Morality from infancy to middle childhood

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“Twee dingen vervullen de geest met steeds nieuwe
en toenemende bewondering en eerbied, hoe vaker
en langduriger het denken zich ermee bezighoudt:
de sterrenhemel boven mij en de morele wet in mij.”
(Kant, 2006, p. 213)

Contents

Chapter 1

General introduction

The concept of morality (from the Latin *moralitas*, meaning manner, character, proper behavior) has intrigued philosophers and writers for centuries. This fascination for morality resulted not only in books and epistles, but also in theatrical plays. In the 15th and 16th century, morality plays were very popular in Europe. An example of a Dutch morality play from the late 15th century is *Elckerlijc*. The main character, *Elckerlijc (Everyman)*, is sent on a journey of discovery to learn a moral lesson. The lesson *Elckerlijc* learns is that from this world we cannot take with us anything we have received; we can only take what we have been given (Verbeek, 2006). Although there is a long history of *thinking and theorizing* about morality, actual *research* on morality or moral behavior only recently gained more interest, with a growing body of research from the end of the past century (Eisenberg, 1982).

Moral behavior, or behavior that conforms to an accepted standard of right and wrong, has its early beginnings in empathy, compliance, and prosocial behavior (Kochanska, 2002; Kochanska, Murray, & Coy, 1997; Van IJzendoorn, 1997). There are many definitions used for empathy, all slightly different. We consider empathy the recognizing and sharing of the emotional state of another person (Eisenberg & Fabes, 1998; Eisenberg, Spinrad, & Sadovsky, 2006; Hoffman, 1982). According to Hoffman (2000), the development of empathy starts from birth and develops in four stages. At the first stage, referred to as global empathy, the infant becomes aroused when it hears another person's crying. Because of the lack of a differentiated sense of self and others, the infant starts to cry in reflex. This behavior is visible in babies as young as one to three days old (Sagi & Hoffman, 1976; Simner, 1971). During the second year of life, the child starts to develop a self-other orientation, which leads to the second stage of empathic development, egoistic empathy. Although now children are aware that another person may be in distress, they cannot yet make a distinction between their own internal state and that of the other person. Children of this age tend to try to comfort victims in ways they would want to be comforted themselves. In the third stage of empathic development, empathy for another's feelings, children can distinguish between needs and feelings of the other person and of themselves. These role-taking capabilities emerge during the third year of life. The fourth and last stage of empathic development, empathy for another's life condition, requires the cognitive ability to form social concepts and classify people into groups. This can be seen in children from late childhood onwards (Hastings, Zahn-Waxler, & McShane, 2006).

Another aspect of moral behavior is compliance, especially committed compliance (Kochanska, 2002; Kochanska & Aksen, 1995; Kochanska, Aksen, & Koenig, 1995). Committed, wholehearted compliance reflects "the child's genuine eagerness to adopt

the caregivers agenda, accompanied by the feeling of internal obligation" (Kochanska & Aksen, 1995, p. 237). This form of compliance is distinct from situational compliance, when the child is only obedient because of the parent's sustained control. Research of Kochanska and colleagues (Kochanska & Aksen, 1995; Kochanska et al., 1995; Kochanska, Coy, & Murray, 2001; Kochanska, Tjebkes, & Forman, 1998) showed that the developmental pathways for situational and committed compliance differ, and that only committed compliance is associated with the child's internalization of rules.

Committed compliance can be measured in two situations; a situation in which a child is compliant to a request, and a situation in which a child is compliant to a prohibition (Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002). Studies on the development of these capacities vary in their findings. Whereas Kochanska and colleagues found that children aged one to six find it more challenging to be compliant to parental requests than to parental prohibitions (Braungart-Rieker, Garwood, & Stifter, 1997; Kochanska, 2002; Kochanska & Aksen, 1995; Kochanska et al., 1995; Kochanska et al., 2001), Van der Mark, Bakermans-Kranenburg, et al. (2002) found the opposite in 18-months-old girls, with committed compliance to prohibitions being more difficult for the girls than compliance to parental requests, and no difference in committed compliance across the two settings at 24 months.

The last facet of moral behavior studied in this thesis is prosocial behavior, which is defined as voluntary behavior intended to help others (Eisenberg & Fabes, 1998). This behavior is performed regardless of whether the action is beneficial, neutral in its impact, or costly to the donor. Following this line, prosocial behavior should not be confused with altruism, which is behavior that comes at some cost to the donor (Grusec, Davidov, & Lundell, 2002). In the literature pertaining to prosocial behavior, four types of behavior are distinguished; helping, sharing, comforting, and cooperation (Jackson & Tisak, 2001; Rose-Krasnor, 1997). Helping and sharing behaviors are defined as acts that benefit another person, with (in the case of sharing) or without (in the case of helping) the expectation of reciprocity (Bar-Tal, Raviv, & Goldberg, 1982). Helping includes acts such as picking up dropped objects in order to return them to the owner (Eisenberg & Miller, 1987). Sharing implies giving away something that one has received without any reason and not as a reward (Staub & Noerenberg, 1981). The third type of prosocial behavior, comforting, becomes apparent in actions intended to improve the feelings of another person, for example soothing someone who got hurt (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). The last type of prosocial behavior, cooperation, may involve participants working together in a game to improve their rewards (Marcus, Telleen, & Roke, 1979). Prosocial behavior increases from

infancy to adulthood, although there is variability in magnitude, depending on the type of prosocial behavior studied and the method of measurements used (Grusec et al., 2002).

These precursors of moral behavior develop within the family context, especially within the relationship between child and primary caregiver. Individual differences in emerging morality could be ascribed to two aspects of this parent-child relationship. The first is attachment security. According to attachment theory, all infants are predisposed to become attached to their primary caregiver (Bowlby, 1969). Attachment theory makes a distinction between securely and insecurely attached children. Children who are securely attached seek the attachment figure at times of distress and use the attachment figure as a secure base for exploration and play (Bowlby, 1973). These experiences of securely attached children with their primary caregivers form the basis for the children's internal working models, or cognitive representations, in which they see themselves as lovable, competent, and worthy of care. Children who are insecurely attached develop internal working models in which the primary caregiver is unavailable, perhaps even hurtful, and they see themselves as unlovable and unworthy of care (Bretherton & Munholland, 1999; Yunger, Corby, & Perry, 2006). These attachment behavior patterns and subsequent internal working models of children with secure or insecure attachments influence their development; secure attachment is associated with positive child development, whereas insecure attachment is associated with negative child development (e.g., Greenberg, 1999; Sroufe, Egeland, Carlson, & Collins, 2005).

The second aspect of the parent-child relationship that may account for individual differences in emerging morality is parental sensitivity. If the parent is sensitive and responsive to the emotional needs of the child, the parent provides the child with a template for his or her own manner of responding (Grusec, Davidov, & Lundell, 2002; Pines & Marrone, 2003; Van IJzendoorn, 1997). The sensitive parent reacts promptly and adequately to the child's signals, does not overstimulate nor underestimate the child, and notices when the child becomes distressed or bored (Ainsworth, Bell, & Stayton, 1974). Sensitivity can be expressed in physical interaction and in verbal interaction between parent and child. During physical interaction, the highly sensitive parent is able to see things from the child's point of view; the parent picks him up when he seems to wish it, and puts him down when he wants to explore. The parent does not restrict the child's movements by physical force, but engages his cooperation by diverting him (Ainsworth et al., 1974). During verbal interaction, the highly sensitive parent is emotionally supportive and continuously reinforces the child's success by

complimenting and encouraging him (Egeland, Erickson, Clemenhagen-Moon, Hiester, & Korfmacher, 1990). The parent uses arguments as the core of reasoning with the child, without authoritarian parenting.

In sum, the present thesis examines empathy, committed compliance, and prosocial behavior as precursors of moral behavior. Empathy and compliance have been the focus of many studies, but the early development of these constructs is not well documented. Studies that do describe the development over time cover a relatively small period or use questionnaires instead of observational measures to assess empathy or compliance (Gralinski & Kopp, 1993; Kochanska, DeVet, Goldman, Murray, & Putman, 1994; Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002; Van der Mark, Van IJzendoorn, & Bakermans-Kranenburg, 2002). The roots of prosocial behavior are an understudied area so far because most studies examined only concurrent relations (Eisenberg & Fabes, 1998). These roots might be found in sensitive parenting. What is lacking in the literature to date is longitudinal studies to address these issues. This thesis contributes to the field of morality by presenting the results of a longitudinal study addressing the aforementioned aspects of moral development covering a period from infancy to middle childhood.

The present study

Our study started in 1996, when mothers and their firstborn female babies of fifteen months where recruited using town hall records[1]. One-hundred-and-thirty-one mothers and their daughters participated in the first wave of data collection, when the girls had a mean age of 18 months. When the girls were on average 24 months old, the second wave of data collection took place, involving 125 of the 131 (95%) mothers and their daughters. The results of these two waves of the study were presented in the thesis of Ingrid L. van der Mark (2001)[2]. In that thesis, the development of empathy and committed compliance, and their associations with parenting, attachment, and temperamental fearfulness were described. From 18 to 24 months, empathic concern towards the mother increased, whereas empathic concern for an unfamiliar person decreased. Disappointingly weak associations were found between empathic concern and antecedent and concurrent parenting. Empathic concern for the stranger's distress could be predicted from a more fearful temperament and less attachment security (Van der Mark, Van IJzendoorn, & Bakermans-Kranenburg, 2002). Committed compliance to prohibitions as well as to parental requests increased from 18 to 24 months. Committed compliance was associated with concurrent parenting (sensitivity and

[1] We thank the participating families for their kind cooperation.
[2] We thank Ingrid L. van der Mark for collecting and coding the 18 and 24 month data.

parental discipline), attachment security and temperamental fearfulness. When controlling for concurrent parenting, attachment, and temperament, antecedent parenting did not predict later compliance (Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002).

A third wave of data collection started when the girls had a mean age of 89 months. Data were collected for 94 mother-child dyads. The studies presented in the current thesis combine the data of all three waves of data collection, thus covering a period from infancy to middle childhood (see Figure 1.1).

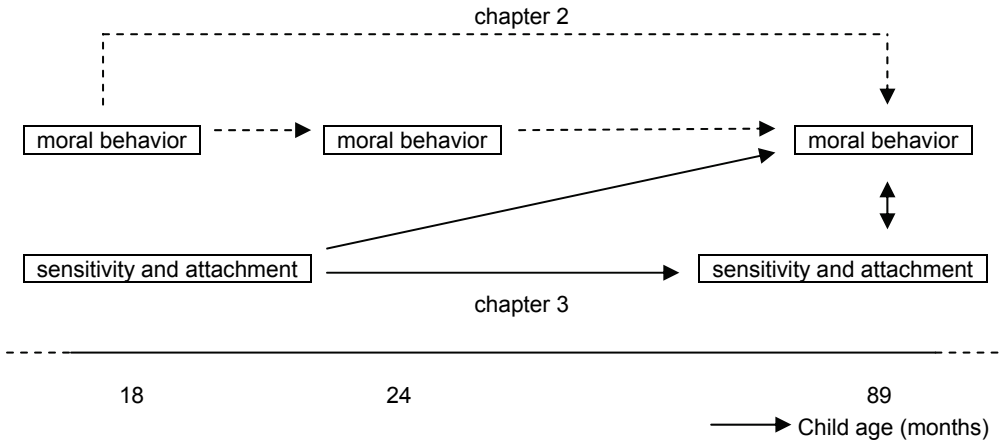

Figure 1.1 Design of the study

This longitudinal perspective has consequences for the measurements used for data collection. The constructs cannot be assessed with the same measures, but the measures need age-adequate adaptation to be reliable and valid. Assessing attachment security in middle childhood is, however, somewhat problematic. In attachment research, middle childhood is a relatively forgotten age group. Research to test the various facets of attachment theory has focused mainly on infancy, early childhood, adolescence, and adulthood. Attachment studies conducted in middle childhood cannot rely on standard measurement techniques that have been validated as well as measures used in other stages of development (Kerns, Schlegelmilch, Morgan, & Abraham, 2005). Because of the eminent importance of well validated

measures, this thesis also aims at contributing to the validation of a measure for attachment used in middle childhood.

Aims of the study

The general aim of this thesis is to describe the development of precursors of morality from infancy to middle childhood, and examine their relations to sensitive parenting. The study has three specific aims:

1. to describe the longitudinal development and stability of empathy and compliance from infancy to middle childhood, and their relations to prosocial behavior in middle childhood;
2. to investigate the role of antecedent and concurrent sensitivity and attachment security in prosocial, externalizing, and internalizing behavior in middle childhood;
3. to validate a measure for attachment representation in middle childhood.

Outline of the present thesis

In *Chapter 2* the longitudinal development and stability of empathy and compliance, and their relation to prosocial behavior are investigated. *Chapter 3* focuses on the role of antecedent and concurrent sensitivity and attachment security in prosocial, externalizing, and internalizing behavior in middle childhood. The validation of the Attachment Story Completion Task, a measure for attachment representations in middle childhood, is described in *Chapter 4*. Finally, in *Chapter 5*, the main findings of the studies are integrated and discussed.

Chapter 2

Girls' empathy and compliance: Development from infancy to middle childhood and their relation to prosocial behavior

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Abstract

In the present longitudinal study, 87 girls were followed from infancy (18 and 24 months) to middle childhood (89 months). The development of empathy and compliance was examined, and their relation to prosocial behavior. Empathy was assessed using the girls' reactions to simulated distress of their mother and an unfamiliar person. Committed compliance was assessed during a sorting task (do context), and a task in which the girls were told not to touch attractive toys (don't context). Observations of high-cost donating behavior were used to assess prosocial behavior. Empathic concern towards the mother increased from 18 to 24 months, but strongly decreased from 24 to 89 months. Children who donated more than 50% of their money showed more empathy towards their mother at 89 months. Empathic concern towards an unfamiliar person decreased from 18 to 89 months. Compliance in the do context as well as in the don't context increased from 18 to 89 months. No differences in compliance were found between children who donated more or less than 50%. It is concluded that empathy to mother seems to be fertile ground for donating to charitable organizations like UNICEF.

Introduction

Moral conduct has its early beginnings in empathy and compliance (Kochanska, 2002; Kochanska, Murray, & Coy, 1997; Van IJzendoorn, 1997). The capacity to have empathic feelings differs among human beings, as does the readiness to comply with societal norms. Empathy and compliance have been the focus of many studies, with a special emphasis on the early contributors to empathy or compliance. However, the mere development of these constructs is not well documented. Studies that do describe the development over time cover a relatively small period or use questionnaires instead of observational measures to assess empathy or compliance (Gralinski & Kopp, 1993; Kochanska, DeVet, Goldman, Murray, & Putman, 1994; Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002; Van der Mark, Van IJzendoorn, & Bakermans-Kranenburg, 2002). In this study we aim to add to the current knowledge by examining the development of observed empathy and compliance from infancy to middle childhood.

Definitions as well as the various phenomena labeled as empathy vary; we consider empathy as recognizing and sharing the emotional state of another person (Eisenberg & Fabes, 1998; Eisenberg, Spinrad, & Sadovsky, 2006; Hoffman, 1982). According to Hoffman (2000), the development of empathy starts from birth and develops in four stages. At the first stage, referred to as global empathy, the infant becomes aroused when hearing another person crying. Because of the lack of a differentiated sense of self and others, the infant starts to cry in reflex. This behavior is visible in babies as young as 1 to 3 days old (Sagi & Hoffman, 1976; Simner, 1971). During the second year of life, the child starts to develop a self-other orientation, which leads to the second stage of empathic development, egoistic empathy. Although now children are aware that another person may be in distress, they cannot yet make a distinction between their own internal state and that of the other person. Children of this age tend to try to comfort victims in ways they would want to be comforted themselves. In the third stage of empathic development, empathy for another's feelings, children can distinguish between needs and feelings of the other person and of themselves. These role-taking capabilities emerge during the third year of life. The fourth and last stage of empathic development, empathy for another's life condition, requires the cognitive ability to form social concepts and classify people into groups. This can be seen in children from late childhood onwards (Hastings, Zahn-Waxler, & McShane, 2006).
Hoffman's theory is supported by longitudinal research showing an increase in capacity for empathy with age (Eisenberg et al., 2006). However, when only looking at studies assessing empathy through observations, a different and more equivocal view

emerges. Zahn-Waxler and colleagues (Zahn-Waxler, Rake-Yarrow, Wagner, & Chapman, 1992; Zahn-Waxler, Robinson, & Emde, 1992) found that observed empathic responding increased between 14 and 20 months. From five to seven years, observed empathic concern stayed roughly the same (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). Research conducted by Van der Mark, Van IJzendoorn, et al. (2002) showed an increase in empathic behavior in girls from 18 to 24 months, although only for empathic concern towards the mother. Empathic concern towards an unfamiliar person decreased from 18 to 24 months. A divergence in empathic responding in different relationship contexts is also found by Robinson, Zahn-Waxler, and Emde (2001). Empathic behavior towards the mother increased from 14 to 20 months, but showed stability up to 36 months. Empathic behavior towards the unfamiliar person increased from 14 to 36 months. Unfortunately, this discrepancy in development of empathy towards a familiar and unfamiliar person did not get any further attention in research on empathic behavior to date.

Another precursor of moral conduct is compliance, especially committed compliance (Kochanska, 2002; Kochanska & Aksen, 1995; Kochanska, Aksen, & Koenig, 1995). Committed, wholehearted compliance reflects “the child’s genuine eagerness to adopt the caregiver’s agenda, accompanied by the feeling of internal obligation” (Kochanska & Aksen, 1995, p. 237). This form of compliance is distinct from situational compliance, when the child is only obedient because of the parent’s sustained control. Research by Kochanska and colleagues (Kochanska & Aksen, 1995; Kochanska et al., 1995; Kochanska, Coy, & Murray, 2001; Kochanska, Tjebkes, & Forman, 1998) showed that the developmental pathways for situational and committed compliance differ, and that only committed compliance is associated with the child’s internalization of rules.

Committed compliance can be measured across two situations; a situation in which a child is compliant to a request, a *do* setting, and a situation in which a child is compliant to prohibitions, a *don’t* setting (Van der Mark, Bakermans-Kranenburg, et al., 2002). The links with internalization in these two situations is different; longitudinal studies conducted by Kochanska and colleagues (Kochanska, 2002; Kochanska & Aksen, 1995; Kochanska et al., 1995; Kochanska et al., 2001; Kochanska et al., 1998) showed that committed compliance to parental prohibitions had more and stronger associations with measures of internalization than committed compliance to parental requests. The development of committed compliance in the two situations is also different; children aged one to six find it more challenging to be compliant to parental requests than to parental prohibitions (Braungart-Rieker, Garwood, & Stifter, 1997; Kochanska, 2002; Kochanska & Aksen, 1995; Kochanska et al., 1995; Kochanska et

al., 2001). However, Van der Mark, Bakermans-Kranenburg, et al. (2002) found the opposite in 18-months-old girls, with committed compliance in a don't setting being more difficult for the girls than compliance in a do setting, and no difference in committed compliance across the two settings at 24 months.

Because both empathy and compliance could be seen as antecedents of moral behavior, a relation is expected with another precursor of moral conduct; prosocial behavior, i.e. voluntary behavior intended to help others (Eisenberg & Fabes, 1998). Empathy is suggested to be a motivator for prosocial behavior (Eisenberg et al., 2006). However, empathy's role as motivator could vary with the costliness of the prosocial behavior to the actor (Eisenberg at al., 1987; Eisenberg & Shell, 1986). Therefore, a distinction must be made between low-cost and high-cost prosocial behaviors. Low-cost prosocial behavior is performed without much cognitive reflection, like picking up dropped paperclips. This behavior gives the actor no reason to experience a moral conflict, so no association with empathy and moral behavior is expected. High-cost prosocial behavior is behavior that does elicit a moral conflict to the actor, for instance by deciding to donate money to an unknown other, in which case an association with empathy and moral development is assumed (Eisenberg & Shell, 1986).

Surprisingly, empirical research shows inconsistencies in the relation between empathy and high-cost prosocial behavior. The relation is weaker for children than for adults and depends on the measurement technique used for empathy (Eisenberg & Miller, 1987). With children, the most frequently used measures are self-reports and facial expressions to empathy-evoking stimuli like stories or video clips. Research using self-reports showed only a weak association between empathy and prosocial behavior, or no association at all (Eisenberg & Fabes, 1990). When facial indices were used, a positive association with prosocial behavior was found (Eisenberg & Fabes, 1990; Eisenberg & Miller, 1987). Studies using observations of both empathy and prosocial behavior are scarce. Trommsdorff and Friedlmeier (1999) found a positive relation between observed empathy and high-cost prosocial behavior in 5-year-old girls, but only when the girls were in a situation that was not distracting.

Research on the association between compliance and prosocial behavior is scant and only conducted with preschool children in naturalistic settings. Eisenberg and colleagues (Eisenberg, Cameron, Tyron, & Dodez, 1981; Eisenberg-Berg & Hand, 1979) found that compliance was related to prosocial behavior, especially when prosocial behavior was elicited as a response to a request. In research on prosocial behavior, much attention has been given on the effects of modeling or instructions, but

the interaction between mother and child during the actual donating has been neglected. The current study is unique in including the quality of the mother-child interaction as part of the process of decision making that precedes high-cost prosocial behavior.

In this study we examine the development of empathy and committed compliance from infancy to middle childhood and their relation to prosocial behavior. First, we hypothesize that children show more empathy towards mother and stranger, and are more compliant from infancy to middle childhood. Second, empathy and compliance are expected to remain moderately stable over time. Third, we expect an association between empathy and compliance on the one hand, and prosocial behavior on the other hand. Fourth, we examine the quality of the mother-child interaction around high-cost prosocial (donating) behavior in middle childhood.

Method

Participants

Mothers with a firstborn female toddler of fifteen months of age were recruited using town hall records in The Netherlands. They were invited to participate in a study on mother-child interaction and the development of empathy and compliance in young children. We received 240 valid replies of which 151 (63%) were positive. Town hall policy prevented us from collecting data on negative responses. Twenty mother-child dyads were seen in pilot sessions, in order to refine instruments and instructions. One hundred and thirty-one mother-child dyads participated in the data collection at 18 months.

