Development of Empathy in Girls During the Second Year of Life: Associations with Parenting, Attachment, and Temperament

Ingrid L. van der Mark, Marinus H. van IJzendoorn, and Marian J. Bakermans-Kranenburg, Center for Child and Family Studies, Leiden University

Abstract

The development, antecedents, and concomitants of empathic concern in the second year of life were examined. Associations with parental sensitivity, children’s fearfulness and attachment security were investigated. At 16 and at 22 months, 125 firstborn girls from middle-class families were observed in their homes and in the laboratory. Empathic concern was assessed from the girls’ responses to simulated distress in their mothers and in an unfamiliar person. Temperamental fearfulness was observed when they were confronted with potentially scary items. Attachment security was assessed with the Strange Situation procedure, and parental sensitivity was measured in problem-solving situations both at home and in the lab. From 16 to 22 months, empathic concern for the mother’s distress increased, whereas empathy for the stranger decreased. A more fearful temperament and less attachment security predicted less empathic concern for the stranger’s distress. Antecedent and concurrent measures of parenting showed disappointingly weak associations with empathic concern. Empathy for strangers in distress requires the regulation of negative emotions for which fearful and insecurely attached girls seem to be less well equipped.

Keywords: empathy; parenting; attachment; temperament

Empathy can be observed when a child witnesses pain or sadness in another person, and reacts to the victim’s distress (Zahn-Waxler, Robinson, & Emde, 1992; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). The child may become distressed her/himself and might take action to alleviate the victim’s distress (Eisenberg & Miller, 1987). Empathy is considered a precursor of moral development, and it has been demonstrated that more empathic children show less aggression, more helping and other prosocial behavior, and a more advanced type of moral judgment (Mehrabian, Young, & Sato, 1988; Van IJzendoorn, 1997). In this study we examine the early development of empathy in relation to maternal sensitive structuring, child attachment, and temperament of the child. Our main hypothesis is that empathy develops in the context

Correspondence should be sent to Marinus H. van IJzendoorn, Center for Child and Family Studies, Leiden University. Email: vanijzen@fsw.leidenuniv.nl

© Blackwell Publishers Ltd. 2002. Published by Blackwell Publishers, 108 Cowley Road, Oxford OX4 1JF, UK and 350 Main Street, Malden, MA 02148, USA.
of the parent–child relationship, and is the result of an intricate interplay between child, child–parent, and parent characteristics. Children’s temperamental fearfulness or anxiety proneness, the security of the parent–child attachment relationship, and parenting style, i.e. parental sensitivity, seem to be crucial factors in this process (Berkowitz & Grych, 1998; Hoffman, 1975).

It is still unclear at what age empathic concern is first displayed. Even newborn infants seem to be able to react to another person’s distress, for example, in responding with crying when hearing another baby crying (Sagi & Hoffman, 1976). But at this stage of life it is questionable whether this cry reaction is an inborn empathic distress reaction as Sagi and Hoffman claim (1976; Hoffman, 1975), or should be interpreted as reflexive crying (Simner, 1971)—or even a simple distress reaction to a loud sound—which does not foreshadow later morality. A prerequisite for empathic concern in the moral sense might be that children know the difference between themselves and the other person, and are able to take the perspective of the other (Hoffman, 1984). Otherwise, empathy would just be a passive reflection of distress and lead to self-comforting behavior, and not predispose to supportive moral behavior (Davis, 1994; Zahn-Waxler et al., 1992a). In the second year of life, the cognitive and emotional conditions for the development of empathy are set in place (Kagan, 1981; Kagan & Lamb, 1987; Lamb, 1991; Zahn-Waxler et al., 1992a). Therefore, in the second half of the second year individual differences in empathic concern may be observed (Zahn-Waxler et al., 1992a) and explained in terms of antecedent and concurrent parenting, attachment, and temperament. In the current study, we focus on the development of empathic concern from 16 to 22 months.

At an early age children differ in their expressions of empathy. A study among monozygotic and dizygotic twins showed that genetic factors may explain part of these individual differences. Estimates for the heredity (h²) of empathy are .30–.40 (Zahn-Waxler et al., 1992b). This is of course a substantial part of the differences, but still leaves room for environmental factors. In the current study, we focus on parental sensitivity and structuring. In fact, in showing sensitive behavior parents provide their infants with the first and perhaps most powerful model of empathic concern (Berkowitz & Grych, 1998; Spiecker, 1991). Maternal warmth has been found to be associated with more empathy in the second year of life (Robinson, Zahn-Waxler, & Emde, 1994). When children enter into tasks or situations they can only master with the support of the parent, parental sensitive structuring provides an early template for empathic interaction (Egeland, Erickson, Clemenhagen-Moon, Hiester, & Korfmacher, 1990).

