaten van het onderzoek duiden er op dat externaliserende gedragingen betrouwbaar en valide kunnen worden vastgesteld bij 1-jarige kinderen. Externaliserende problemen komen voor bij 1-jarige kinderen en zijn redelijke voorspellers van dezelfde soort problemen een jaar later. Het temperament van een kind blijkt van belang te zijn bij de ontwikkeling van externaliserende problemen: het modereert de relatie tussen ouderlijk disciplineren en externaliserende problemen. Voornamelijk kinderen met een moeilijk temperament zijn vatbaar voor de wijze waarop ouders disciplineren. Tot slot blijkt de VIPP-SD-interventie effectief in het verbeteren van de houding van moeders ten aanzien van sensitiviteit en sensitieve disciplinering, het verbeteren van enkele aspecten van sensitief disciplineringsgedrag en het verminderen van overactief gedrag van de kinderen. De resultaten van dit proefschrift vormen een aansporing tot verder onderzoek naar de ontwikkeling van externaliserende gedragsproblemen op heel jonge leeftijd en meer onderzoek naar preventiemogelijkheden op deze leeftijd.

Appendix B

Dankwoord
(Acknowledgements)

Van het gehele proefschrift zegt het dankwoord het meest over de promovendus zelf

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Hoe eenzaam men het promotiebestaan ook noemt, promoveren doe je niet alleen

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Remko, merci beaucoup!

Appendix C

Curriculum Vitae

Jantien van Zeijl werd geboren op 21 september 1976 in Rotterdam. In 1994 behaalde zij haar VWO diploma aan de Scholengemeenschap Melanchthon te Rotterdam. Na een jaar wonen, werken en Frans studeren in Parijs, begon zij aan haar studie Pedagogische Wetenschappen aan de Universiteit Leiden. In 2000 studeerde zij cum laude af in de Algemene en Gezinspedagogiek, met een afstudeeronderzoek naar de relatie tussen temperament en probleemgedrag van kinderen op een kinderdagverblijf.

Na weer een paar maanden in het buitenland te hebben doorgebracht, kwam zij terug bij de Universiteit Leiden als onderzoeksassistent bij het onderzoeksproject Flexibele Kinderopvang, waarbij zij zich specialiseerde in het observeren van de kwaliteit van leidster-kind-interacties. Vanaf 2001 heeft zij zich bezig gehouden met haar promotieonderzoek naar een preventieve interventie van gedragsproblemen bij jonge kinderen, dat zij in 2006 afrondde en in dit proefschrift heeft beschreven. Ook werkte zij in die periode een dag in de week als onderzoeker op het gebied van de kinderopvang, onder andere binnen het Nationaal Consortium Kinderopvang Onderzoek, in een onderzoek naar de pedagogische kwaliteit van kinderdagverblijven.

Jantien van Zeijl was born on September 21st, 1976 in Rotterdam, the Netherlands. She completed her secondary education at the Scholengemeenschap Melanchthon in Rotterdam in 1994. After a year of living, working, and studying French in Paris, she continued her education at Leiden University. In 2000 she received her M.A. degree (cum laude) at the Centre for Child and Family Studies, with a thesis on the relationship between child temperament and behavior problems in childcare centers.

Having spent a few months abroad, she returned to Leiden University as a research assistant for the Flexible Child Care research project, with a special emphasis on observing the quality of caregiver-child interactions. From 2001 to 2006, she conducted her PhD project on the preventive intervention of early externalizing problems - the results of which are presented in this dissertation - and also spent one day a week studying childcare quality with the Dutch Consortium for Research in Child Care.