Sixty-six percent of the mother-child dyads that participated in the data collection at 18 months also participated six years later. Of the twenty mother-child dyads who participated in the refinement of instruments and instructions at 18 months, sixteen were seen again in pilot sessions at 89 months. Forty-one of the 131 dyads at 18 months did not participate at 89 months for personal reasons; three dyads did not participate because they moved abroad. They did not differ from participating dyads on any of the background variables on 18 months. At the time of measurement at 89 months, the eighty-seven participating mothers ranged in age from 23 to 42 years (M = 32.8, SD = 3.2). Twelve percent of the girls had no sibling, sixty-six percent had one sibling, and twenty-two percent had two or more siblings. Sixty-nine mothers worked outside the home for on average 23 hours per week (M = 23.3, SD = 6.7, Min = 6, Max

= 38). Their mean socio-economic status based on both occupation and education was 3.9 (*SD* = 1.7, *Min* = 1.5, *Max* = 6.0) on a scale ranging from 1 to 6, indicating a predominantly middle-class and upper middle-class sample. Mean age of the child at the time of first measurement was 18 months (*SD* = 0.8, *Min* = 17, *Max* = 21), at the second measurement 24 months (*SD* = 0.8, *Min* = 21, *Max* = 25), and their mean age at the time of the follow-up home measurements was 89 months (*SD* = 5.9, *Min* = 78, *Max* = 101).

Procedure

At both 18 and 24 months, a female experimenter visited the children and their mothers at home. During the home visit the observer followed the dyad with a video camcorder to record their interaction. First, several structured and unstructured tasks were performed by mother and child that will not be discussed here. After these tasks, when the mothers were instructed to follow their normal routine as if they were alone with the child, the experimenter pretended to hurt her finger in order to assess the child's empathic concern. Five minutes later the mother also pretended to hurt herself, and (after another intervening period of five minutes) coughed as if she choked.

About a week after each home visit, mother and child were invited to the institute. The child's committed compliance in a "do" and a "don't" context, a prohibition task and a clean-up task, was observed. After a break with a snack the experimenter and the mother pretended that they had hurt themselves, analogous to the procedure at home, in order to asses the child's empathic concern. Home visits and lab sessions lasted about 90 minutes each. The 24-month procedures were essentially the same as those at 18 months. (For more detailed information about the procedure at 18 and 24 months, see Van der Mark, Van IJzendoorn, et al., 2002, and Van der Mark, Bakermans-Kranenburg, et al., 2002.)

At 89 months, mother and child were invited to the institute. After five minutes of unstructured play, the experimenter pretended to hurt her foot in order to assess the child's empathic concern. Next, child and mother were involved in making a handicraft with beads, followed by a ten-minute supervised period in which the child had to sort the beads with the mother nearby ("do" task). The experimenter returned and pretended to hurt her finger. The first test of prosocial behavior was administered by giving the child 10 pieces of 20 eurocent, leaving her alone to watch a promotional film of UNICEF, and creating the opportunity to make a donation. After the film, the experimenter returned and asked if the child would want to make a donation. During the break that followed, mother pretended to hurt her finger. Next, the donating

behavior of the child was observed when mother tried to persuade the child to donate the rest of the money to UNICEF. Then the child's committed compliance during a prohibition task was observed ("don't" task). The session ended with the mother pretending to hurt her knee for the third assessment of the child's empathic concern.

All procedures were videotaped, and coding was done from videotape. Different coders coded all variables, in order to guarantee their being unaware of other characteristics of the dyads.

Measures

Empathy

Simulations of pain and sadness were used both during the home visit and in the lab at 18 and 24 months (see Van der Mark, Van IJzendoorn, et al., 2002). The experimenter pretended to hurt her finger (during the home visit) or her knee (in the lab) for about 30 seconds. After about five minutes the mother was asked to pretend to hurt her knee (at home) and her finger (in the lab). During the home visit, mothers were also asked to cough as if they choked, several minutes after the other simulations. We asked the mother not to look at her child during these simulations, in order to avoid extra stimulation of the child's reactions. The experimenter was the first who performed the pain simulation in both situations. Doing so, she acted as a role model, making the mothers' pain simulations more uniform.

We adapted the empathy coding system used by Zahn-Waxler et al. (1992), using the categories empathic concern, prosocial behavior, and global rating of empathy for the 30 seconds of pain simulation. Empathic concern was coded on the basis of the child's facial expression, her vocalizations of distress or labeling what happened, and her approaching the victim. Prosocial behavior refers to stroking the victim or verbalizing prosocially, offering kisses or actual help. Going to the experimenter for help was coded as indirect help, indicating - depending on the persistence - brief or moderate assistance.

A global score for *Empathy* was assigned on the basis of both empathic concern and prosocial behavior, analogous to Zahn-Waxler and her colleagues (1992). This global score for Empathy was used for subsequent analyses. Scores on this scale ranged from 1 to 7 (1 = no interest or empathy apparent, 2 = little concern with relatively neutral facial expression, 3 = sobering, attending for at least half of the episode, may or may not approach or act prosocially, 4 = affect matching, may imitate and approach, 5 = high empathic level, child may approach or lean toward victim, but no prosocial

behavior, 6 = clear concern, child approaches victim, little or unclear prosocial behavior, 7 = clear concern, clear prosocial behavior).

Two coders scored the children's empathy to their mothers, and two different coders scored empathy to the experimenter. Coders never scored the same child at both 18 and 24 months of age. Average inter-coder reliability of the four coders (intraclass correlation coefficient) on 16 cases was .81 (*Min* = .80, *Max* = .81). In order to control for differences in the appeal or persuasiveness of the mothers' simulations, the credibility, intensity, and duration of the mothers' distress simulations, as well as the number of prompts for a reaction of her child were coded on four 5-point scales. Mean intraclass inter-coder reliability was .86 (*Min* = .73, *Max* = 1.00). The child's highest score (from either the lab session or the home visit) on the global rating scale for empathy was used as an indication of the child's level of empathic concern. Empathy for mother and experimenter was scored separately, at both 18 and 24 months of age.

At 89 months, simulations of pain and sadness were conducted during the lab visit in a similar way to those at 18 and 24 months. The experimenter pretended to hurt her foot and her finger for about 20 seconds. Mothers were asked to pretend to hurt her finger and her knee, and instructed not to look at their child during these simulations, in order to avoid extra stimulation of the child's reactions. The experimenter was the first who performed the pain simulation in both situations, in order to make the mothers' pain simulations more uniform. All simulations were done during ongoing activities, to avoid any awareness of the pretend actions in the child.

We used the empathy coding system constructed by Hastings and colleagues (2000) for children of this age. A global score for concern for others was given that incorporated facial, vocal, and behavioral expressions of empathy, sympathy, and helpfulness. Scores on this scale range from 1 to 7, with 1 displaying no concern and 7 displaying strong concern for the other (see Hastings et al., 2000, for descriptions of each point of the scale). Four coders scored child empathy to their mother and the experimenter. Coders never scored the empathic reaction to the mother and the experimenter of the same child. Average intraclass intercoder reliability on 20 cases was .92 (*Min* = .90, *Max* = .97). In order to control for differences in the persuasiveness of the mothers' simulations, the credibility, intensity, and duration of the mothers' distress simulations, as well as the number of prompts for a reaction of her child were coded on three 3-point scales and one 4-point scale. Overall agreement on 20 cases varied from 80 to 100 percent (mean 91 percent), kappa .79. The child's highest score on the global rating scale for empathy was used as an indication of the child's level of

empathic concern. Similar to the coding procedures at 18 and 24 months, empathy for mother and experimenter was scored independently.

Compliance

At 18 and 24 months, we used Kochanska and Aksan's (1995) standardized procedures, adapting them to our younger age group (see Van der Mark, Bakermans-Kranenburg, et al., 2002). In Kochanska and Aksan's study, the mother prohibited the child from touching a set of attractive toys for two hours (the *don't* task), and after free play with a different set of toys requested that the child cleaned up these toys (the *do* task) for a period up to 15 min. In consideration of the younger children in our study, we shortened the time periods for both tasks. Mothers were given a bag filled with attractive toys and were asked to display the toys in front of the child. They were asked to tell their child that he or she was not allowed to touch any of the toys for two minutes. Mothers were instructed to permit their child to play with only one toy (a car) after two minutes, without touching the other toys for another two minutes (two episodes of the don't task). A period of free play with all toys lasting three minutes followed. Next the mother was asked to have the child put all the toys back into the bag (the do task) for a period up to three minutes.

In both the do and the don't settings, every 20-sec segment was coded using Kochanska and Aksan's (1995) coding system, consisting of six mutually excluding categories: Committed compliance, Situational compliance, Passive noncompliance, Refusal/negotiation, Defiance, and Other. Kochanska and Aksan (1995) argue that only committed, wholehearted compliance reflects the child's eagerness to adopt the caregiver's agenda. Therefore, the current study will focus on the child's *Committed compliance*, expressed as the proportion of 20-sec intervals that the child was compliant without resistance and without the need for maternal interventions to maintain compliance. Committed compliance was coded if the child (in the do setting) cleaned up without encouragement from the mother, or (in the don't setting) refrained from touching the toys. In these cases, the child appeared to have accepted the task or prohibition wholeheartedly. She might ask questions about the toys, but did not need maternal interventions to maintain compliance.

Average intraclass intercoder reliability for five coders was .81 for the do setting and, in order, .88 and .93 for the two don't settings (n = 20). Scores for committed compliance were averaged for the two don't tasks observed in the lab, resulting in a score for committed compliance (don't) based on the two lab scores, at both 18 months (r = .45)

and 24 months (r = .41). Committed compliance in the do setting was based on one task in the lab.

At 89 months, compliance was again measured using Kochanska and Aksan's (1995) standard procedures. In the laboratory, the child was asked to sort a big bowl of beads on color (the *do* task) and to refrain from touching attractive toys (the *don't* task) while doing a rather boring task (copying a drawing). In both the do and the don't setting (duration 10 and 5 minutes respectively), the child's compliance was observed using Kochanska and Aksan's (1995) coding system, with codes assigned every 20 seconds. Committed compliance was coded when the child was clearly involved in sorting the beads (in the do setting), or resisted from touching the toys (in the don't setting) without encouragement or directions of the mother. The average intraclass intercoder reliability on 20 cases was excellent for the do and don't task, .96 (for three coders) and .95 (for two coders) respectively. All occurrences were tallied for each child and divided by the number of coded segments.

Prosocial behavior

At 89 months, prosocial behavior was assessed with high-cost donating behavior. High-cost donating behavior was measured by the amount of money (the number of €0.20 coins) the child donated (Krevans & Gibbs, 1996). Halfway through the lab visit, they received 10 pieces of 20 eurocent for their cooperation, in the absence of their mother. They were then shown a UNICEF promotional film of a child in a developing country. At the end of this promo the voice-over asked the children to donate money in a money box that was clearly visible in the same room. The money box was filled with several euros in order to enhance the credibility. To see whether children would give money without extrinsic motivation, the experimenter had left the room after starting the promotional film. The child had sixty seconds to make a donation. Then the experimenter came back into the room; and she asked if the child would want to donate any money. After 5 minutes, the mother returned. Mothers were instructed to persuade their daughters to donate any money that they had kept for themselves to UNICEF. The proportions of the child's donations to the number of coins she had left on each of these three occasions (immediately after the film, after the experimenter's prompt, and after the mother's intervention) served as indexes for high-cost prosocial behavior.

Quality of mother-child interaction

During mother's intervention around the children's donating, the strategy of the mother to persuade her child was measured using a 9-point scale. A score of 1 was given

when the mother used authoritarian strategies for persuasion of her daughter. Mothers scoring low wanted their child to give all the coins, no matter what. This was derived from tone of voice and body language. Some mothers scoring low even suggested the prospect of reward or punishment if the child did or did not give all the coins. A score of 9 was given when the mother used solely authoritative strategies to persuade the child. Arguments were at the core of her line of reasoning, without using (subtle) forms of blackmail or pressure. Mothers scoring high accepted it if the child decided not to donate all the coins after having listened to her arguments. The average intraclass intercoder reliability on 21 cases was sufficient, .75 (two coders).

The child's openness to the arguments of the mother was also measured on a 9-point scale. A score of 1 was given when the child displayed a high degree of protest to the mother. The child was clearly angry with and offended by the mother trying to convince her to give the money away to UNICEF as became clear from her facial expression, tone of voice, stamping on the floor, crying, or even walking away. A score of 9 was used when the child responded positively to the arguments of mother. In case of a high rating, signs of protest or anger towards the mother in behavior, body language, facial expression, or tone of voice of the child were absent although the child might enter into a (reasonable) debate with her mother. The average intraclass intercoder reliability on 21 cases was excellent, .93 (two coders).

Because of the correlation between the openness of the child and the strategy of mother used to persuade her child (r (74) = .32, p < .01), and because these variables were assessed during the same interactive episode, the scales were standardized, summed and divided by two in order to receive a score for the quality of interaction between mother and child around the donating issue.

Results

Descriptives

Means and standard deviations of empathic concern and compliance at the various times of measurement are presented in Table 2.1. Empathic concern for the stranger at 89 months was significantly associated with the number of siblings in the family, r (87) = .33, p < .005. Children with more siblings showed more empathic concern for the stranger. No other associations between empathic concern and the background variables were found (Table 2.2). Compliance at 89 months in the don't context was negatively associated with the number of siblings in the family, r (87) = -.24, p < .05.

Children with more siblings showed less compliance in the don't context. No other associations between compliance and the background variables were found (Table 2.3).

Table 2.1 Overview of descriptive data

	18 Months		24 Months		89 Months	
	M	*SD*	*M*	*SD*	*M*	*SD*
Empathy Mother	5.00	1.49	5.48	1.32	4.48	1.22
Empathy Stranger	4.92	1.00	3.76	0.93	3.52	0.93
Compliance do context	0.42	0.40	0.57	0.39	0.85	0.15
Compliance don't context	0.30	0.25	0.53	0.25	0.91	0.11
Prosocial behavior Self (%)					4.48	16.96
Prosocial behavior Stranger (%)					26.38	28.56
Prosocial behavior Mother (%)					57.13	40.15
Quality mother-child interaction					0.00	0.81
Age child (months)	17.97	0.82	24.01	0.76	89.03	5.88
No. of siblings					1.13	0.64
SES	3.90	1.73				

Note. N = 74 – 87.

Table 2.2 Bivariate associations between empathic concern for mother and stranger at 18, 24, and 89 months, and prosocial behavior at 89 months

	1	2	3	4	5	6	7	8	9	10	11
Empathic concern mother											
1. 18 months	-										
2. 24 months	.24*	-									
3. 89 months	-.12	-.00	-								
Empathic concern stranger											
4. 18 months	.12	-.01	-.21	-							
5. 24 months	.22*	.15	-.15	.29*	-						
6. 89 months	.21*	.07	.16	.07	.24*	-					
Prosocial behavior											
7. Self	-.04	-.05	-.06	.18	-.15	.10	-				
8. Experimenter	.04	.04	-.01	.15	-.03	-.04	-.24*	-			
9. Mother	-.03	-.01	.21	-.05	-.15	.03	-.05	.28*	-		
10. Quality interaction	-.14	-.15	-.09	-.16	-.14	.03	.16	.10	.40**	-	
Background variables											
11. No. of siblings	.04	.07	-.07	-.00	.01	.33**	.10	.00	-.19	-.22	-
12. SES	.07	-.00	-.17	.19	.05	.07	.15	.03	-.18	-.12	.02

Note. N = 74 – 87.

*p < .05. **p < .005.

Table 2.3 Bivariate associations between compliance in the do and don't context at 18, 24, and 89 months, and prosocial behavior at 89 months

	1	2	3	4	5	6	7	8	9	10	11
Compliance do context											
1. 18 months	-										
2. 24 months	.22*	-									
3. 89 months	.07	-.01	-								
Compliance don't context											
4. 18 months	.14	.16	.18	-							
5. 24 months	-.03	.38**	-.04	.27*	-						
6. 89 months	-.15	-.12	.18	.19	.29*	-					
Prosocial behavior											
7. Self	-.11	-.20	-.01	-.01	-.13	.10	-				
8. Experimenter	.06	-.00	-.07	.07	-.08	-.06	-.24*	-			
9. Mother	.16	-.08	-.05	-.02	.00	.13	-.05	.28*	-		
10. Quality interaction	.13	.14	.07	.31*	.17	.13	.16	.10	.40**	-	
Background variables											
11. No. of siblings	.01	-.02	-.03	-.10	-.00	-.24*	.10	.00	-.19	-.22	-
12. SES	-.10	-.02	.14	.01	-.14	.05	.15	.03	-.18	-.12	.02

Note. N = 74 – 87.
*p < .05. **p < .005.

The Development of Empathy

A repeated measures analysis of variance with person (mother or stranger) and time (18, 24 or 89 months) as within-subjects factors for empathic concern showed a significant effect of person, F (1, 86) = 81.39, p < .001, a significant effect of time, F (2, 85) = 24.72, p < .001, and a significant interaction between person and time, F (2, 85) = 28.58, p < .001. From 18 to 24 months, empathic concern for mother increased, F (1, 86) = 6.77, p < .05, whereas from 24 to 89 months, empathic concern for mother strongly decreased, F (1, 86) = 26.91, p < .001. Empathic concern for the stranger decreased from 18 to 24 months, F (1, 86) = 117.25, p < .001, and decreased further from 24 to 89 months, F (1, 86) = 5.07, p = .05 (see Table 2.1 and Figure 2.1). At 18 months, empathic concern for the mother was not significantly higher than empathic concern for the stranger. At 24 and 89 months, children showed significantly more empathic concern for their mother than for the stranger, t (86) = -10.78, p < .001 and t (86) = -6.39, p < .001, respectively. Empathic concern for mother and stranger were not significantly correlated at 18, 24, or 89 months (Table 2.2), even after controlling for the number of siblings at 89 months.

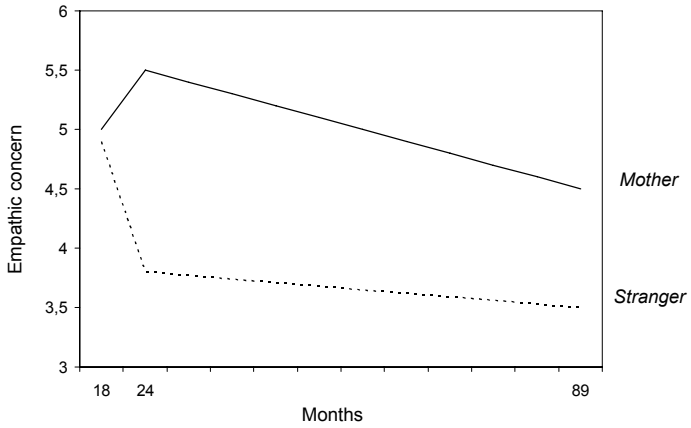

Figure 2.1 Development of empathic concern for mother and stranger from 18 to 89 months (N = 87)

Stability of Empathy

Empathic concern for mother at 18 months was significantly associated with empathic concern for mother at 24 months, r (87) = .24, p < .05. Children who showed more empathic concern for mother at 18 months also showed more empathic concern at 24 months, but not at 89 months. Empathic concern for the stranger at 18 months was significantly associated with empathic concern for the stranger at 24 months, r (87) = .29, p < .01, which, in turn, was significantly related to empathic concern for the stranger at 89 months, r (87) = .24, p < .05. Children who showed more empathic concern for the stranger at 18 months also showed more empathic concern at 24 months, and continued to do so at 89 months.

The Development of Compliance

A repeated measures analysis of variance with context (do or don't) and time (18, 24 or 89 months) as within-subjects factors for compliance showed a significant effect of time, F (2, 85) = 184.13, p < .001, and a significant interaction between context and time, F (2, 85) = 7.84, p < .001. There was no main effect of context, F (1, 86) = 1.66, p = .20. From 18 to 24 months, compliance in the do context increased, F (1, 86) = 7.45, p < .01, as did the compliance from 24 to 89 months, F (1, 86) = 41.22, p < .001. Compliance in the don't context also increased from 18 to 24 months, F (1, 86) = 50.26, p < .001, and from 24 to 89 months, F (1, 86) = 208.16, p < .001 (see Table 2.1 and Figure 2.2). At 18 months, children showed significantly more compliance in the do

context than in the don't context, t (86) = 2.55, p < .05. At 24 months, no significant difference was found between compliance in the do and don't context. At 89 months, children showed significantly less compliance in the do context than in the don't context, t (86) = -3.25, p < .005. Compliance in the do and don't context was only significantly correlated at 24 months, r (87) = .38, p < .001 (Table 2.3), even after controlling for the number of siblings at 89 months.

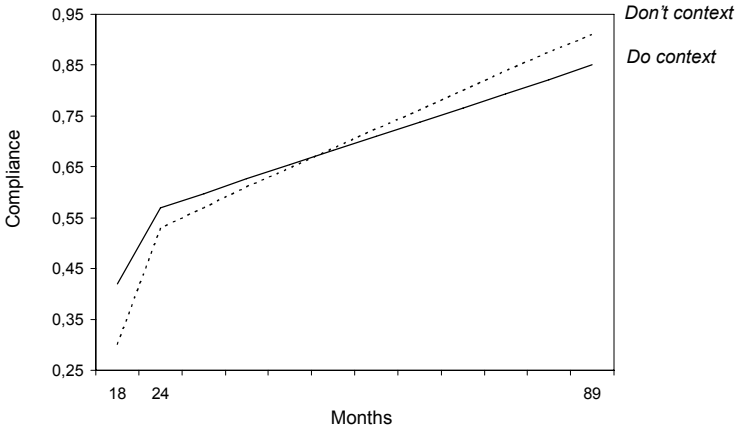

Figure 2.2 Development of compliance from 18 to 89 months (N = 87)

Stability of Compliance

Compliance in the do context at 18 months was significantly associated with compliance in the do context at 24 months, r (87) = .22, p < .05. Children who were more compliant at 18 months were also more compliant at 24 months in the do context, but not at 89 months. Compliance in the don't context at 18 months was significantly associated with compliance at 24 months, r (87) = .27, p < .01, which, in turn, was significantly related to compliance in the don't context at 89 months, r (87) = .29, p < .01. Children who were more compliant at 18 months were also more compliant at 24 months, and stayed more compliant at 89 months.

The Association between Prosocial Behavior and Empathy and Compliance

The mean donations in terms of the proportions of the available coins immediately after the film (self), after the experimenter's prompt (experimenter), and after the mother's intervention (mother) are shown in Figure 2.3. The donating behavior of the child after the experimenter's prompt was negatively associated with the donating behavior

immediately after the film, r (85) = -.24, p < .05 (Table 2.2). The more the child gave of the 10 coins she had immediately after the film, the less (in proportion) she gave additionally after the experimenter's prompt.