The effectiveness of sensitive parenting and structuring in stimulating empathic concern may be enhanced if this parental strategy is embedded in a warm and trusting attachment relationship between parent and child (Van IJzendoorn, 1997). Attachment security is evident when children seek their attachment figure’s proximity in times of stress, illness, or distress, and feel comforted by their presence (Ainsworth, Blehar, Waters, & Wall, 1978). Several studies have documented that secure children indeed tend to be more empathic toward others than insecurely attached children (Waters, Wippman, & Sroufe, 1979). Kestenbaum, Farber, and Sroufe (1989) showed that children with stable secure relationships with their parents were more empathic to their peers in emotional or physical distress in a nursery school playroom. Non-empathic responses were shown mainly by insecure-resistant children. The authors argue that secure children have received consistently sensitive responses to their own distress, and identify with caregivers who are empathic toward them. Teti and Ablard
(1989) found that in mothers’ absence more secure older siblings were more likely
to respond with empathic caregiving to infant distress than were less secure older
siblings.

Radke-Yarrow et al. (Radke-Yarrow, Zahn-Waxler, Richardson, Susman, &
Martinez, 1994) emphasized the importance of recognizing interacting influences
of both parent and child. The results of their study with 24–48-month-old children
showed how important these interactions may be. The highest frequencies of empathic
responses were from children with severely depressed mothers, problems of affect
regulation, and a secure attachment relationship with their mother, whereas children
of well or less severely depressed mothers with secure attachment relationships and
without problems of affect regulation scored neither extremely high nor extremely low.
It might be that these middle scores were actually the more optimal scores, and
that the very high scores of the children of severely depressed mothers reflected the
caregiving behavior that children with disorganized attachments display as toddlers
(Cassidy & Marvin with the MacArthur Working Group on Attachment, 1992;
DeMulder & Radke-Yarrow, 1991; Teti, Messinger, Gelfand, & Isabella, 1995; see also
Van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

Recently, Bischof-Köhler (2000) also provided some evidence for the relation
between attachment security and empathy under the controlled conditions of the la-
boratory. She assessed empathic concern in an experimental setting with broken uten-
sils and showed that most insecurely attached children failed to show an empathic
response, whereas the large majority of the children who responded empathically were
securely attached. Young children tend to show only minimal empathic response to
their peers’ distress in the natural setting (e.g., center daycare: Lamb & Zakhireh,
1997); when any empathy is displayed it may be the secure children who are involved
(Thompson, 1998, 1999). Children who develop a secure attachment relationship with
their primary caregiver experience parental empathic responses on a regular basis.
They may also feel less restrained (in case of avoidant children) or overwhelmed (in
case of resistant children) by another person’s distress. Secure children tend to be more
open in their expression and communication of emotions, which is a prerequisite of
genuine empathy with another person’s emotions (Cassidy, 1994).

Temperamental fearfulness or inhibition to the unfamiliar (Kagan & Snidman,
1991) and negative reactivity (Rothbart, Ahadi, & Hershey, 1994) may be associated
with the intensity of empathic support for the victims. On the one hand, more inhib-
ited and more reactive children might feel easily overwhelmed by other persons’
distress, and close themselves off from experiencing empathic concerns (Eisenberg,
Fabes, Karbon et al., 1996, Hoffman, 1975). On the other hand, greater sensitivity to
negative emotions may prepare children better for empathic identification with a
victim feeling these emotions, or make them more accessible to their parents’ drama-
tization of the effects of a child’s acts in hurting others (Zahn-Waxler, Radke-Yarrow,
& King, 1979).