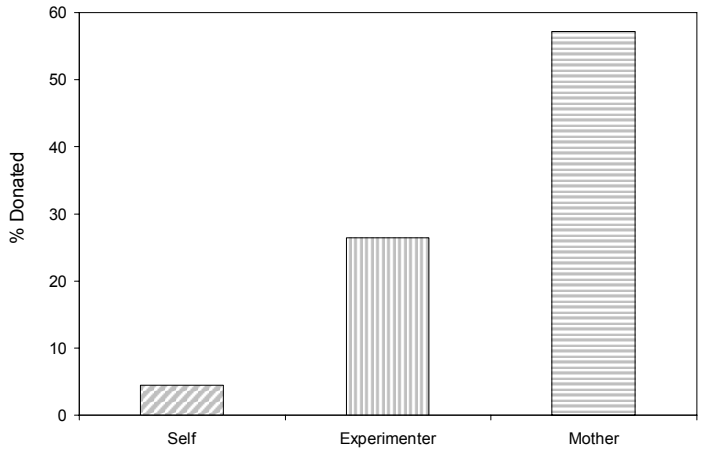

Figure 2.3 Mean proportions of the children's donations after the film (self), after the experimenter's prompt, and after the mother's intervention (n = 78 - 87)

The donating behavior after the mother's intervention was positively associated with the donating behavior after the experimenter's prompt, r (78) = .28, p < .05 (Table 2.2). The more the child gave away after the experimenter's prompt, the more she donated additionally when the mother intervened. The donating behavior after the mother's intervention was positively associated with the quality of mother-child interaction during the donating issue, r (74) = .40, p < .01 (Table 2.2). The higher the quality of mother-child interaction, the more (proportionally) she donated after the mother's intervention.

To examine the association of prosocial behavior with the development of empathy, two groups were created at each time of measurement (immediately after the film, after the experimenter's prompt, and after the mother's intervention); children who gave 50% or less of the coins they had left, and children who gave more than 50% of the coins they had left. If a child gave more than half of what was left, he/she really had to make an effort, and the donation was not merely done for reasons of social desirability. Because of the skewed distribution immediately after the film (only 2 of the 87 children gave more than 50%) and after the experimenter's prompt (only 11 children gave more than 50%), analyses were done on the groups after the mother's intervention. Both

groups contained 39 children, leaving out the nine children who already had given all their coins. No differences were found between these nine children and the other children on any of the background variables, on empathic concern towards mother or an unfamiliar person, or on committed compliance in the do or don't context. Univariate analysis of variance revealed that children who gave more than 50% of the coins showed significantly more empathy towards the mother, F (1, 76) = 5.10, p < .05, partial η^2 = .06 (see Figure 2.4). No other differences were found.

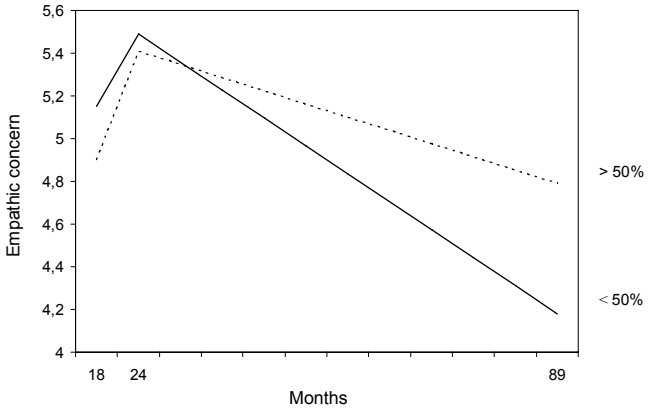

Figure 2.4 Development of empathic concern for mother from 18 to 89 months for children who donate more than 50% or less than 50% after mother's intervention (n = 78)

Examining the association between prosocial behavior and compliance, no differences were found at any time of measurement (immediately after the film, after the experimenter's prompt, and after the mother's intervention) between the children who gave 50% or less of coins they had left, and children who gave more than 50%. Compliance in the don't context at 18 months was positively associated with the quality of the mother-child interaction around donating at 89 months, r (74) = .31, p < .05 (Table 2.3). The quality of the mother-child interaction in middle childhood was higher when children showed more compliant behavior in infancy.

Discussion

In this study, the development of empathy and committed compliance, and their relation to prosocial behavior was examined. Counter to our expectations, empathic concern towards an unfamiliar person decreased from 18 to 89 months. Empathic concern towards the mother increased from 18 to 24 months, but strongly decreased from 24 to 89 months. Long term stability was found for empathic concern towards an unfamiliar person, but only short term stability (18 to 24 months) for empathic concern towards the mother. Children who showed more empathic concern towards the mother donated more than 50% of what they had to UNICEF after hearing their mothers' arguments. As hypothesized, compliance in the do context as well as in the don't context increased from 18 to 89 months. Short term stability (18 to 24 months) was found for compliance in the do context and long term stability for compliance in the don't context. No differences in compliance were found between children who donated more or less than 50% of the coins they had.

Unexpectedly, empathic concern towards an unfamiliar person decreased from 18 to 89 months. Also counter to our expectations was the strong decrease from 24 to 89 months in empathic concern towards the mother after an increase from 18 to 24 months. To our knowledge, only the study by Hastings et al. (2000) used observations to study empathic concern beyond early childhood. In their comparable low risk sample of children from five to seven years of age, empathic concern was rather stable, although no differentiation was made between empathic concern towards an unfamiliar person and the mother. To our knowledge no studies using observations for empathic concern have covered the time span from infancy to middle childhood.

There are at least two explanations for the decline in empathic concern during this period. First, child characteristics could explain the decline in empathic concern, at least empathic concern towards the unfamiliar person. Temperamental fearfulness may play an important role, as can be seen in Young et al. (1999). Their results showed that concurrently assessed temperamental fearfulness was negatively related to empathic concern towards an unfamiliar person at age two. This could also be the case in our study at a later age. A second explanation could be found in the rating scale used to assess empathic concern. In order to receive a high score for empathic concern, the child needs to show either an expression of strong concern or helpful acts. Children may be able, however, to mask the facial expression of strong concern (Fabes, Eisenberg, & Miller, 1990), especially in middle childhood. This could lead to lower scores of empathic concern, and perhaps even to an overall decline in empathic

concern over time. High scores are also assigned when one or more helpful acts are performed. The empathic emotion the child is feeling may result in personal distress. This self-focused, 'egoistic' response will only lead to helping behavior if that is the best way to decrease one's own distress (Eisenberg & Fabes, 1990). When the mother or unfamiliar person simulate distress children may be able to cope with their vicarious distress by ignoring or downplaying the seriousness of the setting, especially the older children, and thus the need for helping may have not been urgently felt. This might have resulted in lower scores on empathic concern in middle childhood than in infancy.

Empathic concern towards an unfamiliar person proved to be moderately stable over time, in line with our expectation. However, empathic concern towards the mother only showed short term stability (from 18 to 24 months). Robinson et al.'s (2001) study of twins aged 14 to 36 months revealed a pattern of strong genetic influences on empathic concern towards an unfamiliar person, which could explain the long term stability. For empathic concern towards mother they found a mix of genetic and shared environmental influences. Future research should focus on which shared environmental influences may be responsible for the lack of long term stability in empathic concern towards the mother.

Overall, children showed more empathic concern towards their mother than towards an unfamiliar person from 18 to 89 months. This result is supported by research showing that people, and especially women, are generally more inclined to help relatives than to help non-relatives (Burnstein, Crandall, & Kitayama, 1994; Eagley & Crowley, 1986). Because helping behavior is a necessary condition for receiving a high score for empathic concern, it is to be expected that empathic concern towards an unfamiliar, non-relative person will be lower than towards the mother. Empathic concern towards mother and an unfamiliar person were positively, but not significantly correlated at each time of measurement. Hastings et al. (2000) also found a positive, non-significant association between empathic concern towards mother and towards an unfamiliar person in children from five to seven years of age. Empathic concern does not seem to be a unitary construct to be interpreted independent of the relationship to which it pertains. Strangers and parents appear to provoke different empathic responses which might be affected by different genetic and social factors.

In line with our expectations, compliance in the do context as well as in the don't context increased from 18 to 89 months. These results are in line with previous longitudinal research showing an increase in committed compliance to prohibitions and requests from 14 to 45 months (Kochanska et al., 2001), and even to 66 months as

response to a request (Kochanska et al., 1997). Unfortunately, Kochanska and colleagues (1997) no longer assessed children's committed compliance to prohibitions beyond the age of 45 months, because their previous data implied that refraining from touching toys was no longer a challenge for older children. However, we did find individual differences in committed compliance as response to prohibitions in middle childhood, and even longitudinal stability, making it worthwhile to create an age-adequate adjustment of the compliance paradigm in the don't context for this age group.

We found long term stability for compliance in the don't context, but only short term stability (from 18 to 24 months) for compliance in the do context. Previous research showed long term stability up to 45 months in the do as well as in the don't context (Kochanska et al., 2001). Our study covers a longer period, from infancy to 89 months, with only three points of measurements, which may account for the discrepancy in findings. From infancy to middle childhood, the number of requests the parent use gradually grows, as does the number of situations to which the requests apply (Gralinski & Kopp, 1993). Between 24 and 89 months the number of requests as well as the implications of the requests change, which might make the (non-)compliant responses of the children unstable.

The positive relation between prosocial behavior and empathic concern towards the mother without a significant relation between prosocial behavior and empathic concern towards the unfamiliar person are in line with the general trend in research in this field revealing positive relations or no significant relations between prosocial behavior and empathic concern (Eisenberg & Fabes, 1990; Eisenberg & Miller, 1987). The unique contribution of this study lies in the fact that, contrary to previous research, we differentiated in relationship context (empathic concern towards a familiar versus an unfamiliar person), and situational context (using different settings to measure empathy and prosocial behavior). Future research is needed to examine the determinants of these relations.

In the current study we used donating behavior as an index for prosocial behavior. Donating money to UNICEF or keeping the money for personal use appeared to be a difficult choice for many children, and a choice difficult to influence by parents or other persons. Nevertheless, a considerably large percentage (50%) of the children donated more than half of their money after encouragement by the mother. Searching for determinants of donating behavior we did not find a relation between prosocial behavior and compliance. Previous research, although scarce, did report a relation

between prosocial and compliant behavior (Eisenberg, Cameron, Tyron, & Dodez, 1981; Eisenberg-Berg & Hand, 1979). Methodological differences could explain the discrepancy in findings; we measured prosocial behavior and compliance in a different context instead of both constructs in the same context, and the children were observed in a laboratory instead of a naturalistic setting. Interestingly, we found that when a child is compliant in one context, it does not necessarily mean it will be compliant in another context too. Children may not experience their mother's intervention to enhance donating behavior as a parental request they should be compliant to, but seem to make their own (moral) judgment about the choice.

The quality of the mother-child interaction around donating, as reflected by the strategy used by mother to persuade the child and the openness of the child to the arguments of the mother, may be a promising new direction in research on altruistic or prosocial behavior. Our results show that quality of the mother-child interaction around donating was associated with more generous donations of the child. This association does not directly follow from the way in which mothers' strategy or children's openness was assessed. Mothers were scored for their strategy to convince the child to donate more coins reflected in the line of reasoning and the pressure they used, and children could receive low or high scores for openness to their mothers' arguments, depending on the signs of protest and anger, but independent of the actual donation. The relation between the quality of the mother-child interaction and donating behavior emphasizes the fact that in middle childhood, children are independent individuals with their own ideas but also more or less open to convincing arguments of their most significant other. In future studies the factors leading to a higher quality of mother-child interaction in situations of moral choice should be examined in more detail.

Our sample included only girls. Prosocial and empathic behaviors are characteristics usually ascribed to girls more or earlier than to boys. The literature to date does not provide a decisive test of this common belief. Eisenberg and Fabes' (1998) meta-analysis showed that the outcome is dependent on the type of prosocial and empathic behavior and the measurement technique, but is slightly in favor of girls (for a recent review on gender differences in empathy-related responding, see Eisenberg et al., 2006). Gender differences were also found for compliance, with girls being more compliant than boys, especially in the don't context (Kochanska, 2002; Kochanska et al., 2001). We included only girls in the current study to enhance the power of our statistical analyses.

This study examined the development of empathy and committed compliance, and their relation to prosocial behavior. We found evidence for differences in the developmental pathways from infancy to middle childhood of empathic concern towards an unfamiliar person and towards the mother, and of committed compliance to prohibitions and to requests. This affirms the importance of distinguishing between persons and context in future research. Perhaps most interesting for our understanding of moral behavior was the finding that children who were more empathic towards their mother also showed more prosocial behavior as observed in donating real money to UNICEF. Empathic concern for a parent may pave the way for children's moral choices in later life.

Chapter 3

Girls' prosocial, externalizing, and internalizing behavior in middle childhood: The role of antecedent and concurrent sensitivity and attachment security

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Manuscript submitted for publication

Abstract

In the present longitudinal sample, 72 girls were followed from infancy to middle childhood. The influence of early and concurrent attachment security and maternal sensitivity on the development of prosocial, externalizing, and internalizing behavior in middle childhood was examined. Attachment security was observed with the Strange Situation Procedure (at 18 months) and with the Main-Cassidy system for separation and reunion (at 89 months). Maternal sensitivity was assessed with the Ainsworth scales for sensitivity and cooperation in infancy and with adapted Erickson scales in middle childhood. Teachers reported on the girls' prosocial, externalizing, and internalizing behavior. Controlling for concurrent influences, maternal sensitivity and attachment security in infancy predicted prosocial and externalizing behavior in middle childhood.

Introduction

Helping and sharing are seen as admirable behaviors, and as important examples of prosocial behavior. The term prosocial behavior was coined by Wispé (1972) as an antonym of antisocial behavior, i.e. behavior intended to harm others (Hay, 1994), and refers to voluntary behavior intended to help others (Eisenberg & Fabes, 1998). In the literature pertaining to prosocial behavior, four types of behavior are distinguished; helping, sharing, comforting, and cooperation (Jackson & Tisak, 2001; Rose-Krasnor, 1997). Helping and sharing behaviors are defined as acts that benefit another person, with (in the case of sharing) or without (in the case of helping) the expectation of reciprocity (Bar-Tal, Raviv, & Goldberg, 1982). Helping includes acts such as picking up dropped objects in order to return them to the owner (Eisenberg & Miller, 1987). Sharing implies to give away something that one has received without any reason and not as a reward (Staub & Noerenberg, 1981). The third type of prosocial behavior, comforting, becomes apparent in actions intended to improve the feelings of another person, for example soothing someone who got hurt (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). The last type of prosocial behavior, cooperation, may involve participants working together in a game to improve their rewards (Marcus, Telleen, & Roke, 1979).

Prosocial behavior has been associated with temperamental variation in emotion regulation (Eisenberg & Fabes, 1998; Rothbart, Ahadi, & Hershey, 1994), a higher level of moral reasoning (Underwood & Moore, 1982), and affective empathy, although the latter relation appears to be dependent on the type of assessment of empathy (Eisenberg & Miller, 1987). Sensitive / authoritative parenting (Dekovic & Janssens, 1992; Krevans & Gibbs, 1996) and quality of attachment (Eberly, Montemayor, & Flannery, 1993; Eisenberg & Mussen, 1989) are also suggested to be positively related to the development of prosocial behavior. Most studies, however, examined concurrent relations with prosocial behavior (Eisenberg & Fabes, 1998), while the roots of prosocial behavior still remain an understudied area. The present study contributes to filling this gap by examining both concurrent and antecedent relations of attachment security and sensitivity with prosocial behavior.

The first relationship of the child is within the family, especially with the primary caregiver. If the parent is sensitive and responsive to the emotional needs of the child, the parent provides the child with a template for his or her own manner of responding (Fonagy et al., 1995; Grusec, Davidov, & Lundell, 2002; Pines & Marrone, 2003). Dekovic and Janssens (1992) showed that concurrent positive parenting (that is,

observed authoritative / democratic parenting) led to more prosocial behavior as reported by teachers and peers in children aged 6 - 11 years. In a longitudinal study, Koestner, Franz, and Weinberger (1990) demonstrated that this pattern is not always present when an extensive period is examined: maternal warmth at age 5 was not related to prosocial behavior at age 31. Conversely, insensitive or even hostile or neglectful parenting may lead to externalizing behavior (Deater-Deckard, 2000; Maccoby & Martin, 1983).

Attachment security may play an important role. A recent study from the NICHD Early Child Care Research Network [ECCRN] (2006) on social functioning in children from infancy to first grade shows the importance of attachment security for the development of social behavior. Teachers rated children classified as insecurely attached in infancy lower on externalizing problem behaviors when the quality of parenting improved over time and higher when a decline in quality of parenting was observed, with strongest effects for disorganized children. For securely attached children changes in the quality of parenting did not make a difference for the rating of externalizing problem behaviors in first grade.

Both parenting and the quality of the early parent-child relationship seem thus important for the development of prosocial behavior and the prevention of externalizing and internalizing behavior (Van IJzendoorn, 1997; Thompson, 1999). But what is most predictive of the development of the child's prosocial behavior: is the current parent-child relationship most important, is the early infant-parent relationship decisive, or do they both contribute independently? Over the years, five different views concerning this issue have been developed. The first view claims that early experiences are the most predictive. Early experiences within the attachment relationship are seen as a trait-like characteristic of that person that frames later adaptive outcomes (Sroufe, Carlson, Levy, & Egeland, 1999). The second view assigns most predictive power to current experiences. Concerning this view, the status of a child at any point in time will be affected by the environment at that time (Lewis, 1997). The third and fourth view both combine the two former theories. The third view states that early and current experiences are important, in a unique way. Later developmental outcomes are affected by early experiences as well as current experiences, but these experiences are independent from another. According to the fourth view, early experiences are important in an indirect way. Early experiences form 'internal working models' from which the developing child perceives the world. Current experiences refine these internal working models (Bowlby, 1973; Sroufe, 2005), but their influence is not independent from earlier experiences. The fifth and last view claims genetic

predestination of the development of prosocial, externalizing, and internalizing behavior.

Evidence for the fist view, implying that early experiences are of overriding importance, is found in longitudinal studies where early attachment security was shown to predict later prosocial behavior (Ianotti, Cummings, Pierrehumbert, Milano, & Zahn-Waxler, 1992; Kestenbaum, Farber, & Sroufe, 1989). Ianotti et al. (1992) studied mothers and their children at age two and again at age five. Children with a secure attachment relationship with their mother at age two showed more prosocial behavior towards peers and adults at age five. Waters, Wippman and Sroufe (1979) found similar results, with secure attachment at 20 months predicting more prosocial behavior at three years of age. However, these studies are correlational and did not include assessment of concurrent experiences. Therefore, stable quality of parenting may also explain the associations. Similarly, early attachment insecurity has been found related to externalizing behavior, in low-income, single-parent families (Erickson, Sroufe, & Egeland, 1985; Renken, Egeland, Marvinney, Mangelsdorf & Sroufe, 1989) as well as in middle-class, two-parent families, where early insensitive parenting was found to be a significant predictor of externalizing behavior (Bates & Bayles, 1988; Booth, Rose-Krasnor, McKinnon, & Rubin, 1994; NICHD ECCRN, 2006; Rubin & Burgess, 2002).

The second view focuses on the influence of current experiences. According to this view, children are influenced by their environments, so the relation between early sensitive parenting and later outcomes such as prosocial behavior might be indicative for continuity in environment. If the environment changes, for instance from sensitive to insensitive, the impact of earlier events on subsequent behavior is limited, with the child being primarily influenced by the new environment. Unfortunately, in longitudinal studies the current environment is rarely observed (Lewis, 1997). Stams, Juffer, and Van IJzendoorn (2002) did study the current as well as the early environment. Concurrent sensitive parenting significantly predicted social development, whereas early sensitive parenting did not. For externalizing and internalizing behavior, neither current nor early sensitive parenting was predictive.

There is little research supporting the third and fourth view, suggesting that early and current experiences are important in a unique or indirect way. A longitudinal study conducted by Jaffari-Bimmel, Juffer, Van IJzendoorn, Bakermans-Kranenburg, and Mooijaart (2006) on early-adopted children who were followed from early childhood to adolescence is one of the few studies that provide evidence for the indirect influence of early experiences on later development. Early sensitive parenting and attachment were

associated with social development in middle childhood, which in turn was associated with social development in adolescence.

The fifth view, which stresses the importance of genetic influences, is supported by research showing that part of the variance in prosocial, externalizing, and internalizing behavior should be ascribed to genetic factors. For prosocial behavior, genetic effects account for 30% to 78% of the variance when parental and teacher reports are used (Scourfield, Bethan, Neilson, & McGuffin, 2004; Stevenson, 1997; Zahn-Waxler, Schiro, Robinson, Emde, & Schmitz, 2001). For externalizing and internalizing behavior, genetic (range 50 to 69%) and shared (around 15%) environmental influences were found when parental and teacher reports were used (Edelbrock, Rende, Plomin, & Thomson, 1995; Van den Oord, Verhulst, & Boomsma, 1996; Van der Valk, Van den Oord, Verhulst, & Boomsma, 2003). Although these studies show that children are partly genetically disposed to act in a social way, it has been argued that the dynamic interaction between the context and the genetic structure should be emphasized (Lerner, 1991). The fifth model of genetic predestination of social behavior cannot be tested in the current study because of its design (one child per family). Nevertheless, studies supporting this fifth model have shown that only part of children's social development is hereditary, allowing environmental influences to explain substantial parts of the variance of prosocial, externalizing, and internalizing behavior.

This study is one of the few studies exploring the influence of early and concurrent experiences of attachment security and sensitivity on the development of prosocial, externalizing, and internalizing behavior over a time span from infancy to middle childhood. Over this time span, sensitivity and attachment security cannot be assessed with the same measures, but need age-adequate adaptation. In infancy, the attachment figure serves as a secure base to foster exploration and play, and as a safe haven in times of distress (Bowlby, 1973). The reaction of the child at times of stress reflects the quality of the infant-parent attachment relationship. Insecure-avoidant children shift their attention away from their distress and from the parent, and remain focused on exploration. Insecure-resistant children display attachment behavior and seek proximity, but at the same time resist contact with the parent, and do little exploring. Secure children strike the balance between exploration and attachment behavior: they seek contact with the parent when distressed, but are readily reassured and resume exploration (Ainsworth, Blehar, Waters, & Wall, 1978). Children classified as disorganized show a temporary breakdown of an otherwise organized strategy resulting in contradictory behavior, stilling and freezing, or even fear for the parent

(Main & Solomon, 1990; Van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

In middle childhood, attachment behavior has the same function as in infancy, but there is a decline in frequency and intensity of attachment related behavior (Marvin & Britner, 1999; Mayseless, 2006; Solomon & George, 1999). Children's reactions to mildly stressful situations are somewhat different from those in infancy. After a separation, insecure-avoidant children keep a comfortable distance from the parent and show minimal responses. Insecure-resistant children are preoccupied with the relationship with the parent, and show immature and/or angry behavior. Secure children have calm and comfortable interaction with the parent and update the parent when he/she returns (Stevenson-Hinde & Verschueren, 2002). Disorganized children show behavior that is either punitive towards the parent by rejecting or humiliating the parent, or controlling-caregiving by being overprotective towards the parent (Main & Cassidy, 1988; Cassidy, Marvin, & MacArthur Working Group on Attachment, 1992).

Sensitive parents react promptly and adequately to their children's signals. The sensitive parent does not overstimulate nor underestimate the child, and notices when the child becomes distressed or bored (Ainsworth, Bell, & Stayton, 1974). The interaction between parent and child in infancy is more characterized by physical contact than in middle childhood, when verbal interaction has become increasingly important (Stams et al., 2002). In infancy, the highly sensitive parent is able to see things from the baby's point of view; he/she picks him up when he seems to wish it, and puts him down when he wants to explore. The parent does not restrict the baby's movements by physical force, but engages his cooperation by diverting him (Ainsworth et al., 1974). In middle childhood, the highly sensitive parent is emotionally supportive and continuously reinforces the child's success by complimenting and encouraging him. The parent gives instructions to the child which are clear and usable to the child, and matches the hints to the child's behavior and cues at times the child needs it (Egeland, Erickson, Clemenhagen-Moon, Hiester, & Korfmacher, 1990).

This study includes only firstborn girls. Girls are found to be more prosocial than boys in childhood, especially when self-reports or reports from peers and teachers are used (Eisenberg, & Fabes, 1998; Hastings et al., 2000; Shigitomi, Hartmann, & Gelfand, 1981). Looking at sex differences in prosocial behavior from a developmental point of view, the pathways appear to be diverse and show different correlates and mediators for boys as opposed to girls (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Therefore the current study focuses on girls. The recruitment was restricted to

firstborns, because of the inconclusive results on the influence of birth order on prosocial behavior. Staub (1971) demonstrated that firstborns or older siblings were more prosocial than middle or younger children, whereas Raviv et al.'s (1980) study showed contrary results. In order to avoid confounding influences of birth order we decided to restrict our longitudinal study to girls. The presence or absence of younger sibs will be taken into account, as their presence creates more opportunities for first-borns to show both externalizing and internalizing behavior, and prosocial behavior.

We tested four models of the development of prosocial, externalizing and internalizing behavior. The first model states that early experiences are most important. For acceptance of this model, only associations between early sensitive parenting and attachment quality and later social behaviors should be significant. The second model claims that current experiences are most important. Acceptance of this model will require mere associations between concurrent sensitive parenting and attachment on the one hand and social behaviors on the other hand. The third model predicts that both early and concurrent experiences are important in a unique way. This model will be accepted if direct associations of early and concurrent sensitive parenting and attachment quality with later social development are found. The fourth model states that early and current experiences are important in an indirect way. Mediation of the association between early parenting and attachment quality and later social behaviors by current sensitive parenting and relationship quality is supportive of this fourth model.

Method

Participants

Mothers with a firstborn female toddler of fifteen months of age were recruited using town hall records in The Netherlands. They were invited to participate in a study on mother-child interaction and the development of empathy and compliance in young children. We received 240 valid replies of which 151 (63%) were positive. Town hall policy prevented us from collecting data on negative responses. Twenty mother-child dyads were seen in pilot sessions, in order to refine instruments and instructions. One hundred and thirty-one mother-child dyads participated in the data collection at 18 months.

Fifty-five percent of the mother-child dyads that participated in the data collection at 18 months also participated six years later. Of the twenty mother-child dyads who participated in the refinement of instruments and instructions at 18 months, sixteen

were seen again in pilot sessions at 89 months. Fifty-six of the 131 dyads at 18 months did not participate at 89 months for personal reasons; three dyads did not participate because they moved abroad. They did not differ from participating dyads on any of the background variables on 18 months. At the time of measurement at 89 months, the seventy-two participating mothers ranged in age from 29 to 48 years (*M* = 39.0, *SD* = 3.2). Twelve percent of the girls had no sibling, sixty-six percent had one sibling, and twenty-two percent had two or more siblings. Sixty-nine mothers worked outside the home for on average 23 hours per week (*M* = 23.3, *SD* = 6.7, *Min* = 6, *Max* = 38). Their mean socio-economic status based on both occupation and education was 3.9 (*SD* = 1.7, *Min* = 1.5, *Max* = 6.0) on a scale ranging from 1 to 6, indicating a predominantly middle-class and upper middle-class sample. Mean age of the child at the time of first measurement was 18 months (*SD* = 0.8, *Min* = 17, *Max* = 21) and their mean age at the time of the follow-up home measurements was 89 months (*SD* = 5.9, *Min* = 78, *Max* = 101).

Procedure

At 18 months, a female experimenter visited the children and their mothers at home. During the home visit the observer followed the dyad with a video camcorder to record their interaction. Mother and child performed several structured and unstructured tasks. When mother and child were accustomed to the camcorder, maternal sensitivity was assessed during a competing demand (mothers were asked to complete a questionnaire), and at the end of the home session, when the mothers were instructed to follow their normal routine.

About a week after each home visit, mother and child were invited to the institute. The Strange Situation procedure was administered to assess the quality of the infant-mother attachment. Several other structured and unstructured tasks were performed by mother and child that will not be discussed here. Home visits and lab sessions lasted about 90 minutes each. (For more detailed information about the procedure at 18 months, see Van der Mark, Van IJzendoorn, & Bakermans-Kranenburg, 2002.)

At 89 months, mother and child were invited to the institute. After half an hour of parent and child observations that will not be discussed here, mother and child were separated for at least 30 minutes, during which the child performed some structured tasks with the experimenter. During the break that followed, the mother and child were reunited in order to assess the quality of the infant-mother attachment. Afterwards, mother and child made a puzzle to assess maternal sensitive structuring. The lab session lasted about 90 minutes. With parental permission, a questionnaire on

prosocial behavior and problem behavior was completed by the child's teacher and returned by mail within a month of the lab visit.

All procedures were videotaped, and coding was done from videotape. Different coders coded all variables, in order to guarantee their being unaware of other characteristics of the dyads.

Measures

Prosocial behavior

At 89 months, teachers reported on the prosocial behavior of the target children with peers at school. Seventy-two teachers completed the questionnaire and returned it by mail. We used a questionnaire constructed by Hastings et al. (2000), which included 3 items from the Assessment of School Behavior (Cassidy & Asher, 1992; e.g., "This child is cooperative with other children – he/she shares and takes turns"), 8 items from the Teacher Child Rating Scale (Hightower et al., 1986; e.g., "Makes friends easily"), and 13 items from the Peer Relationships and Social Skill Ratings (Dodge & Somberg, 1987; e.g., "Other children like this child and seek him or her out for play" and "Understands others' feelings"). Reliability and validity of these questionnaires were adequate (Cassidy & Asher, 1992; Dodge & Somberg, 1987; Hightower et al., 1986). The items were scored on a 5-point-scale, indicating if a description was (1) characteristic of the child, or (5) not characteristic at all. With loadings all over .77, the factor analysis on the subscales pointed to a single-factor solution in our study (alpha .91 for the summary measure of the 24 items). The items were summed and divided by the number of valid answers (i.e., items for which the 5-point-scale was properly marked, excluding random missings), resulting in an overall score indexing the child's prosocial behavior with peers at school.

Externalizing and internalizing behavior

At 89 months, the Teacher Report Form (TRF, Achenbach, 1991; Verhulst, Van der Ende, & Koot, 1997) was used to measure the behavior problems of the child. Teachers completed the questionnaire containing 113 items, which are scored on a 3-point scale. The teacher could indicate if a description was (1) not true at all, (2) somewhat true, or (3) completely true for the child. Seventy-two teachers completed the questionnaire and returned it by mail. Scores for the broad-band syndromes externalizing and internalizing behavior were obtained. Reliability of the scales was adequate (alpha .93 for externalizing behavior and alpha .81 for internalizing behavior).

Comparison of the dyads at 89 months for whom the questionnaire was completed by the teacher with the dyads for whom there was no completed teacher questionnaire showed no difference on any of the background variables.

Attachment

Quality of attachment was assessed at 18 months with the Strange Situation Procedure (SSP, Ainsworth et al., 1978), a laboratory procedure with three mildly stressful components: the confrontation of the child with a strange environment, an unfamiliar adult, and two short separations from the mother. The child's pattern of attachment behavior was classified as insecure-avoidant (A), secure (B), or insecure-resistant (C). Infants classified as disorganized (D; Main & Solomon, 1990) were forced into an alternative classification as A, B, or C.

Two coders (the second and third author) coded the Strange Situation Procedures. One of the coders was trained in Minneapolis (by Brian Vaughn) and in Berkeley (by Mary Main), and both coders received advanced training in Leiden (by Mary Main). Reliability between the coders on 20 cases from another dataset was adequate, with 100% agreement on the A, B and C distinction (for more detailed information, see Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002).

In order to compute a continuous score for attachment security, we used the simplified Richters, Waters and Vaughn (1988) algorithm (Van IJzendoorn & Kroonenberg, 1990). These continuous attachment security scores were computed on the basis of the 7-point interactive SSP rating scales for proximity seeking, contact maintaining, resistance, and avoidance. The intercoder reliability on 14 cases was adequate, intraclass correlation .76 (n = 14, single measure, absolute agreement). Disorganized attachment was coded using the Main and Solomon (1990) 9-point coding system for disorganized attachment. Intraclass intercoder reliability was sufficient, .74 (n = 13; single measure, absolute agreement).

At 89 months, attachment was measured using the Main-Cassidy system for separation and reunion (Main & Cassidy, 1988). After being separated from the mother for thirty minutes, a reunion episode of three minutes was observed. Patterns of attachment were coded based on communication, gaze, affect, body positioning, play, and control, and classified as insecure-avoidant (A), secure (B), or insecure-resistant (C). Infants classified as controlling or disorganized were forced into an alternative classification as A, B, or C. Validation in two different samples showed that 82% of the attachment classifications with mothers in middle childhood matched attachment

classifications in infancy (Main & Cassidy, 1988; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994).

The same two coders that coded the Strange Situation Procedure at 18 months coded the tapes at 89 months, making sure that they did not see the same child at both 18 and 89 months. Reliability between the coders on 15 cases was adequate, with 80% agreement on the A, B and C distinction (*kappa* = .67). A continuous score on a 9-point scale for security was also assigned. The intercoder reliability between the two coders on 15 cases was sufficient, intraclass correlation .78 (single measure, absolute agreement). Controlling/ disorganized attachment was coded using the 9-point coding system from the Cassidy-Marvin system (1992). The intercoder reliability between the two coders on 15 cases was sufficient, intraclass correlation .82 (single measure, absolute agreement).

Maternal sensitivity

At 18 months, maternal sensitivity was assessed during 20 minutes of unstructured time (when the mother was asked to follow her normal routine at home as if she were alone with her child) and during a competing demand of 10 minutes (when the mother was asked to complete a questionnaire). Coding was done by four coders, using the Ainsworth scales for sensitivity and cooperation (Ainsworth et al., 1974). The mother is seen as highly sensitive if, for instance, she offers an acceptable alternative to the baby when he wants something he should not have (Ainsworth et al., 1974). The average intraclass intercoder reliability was .83 (.79-.89, *n* = 25). Difficult cases were discussed to agreement with an expert coder. Principal component analyses pointed to one underlying factor, Sensitive Parenting (factor loadings .91-.93), and showed high internal consistency (alpha .94).

At 89 months, maternal sensitivity was observed during the lab visit when mother and child were asked to complete a puzzle that was too difficult for the children. Mothers were told that they were allowed to help their child as they would normally do. The 10-minute episode was coded using the revised Erickson scales for Supportive presence, Clarity of instruction, and Sensitivity and timing in instruction (Egeland et al., 1990). These scales were adapted for use in middle childhood by Stams, Juffer, and Van IJzendoorn (2002), for example by including the verbal interaction between mother and child in an age-appropriate way (for more detailed information, see Stams et al., 2002). The mother is seen as highly sensitive if, for instance, she can redirect the child to the task if the child gets bored, and if she can adjust her instructions to the level of the child (Egeland et al., 1990). In this study, the coders were trained on the use of these

adapted scales by an expert coder[1]. Average intraclass intercoder reliability for the scales was .92 (.91-.93, *n* = 20) for three coders. Principal components analyses pointed to an underlying factor, Sensitive Parenting. The factor Sensitive Parenting (alpha .88, loadings > .84, explaining 80% of the variance) is the summed score for the scales Supportive presence, Clarity of instruction, and Sensitivity and timing in instruction, divided by three.

Results

First, we tested the stability of attachment and sensitivity from infancy (18 months) to middle childhood (89 months). Then, after examining the bivariate associations among attachment, sensitive parenting, prosocial, externalizing, and internalizing behavior, we tested the multivariate associations with multiple hierarchical regressions.

Descriptives

Means and standard deviations of prosocial, externalizing, and internalizing behavior, sensitive parenting, and attachment at the different times of measurement are presented in Table 3.1. Prosocial behavior was significantly associated with the number of siblings in the family. Children with more siblings showed more prosocial behavior to peers. Externalizing behavior was significantly related to the socio-economic status. More externalizing behaviors were found in children from lower socio-economic backgrounds. No significant associations between other background variables, and prosocial, externalizing, and internalizing behavior were found (Table 3.2).

Stability of Attachment and Sensitive Parenting from 18 to 89 months

The stability of attachment across almost six years was significant but modest (56%, *kappa* = .18, $p < .05$). Sixty-nine percent of the children who were securely attached at 18 months remained secure at 89 months (31 / 45), 50 percent of the children who were insecure-avoidant at 18 months stayed insecure-avoidant at 89 months (8 / 16), and 9 percent of the children who were insecure-resistant at 18 months continued to be insecure-avoidant at 89 months (1 / 11). When the distinction was made between secure and insecure attachments, the stability was 63 percent (45 / 72), *kappa* = .21, $p = .08$. Secure attachment tended to be more stable (69%) than insecure attachment

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(52%). The continuous security scores for attachment at 18 and 89 months showed significant stability. No stability was found for parental sensitivity from 18 to 89 months.

Table 3.1 Overview of descriptive data

	18 Months		89 Months	
	M	*SD*	*M*	*SD*
Prosocial behavior			4.09	0.47
Externalizing problem behavior			2.64	5.28
Aggressive behavior			2.31	4.93
Delinquent behavior			0.33	0.61
Internalizing problem behavior			5.90	4.91
Attachment security	0.78	2.52	5.17	1.56
Sensitive parenting	6.11	1.23	3.61	1.38
No. of siblings	0.00	0.00	1.13	0.65
Age child (months)	17.94	0.80	89.30	5.87
Age mother (years)	33.01	3.15	38.96	3.18
SES	3.90	1.73		

Table 3.2 Bivariate associations of prosocial, externalizing, and internalizing behavior at 89 months, with sensitive parenting and attachment at 18 and 89 months (N = 72)

	1	2	3	4	5	6	7	8	9	10
89 months										
1. Prosocial behavior	-									
2. Externalizing behavior	-.38**	-								
3. Internalizing behavior	-.35**	.24*	-							
4. Attachment security	.03	-.06	-.11	-						
5. Sensitive parenting	.04	.07	.07	.01	-					
18 months										
6. Attachment security	.32**	-.11	-.08	.22	.15	-				
7. Sensitive parenting	.29**	-.40**	-.03	.10	.09	.07	-			
Background variables										
8. No. of siblings	.28**	-.13	-.15	.09	-.12	.22	.11	-		
9. Age child	.01	-.04	-.01	.16	-.01	-.08	.25*	.10	-	
10. Age mother	.03	-.02	-.05	-.21	-.03	-.28*	-.00	-.36**	.14	-
11. SES	.19	-.22	.03	.13	.03	.00	.21	.12	.12	-.11

*p < .05. **p < .01.

Bivariate Associations between Prosocial, Externalizing, and Internalizing Behavior, and Sensitive parenting, and Attachment

More teacher-reported prosocial behavior with peers was associated with less externalizing behavior and less internalizing behavior. There were no concurrent relations between prosocial, externalizing, and internalizing behavior on the one hand, and sensitive parenting and attachment at 89 months on the other hand. Prosocial behavior and externalizing behavior at 89 months were however related to early sensitive parenting and attachment. More sensitive parents had children who at 89 months were more prosocial. Higher attachment security at 18 months (continuous attachment score) was also associated with more prosocial behavior. More sensitive parents had children who later showed less externalizing behavior. No association between internalizing behavior and early sensitive parenting and attachment were found (Table 3.2).

Multivariate Associations between Sensitive Parenting and Attachment on Externalizing, Internalizing, and Prosocial Behavior

Hierarchical regression analysis was used to test whether antecedent or concurrent sensitive parenting and attachment security predicted externalizing problem behavior at 89 months. At step 1, we entered the number of siblings in the family at 89 months and socio-economic status. Sensitive parenting and attachment security at 89 months were added at step 2. At step 3, sensitive parenting and attachment security at 18 months were entered. A total of six predictors was included in the regression, leading to an adequate ratio of predictors to subjects (1 : 12, Tabachnick & Fidell, 2001).

The regression was significant (F [6, 65] = 2.71, $p < .05$), with the six predictors explaining 20% of the variance of the externalizing behavior (Table 3.3). One predictor was significant: sensitive parenting at 18 months (beta = -.37, $p < .01$). After controlling for concurrent parental sensitivity, more sensitive parenting at 18 months predicted less externalizing behavior at 89 months. In order to test whether the regression selected similar predictors for the two subscales of externalizing behavior, we conducted the same hierarchical regression analyses, one with aggressive behavior as dependent variable and one with delinquent behavior as dependent variable. The regression for aggressive behavior was significant (F [6, 65] = 2.85, $p < .05$). The six predictors explained 21% of the variance. Sensitive parenting at 18 months was the only significant predictor (beta = -.37, $p < .01$). Children with more sensitive mothers at 18 months showed less aggression at 89 months. The hierarchical regression for delinquent behavior was not significant (F [6, 65] = 0.64, $p = .70$). The hierarchical regression for internalizing behavior was not significant either, F [6, 65] = 0.44, $p = .85$.

The hierarchical regression for prosocial behavior with peers was significant (F [6, 65] = 3.28, p < .01), and the six predictors explained 23% of the variance (Table 3.3). Two predictors were significant: attachment security at 18 months (beta = .29, p < .05) and sensitive parenting at 18 months (beta = .23, p < .05). Children who were more securely attached at 18 months and children who had more sensitive mothers at 18 months showed more prosocial behaviors when they were 89 months.

Replication of the hierarchical regression on externalizing and internalizing problem behavior using the continuous score for disorganized attachment instead of the continuous security scores at 18 and 89 months yielded the same results. Replication of the hierarchical regression on prosocial behavior demonstrated a different result: the regression just reached significance (F [6, 65] = 2.20, p = .05), with only sensitive parenting at 18 months as significant predictor (beta = .24, p < .05).

Table 3.3 Hierarchical regression of sensitive parenting and attachment security at 18 and 89 months on (1) externalizing behavior, (2) internalizing behavior, and (3) prosocial behavior, all on 89 months (N = 72)

		Externalizing behavior			Internalizing behavior			Prosocial behavior		
Step	Independent variables	*B*	β	ΔR^2	*B*	β	ΔR^2	*B*	β	ΔR^2
1	Siblings *89 mo*	-0.31	-0.04		-1.00	-0.13		0.13	0.18	
	SES *18 mo*	-0.45	-0.15	.06	0.17	0.06	.03	0.04	0.13	.10*
2	Attachment security *89 mo*	0.09	0.03		-0.30	-0.09		-0.03	-0.09	
	Sensitive parenting *89 mo*	0.44	0.12	.00	0.23	0.06	.01	-0.00	-0.01	.00
3	Attachment security *18 mo*	-0.22	-0.10		-0.07	-0.03		0.05	0.29*	
	Sensitive parenting *18 mo*	-1.58	-0.37**	.14**	-0.09	-0.02	.00	0.09	0.23*	.13**
	Intercept	12.47			7.73			3.37		
	R^2			.20			.04			.23
	Adjusted R^2			.13			-.05			.16
	R			.45*			.20			.48**

*p < .05. **p < .01.

Discussion

In this longitudinal study maternal sensitivity in infancy predicted externalizing behavior in middle childhood, and attachment security and sensitivity in infancy predicted

prosocial behavior, after controlling for concurrent attachment security and sensitivity. Early attachment and sensitive parenting appear to shape the girls' prosocial and externalizing behavior in middle childhood more than concurrent experiences, thus supporting the view that early experiences do not fade away but remain important even when the context of maternal sensitivity is not stable.

The regression models explained about 20% of the variance in externalizing behavior and prosocial behavior. Although these results leave a substantial part of the variance unaccounted for, the effect sizes are considered medium to large (Cohen, 1988). Genetic factors might be responsible for part of the unexplained variance, but, as noted before, this could not be tested within our design with one child per family.

The significant role of early sensitivity for externalizing behavior is in line with existing research on predominantly middle-class, two-parent families (Bates & Bayles, 1988; Booth et al., 1994). When the separate syndrome scales for aggressive and delinquent behavior are distinguished, the influence of early sensitivity is only apparent for aggressive behavior. Low prevalence of delinquent behavior in girls of this age group (Moffit & Caspi, 2001) may explain why the influence of early sensitivity for this subscale could not be substantiated. Most studies on prosocial behavior have considered only concurrent associations (Hastings et al., 2000). The results of the few longitudinal studies in this area are consistent with the apparent importance of early maternal sensitivity for prosocial behavior found in this study. Kochanska (1991) found that authoritative parenting by mothers of toddlers predicted more prosocial behavior six years later. Robinson, Zahn-Waxler, and Emde (1994) also found that maternal warmth predicted high levels of empathic responding from 14 to 20 months, especially in girls.