Rothbart et al. (1994) found a strong positive association between fearfulness in
infancy and parent reported empathic concern in school-age children; at the same time,
concurrent inhibitory control was strongly related to school-age empathy. Mehrabian
et al. (1988) demonstrated that more empathic children were more arousable in
showing greater skin conductance and higher heart rate responses to emotional stimuli,
and in being more inclined to weep. In the same vein, Zahn-Waxler, Cole, Welsh, and
Fox (1995) found that higher heart rate predicted more empathic concern in children
of 4 to 5 years old. In a recent study, Young, Fox, and Zahn-Waxler (1999) showed
that 2-year-old children who were more reactive in the first year of life and less inhibited at 2 years of age in their reaction to an unfamiliar person displayed more empathic responses to distress in unfamiliar adults. More fearful children might express less empathic concern in unfamiliar settings.

Temperament may be especially important in combination with attachment security. Kochanska (1995) found that parents using gentle discipline elicited committed compliance in their fearful children, whereas a secure attachment relationship appeared to be more important in fearless children. The combined effect of temperamental fearfulness and attachment insecurity on empathic concern has never before been investigated. Nevertheless, both attachment and temperament may partly determine the effectiveness of parenting style on the development of empathy as well. As Young et al. (1999) suggest: ‘One important area for further research would be the interaction of temperament and parenting styles’ (p. 1196).

Attachment security and parental sensitivity may have differential effects on the development of empathy for more and less fearful children, in particular when empathic concern for strangers is at stake. We hypothesize that for fearful children attachment security may be the most important factor: Fearful children with a secure attachment relationship may feel more at ease when they are confronted with a stranger’s distress in the presence of their parent, and may therefore show more empathy to strangers than insecure fearful children. For fearless children, sensitive parenting may be particularly effective in promoting empathy: not inhibited by reluctance to approach a stranger, for them the parent’s sensitive behavior may be crucial as a model of empathic concern. Because parental sensitivity and attachment security are moderately associated (De Wolff & Van IJzendoorn, 1997), their influence might thus be distinct. Regarding empathic concern for the mother, we do not hypothesize any differential effects of attachment security and parenting for fearful and fearless children. Nevertheless, with a more explorative aim we will examine the same interactions between fearfulness on the one hand and attachment security and parental sensitivity on the other hand as factors in the development of empathy for the mother.

The current study is unique in combining various potentially important antecedents of empathy, i.e. parental sensitivity, attachment, and temperament, in one model. Our first aim is to describe the development of empathic concern to the distress of their mother as well as of an unfamiliar person, and to test whether in the second half of the second year girls already are increasingly empathic. Second, we examine whether parents’ sensitive approach to their children’s needs stimulates the children’s empathic concern for other persons’ negative emotions, and therefore is conducive to the emergence of internalized morality. At the same time, maternal sensitivity is expected to promote a secure attachment relationship with the child, and especially in temperamentally fearful children security may prevent children from becoming overwhelmed by other persons’ distress.

Our third aim is to test a model in which temperament interacts with attachment security and parental sensitivity in shaping the children’s empathic concern. As described above, the influence of attachment security and maternal sensitivity on the development of empathic concern may be different depending on the child’s temperamental fearfulness. The interaction between temperamental fearfulness on the one hand and attachment security and sensitive structuring on the other hand will therefore be examined in a hierarchical regression on empathic concern for the mother and for the experimenter. We focus on empathic concern with the parent as well as an
unfamiliar person, because the effects of temperamental fearfulness may be more clearly observed in an unfamiliar social context. Furthermore, children may learn to empathize in the context of their relationship with the parent, but empathy should not remain restricted to this familiar context. Our question is whether empathic concern with the parent and with a stranger show a similar developmental trajectory, and have similar determinants.

The study includes only girls. Girls have been reported to develop empathic concerns at an earlier age and more intensively than boys (Eisenberg & Miller, 1987; Mehrabian et al., 1988; Maccoby, 1998), and may be liable to a somewhat different interplay of the relevant antecedents compared to boys (Zahn-Waxler et al., 1992b). We restricted the recruitment to firstborns only, to ensure that the observations at the participants’ homes (see below) were not disturbed by interfering older siblings. Furthermore, in this report we include only observational assessments of the central variables. Parental perceptions of structuring, attachment, and temperament have been shown to be strongly associated with children’s empathy but the possibility of shared error variance and intrinsic dependence of measures cannot be excluded. A purely observational approach may prevent the artificial inflation of correlations. The Bayley Scales for Infant Development are used to assess the children’s developmental status that may explain why some children are more advanced in empathic concern than other children with less advanced cognitive skills. In sum, we investigate the development, antecedents, and concomitants of empathic concern in the second year of life, with special emphasis on the influences of parenting, attachment security, and temperamental fearfulness, and their interplay.