In our study we found no concurrent relations between sensitivity on the one hand, and prosocial, externalizing, and internalizing behavior on the other hand. Intuitively, a concurrent association would be expected, but the literature with regard to this association is inconclusive (Eisenberg & Fabes, 1998). For externalizing behavior problems, Rothbaum and Weisz (1994) concluded in a meta-analysis that concurrent associations are apparent, and increase in children older than six years. Stams et al. (2002) however found no concurrent associations between sensitivity and externalizing and internalizing behavior in children at age seven. For prosocial behavior, Decović and Janssens (1994) found a concurrent relation in children between 6 and 11 years, whereas Ianotti et al. (1992) in their sample of 5-year-olds did not.

The lack of stability for sensitive parenting could be due to the fact that mothers need different skills in infancy than in middle childhood in order to be sensitive and responsive. For some mothers it may be easier to be sensitive and responsive to a 7-year old girl, who is verbally fluent and able to express her feelings and emotions, than to a baby, who has a limited repertoire to do so. We realize however that some prior longitudinal studies showed stability of maternal sensitivity, though not all of them. Results from Dunn, Plomin, and Daniels (1986) showed little stability in children from 12 to 24 months. Pianta, Sroufe, and Egeland (1989) also found a low stability for sensitive parenting from infancy to 42 months. A moderately strong stability of composite sensitivity scores was found in the NICHD ECCRN study (1999, 2003) at different ages of measurement between 6 and 72 months. Our study covers a longer period, from infancy to 89 months, with only two points of measurement, which may account for the discrepancy in findings. However, a study from Stams et al. (2002) on adopted children covering the same period (infancy to age seven) reported (modest) stability. The use of the adoption sample may explain the diverse findings. Mothers of adopted children are perhaps more conscious about parenting which could result in a more stable context of maternal sensitivity over the years.

The lack of stability of sensitive parenting might also be responsible for the lack of association between sensitive parenting in infancy and attachment security in middle childhood. As De Wolff and Van IJzendoorn (1997) concluded in their meta-analysis, only when sensitivity remains stable over time, it may be an important condition of attachment security. Furthermore, meta-analytic results reveal that the greater the time span between the assessment of sensitivity and attachment security, the weaker the effect size (Atkinson et al., 2000; De Wolff & Van IJzendoorn, 1997). In our study, the time span between the assessments of sensitivity and attachment security is about six years, thus making an association between the two constructs elusive.

We did not find a relation between early attachment security and externalizing and internalizing behavior in middle childhood. Previous research in samples from the same middle to higher socioeconomic class supports this result for externalizing and internalizing behavior (Bates & Bayles, 1988; Stams et al., 2002). The importance of early attachment security for prosocial behavior in middle childhood is also consistent with previous research in this area (Ianotti et al., 1992; Kestenbaum et al., 1989), which showed that securely attached infants displayed more prosocial behavior towards peers and adults two or three years later.

There were no concurrent associations between attachment security and behavior problems in middle childhood. For behavior problems our findings contrast with previous research showing that insecurely attached children, in particular children with an insecure-controlling pattern of attachment, are more likely to be rated as externalizing or aggressive than securely attached children (Moss, Parent, Gosselin, Rousseau, & St-Laurent, 1996; Moss, Rousseau, Parent, St-Laurent, & Saintonge, 1998; Solomon, George, & De Jong, 1995). The relatively low prevalence of behavior problems might be responsible for the lack of concurrent associations in our study. No concurrent associations were found between attachment security and prosocial behavior. Studies addressing this issue in middle childhood yielded similar results. Cohn (1990) found no relation between attachment security in girls at age six and peer acceptance or teacher rated social competence. A more recent study from Bohlin, Hagekull and Rydell (2000) also found no concurrent relations between attachment security and teachers' and mothers' ratings of prosocial orientation at 8-9 years. Schneider, Atkinson, and Tardif (2001) found in their meta-analysis that the relative contribution of attachment to peer relations was rather small. They speculated that there are many influences on peer relations, such as parental influences or genetics, and attachment is only one of among these. Unfortunately, it goes beyond the scoop of this study to examine these different influences.

Unexpectedly, no associations between early or concurrent disorganized attachment behavior and externalizing behavior were found. Meta-analytic results showed that disorganized attachment is a risk factor for externalizing behavior (Van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). The fact that our sample of non-clinical girls from non-deprived backgrounds did not display clinically significant behavior problems may account for this discrepancy. Stability of attachment from infancy to middle childhood was modest, but still in line with meta-analytic results (Fraley, 2002).

There was no significant association between the number of siblings in the family and internalizing and externalizing behavior. The contrast with earlier findings showing a positive association with the number of siblings may be explained by the difference in socioeconomic status (Anselmi, Piccinini, Barros, & Lopes, 2004; Dubow & Luster, 1990). In our sample of predominantly middle-class and upper middle-class families, there were no tight financial and educational resources as reasons for impaired parental functions. The association between the number of siblings and prosocial behavior is in line with findings of Ugurel-Semin (1952) and Weissbrod (1976), which showed more generosity in larger-sized families.

Our study examined a period from infancy to middle childhood in order to test which of the four models describes the development of prosocial, externalizing, and internalizing behavior most adequately. The results supported the idea that for prosocial behavior and externalizing behavior, especially aggressive behavior, early experiences are most important. None of the suggested models appeared to explain the development of internalizing behavior. Sensitivity and attachment security at 18 months were the only significant predictors of prosocial behavior at age seven. For externalizing behavior, sensitivity at 18 months was the only significant predictor. There were no associations between concurrent sensitive parenting and attachment on the one hand, and prosocial, externalizing, and internalizing behavior on the other hand. The results thus did not support the second model (current experiences are most important). We found no support for the third model either (i.e., that both early and concurrent associations are important in a unique way), since we did not find the combination of direct associations between early and concurrent sensitive parenting and attachment, and prosocial, externalizing, and internalizing behavior that would be supportive of this model. The fourth model suggested that both early and concurrent experiences would be important in an indirect way, that is, later experiences mediating the association between earlier experiences and later outcomes. The results showed however direct associations between early experiences and later social functioning.

In sum, the present findings support the idea that sensitive parenting and attachment in infancy remain important for the development of prosocial behavior and externalizing behavior, even when the current child rearing context is taken into account. Parents' sensitive responding in infancy remains important in the development of social behavior six years later, especially for externalizing behavior.

Chapter 4

Attachment representations in middle childhood: A validation study

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Manuscript in preparation

Abstract

There is an ample need for attachment measures in middle childhood, as well as for the validation of measures of attachment representation in this developmental phase. The present study tested the validity of the Attachment Story Completion Task (ASCT, Verschueren & Marcoen, 1994a, 1994b) in a longitudinal study of 94 girls (age 18-89 months). Concerning convergent validity, we found no association between attachment quality as measured with the ASCT and attachment security as observed in a separation-reunion procedure. Construct validity of the ASCT was examined using physiological assessments. Although children experienced more stress during the attachment related stories than during the control stories as indicated by an increase in heart rate, no difference in reactivity was found between secure and insecure children. Stability of attachment security (18-89 months) turned out to be low, and secure attachment representations were not related to more sensitive parenting. Our study failed to find support for the validity of the ASCT in middle childhood in a homogeneous upper-middle class sample of girls and their mothers.

Introduction

Attachment theory provides a framework for the development of attachment across the complete lifespan. Research to test the various facets of attachment theory has focused mainly on infancy, early childhood, adolescence, and adulthood. Over the years, the field has developed well validated measurement techniques to assess attachment in infancy and early childhood (e.g. the Strange Situation Procedure, Ainsworth, Blehar, Waters, & Wall, 1978, and the Attachment Q-Sort, Vaughn & Waters, 1990, see Van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004) and in late adolescence and adulthood (the Adult Attachment Interview, George, Kaplan, & Main, 1996). These instruments are now widely used in attachment research. A relatively 'forgotten' age group in research developing measures for attachment is middle childhood (Mayseless, 2005). Consequently, attachment studies conducted in this period do not use standard measurement techniques that have been validated as well as measures used in other stages of development (Kerns, Schlegelmilch, Morgan, & Abraham, 2005). Because of the eminent importance of the use of well validated measures in attachment research, this study aims at contributing to the validation of a measure used in middle childhood, the Attachment Story Completion Task (ASCT; Verschueren & Marcoen, 1994a, 1994b).

Attachment in middle childhood may be described both at the behavioral and at the representational level. At the behavioral level, the attachment figure still serves, as in infancy, as a secure base to foster exploration and play, and as a safe haven in times of distress (Bowlby, 1973). In addition, children have developed a representation of attachment, an internal working model, which is formed by the experiences with the attachment figure during and beyond infancy (Bretherton & Munholland, 1999).

Measuring the quality of attachment during the early stage of middle childhood at the behavioral level is usually done using observations of the child's separation from and reunion with the attachment figure, e.g. the Cassidy-Marvin System (Cassidy, Marvin, & MacArthur Working Group on Attachment, 1992), or the Main-Cassidy System (Main & Cassidy, 1988). Quality of attachment at the level of representation can be assessed with procedures in which the actual attachment figure is not present, using children's responses to pictured situations, e.g. the Separation Anxiety Test (Slough & Greenberg, 1990), or to doll-play narratives, e.g. the Attachment Story Completion Task (Verschueren & Marcoen, 1994a, 1994b). The current study focuses on doll-play narratives (for a review of other measures of attachment in middle childhood, see Solomon & George, 1999).

Doll-play narratives make use of children's growing verbal ability by asking the child to complete standardized attachment-related story beginnings, acted out by an experimenter manipulating small family figures. These story-endings form the basis for assessing the quality of the attachment representation of the child (Bretherton, Ridgeway, & Cassidy, 1990). Although the general format is the same, the various doll-play methods differ in several respects: the number of attachment-related stories, the range of scenarios presented by the stories, assessing representation of a specific or more general attachment relationship, and the coding system (for an overview, see Stevenson-Hinde & Verschueren, 2002).

Research on the validity of doll-play narratives mainly focuses on convergent validity. Evidence has been gathered in studies measuring the concordance between concurrently assessed doll-play narratives and separation-reunion procedures. Cassidy (1988) found that 6-year-old children classified as secure in the separation-reunion procedure tended to be classified as secure in the doll-play procedure. The same results were found for children classified as insecure, even to the extent that the children were classified into the same category of insecurity across procedures. Bretherton et al. (1990) showed the same results with 3-year-olds, although no consistency across procedures was found for the various types of insecurity. Solomon, George, and De Jong (1995) also found a satisfactory overall agreement in 6-year-old children between doll-play classifications and classifications based on reunion behavior, except for the insecure-avoidant children.

Another form of validity, construct validity, "is evaluated by investigating what psychological qualities a test measures" (American Psychological Association, as cited in Cronbach, 1971, p. 444). It refers to whether doll-play narratives actually measure the attachment representation they claim to measure (Hair, Anderson, Tatham, & Black, 1995). One way to examine the construct validity is through psychophysiological assessments. Psychophysiological studies to examine the presence or absence of a specific emotional state during attachment eliciting tasks have been conducted with infants (Fox & Card, 1999). Sroufe and Waters (1977) were among the first to record heart rate during the Strange Situation. They found that all children showed an increased heart rate during separation, which remained elevated during reunion. Differences were reported in recovery time; children with secure attachments recovered faster than children with insecure attachments. Subsequent studies by Donovan and Leavitt (1985), and Spangler and Grossmann (1993), however, did not show any differences between securely and insecurely attached infants in heart rate change during the reunion episodes of the Strange Situation.

When attempting to validate a measurement technique used in attachment research, four core theoretical hypotheses may also be taken into account; (1) moderate stability over time of attachment security is expected; (2) sensitive parenting and attachment security should be positively related; (3) there should be a predictive relationship between attachment security and other aspects of socio-emotional development; (4) assessment of attachment security might be done in a similar way across cultures and attachment figures (Solomon & George, 1999). Unfortunately, there are only a few studies that have addressed one or more of these four core theoretical hypotheses regarding the doll-play narratives.

Evidence for the stability of doll-play assessments of attachment across time was found in two longitudinal studies. Bretherton, Ridgeway, and Cassidy (1990) showed that attachment security scores as assessed with doll-play narratives at 37 months were positively associated with continuous scores for security in the Strange Situation at 18 months, and with security scores based on the Attachment Q-sort at 25 months. Gloger-Tippelt, Gomille, Koenig and Vetter (2002) also found continuity between attachment classification in infancy, measured with the Strange Situation Procedure, and attachment at age six, measured with a doll-play story completion procedure.

Support for the expected association between sensitive parenting and attachment security is only available for self-report measures of sensitive parenting, not for observational measures (Stevenson-Hinde & Verschueren, 2002). Mother's report of marital satisfaction, family adaptability and family cohesion was positively related to attachment security scores assessed with doll-play narratives in 3-year-olds (Bretherton et al., 1990). Verschueren (1996) found a positive association between kindergartners' attachment representation and self-reported parental encouragement of the child's independence, but no association with self-reported parental warmth.

There is also some support for predictive relations between attachment security and other important aspects of development. Children (aged five to seven) with secure representations of attachment towards mother and/or father as assessed with the ASCT scored higher on peer social competence, school adjustment, and lower on anxious/withdrawn behavior than children with insecure representations of attachment (Verschueren & Marcoen, 1999). Also, children's self-reported and teacher-reported level of self-esteem was positively related to their attachment representation (Cassidy, 1988; Oppenheim, 1997).

The last validity issue concerns the claim that assessment of attachment security may show similar associations across cultures and attachment figures. To support the first part of the hypothesis, the universal nature of attachment, studies among different societies, ethnic groups and social classes should be done showing the validity of the measures used (Solomon & George, 1999). In infancy, the Strange Situation Procedure has been widely used in attachment studies across different cultures (for a review, see Van IJzendoorn & Sagi, 1999, 2001). However, the few studies conducted with children in middle childhood used predominantly white, middle-class samples (e.g. Bretherton et al., 1990; Cassidy, 1988; Solomon et al., 1995). There is not enough diversity among cultures and ethnic groups included in the studies to address this issue in any definite way. The same is true for the suggestion that assessment of attachment should be the same across different attachment figures. In middle childhood, most studies focus on the child-mother attachment representation, and only a few studies also assessed the child-father attachment representation (Page & Bretherton, 2001; Verschueren & Marcoen, 1999).

We may conclude, therefore, that research on the validity of doll-play narratives in middle childhood still is in its infancy. Given the fact that there are several different procedures used in doll-play narratives, and validation is only partly available for any of the measures, a systematic approach is needed to further extend our knowledge about the validity of measuring attachment via doll-play narratives in middle childhood (Stevenson-Hinde & Verschueren, 2002). This study focuses on the validity of one of the doll-play measures; the Attachment Story Completion Task (Verschueren & Marcoen, 1994a, 1994b), for which some important findings regarding the predictive validity are already available (Verschueren & Marcoen, 1999).

Our study has four aims. The first aim is to assess the convergent validity of the ASCT by comparing its assessment of attachment security with that of a concurrent observational measure of attachment. Second, we examine the construct validity of the ASCT, measuring physiological indices of stress: electrodermal activity and heart rate variability. We expect that children with secure and insecure attachment representations differ in physiological stress responses to the ASCT-stories, particularly to the attachment-related stories. Our third aim is to examine the stability of attachment security over time. Our last aim is to test the relation between sensitive parenting and attachment security as assessed with the ASCT.

Method

Participants

Mothers with a firstborn female toddler of fifteen months of age were recruited using town hall records in The Netherlands. They were invited to participate in a study on mother-child interaction and the development of empathy and compliance in young children. We received 240 valid replies of which 151 (63%) were positive. Town hall policy prevented us from collecting data on negative responses. Twenty mother-child dyads were seen in pilot sessions, in order to refine instruments and instructions. One hundred and thirty-one mother-child dyads participated in the data collection at 18 months.

Seventy-two percent of the mother-child dyads that participated in the data collection at 18 months also participated six years later. Of the twenty mother-child dyads who participated in the refinement of instruments and instructions at 18 months, sixteen were seen again in pilot sessions at 89 months. Thirty-four of the 131 dyads at 18 months did not participate at 89 months for personal reasons; three dyads did not participate because they moved abroad. They did not differ from participating dyads on any of the background variables on 18 months. At the time of measurement at 89 months, the participating mothers ranged in age from 28 to 48 years (M = 38.7, SD = 3.2). Eighty-eight percent of the participating girls lived with their two biological parents. Thirteen percent of the girls had no sibling, sixty-four percent had one (younger) sibling, and twenty-three percent had two or more (younger) siblings. Eighty-six percent of the mothers worked outside the home for on average 23 hours per week (M = 23.3, SD = 6.7, Min = 6, Max = 38). Their mean socio-economic status based on both occupation and education was 3.9 (SD = 1.7, Min = 1.5, Max = 6.0) on a scale ranging from 1 to 6, indicating a predominantly middle-class and upper middle-class sample. Mean age of the child at the time of first measurement was 18 months (SD = 0.8, Min = 17, Max = 21) and their mean age at the time of the follow-up home measurements was 89 months (SD = 5.9, Min = 78, Max = 101).

Procedure

At 18 months, mother and child were invited to the institute. The Strange Situation procedure was administered to assess the quality of the infant-mother attachment relationship, and several other observations that are not discussed here. The lab session lasted about 90 minutes. (For more detailed information about the procedure at 18 months, see Van der Mark, Van IJzendoorn, & Bakermans-Kranenburg, 2002.)

At 89 months, a different female experimenter visited the children at home. The session started with the Peabody Picture Vocabulary Test (PPVT). Afterwards, the child's attachment representation was assessed using the Attachment Story Completion Task. The equipment for measuring the child's physiological reactions was attached before the administration of the PPVT, in the presence of the mother in order to minimize the child's distress. For the remainder of the session, the mother left the room so the child would feel free to answer the interviewer's attachment-related questions. The session was videotaped with a video camcorder at a fixed location.

Within two weeks after the home visit, mother and child were invited to the institute. Halfway through the visit mother and child were separated for about 30 minutes, during which the child performed various structured tasks with the experimenter. Mother and child were then reunited; the reunion was used to assess the quality of the attachment relationship. Next, maternal sensitive structuring was observed in a 10-minute puzzle task. Home visits and lab sessions lasted about 90 minutes each.

All procedures were videotaped, and coding was done from videotape. Different coders coded the variables, in order to guarantee their being unaware of other characteristics of the dyads.

Measures

Attachment

Quality of attachment was assessed at 18 months with the Strange Situation Procedure (SSP, Ainsworth et al., 1978), a laboratory procedure with three mildly stressful components: the confrontation of the child with a strange environment, an unfamiliar adult, and two short separations from the mother. The child's pattern of attachment behavior was classified as insecure-avoidant (A), secure (B), or insecure-resistant (C). Infants classified as disorganized (D; Main & Solomon, 1990) were forced into an alternative classification as A, B, or C. Insecure-avoidant children shift their attention away from their distress and from the mother, and seem to remain focused on exploration. Insecure-resistant children display attachment behavior and seek proximity, but at the same time resist contact with the mother, and do little exploring. Secure children strike the balance between exploration and attachment behavior: they seek contact with the parent when distressed, but are readily reassured and resume exploration.

Two coders (the second and third author) coded the Strange Situation Procedures. One of the coders was trained in Minneapolis (by Brian Vaughn) and in Berkeley (by

Mary Main), and both coders received advanced training in Leiden (by Mary Main). Reliability between the coders on 20 cases from another dataset was adequate, with 100% agreement on the A, B and C distinction (for more detailed information, see Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002).

In order to compute a continuous score for attachment security, we used the simplified Richters, Waters and Vaughn (1988) algorithm (Van IJzendoorn & Kroonenberg, 1990). These continuous attachment security scores were computed on the basis of the interactive SSP scale scores for proximity seeking, contact maintaining, resistance, and avoidance. The intercoder reliability on 14 cases was adequate, intraclass correlation .76 (single measure, absolute agreement).

At 89 months, attachment was measured both during the lab visit (observation) and as part of the home visit (attachment story completion task). During the lab visit, the Main-Cassidy system for separation and reunion (Main & Cassidy, 1988) was used. After a separation from the mother of about 30 minutes, a reunion episode of three minutes was videotaped. Patterns of attachment were coded based on communication, gaze, affect, body positioning, play, and control, and classified as insecure-avoidant (A), secure (B), or insecure-resistant (C). Infants classified as controlling or disorganized received an alternative classification as A, B, or C. At this age, insecure-avoidant children keep a comfortable distance from the parent and show minimal responses. Insecure-resistant children are preoccupied with the relationship with the mother, and show immature and/or angry behavior. Secure children have calm and comfortable interaction with the mother and give an update to the mother when she returns (Cassidy et al., 1992; Stevenson-Hinde & Verschueren, 2002). The same two coders who coded the Strange Situation Procedure at 18 months coded the tapes at 89 months, never coding the same child at both 18 and 89 months. Reliability between the coders on 15 cases was adequate, with 80% agreement on the A, B and C distinction (*kappa* = .67). A continuous score on a 9-point scale for security was also assigned. The intercoder reliability between the two coders on 15 cases was sufficient, intraclass correlation .78 (single measure, absolute agreement).

During the home visit, attachment representation was measured using the attachment story completion task (ASCT; Verschueren & Marcoen, 1994a; based on Cassidy, 1986, and Bretherton et al., 1990). Each child was asked to complete five attachment-related story beginnings using a doll family. The topics of the stories are the child's bicycle being stolen by an unfamiliar child; giving a present to the attachment figure; saying "I'm sorry"; crying because the child has quarreled with another child at school;

and screaming that there is a monster in the bedroom (for more detailed information see Verschueren, Marcoen, & Schoefs, 1996). Because we were interested in the attachment representation of the child-mother relationship, the stories were administered using a child and mother doll.