Method

Participants

Mothers with a firstborn female baby of 15 months of age were recruited with the use of 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. We were not allowed to collect data on refusing families, so it was not possible to conduct a non-response study. 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 16 months. Six mothers did not participate at 22 months for personal reasons, and the remaining sample consisted of 125 toddler girls and their mothers. Six mothers (5%) came from abroad, but had been living in The Netherlands for more than seven years. The mothers ranged in age from 23 to 42 years (\(M = 32.6, \ SD = 3.6\)) at the time of the first measurement. One hundred and four mothers (83%) worked out of the house for on average 24 hr per week (\(M = 23.8, \ SD = 7.8, \ Min = 2, \ Max = 40\)). Their mean socio-economic status based on both occupation and schooling was 4.9 (\(SD = .93, \ Min = 1, \ Max = 6\)) on a scale ranging from 1 to 6, indicating a predominantly middle-class and upper-middle-class sample. Mean age of the child during the 16-month and 22-month home measurements was, in order, 71.9 weeks (\(SD = 3.2, \ Min = 67, \ Max = 83\)) and 96.2 weeks (\(SD = 2.9, \ Min = 84, \ Max = 102\)). Lab visits took place within two weeks after each home visit. The six dyads that did not participate at 22 months did not differ from participating dyads on any of the background variables.


**Procedure**

At both 16 and 22 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. When mother and child were accustomed to the camcorder, maternal sensitive structuring in a task involving two puzzles was observed. Later in the session, when the mothers were instructed to follow their normal routine as if they were alone with their child, the experimenter pretended to hurt her finger in order to assess the child’s empathic concern. At least five minutes later, the mother also pretended to hurt herself, and (after another intervening period of at least five minutes) coughed as if she choked.

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. Next, items from the mental scale of the Bayley Scales of Infant Development were administered. After a break with coffee and a snack the experimenter and the mother pretended that they had hurt themselves, analogous to the procedure at home, in order to assess the child’s empathic concern. Following a prohibition task and a clean-up task that will not be discussed here, we confronted the children with several potentially scary items, as part of the assessment of their temperamental fearfulness. Home visits and lab sessions lasted about 90 minutes each. The 22-month procedures were essentially the same as those at 16 months, except for the Bayley, which was administered only at 16 months. 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. 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) or 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 did 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. (1992b), 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 (knitting one’s brows, protruding lips; Robinson, pers. comm., April 1999), 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 (1992b). This global score for Empathy was used in 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 (one of them was the first author) 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 16 and 22 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 indicative of the child’s level of empathic concern. Empathy for mother and experimenter was scored separately, at both 16 and 22 months of age.

Fearfulness. Procedures assessing temperamental fearfulness were based on measurement of children’s inhibition to the unfamiliar (Kagan, Reznick, & Gibbons, 1989), and adapted from Kochanska (1995). Kochanska observed fearfulness of somewhat older children (26–41 months) in so-called Risky events, mildly threatening situations. She exposed the children to events like jumping on a trampoline, meeting a clown, and petting a large, remote-controlled plastic dinosaur. We adapted the content of the Risky events for use in a younger age group. Before mother and child entered the playroom, the child was confronted with a stern-faced policeman puppet. This was the first one of seven potentially scary items presented to the child, the other six items (e.g., a big rubber spider, a dragon mask, a sphygmomanometer) being presented after approximately one hour in the playroom. At 22 months, we replaced the items with comparable but new objects (e.g., a stethoscope, a rubber bird of prey, a drum). A female research assistant who was unknown to the child introduced the items. She first showed each object for 10–15 seconds and then invited the child to play with it (‘Now it’s your turn’), encouraging the child if necessary. The child’s reaction to the puppet was coded immediately after the presentation, reactions to the other items of the Risky events were coded from videotape. A 6-point scale was used (0 = prompt imitation: picking up the object without hesitation, trying it out or playing with it as the research assistant did, 1 = imitation after one stimulation, 2 = imitation after two stimulations, 3 = imitation after three stimulations, 4 = only touching, 5 = refusal to imitate or turning away). One point was added when the child expressed distress. Item scores were combined into Risky events scores for 16 and 22 months (16 months: alpha .77, average item-total correlation .62; 22 months: alpha .84, average item-total correlation .71).