Each of the five stories was classified into one of four groups and was rated on a five-point scale for attachment security. If the child completed the story with little hesitation and showed open and positive interactions with the attachment figure, the story was classified as “secure” and received a score of 4 or 5. If the child was reluctant to complete the story or the interactions with the attachment figure were minimal, the story received the classification “insecure-avoidant” and received a score of 1 or 2. If the child showed negative, hostile, bizarre interactions with the attachment figure, which could be alternated with brief episodes of harmonious interactions, the story was classified as “insecure-bizarre/ambivalent” and received a score of 1 or 2. If the child did not show a clearly secure or clearly insecure story, the classification of “secure/insecure” and a score of 3 was used. Detailed criteria for classification and scoring are available for every one of the five stories (Verschueren & Marcoen, 1994a). Each child received an overall attachment classification, either secure, avoidant, or bizarre/ambivalent, on the basis of the classification for the five stories. A global attachment security score was given by summing the scores on the five stories. Coders, who were blind to all other information of the child, coded the stories from verbatim transcripts made of the videotaped session. Each story was coded independently, without knowing any information about the other stories of the child. Correlations between the five stories varied between .00 and .29, with a reliability of .48. Principal components analyses showed that the five stories could be forced on one underlying factor (factor loadings .43-.75).

The stories were coded by five coders who received reliability training on stories coded by Verschueren. Overall agreement for the global category on 40 cases varied from 80 to 83% (mean agreement 82%), kappa .70. For the global attachment security score the average intraclass intercoder reliability for five coders on 40 cases was .91 (range .89 to .97). In order to reduce the possibility of an incorrect classification, all stories were coded twice by different coders. In cases of disagreement, a third coder decided.

To avoid misclassification because of a poor test attitude and/or insecurity in the relation to the examinator (instead of the attachment figure), three control stories were included among the attachment stories (Verschueren & Marcoen, 1994b). They referred to interactions with a peer (playing a game; sharing cookies; painting a picture

in the classroom), instead of interactions with the attachment figure. If a child refused to complete the control stories, he was judged as “unclassifiable” for the attachment stories and would be excluded from the analyses. This was not the case for any of the children participating in this study.

Physiological measures

At 89 months, electrodermal activity (EDA), heart rate (HR), and heart rate variability (HRV) were measured to assess the physiological reactions of the children during the home visit. Two devices were used of an ambulatory system called the Ambulatory Monitoring System (AMS; version 36 and 46, Vrije Universiteit, Department of Psychophysiology, Amsterdam, NL; e.g., Christie & Friedman, 2004); one to measure EDA, and one to measure HR and HRV. Recording of EDA was done with two small Ag/AgCl skin conductance level (SCL) electrodes on the volar surfaces of the medial phalanges of the child’s right hand. The SCL electrodes were applied with a small amount of Unibase paste (Fowles et al., 1981) and taped onto the fore- and middle finger with Leukoplast. Level of skin conductance was sampled and written to the AMS for each 500-millisecond period.

For the recording of the HR and HRV, three disposable electrocardiogram (ECG) electrodes were placed on the child’s chest in a triangular arrangement. The AMS-device was programmed to continuously record all inter-beat-intervals. From raw inter-beat-intervals, every 10 seconds an average HR and RMSSD; the Root Mean of the Squared Successive Differences are computed, which are used to index heart rate variability (Groot, De Geus, & De Vries, 1998; Task Force of the European Society of Cardiology the North American Society of Pacing Electrophysiology, 1996).

The physiological reactions were synchronized to the different stories of the Attachment Story Completion Task using an Event Marker button on the AMS-device together with the recording of time. The experimenter pushed the button at the beginning of each story, leaving a marker that allowed for accurately labeling each story. Due to failure of equipment, mostly caused by broken wires, the physiological measures were available for 74 children (21% attrition). Recommendations for excluding artificial readings and outliers from ambulatory EDA-, HR- and HRV-records for means, minima and maxima were followed (Groot et al., 1998; E.J.C. de Geus, personal communication, May 15, 2006). Two children showed unacceptable physiological values on RMSSD on three intervals. These values were replaced with the next acceptable score for that person. On the basis of standardized scores, three outliers were found ($z > 3.29$) and changed into the next most extreme score

(Tabachnick & Fidell, 2001). Previous research shows that the AMS is a valid instrument for detecting physiological activity (Klaver, De Geus & De Vries, 1994).

In order to examine the differences in physiological reactivity between the attachment and control stories during the Attachment Story Completion Task, an overall score was made for each of the physiological measures on the attachment stories and the control stories by summing the means of the physiological measures and divide these by the number of valid stories. This resulted in an overall score for attachment stories and an overall score for control stories, for mean electrodermal reactivity, mean heart rate, and mean heart rate variability.

Maternal sensitivity

At 89 months, maternal sensitivity was observed during the lab visit when mother and child were asked to complete a puzzle that was too difficult for the children. Mothers were told that they were allowed to help their child as they would normally do. The 10-minute episode was coded using the revised Erickson scales for Supportive presence, Clarity of instruction, and Sensitivity and Timing in instruction (Egeland, Erickson, Clemenhagen-Moon, Hiester, & Korfmacher, 1990). These scales were adapted for use in middle childhood by Stams, Juffer, and Van IJzendoorn (2002), for example by including the verbal interaction between mother and child in an age-appropriate way (for more detailed information, see Stams et al., 2002). In this study, the coders were trained on the use of these adapted scales by an expert coder[1]. Average intraclass intercoder reliability for the scales was .92 (.91-.93, n = 20) for three coders. Principal components analyses pointed to one underlying factor, *Sensitive Parenting* (factor loadings > .84), and showed high internal consistency (alpha .88). The factor *Sensitive Parenting* is the summed score for the scales Supportive presence, Clarity of instruction, and Sensitivity and Timing in instruction, divided by three.

Peabody Picture Vocabulary Test

We administered the Peabody Picture Vocabulary Test - third edition (Dunn & Dunn, 1997), indicating the linguistic development of the children at 89 months. A validated Dutch translation was not available at the time the research took place, so a native speaker translated the scale items and a different native speaker translated the items back into English, to check for any difference. The child's score on the Peabody reflects the number of correctly identified pictures.

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Results

Descriptives

Means and standard deviations of the continuous scores for attachment representation and observed attachment are presented in Table 4.1. The distribution of attachment representations of the children was as follows: 23% (22 / 94) were classified as having an insecure-avoidant attachment representation, 62% (58 / 94) as having a secure attachment representation, and 15% (14 / 94) as having an insecure-bizarre/ambivalent attachment representation. The distribution of attachment measured by observation led to the following distribution: 24% (21 / 86) of the children were classified as insecure-avoidant, 58% (50 / 86) as secure, and 17% (15 / 86) as insecure-resistant. No significant associations between attachment security scores and any of the background variables were found (Table 4.2). Means and standard deviations of heart rate, heart rate variability, and electrodermal reactivity during the Attachment Story Completion Task are presented in Table 4.3.

Table 4.1 Overview of descriptive data

	18 Months		89 Months	
	M	*SD*	*M*	*SD*
Attachment Representation			16.05	3.51
Attachment Observation	0.70	2.45	5.01	1.56
Sensitive Parenting			3.59	1.37
Age child (months)	17.94	0.80	88.98	5.86
Vocabulary			129.95	24.02
SES	3.91	1.70		

Note. N = 84 – 94.

Table 4.2 Bivariate associations of attachment representation and observation at 89 months, with sensitive parenting at 89 months and attachment at 18 months

	1	2	3	4	5	6
89 months						
1 Attachment Representation	-					
2 Attachment Observation	.04	-				
3 Sensitive Parenting	.01	.01	-			
18 months						
4 Attachment Observation	-.06	.21*	.12	-		
Background variables						
5 Age Child	.16	.08	-.03	-.11	-	
6 Vocabulary	.12	.08	.03	-.02	.28**	-
7 SES	.01	.07	-.08	-.10	.22**	-.03

Note. N = 84 – 94.
*p < .10. **p < .05.

Table 4.3 Overview of descriptive physiological data during the Attachment Story Completion Task

	Overall (n = 74)				Secure Representation (n = 45)				Insecure Representation (n = 29)			
	Attachment		Control		Attachment		Control		Attachment		Control	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
HR	93.23	9.95	92.61	10.12	92.44	10.60	91.87	10.84	94.46	8.88	93.76	8.95
HRV	52.83	29.62	53.53	29.77	56.11	29.90	56.08	30.04	47.75	28.95	49.57	29.43
EDA	11.62	3.92	11.63	3.85	12.06	4.14	12.03	4.12	10.94	3.51	11.01	3.37

Convergent Validity Attachment 89 months

No concurrent connection was found between attachment quality as measured by the representational measure and the observational measure, when the distinction was made between secure and insecure attachment, *kappa* = .08, p = .23, one-tailed. The concordance of the children classified as secure was 66% (33 / 50), and of the children classified as insecure 42% (15 / 36). No significant concurrent association was found between the continuous security scores from the representational and the observational measure, r (86) = .04, p = .37, one-tailed (Table 4.2).

Stability of Attachment from 18 to 89 months

When the attachment quality measured with the representational measure at 89 months was used, no stability of attachment across 18 to 89 months was found when

the distinction was made between secure and insecure attachment (53%, *kappa* = .00, *p* = .48, one-tailed). From 18 to 89 months, 62% of the children remained secure (37 / 60), and 38% insecure (13 / 34). Also, no stability was found for the continuous security scores for attachment from 18 to 89 months, *r* (94) = -.06, *p* = .29, one-tailed (Table 4.2).

When the attachment quality was measured using the observational measure at 89 months, the stability across almost six years was significant but modest when the distinction was made between secure, insecure-avoidant, and insecure-resistant (55%, *kappa* = .18, *p* < .05, one-tailed). From 18 to 89 months, 65% of the children remained secure (36 / 55), 47% insecure-avoidant (8 / 17) and 21% insecure-resistant (3 / 14). When the distinction was made between secure and insecure attachment, the stability was 62% (53 / 86), *kappa* = .20, *p* = .03, one-tailed. Secure attachment relationships tended to be more stable (65%) than insecure attachment (55%). The continuous security scores for attachment at 18 and 89 months also showed stability, *r* (86) = .21, *p* = .03, one-tailed (Table 4.2).

Construct Validity through Physiological Measures Attachment Representation at 89 months

For heart rate, no differences were found on the attachment related stories between children with a secure and children with an insecure attachment representation, *F* (1, 72) = 0.72, *p* = .40, and no differences were found on the control stories between children with a secure and children with an insecure attachment representation, *F* (1, 72) = 0.61, *p* = .44. A repeated measures analysis of variance with story (control or attachment) as within-subjects factor and with a three-way attachment representation (secure, insecure-avoidant, or insecure-bizarre/ambivalent) as between-subjects factor showed a significant effect of story, *F* (1, 71) = 5.68, *p* < .05, but no significant interaction between story and attachment representation, *F* (2, 71) = 0.07, *p* = .94 (see Figure 4.1). The mean heart rate was higher during the attachment stories than during the control stories. The same repeated measures analysis of variance with story (control or attachment) as within-subjects factor but with a two-way instead of three-way attachment representation (secure or insecure) as between-subjects factor, showed a significant effect of story, *F* (1, 72) = 6.79, *p* < .05, but no significant interaction between story and attachment representation, *F* (1, 72) = 0.07, *p* = .80. The mean heart rate was higher during the attachment stories than during the control stories (Table 4.3).

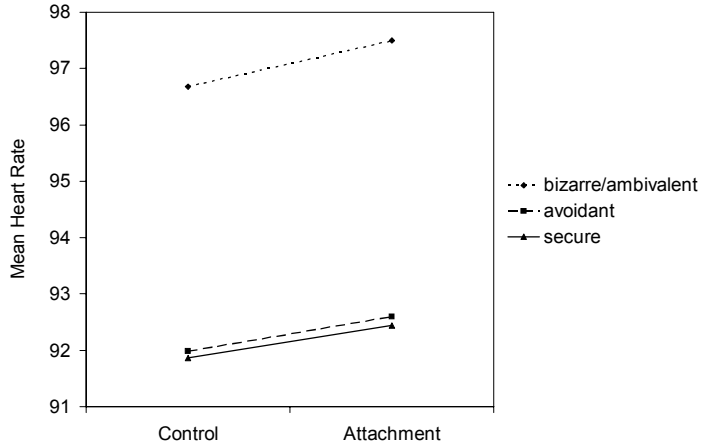

Figure 4.1 Mean heart rate during control stories and attachment-related stories for different attachment representations (n = 74)

For heart rate variability, no differences were found on the attachment related stories between children with a secure and children with an insecure attachment representation, F (1, 72) = 1.41, p = .24, and no differences were found on the control stories between children with a secure and children with an insecure attachment representation, F (1, 72) = 0.84, p = .36. A repeated measures analysis of variance with story (control or attachment) as within-subjects factor and a three-way attachment representation (secure, insecure-avoidant, or insecure-bizarre/ambivalent) as between-subjects factor showed no significant effect of story, F (1, 71) = 3.49, p = .07, and no significant interaction between story and attachment representation, F (2, 71) = 1.45, p = .24 (see Figure 4.2). The same repeated measures analysis of variance with story (control or attachment) as within-subjects factor, but with a two-way instead of three-way attachment representation (secure or insecure) as between-subjects factor also showed no significant effect of story, F (1, 72) = 2.70, p = .11, and no significant interaction between story and attachment representation, F (1, 72) = 2.89, p = .09 (Table 4.3).

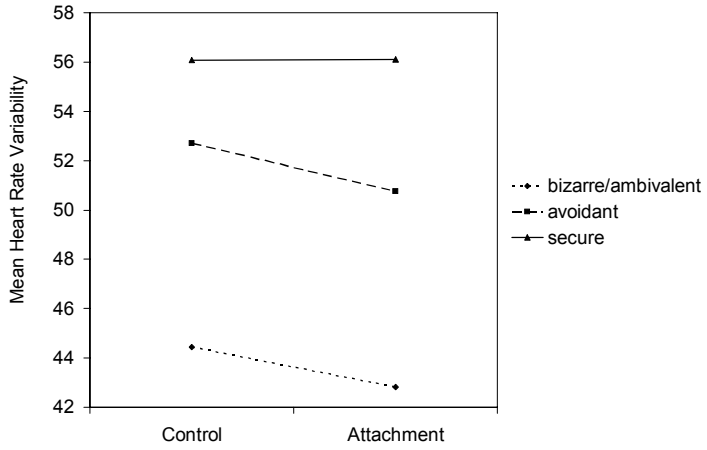

Figure 4.2 Mean heart rate variability during control stories and attachment-related stories for different attachment representations (*n* = 74)

For electrodermal activity, no differences were found on the attachment related stories between children with a secure and children with an insecure attachment representation, F (1, 72) = 1.45, p = .23, and no differences were found on the control stories between children with a secure and children with an insecure attachment representation, F (1, 72) = 1.26, p = .27. A repeated measures analysis of variance with story (control or attachment) as within-subjects factor and a three-way attachment representation (secure, insecure-avoidant, or insecure-bizarre/ambivalent) as between-subjects factor showed no significant effect of story, F (1, 71) = 0.15, p = .70, and no significant interaction between story and attachment representation, F (2, 71) = 0.19, p = .83 (see Figure 4.3). The same repeated measures analysis of variance with story (control or attachment) as within-subjects factor but with a two-way instead of three-way attachment representation (secure or insecure) as between-subjects factor showed no significant effect of story, F (1, 72) = 0.06, p = .81, and no significant interaction between story and attachment representation, F (1, 72) = 0.38, p = .54 (Table 4.3).

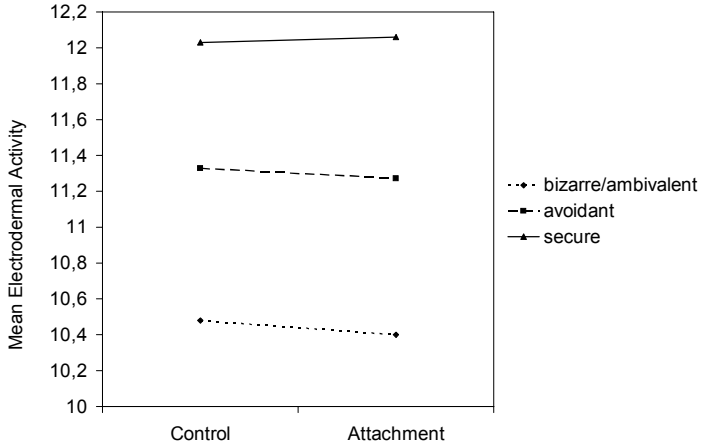

Figure 4.3 Mean electrodermal activity during control stories and attachment-related stories for different attachment representations (*n* = 74)

Core Theoretical Hypothesis on the Relation between Attachment and Sensitive Parenting at 89 months

No significant associations were found between ASCT attachment representation and observed attachment behavior on the one hand, and sensitive parenting on the other hand (Table 4.2).

Discussion

Our study examined the validity of the ASCT. We did not find any evidence for convergent validity between attachment quality as measured with the doll-play narrative and with concurrent observation of attachment behavior. Construct validity of the ASCT was partly supported by the fact that children did experience more stress during the attachment-related stories than during the control stories. However, we did not find any difference in electrodermal and heart rate responses between children with a secure and children with an insecure attachment representation. No stability between attachment assessed at 18 months with the Strange Situation Procedure and ASCT attachment representation at 89 month was found, in contrast to our expectation that attachment security may remain moderately stable over time (Fraley, 2002). No

evidence was found to support the expected positive relation between attachment security and sensitive parenting.

Our results showed no evidence for convergent validity of the ASCT. Attachment security concurrently assessed by the ASCT and a separation-reunion procedure lacked concordance. This finding is contrary to findings from research on other doll-play narratives (Bretherton et al., 1990; Solomon et al., 1995). In these studies, overall agreement between the doll-play classifications and the classifications based on reunion behavior was high and varied between 75% (secure vs. insecure, *kappa* significant, but no exact statistic given; Bretherton et al., 1990) and 79% (4-way distinction of attachment, *kappa* = .74; Solomon et al., 1995). In our study, the overall agreement was only 56% (secure vs. insecure, *kappa* = .08). Our sample with somewhat older children may partly explain the diverging findings. Although the children in our sample did experience more stress during the attachment-related stories, the attachment system may not be activated to the same degree in our sample with children with a mean age of 89 months as in the samples included in previous research with children with a mean age between 37 and 71 months. In younger children who find it more difficult to distinguish between reality and fantasy, the attachment system may be more readily activated by the scenarios of the doll stories, e.g. the thought of a monster in their bedroom may be experienced as a real fear. For older children, this thought may not be so frightening anymore and thus it could be less effective in activating the attachment system (Solomon & George, 1999). If this is the case, the discrepancy in the degree to which the attachment system is activated during the doll-play narrative and during the observation might lead to different attachment classifications and thus to a lack of convergent validity. More research is needed to further address this issue.

This possible divergence in activation of the attachment system in these older children may also account for the somewhat low internal consistency of the ASCT we found in our study. Whereas other studies using the ASCT mentioned an internal consistency of .68 for mother-child attachment representation and .71 for father-child attachment representation (Verschueren & Marcoen, 1999; Verschueren et al., 1996), the internal consistency in our study was only .48. Perhaps not every story of the ASCT activates the attachment system to the same degree, thus reducing the internal consistency of the test. It should be noted that the coding of the attachment stories does not account for the difference in internal consistency, because the training of the coders was based on stories previously coded by Verschueren. Intercoder reliability on attachment category as well as on the continuous attachment security scores was high.

To our knowledge, no prior research has used physiological data during doll-play narratives to assess its construct validity. We found no initial differences between the physiological reactions of the children with secure and insecure attachment representations, either for the attachment-related stories or for the control stories. When comparing the physiological reactions of the children to the attachment-related stories with their reactions to the control stories, the mean heart rate during the attachment-related stories was elevated. Thus, children did find the attachment-related stories more stressful than the control stories, supporting the construct validity of the ASCT. Unfortunately, we did not find the expected difference in physiological reactivity between children with secure and children with insecure attachment representations on the attachment-related *versus* control stories. It should be kept in mind, however, that previous research on physiological stress responses in the Strange Situation Procedure also yielded equivocal evidence for differences in stress reactivity between attachment groups. For example, Spangler and Grossmann (1993) did not find any differences between securely and insecurely attached infants in heart rate change during the reunion episodes of the Strange Situation, whereas Sroufe and Waters (1977) did.

Contrary to our expectation, we did not find any stability between attachment security at 18 months and attachment representation at 89 months. Also, the continuous scores for attachment in infancy and attachment representation in middle childhood revealed no association. These findings contrast with the two prior longitudinal studies using the Strange Situation Procedure in infancy, but different measures of representation in middle childhood (Attachment Story Completion Task in Bretherton et al., 1990; Story Completion Procedure in Doll Play in Gloger-Tippelt et al., 2002). Researchers using other doll-play narratives in middle childhood often refer to these longitudinal studies to support the validity of their own representational measures (cf Verschueren & Marcoen, 1999). Our results show that different doll-play narratives should be treated differently before demonstrated otherwise, and that validity should be established for every single representational measure separately. We did, however, find a significant, but modest, stability between the observed attachment security at 18 and 89 months. This result, although somewhat lower, is in line with meta-analytic results (Fraley, 2002).

We found no association between attachment security measured with the ASCT and concurrently observed sensitive parenting. Again, this outcome is not in line with previous research on the relation between attachment representations as assessed with doll-play narratives and sensitive parenting, although pertinent studies are scarce,

and only parental self-report measures for sensitive parenting were used (Stevenson-Hinde & Verschueren, 2002). The relation between attachment representation and sensitive parenting may be influenced by the possible moderating effect of child characteristics, and/or the positive attachment relationships formed with other people (Verschueren & Marcoen, 1999; Stevenson-Hinde & Verschueren, 2002). This might account for the lack of association found in our study.

Our study involved only girls. Although previous studies using the ASCT did not reveal any gender differences (Verschueren & Marcoen, 1999; Verschueren et al., 1996), we focused on girls because it allowed for more powerful conclusions than an equally large sample with girls and boys. However, this gender bias does limit the generalizability of our findings, as does the fact that we used predominantly middle-class and upper middle-class families. The homogeneity of the sample may be one of the reasons that variance in central variables remained relatively small, and that it was, therefore, more difficult to find associations. However, in our sample we found a standard deviation of 3.51 for the continuous ASCT scores (with a mean of 16.05) which is about the same as the standard deviation (and mean) found by Verschueren and Marcoen (1999). In addition, our study sample size may have been too small to detect modest associations. It should be noted however that our sample size was not much smaller than the sample of Verschueren and Marcoen (1999), and larger than the sample of Verschueren et al. (1996). Furthermore, a power analysis with an expected modest effect size of $r = .30$ and a sample size of $N = 86$ yielded a power of .82, which should be considered satisfactory (Cohen, 1988). To be able to detect smaller associations, a larger sample is needed.

In sum, the present findings did not support the convergent validity of the ASCT. Construct validity was only partly supported. No evidence was found for the hypotheses that attachment security remains stable over time, and that there would be a positive association with sensitive parenting. These results are not encouraging for the use of the ASCT in middle childhood. Future research should consider the appropriateness of the different stories in activating the attachment system at different ages. Furthermore, these issues of validity for different samples should be addressed in order to generate a much-needed well-validated measure of attachment representation in middle childhood.

Chapter 5

Discussion and conclusion

This thesis presented a description of the development of precursors of moral behavior from infancy to middle childhood and their relation to sensitive parenting (attachment security and parental sensitivity). The data collection started in a group of 131 mothers with their firstborn female babies, when the babies had a mean age of 18 months. When the girls were on average 24 months old, the second wave of data collection took place, involving 125 of the 131 (95%) mothers and their daughters. A third wave of data collection started when the girls had a mean age of 89 months. Data were collected for 94 (75% of the second wave) mother-child dyads. The current thesis reported on all three waves of data collection and had three specific aims:

1. to describe the longitudinal development and stability of empathy and compliance from infancy to middle childhood, and their relations to prosocial behavior in middle childhood (*Chapter 2*);
2. to investigate the role of antecedent and concurrent sensitivity and attachment security in prosocial, externalizing, and internalizing behavior in middle childhood (*Chapter 3*);
3. to validate a measure for attachment representations in middle childhood (*Chapter 4*).

This chapter summarizes and discusses the main results of the study as presented in the previous chapters, addresses the limitations of the study and makes recommendations for future research.

Empathy, Compliance, and Prosocial Behavior

Counter to our expectations, the study on the development of empathy showed that empathic concern towards an unfamiliar person decreased from 18 to 89 months. Empathic concern towards the mother increased from 18 to 24 months, but strongly decreased from 24 to 89 months. There are at least two explanations for the decline in empathic concern during this period. First, child characteristics including temperamental fearfulness might explain the decline in empathic concern towards the unfamiliar person. Previous research showed that concurrently assessed temperamental fearfulness was negatively related to empathic concern towards an unfamiliar person at age two (Young et al., 1999). This could -- at a later age -- also be the case in our study. A second explanation might be found in the rating scale used to assess empathic concern. In order to receive a high score for empathic concern, the child needs to show either a facial expression of strong concern or helpful acts. Regarding the first condition, children may be able to mask the facial expression of strong concern (Fabes, Eisenberg, & Miller, 1990), especially in middle childhood. This would lead to lower scores on empathic concern, and perhaps even to an overall

decline in visible empathic concern over time. The second condition for high scores is the performance of one or more helpful acts. However, the empathic emotion of the child resulting in personal distress (which is a self-focused, 'egoistic' response) will only lead to helping behavior if that is the best way to decrease one's own distress (Eisenberg & Fabes, 1990). When the mother or an unfamiliar person simulates distress children may be able to cope with their vicarious distress by ignoring or downplaying the seriousness of the situation. Especially the older children may do so and thus the need for helping may have not been urgently felt. This might have resulted in lower scores on empathic concern in middle childhood than in infancy.

Long term stability was found for empathic concern towards an unfamiliar person, but we found only short term stability (18 to 24 months) for empathic concern towards the mother. A study of twins aged 14 to 36 months revealed a pattern of strong genetic influences on empathic concern towards an unfamiliar person, which supports the long term stability. For empathic concern towards mother the twin study reported a mix of genetic and shared environmental influences (Robinson et al., 2001). Future research should focus on which shared environmental influences may be responsible for the lack of long term stability in empathic concern towards the mother.

As hypothesized, committed compliance to a parental request as well as to a prohibition increased from 18 to 89 months, which is in line with previous research (Kochanska et al., 2001; Kochanska et al., 1997). Short term stability (18 to 24 months) was found for compliance to a request and long term stability for compliance to a prohibition. From infancy to middle childhood, the number of prohibitions stays roughly the same, but the number of requests the parent uses gradually grows, as does the number of situations to which the requests apply (Gralinski & Kopp, 1993). Between 24 and 89 months the number of requests as well as the implications of the requests change, which might make the (non-) compliant responses of the children unstable.

We found a positive relation between prosocial behavior and empathic concern towards the mother, and no significant relation between prosocial behavior and empathic concern towards the unfamiliar person: results that are in line with the general trend in research in this field revealing positive relations or no significant relations between prosocial behavior and empathic concern (Eisenberg & Fabes, 1990; Eisenberg & Miller, 1987). The lack of a significant relation between prosocial behavior and compliance reveals that children may not experience their mother's intervention to enhance donating behavior as a parental request they should be compliant to, and they seem to make their own (moral) judgment about the choice.

Prosocial, Externalizing, and Internalizing Behavior and the Role of Sensitive Parenting

Maternal sensitivity in infancy predicted externalizing behavior in middle childhood after controlling for concurrent attachment security and sensitivity. Early attachment security did not play a significant role in the prediction of externalizing behavior. Previous research in samples from the same middle to higher socioeconomic class supports this result for externalizing behavior (Bates & Bayles, 1988; Stams et al., 2002). The significant role of early sensitivity for externalizing behavior is also in line with existing research on predominantly middle-class, two-parent families (Bates & Bayles, 1988; Booth et al., 1994). When the separate syndrome scales for aggressive and delinquent behavior are distinguished, the influence of early sensitivity is only apparent for aggressive behavior. Low prevalence of delinquent behavior in girls of this age group (Moffit & Caspi, 2001) may explain why the influence of early sensitivity for this subscale could not be substantiated.

Attachment security and sensitivity in infancy predicted prosocial behavior in middle childhood, after controlling for concurrent attachment security and sensitivity. There are only a few longitudinal studies in this area (Kochanska, 1991; Robinson, Zahn-Waxler, & Emde, 1994), and results are consistent with the apparent importance of early maternal sensitivity for prosocial behavior found in this study. The importance of early attachment security for prosocial behavior in middle childhood is also consistent with previous research in this area (Ianotti et al., 1992; Kestenbaum et al., 1989), which showed that securely attached infants displayed more prosocial behavior towards peers and adults two or three years later.

Early attachment and sensitive parenting appear to affect girls' prosocial and externalizing behaviors in middle childhood after controlling for concurrent experiences, thus supporting the view that early experiences do not fade away but remain important even when the context of maternal sensitivity is not stable. This lack of stability for maternal sensitivity could be due to the fact that mothers need different skills in infancy than in middle childhood in order to be sensitive and responsive. For some mothers it may be easier to be sensitive and responsive to a 7-year old girl, who is verbally fluent and able to express her feelings and emotions, than to a baby, who has a limited repertoire to do so.

Although we did find some associations with prosocial behavior, prosocial behavior appeared to be difficult to predict. Furthermore, the reasons *why* children perform a prosocial act remained unclear. These underlying reasons are important for determining whether a prosocial act may be considered altruistic. Acts are defined as

altruistic if they are motivated by internalized values rather than by egoistic motives or expectance of rewards, thus being of particular relevance for the understanding of morality (Eisenberg & Fabes, 1998). Some theorists, however, question if true altruism exists. Looking at altruism from an evolutionary or biological perspective, it does not make sense to help another at one's own costs without expecting something in return, for it does not enhance the chance of survival of one's genes (Dingfelder, 2006). The question whether an act can be truly selfless, without any egoistic or selfish benefits, will continue to dominate the debate on altruism.

Validity of the Attachment Story Completion Task in Middle Childhood

The validity of the ASCT (Attachment Story Completion Task), a doll story completion task to measure attachment representation in middle childhood, was examined. We did not find any evidence for convergent validity between attachment quality as measured with the doll-play narrative and with concurrent observation of attachment behavior. This finding is contrary to previous findings (Bretherton et al., 1990; Solomon et al., 1995), which may be explained by the inclusion of somewhat older children in our sample. The different attachment stories may not activate the attachment system to the same degree in our sample with children with a mean age of 89 months as in the samples included in previous research with children with a mean age between 37 and 71 months. This possible discrepancy in the degree to which the attachment system is activated during the doll-play narrative and during the separation-reunion episode might lead to different attachment classifications and thus to a lack of convergent validity.

Construct validity of the ASCT was partly supported by the fact that children did experience more stress during the attachment-related stories than during the control stories. However, we did not find any difference in electrodermal and heart rate responses between children with a secure and children with an insecure attachment representation. Previous research on physiological stress responses in the Strange Situation Procedure also yielded equivocal evidence for differences in stress reactivity between attachment groups (Spangler & Grossmann, 1993; Sroufe & Waters, 1977).

No evidence was found to support the expected positive relation between attachment security and sensitive parenting. This might be explained by the possible moderating effect of child characteristics on the relation between attachment security and sensitive parenting, and/or the positive attachment relationships formed with other people (Stevenson-Hinde & Verschueren, 2002; Verschueren & Marcoen, 1999).

No stability between attachment assessed at 18 months with the Strange Situation Procedure and ASCT attachment representation at 89 months was found, in contrast to our expectation that attachment security would remain moderately stable over time (Fraley, 2002). These findings contrast with the two prior longitudinal studies using the Strange Situation Procedure in infancy, but with different measures of representation in middle childhood (Bretherton et al., 1990; Gloger-Tippelt et al., 2002). Researchers using other doll-play narratives in middle childhood often refer to these longitudinal studies to support the validity of their own representational measures (cf. Verschueren & Marcoen, 1999). Our results show that evidence for the validity of various doll-play narratives should not be taken for granted in the case of new narrative measures, and validity should be established for every single representational measure separately.

Study Limitations and Implications for Future Research

There are some limitations that need to be taken into account when interpreting the results found in this thesis. Most of these limitations concern sample characteristics. First of all, our study includes only girls. Previous research on the central variables in this thesis, i.e., empathy, compliance, and prosocial behavior, reveals gender differences in favor of girls (Eisenberg & Fabes, 1998; Eisenberg et al., 2006; Hastings et al., 2000; Kochanska, 2002; Kochanska et al., 2001). Also, the pathways for empathy and prosocial behavior appear to be diverse and show different correlates and mediators for boys as opposed to girls (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Thus, our findings cannot be generalized to boys without further evidence. The girls in our study came from predominantly white middle-class families. The relation between socioeconomic status and empathy and prosocial behavior is equivocal, with some results favoring children with higher socioeconomic status, and others children with low socioeconomic status (for a review, see Eisenberg & Fabes, 1998). Generalizability to non-white and lower SES families does not seem warranted.

Furthermore, the homogeneity of the sample may be one of the reasons that variance in some central variables remained relatively small, and that it was, therefore, more difficult to find significant associations. However, using a homogeneous sample allowed for more powerful conclusions than an equally large sample with girls and boys, of varying socioeconomic status. Future research should study different samples in order to see if the results found in this thesis apply to the more general population.

Morality from Infancy to Middle Childhood: Two Case Studies

In the previous chapters, the results on morality from infancy to middle childhood for the group as a whole were presented. But how are these results reflected in the

development of the three components of moral behavior, i.e., empathy, compliance, and prosocial behavior, on the individual level? Two case studies will be presented; one concerning a girl low on prosocial behavior and one concerning a girl high on prosocial behavior at 89 months. The empathy and committed compliance of these two girls will be described from 18 to 89 months.

When Melissa is 89 months, she and her mother Mary visit the laboratory. Halfway through the session, Melissa receives 10 pieces of 20 eurocent. The amount of money Mary could convince Melissa to donate to charitable organization UNICEF was considered indicative for Melissa's prosocial behavior. Mary tries to persuade Melissa by pointing out that children in poor countries could use that money to buy toys. *'But I also have an idea for the money, but I am not going to tell that…'*, Melissa replies. She ends the discussion triumphant, *'They said I could decide for myself what to do with the money, and I do not want to give anything'*. Melissa scores low on prosocial behavior.

Over the years, there was quite a change in Melissa's empathic reaction to the simulations of distress of the experimenter and Mary (see Figure 5.1). At 18 months, she showed moderate concern towards the experimenter as well as towards Mary, with her eyebrows raised the whole time but without demonstrating any prosocial acts. This resulted in scores of 5 and 4 respectively, on a 7-point-scale. But at 24 months, Melissa showed a different reaction towards the experimenter than towards Mary. In the case of the experimenter, Melissa was only interested in what happened (a score of 2), but when Mary simulated distress, Melissa expressed clear concern and even approached her mother (a score of 6). At 89 months, Melissa's reaction to the experimenter and Mary is roughly the same (a score of 3); she sobers and sustains attention for a while, but got distracted at the end. *'Are these cameras?'* Melissa asks. Mary stops moaning and says that the pain is finally gone. Without paying any attention to Mary's remark Melissa asks again: *'Are these cameras? If these are cameras, can I wave at them?'*

From infancy to middle childhood, being compliant was not that difficult for Melissa (see Figure 5.2). At 18 as well as 24 months, Melissa obeyed her mother when Mary requested to clean up the toys, so she received a perfect score of 1.00 on a scale from 0.00 to 1.00 for committed compliance. And even though at 89 months Melissa did not like the fact that she had to sort beads and kept complaining about it, she was engaged in the task most of the time and received a fairly high score of 0.83. Compliance to prohibitions was somewhat more challenging than compliance to

requests, but over the years Melissa also received high scores of 0.83 at 18 and 24 months, and 0.93 at 89 months, although Melissa was not amused by the task… *'I did not get to play with the toys, that is not fair…'.*

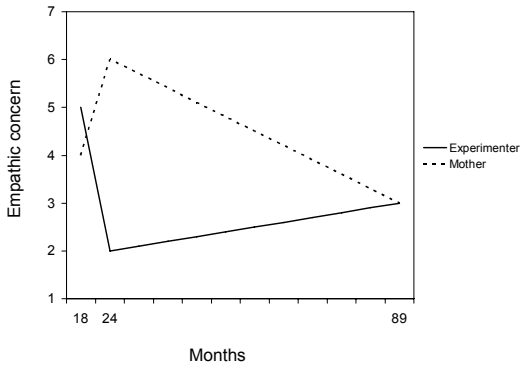

Figure 5.1 Development of empathic concern

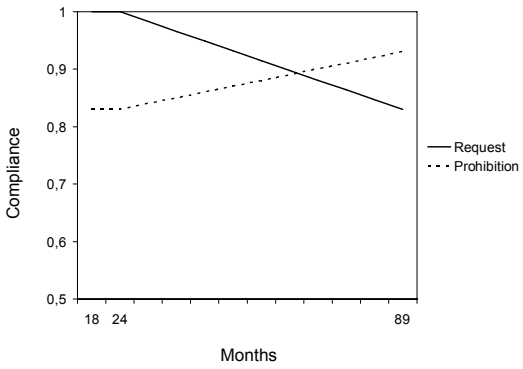

Figure 5.2 Development of compliance

Karen is the girl high on prosocial behavior. Although Karen wanted to use the money she got to buy a pair of earrings, the argument of her mother Esther that children in poor countries do not even have money to buy clothes, let alone put holes in their ears for earrings, could convince Karen to donate all her coins. Karen's empathic reactions to the experimenter's and Esther's simulations of distress show divergent developments from infancy to middle childhood (see Figure 5.3). When the experimenter simulated distress, Karen's reaction stayed roughly the same over the years with scores of 3 and 4. She showed sustained attention with some expression of concern, in Karen's case mostly facial. When Esther pretended to hurt herself at 18 months, Karen was interested in what happened, but showed little concern, thus receiving a rather low score of 2. But at 24 and 89 months, Karen expressed great concern, her brows raised, and at 89 months saying *'oh mummy'*, and, *'let me see'*. She approaches her mother and even rubs her painful knee. When Esther says the pain is gone, Karen sighs in relief. This resulted in a score of 6 (on a 7-point rating scale), which is substantially higher than the scores for her reaction when the experimenter simulated distress.

Throughout the years, Karen did not have any difficulty being compliant to a request, receiving a perfect score of 1.00 at 18 and 24 months, and a score of 0.93 at 89

months (see Figure 5.4). Compliance to prohibitions was more challenging, especially at 18 months, with a score of only 0.58. At 24 months, Karen was more compliant with a score of 0.92. And although at 89 months she really liked the toys displayed in front of her, *'oh, what a beautiful toys! I want to have such a make-up doll for my birthday! And the doll house, I want that too!'*, it kept her from doing her mundane task for only a short while, resulting in a score of 0.80.

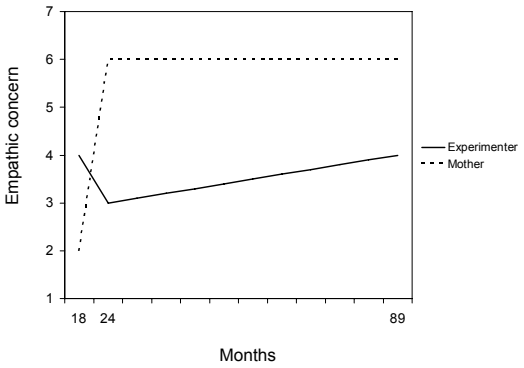

Figure 5.3 Development of empathic concern

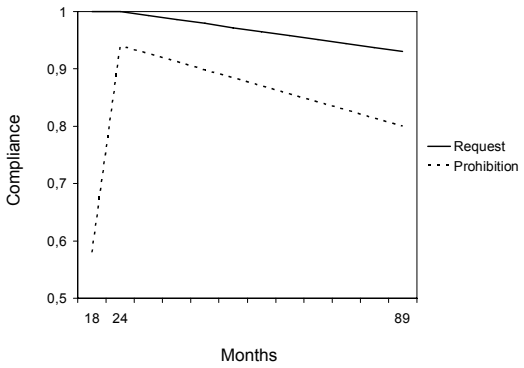

Figure 5.4 Development of compliance

Conclusion

The current thesis describes one of the few studies that examined three precursors of moral behavior, empathy, committed compliance, and prosocial behavior, from a longitudinal perspective. We found evidence for differences in the developmental pathways from infancy to middle childhood of empathic concern towards an unfamiliar person and towards the mother, and of committed compliance to prohibitions and to requests. Furthermore, empathic concern for a parent was associated with prosocial behavior, and may thus pave the way for children's moral choices in later life. Also, the findings from this study support the idea that sensitive parenting and attachment in infancy remain important for the development of prosocial and externalizing behavior, even when the current child rearing context is taken into account.

Overall, the emerging morality of children is complicated and we were only able to reveal some of its developmental precursors and dynamics. To understand morality in adulthood one must study the roots of this morality, as done in this thesis. The emotional side of morality is examined in empathy and prosocial behavior, while

compliance appeals to the more cognitive side of morality. These two sides are often seen as opposites; intuition or emotions against logical reasoning or cognition. The dynamic interplay between the two has only recently become the focus of theorizing in research on morality (Killen & Smetana, 2006). This could lead to various interesting new questions for future research on emerging morality, for instance on the possible causal role that emotions, cognitions, or both play in moral judgment.

Finally, the validity of the ASCT as a measure for attachment representation in middle childhood still is not established. We do not know exactly what internal working models in elementary-school children are, how children encode the knowledge about the relationships with their attachment figures, and how internal working models develop in middle childhood (Thompson & Raikes, 2003). As long as this is unclear, measures using symbolic representations will remain problematic in answering questions on the development of attachment in middle childhood and relations with social development. Furthermore, doll-play narratives such as the ASCT have to compete with observations, self-report questionnaires, picture-response tests, and other measurement techniques to assess attachment security in middle childhood (Raikes & Thompson, 2005; Solomon & George, 1999). Experts in doll-play narratives may collaborate to develop a thoroughly validated standardized doll-play narrative to ensure a more prominent place for the technique in research on attachment security in middle childhood.

Chapter 6

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Appendix A

Samenvatting
(Summary in Dutch)

Het concept *moraliteit* (afkomstig van het Latijnse *moralitas*, wat juist gedrag betekent) is al eeuwen een interessant onderwerp voor filosofen en schrijvers. Deze fascinatie voor moraliteit resulteerde door de tijd heen niet alleen in boeken, maar ook in toneelstukken. In de 15de en 16de eeuw waren toneelstukken met een moraal heel populair in Europa. Een voorbeeld van een Nederlands toneelstuk over moraliteit uit de late 15de eeuw is het stuk *Elckerlijc (Iedereen)*, dat gaat over een man die op reis wordt gestuurd om een les te leren. De moraal van het verhaal is dat we naar het hiernamaals niets mee kunnen nemen van wat we hebben gekregen, alleen van wat we hebben gegeven[1]. Hoewel het denken en theoretiseren over moraliteit een lange geschiedenis kent, is pas recent meer aandacht voor moraliteit in de wetenschap.

Moreel gedrag, of gedrag dat overeenkomt met ethisch aanvaardbare ideeën over wat goed en slecht is, bestaat uit meerdere componenten. Een aantal hiervan is al op jonge leeftijd zichtbaar, namelijk empathie, gehoorzaamheid en prosociaal gedrag. Deze drie componenten van moreel gedrag vormen de hoofdconstructen van dit proefschrift. Het eerste construct is empathie. Voor empathie worden veel verschillende definities gebruikt; wij zien empathie als het herkennen en delen van de emotionele staat waarin een persoon zich bevindt. De ontwikkeling van empathie verloopt in vier stadia[2]. In het eerste stadium, globale empathie, raakt een baby aangedaan als het een andere baby hoort huilen. Omdat de baby nog geen verschil kan maken tussen zichzelf en een ander, begint de baby als reflex zelf ook te huilen. Dit gedrag is al zichtbaar bij baby's van een paar dagen oud[3]. Gedurende het tweede levensjaar gaan kinderen verschil maken tussen zichzelf en anderen en komen ze het in het tweede stadium van empathie, de egoïstische empathie. Kinderen weten nu dat een andere persoon dan zijzelf verdrietig is, maar kunnen nog geen onderscheid maken tussen de gevoelens van een andere persoon en zichzelf. Kinderen in dit stadium zullen anderen troosten op de manier waarop zij zelf graag getroost willen worden. In het derde stadium van de ontwikkeling van empathie kunnen kinderen onderscheid maken tussen de behoeften en gevoelens van zichzelf en van een ander. Deze vaardigheid ontwikkelt zich in het derde levensjaar. Vanaf een jaar of negen hebben kinderen de cognitieve capaciteit om sociale concepten te vormen en mensen in te kunnen delen in groepen of klassen. Hierdoor komen ze in het laatste stadium van empathie terecht, die ook empathie voor de levensomstandigheden van een ander omsluit[4].