Following Kochanska (1995), we also observed the children’s Proximity to mother both during the Risky events procedures and immediately after the entry to the playroom (during the second episode of the Strange Situation) when the child was free to explore the objects in the room. Proximity to mother was coded every 30 seconds. The proportion of segments the child spent in immediate proximity of the mother (touching or within arm’s length of the mother) on the child’s initiative was considered indicative of the child’s fearfulness. Not exploring during this episode was coded for each 20-second interval, and Latency to explore expressed the number of seconds from
the child’s entry to the first touching of an object in the room. Intercoder reliability for ‘live’ coding of the child’s reaction to the puppet was .82 (n = 15), reliabilities for the other items of the Risky events, along with Proximity to mother and Not exploring were .98 (16 months, n = 20) and .97 (22 months, n = 20). Intraclass inter-coder reliabilities for Latency to explore were .97 (16 months) and .88 (22 months). Scores for the Risky events, Proximity to mother, Not exploring, and Latency to explore were standardized and aggregated into continuous scores for the child’s observed Fearfulness (16 months: alpha .59; 22 months: alpha .60).

**Attachment.** Quality of attachment was assessed at both 16 and 22 months with the Strange Situation Procedure (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). Insecure-avoidant children shift their attention away from their distress and from the mother, and seem to remain focused on exploration. The avoidant category is divided further into a more extremely avoidant pattern (A1) and a less extreme pattern (A2). Insecure-resistant children display attachment behavior and seek proximity, but at the same time resist contact with the mother, and do little exploring. Children in the C1 category are more passively resistant; children in the C2 category behave more angrily. 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. Children in the sub-categories B1 and B2 show their attachment in a more distal way, whereas children classified as B4 and part of the B3 children seek proximity and contact more intensively.

Two coders (the second and third author) coded the Strange Situation Procedures, never scoring the same child at both 16 and 22 months. 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 (Schuengel, Bakermans-Kranenburg, & Van IJzendoorn, 1999). At 16 months 28 children (23%) were classified as insecure-avoidantly attached; 78 as securely attached (63%); and 18 as resistantly attached (15%). At 22 months 21 children (17%) were classified as insecure-avoidantly attached; 91 as securely attached (73%); and 13 as insecure-resistantly attached (10%). Due to technical problems one child could not be classified at 16 months. Because in our study attachment classifications were rather stable, and because the child was classified as securely attached at 22 months, which was the most stable category (86% stability, see results), we considered her 22-month classification as the ‘best guess’ for her attachment classification at 16 months. The case was excluded from results concerning stability of attachment. We computed a continuous variable of attachment security that was used in the analyses. The B3 classification received the highest score (5), A1 and C2 received the lowest score (1), A2 and C1 received a score of 2, B4 received the score of 3, and B1 and B2 received a score of 4 (see Main, Kaplan, & Cassidy, 1985; Van IJzendoorn, Sagi, & Lambermon, 1992).

**Bayley Scales of Infant Development.** A selection of items from the mental scale of the Bayley Scales of Infant Development (Bayley, 1969; item numbers 112–129) were administered when the children were 16 months old. The Bayley Scales of Infant Development...
Development were validated in The Netherlands by Van der Meulen and Smrkovsky (1985). The selected items were suggested (Van der Meulen, pers. comm., 1996) to form an adequately discriminating set of items for 16-month-old girls. Coding was based on actual performance of the child, without assistance of either mother or experimenter. Intraclass inter-coder reliability was .94 (n = 21).

Maternal Sensitivity. Maternal sensitive structuring was observed when mother and child were asked to complete two puzzles that were too difficult for the children. Mothers were told that they were allowed to help their child as usual. Coding was done with the revised Erickson scales for Supportive presence, Clarity of instruction, and Sensitivity and timing in instruction, for mothers with children aged 12 months and older (Egeland et al., 1990). Mean intraclass inter-coder reliability for the four scales was .78 (.75–.80, n = 25) for four coders. Principal components analyses pointed to an underlying factor, Sensitive structuring, alpha .84 (16 months) and .85 (22 months).