[1] Verbeek, 2006
[2] Hoffman, 2000
[3] Sagi & Hoffman, 1976; Simner, 1971
[4] Hastings, Zahn-Waxler, & McShane, 2006

Een tweede component van moreel gedrag die wordt behandeld in deze dissertatie is gehoorzaamheid. Onder gehoorzaamheid wordt gehoorzaam gedrag verstaan dat kinderen laten zien zonder voorbehoud en niet vanwege een constante druk van buitenaf[5]. Gehoorzaamheid kan bekeken worden in twee situaties; een situatie waarbij kinderen gehoorzaam zijn in reactie op (1) een verzoek of (2) een verbod. Het merendeel van het onderzoek gedaan naar de ontwikkeling van gehoorzaamheid laat zien dat kinderen het moeilijker vinden om te gehoorzamen aan een verzoek dan aan een verbod[6]. Ze vinden het bijvoorbeeld lastiger om speelgoed waar ze net mee hebben gespeeld op te moeten ruimen dan om niet te mogen spelen met speelgoed.

Een derde component van moreel gedrag is prosociaal gedrag. Dit is gedrag dat men vrijwillig laat zien om anderen te helpen. Of dit gedrag voordelig, neutraal of nadelig is voor de persoon die het laat zien, wordt hierbij buiten beschouwing gelaten[7]. Prosociaal gedrag moet dan ook niet verward worden met altruïsme, waarbij het gedrag altijd nadelig is voor de persoon die het laat zien[8]. De literatuur onderscheidt vier typen van prosociaal gedrag: helpen, delen, troosten en samenwerken[9]. Hoe ouder kinderen worden, hoe meer prosociaal gedrag ze laten zien, hoewel er verschillen zijn afhankelijk van het type prosociaal gedrag en gebruikte meetmethode[10].

Individuele verschillen in deze drie componenten van beginnende moraliteit kunnen mede toegeschreven worden aan de ouder-kind relatie, in het bijzonder aan twee aspecten hiervan: gehechtheid en sensitiviteit. Gehechtheid wordt wel omschreven als de emotionele band die kinderen aangaan met de ouder en deze band kan veilig of onveilig zijn. Kinderen met een veilige gehechtheid gaan naar de gehechtheidsfiguur (de ouder) toe als ze stress ervaren en gebruiken de gehechtheidsfiguur als veilige basis van waaruit ze de omgeving verkennen[11]. Deze ervaringen tussen kinderen en hun gehechtheidsfiguur vormen de basis voor kinderen om zichzelf te zien als iemand die het waard is om van te houden of voor te zorgen (de cognitieve representaties van deze ervaringen worden ook wel interne werkmodellen genoemd). Kinderen met een onveilige gehechtheid ervaren de gehechtheidsfiguur als onbeschikbaar (bewust of onbewust) en soms zelfs beangstigend en zichzelf als iemand die het niet waard is om

[5] Kochanska, 2002; Kochanska & Aksen, 1995; Kochanska et al., 1995
[6] Kochanska, 2002; Kochanska et al., 1995, 2001
[7] Eisenberg & Fabes, 1998
[8] Grusec, Davidov, & Lundell, 2002
[9] Jackson & Tisak, 2001; Rose-Krasnor, 1997
[10] Grusec et al., 2002
[11] Bowlby, 1969, 1973

van te houden of voor te zorgen[12]. Het hebben van een veilige of onveilige gehechtheidsrelatie met en representatie van de gehechtheidsfiguur heeft invloed op de morele ontwikkeling van kinderen: veilig gehechte kinderen vertonen meer empathisch en prosociaal gedrag dan onveilig gehechte kinderen[13].

Een ander aspect van de ouder-kind relatie waaraan individuele verschillen in beginnende moraliteit kunnen worden toegeschreven is de sensitiviteit van de ouder. Sensitieve ouders reageren prompt en adequaat op de signalen van hun kind, zorgen dat ze hun kind niet teveel stimuleren of onderschatten en hebben het snel door als hun kind verveeld raakt. Dit sensitieve gedrag komt tot uitdrukking door het kind op de pakken als het dat graag wil en weer neer te zetten als het wil spelen, en door het kind emotionele steun, complimentjes en aanmoedigingen te geven[14]. Ouders die sensitief en responsief zijn voor de emotionele behoefte van hun kind, geven een voorbeeld voor het gedrag van hun kind[15].

In deze dissertatie worden empathie, gehoorzaamheid en prosociaal gedrag onderzocht. Meerdere studies hebben aandacht besteed aan empathie en gehoorzaamheid, maar de ontwikkeling in de kindertijd is nog niet goed in kaart gebracht. De studies die longitudinaal naar deze constructen hebben gekeken, beschrijven maar een korte periode of hebben alleen vragenlijsten gebruikt om empathie en gehoorzaamheid te meten[16]. Studies naar prosociaal gedrag onderzoeken meestal alleen de invloed van ervaringen op datzelfde moment en gaan daardoor voorbij aan de mogelijke invloed van ervaringen uit de vroege kindertijd. Dit proefschrift draagt bij aan het onderzoek naar moraliteit door een longitudinale studie te beschrijven die loopt van de vroege kindertijd tot de basisschoolleeftijd, waarin zowel de vroege ervaringen als de ervaringen van datzelfde moment meegenomen worden.

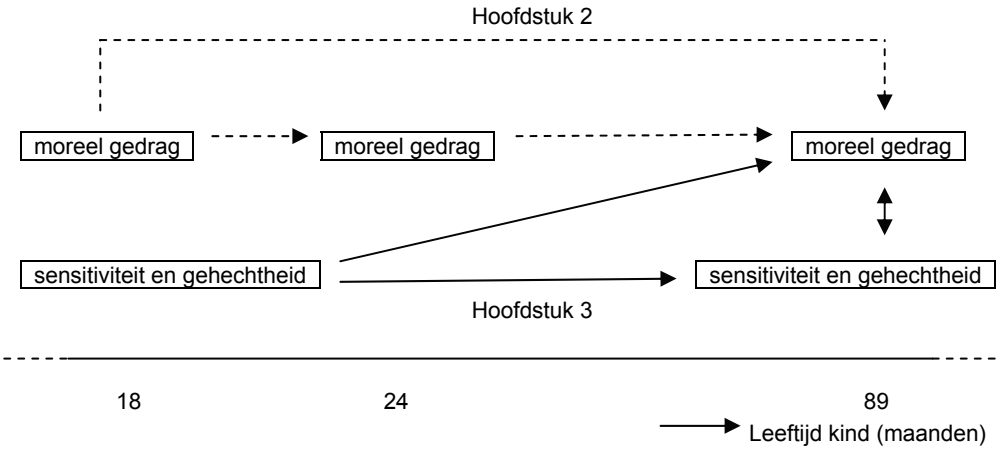
Het longitudinale perspectief van deze studie heeft consequenties voor de meetinstrumenten die gebruikt zijn om de data te verzamelen. De constructen kunnen niet altijd met hetzelfde instrument gemeten worden, maar het instrument moet waar nodig aangepast worden aan de leeftijd. Bij het meten van gehechtheid tijdens de basisschoolleeftijd gaf dit problemen. Er is geen standaard, goed gevalideerd meetinstrument om gehechtheid te meten op deze leeftijd, in tegenstelling tot andere

[12] Bretherton & Munholland, 1999; Yunger, Corby, & Perry, 2006
[13] Kestenbaum, Farber, & Sroufe, 1989; Waters, Whipman, & Sroufe, 1978
[14] Egeland, Erickson, Clemenhagen-Moon, Hiester, & Korfmacher, 1990
[15] Grusec, Davidov, & Lundell, 2002; Pines & Marrone, 2003; Van IJzendoorn, 1997
[16] Gralinski & Kopp, 1993; Kochanska et al., 1994; Van der Mark et al., 2002

leeftijdsperiodes zoals de vroege kindertijd en adolescentie[17]. Daarom wordt in dit proefschrift de validiteit onderzocht van een meetinstrument (Attachment Story Completion Task) dat gebruikt wordt om gehechtheid in de basisschoolleeftijd te meten.

Deze studie

Deze longitudinale studie is gestart in 1996. Aan de hand van gegevens van de gemeente Leiden zijn moeders met eerstgeboren dochters aangeschreven met de vraag of ze mee wilden doen aan een onderzoek. Bij de eerste ronde van dataverzameling werkten 131 moeders en dochters mee. De dochters waren gemiddeld 18 maanden oud. Toen de dochters een gemiddelde leeftijd van 24 maanden hadden, hebben 125 moeders en dochters (95%) meegedaan aan de tweede ronde van het onderzoek. De resultaten van deze twee ronden van dataverzameling zijn gebundeld in het proefschrift van Ingrid L. van der Mark[18]. Hierin is de ontwikkeling van empathie en gehoorzaamheid beschreven, evenals de relaties met sensitiviteit, disciplineren, gehechtheid en temperament. Na het verzamelen van data bij de meisjes en hun moeders op 18 en 24 maanden, werkten 94 moeders en dochters mee aan het vervolgonderzoek toen de meisjes gemiddeld 89 maanden oud waren. In dit proefschrift zijn de gegevens gecombineerd van deze drie meetmomenten, waardoor er een periode van 18 tot 89 maanden bekeken kan worden (zie Figuur A).



Figuur A Design van de studie

[17] Kerns, Schlegelmilch, Morgan, & Abraham, 2005
[18] 2001

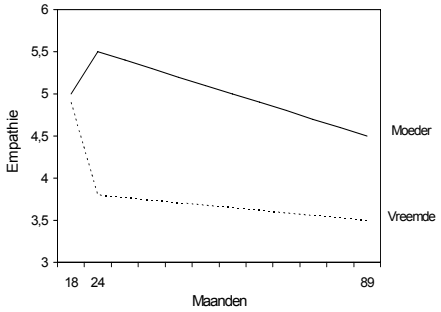
Binnen deze tijdsperiode is de ontwikkeling van een aantal componenten van moreel gedrag beschreven en is de relatie met sensitiviteit en gehechtheid onderzocht. Dit onderzoek had drie specifieke doelen:

1. het beschrijven van de longitudinale ontwikkeling en stabiliteit van empathie en gehoorzaamheid, en de relatie met prosociaal gedrag in de basisschoolleeftijd (*hoofdstuk 2*);
2. het onderzoeken van de rol van de gehechtheidsbeleving van het kind en sensitiviteit van de ouder, in de peuterleeftijd en nu, in relatie tot prosociaal, externalizerend en internalizerend gedrag in de basisschoolleeftijd (*hoofdstuk 3*);
3. het valideren van een instrument om gehechtheid te meten in de basisschoolleeftijd (*hoofdstuk 4*).

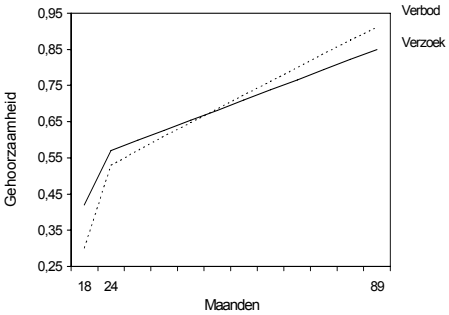
Empathie, gehoorzaamheid en prosociaal gedrag

In hoofdstuk 2 is de ontwikkeling van empathie en gehoorzaamheid in kaart gebracht van 18 tot 89 maanden. Daarnaast is de relatie van empathie en gehoorzaamheid met prosociaal gedrag op 89 maanden bekeken. Over de gehele periode van 18 tot 89 maanden lieten de meisjes meer empathisch gedrag zien als hun moeder deed alsof ze zich bezeerde dan wanneer een onbekende dat deed (zie Figuur B). Van 18 tot 89 maanden toonden meisjes steeds minder empathie als een onbekende zich bezeerde. Meisjes die op 18 maanden meer empathie naar een onbekende toe lieten zien, deden dat ook op 24 en 89 maanden. Empathisch gedrag naar moeder nam toe van 18 naar 24 maanden, maar dit gedrag werd duidelijk minder van 24 naar 89 maanden. Meisjes die op 18 maanden meer empathie naar moeder lieten zien, deden dat ook op 24 maanden, maar niet op 89 maanden.

Om inzicht te krijgen in de relatie tussen empathie en prosociaal gedrag op 89 maanden, zijn de meisjes op grond van hun prosociale gedrag ingedeeld in twee groepen: een groep die veel prosociaal gedrag laat zien en een groep die weinig prosociaal gedrag laat zien. De groep meisjes die veel prosociaal gedrag liet zien reageerde meer empathisch als hun moeder deed alsof ze zich bezeerde dan de groep meisjes die minder prosociaal gedrag liet zien.



Figuur B Ontwikkeling van empathie



Figuur C Ontwikkeling van gehoorzaamheid

Meisjes werden steeds gehoorzamer aan een verzoek of een verbod van moeder van 18 tot 89 maanden (zie Figuur C). Meisjes die op 18 maanden gehoorzamer waren na een verbod, bleven dit ook op 24 en 89 maanden. Meisjes die op 18 maanden gehoorzamer waren na een verzoek, bleven dit ook op 24 maanden, maar niet op 89 maanden. Er was geen verschil in gehoorzaamheid te zien tussen de groep met de meer prosociale meisjes en de groep met de minder prosociale meisjes. De gevonden resultaten bevestigen het belang van het maken van een onderscheid tussen personen, empathie naar moeder of onbekende, en tussen contexten, gehoorzaamheid na een verzoek of verbod.

Prosociaal, externalizerend en internalizerend gedrag en de rol van sensitiviteit en gehechtheid

In hoofdstuk 3 is onderzocht wat de invloed is van de gehechtheidsbeleving van het kind en sensitiviteit van de ouder tijdens de peuterleeftijd en in de basisschoolleeftijd op prosociaal, externalizerend en internalizerend gedrag (zie Tabel A). Zijn de vroege ervaringen het meest belangrijk of juist de ervaringen op hetzelfde moment, of spelen de ervaringen op beide momenten (g)een rol? Bij het voorspellen van internalizerend gedrag op de basisschoolleeftijd is er geen rol weggelegd voor de gehechtheidsbeleving van het kind en sensitiviteit van de ouder. De gehechtheidsbeleving van het kind en sensitiviteit van de ouder, beide in de peuterleeftijd, zijn wel van invloed op prosociaal gedrag in de basisschoolleeftijd. Voor externalizerend gedrag in de basisschoolleeftijd is sensitiviteit van de ouder tijdens de peuterleeftijd van belang. Vroege ervaringen blijven dus belangrijk voor de ontwikkeling van prosociaal en externalizerend gedrag, ook als de sensitiviteit van de ouder niet stabiel blijft over de jaren.

Tabel A Invloed van ervaringen op 18 en 89 maanden

		Prosociaal gedrag	Externalizerend gedrag	Internalizerend gedrag
Gehechtheid	18 maanden	+	--	--
	89 maanden	--	--	--
Sensitiviteit	18 maanden	+	+	--
	89 maanden	--	--	--

Validiteit van de Attachment Story Completion Task (ASCT)

In hoofdstuk 4 is de validiteit van de ASCT bekeken. Bij de ASCT wordt een poppenspel met de meisjes gedaan volgens een vast protocol. De proefleidster begint een verhaaltje en de deelnemers maken dit af. De afloop van het verhaaltje vormt de basis voor de gehechtheidsclassificatie. Er zijn gehechtheidsgerelateerde verhaaltjes die de gehechtheidsfiguur en een kind als hoofdpersonen hebben, en controleverhaaltjes, die vriendjes als hoofdpersonen hebben. Voor de indeling in een gehechtheidscategorie is alleen de afloop van de gehechtheidsgerelateerde verhaaltjes van belang. Als kinderen de gehechtheidsgerelateerde verhaaltjes niet af willen maken, kan dat twee redenen hebben: (1) de relatie die ze met de gehechtheidsfiguur hebben willen ze niet beschrijven omdat dit bijvoorbeeld te pijnlijk is, of (2) ze vinden het poppenspel niet leuk. De reactie van de kinderen op de controleverhaaltjes is dan erg belangrijk: als kinderen deze verhaaltjes ook niet af willen maken, ligt het waarschijnlijk aan de test. Willen kinderen deze controleverhaaltjes juist wel afmaken, dan ligt het aan de relatie die ze met de gehechtheidsfiguur hebben en kan daar rekening mee gehouden worden bij het bepalen van de gehechtheidsclassificatie.

Bij het bekijken van de validiteit van de ASCT is er allereerst gekeken naar de convergente validiteit. Is er overeenkomst tussen de resultaten van verschillende meetinstrumenten die hetzelfde zeggen te meten op dezelfde leeftijd? In de basisschoolleeftijd is gekeken of de kwaliteit van gehechtheid zoals vastgesteld met de ASCT overeen komt met de kwaliteit van gehechtheid zoals vastgesteld door middel van observatie. Dit was niet het geval. Daarnaast is de constructvaliditeit bekeken, waarbij nagegaan wordt of het instrument wel meet wat het zegt te meten[19]. De resultaten ondersteunden de constructvaliditeit gedeeltelijk: de meisjes ervoeren meer stress tijdens de gehechtheidsgerelateerde verhaaltjes dan tijdens de

[19] Hair, Anderson, Tatham, & Black, 1995

controleverhaaltjes, wat te zien was aan een snellere hartslag tijdens de gehechtheidsgerelateerde verhaaltjes. Er werd echter geen verschil gevonden in huidgeleiding en hartslag tussen meisjes met een veilige gehechtheid en meisjes met een onveilige gehechtheid.

Bij een valide instrument voor gehechtheid wordt ook een zekere mate van stabiliteit verwacht over de tijd. De resultaten ondersteunden deze verwachting niet: er was geen stabiliteit tussen gehechtheid gemeten met de Vreemde Situatie op 18 maanden en gehechtheid gemeten met de ASCT op 89 maanden. Ook gaat de gehechtheidstheorie uit van een positieve relatie tussen gehechtheid en sensitiviteit. Deze relatie is niet teruggevonden in de resultaten van dit onderzoek. Concluderend kan gesteld worden dat de gevonden resultaten niet bemoedigend zijn voor de validiteit van de ASCT op 89 maanden.

Beperkingen van het onderzoek

De belangrijkste beperking van dit onderzoek betreft de steekproef. Allereerst bestaat de steekproef alleen uit meisjes. Eerder onderzoek heeft aangetoond dat er voor de centrale variabelen in dit proefschrift, in het bijzonder empathie, gehoorzaamheid en prosociaal gedrag, verschillen bestaan tussen de seksen. Meisjes scoren hoger op de genoemde variabelen dan jongens[20]. Daarnaast komen de meisjes voornamelijk uit gezinnen uit de middenklasse. Onderzoek laat wisselende resultaten zien voor de relatie tussen empathie, prosociaal gedrag en sociaal-economische klasse. In het ene onderzoek laten kinderen uit een hogere sociaal-economische klasse meer empathisch en prosociaal gedrag zien, in ander onderzoek zijn het juist de kinderen uit een lagere sociaal-economische klasse die meer empathisch en prosociaal gedrag laten zien[21]. Dit alles maakt dat de resultaten gevonden in dit proefschrift niet te generaliseren zijn voor steekproeven met jongens en steekproeven uit andere, lagere sociaal-economische klassen. Daarnaast zou de homogeniteit van de steekproef verantwoordelijk kunnen zijn voor de relatief kleine variantie van de centrale variabelen. Hierdoor kan het moeilijker zijn om significante verbanden te vinden. Vervolgonderzoek zou zich moeten richten op verschillende steekproeven om te zien of daar dezelfde resultaten gevonden worden.

[20] Eisenberg & Fabes, 1998; Eisenberg et al., 2006; Hastings et al., 2000; Kochanska et al., 2001
[21] zie Eisenberg & Fabes, 1998 voor een overzicht

Conclusie

In dit proefschrift worden de resultaten beschreven van een van de weinige longitudinale studies naar drie componenten van moreel gedrag, namelijk empathie, gehoorzaamheid en prosociaal gedrag. Er is bewijs gevonden voor verschillen in de ontwikkelingspaden van empathie naar moeder en een onbekende, en van gehoorzaamheid als reactie op een verzoek en verbod, bekeken van de vroege kindertijd tot de basisschoolleeftijd. Empathie voor moeder hangt samen met prosociaal gedrag en zou zo de weg kunnen effenen voor morele keuzes van kinderen in hun verdere leven. Daarnaast laten de resultaten zien dat gehechtheid van het kind en sensitief gedrag van de ouder in de vroege kindertijd van belang zijn voor de ontwikkeling van prosociaal en externalizerend gedrag in de basisschoolleeftijd, zelfs als er rekening wordt gehouden met de gehechtheidsbeleving die het kind op dat moment heeft en het sensitieve gedrag van de ouder op dat moment. Ten slotte zijn de resultaten wat betreft de validiteit van de ASCT, een meetinstrument voor gehechtheidsrepresentatie op de basisschoolleeftijd, niet bemoedigend. De resultaten beschreven in dit proefschrift werpen licht op de ontwikkelingspaden en dynamiek van moreel gedrag. Op deze manier draagt dit proefschrift bij aan het ontrafelen van het ingewikkelde proces van morele ontwikkeling bij jonge kinderen.

Appendix B

Curriculum Vitae

Fieke Dineke Pannebakker werd geboren op 5 december 1978 in Schiedam. In 1997 behaalde zij haar Gymnasium diploma aan het Bernardinus College te Heerlen. In datzelfde jaar begon Fieke aan de studie Pedagogische Wetenschappen aan de Universiteit Leiden. In 2001 studeerde zij af in de Gezinspedagogiek, met een afstudeerscriptie naar het effect van theater op het moreel redeneren van middelbare scholieren. Een jaar later studeerde zij af in de Orthopedagogiek met een onderzoek naar dialooggestuurde hulpverleningsplanning binnen de jeugdhulpverlening. Tijdens haar studie was Fieke werkzaam als student-assistent bij de afdeling Algemene en Gezinspedagogiek en Datatheorie. Van 2002 tot 2007 werkte zij aan haar promotieonderzoek naar de ontwikkeling van moraliteit in de eerste zeven levensjaren. De resultaten hiervan zijn in dit proefschrift beschreven.