Results

Descriptive Results

The Development of Empathy. A repeated measures analysis of variance with target person (mother or experimenter) and time (16 or 22 months) as within-subjects factors for empathic concern showed a significant effect of target (F (1, 124) = 76.93, p < .001), a significant effect of time (F (1, 124) = 12.93, p < .001), and a significant interaction between target and time (F (1,124) = 62.94, p < .001). Empathic concern for mother increased from 16 months to 22 months (t (124) = 2.30, p = .02), whereas empathic concern for the experimenter decreased rather strongly across time (t (124) = −9.89, p < .001) (see Table 1). Empathic concern for mother and for the experimenter were significantly correlated across time: r (123) = .23, p = .01, and r (123) = .24, p = .007, respectively. Empathic concern for mother and for experimenter were not significantly correlated at 16 months nor at 22 months. At 16 months, empathic concern for mother was not significantly higher than the empathic concern for the experimenter (t (124) = 1.78, p = .08), whereas at 22 months the children showed significantly less empathy to the experimenter than to their mother: t (124) = 12.80, p < .001 (see Figure 1).

<table>
<thead>
<tr>
<th>Table 1. Overview of Measures and Descriptive Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Months</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>M</td>
</tr>
<tr>
<td>Empathy (mother)</td>
</tr>
<tr>
<td>Empathy (stranger)</td>
</tr>
<tr>
<td>Fearfulness</td>
</tr>
<tr>
<td>Attachment security</td>
</tr>
<tr>
<td>Bayley</td>
</tr>
<tr>
<td>Sensitive structuring</td>
</tr>
</tbody>
</table>

Children’s empathy was not significantly associated with mothers’ age or the socio-economic status of the family. The Bayley was correlated with empathy to the mother at 22 months ($r (123) = .22, p = .02$). Higher developmental status was related to more empathy for the mother. Empathic concern for the experimenter was not associated with the Bayley.

Bivariate Associations Between Empathy, Sensitive Parenting, Temperament, and Attachment

**Empathy and Parenting.** Empathic concern for the mother and for the experimenter at 16 months was not significantly related to the parenting variables assessed at 16 months. Empathic concern for the experimenter at 22 months was significantly correlated with sensitive structuring at 22 months ($r (123) = -.24, p = .008$). Unexpectedly, more sensitive structuring was associated with less empathic concern for the experimenter (Table 2).

**Empathy, Attachment, and Temperament.** Empathic concern for the experimenter at 22 months was significantly associated with temperamental fearfulness at 16 months: $r (123) = -.24, p = .007$. Fearful children showed less empathic concern for the experimenter. This correlation was the only significant antecedent or concurrent association of empathy with attachment security and fearfulness.

Multivariate Associations Between Empathy, Sensitive Parenting, Temperament, and Attachment: Test of Model

The potentially differential effect of attachment security and sensitive parenting on the development of empathy in more or less fearful girls was examined using hierarchical regression analyses. A table with the zero-order correlations among the predictor variables is available upon request from the authors. In order to test the relevance of
interaction terms for the regression on empathic concern, we applied a two-stage procedure. We first included the two interactions between fearfulness on the one hand and attachment security and sensitive structuring on the other hand in a hierarchical regression on empathic concern for the mother and for the experimenter at 22 months, in order to test whether the interactions contributed significantly to the prediction of empathy. As noted in the hypotheses, attachment security and parental sensitivity may have differential effects on the development of empathy for more and less fearful children, in particular when empathic concern for strangers is at stake. We computed the interaction terms as products of the standardized fearfulness scores and sensitive parenting and attachment variables at 16 months. Sensitivity, attachment security, and fearfulness at 22 months were added at step 1, because these variables were assessed concurrently. Empathic concern for the mother or for the experimenter and Bayley at 16 months were added at step 2, in order to control for differences in developmental status, and for initial differences in empathic concern. Fearfulness, attachment security, and sensitivity at 16 months were added at step 3, because these predictors constitute the ‘main effects’ that have to be tested before interactions can be introduced. The interactions between fearfulness, attachment security, and sensitivity were added at step 4. The regression included 10 predictors, so the ratio of predictors to subjects was almost 1:13, which is adequate in case of an expected moderate effect size (Tabachnik & Fidell, 1996). The interactions did not contribute significantly to the prediction of empathy at 22 months, neither for the mother nor for the experimenter. Therefore, in the second stage the interactions with fearfulness were not included in the regressions.
In order to test whether antecedent parenting predicted later empathic concern for the mother, we conducted a hierarchical multiple regression on empathy at 22 months as the criterion or dependent variable, using a similar hierarchical order as presented in the first regression. At step 1, concurrent attachment, fearfulness, and sensitivity were included. At step 2, the children’s empathy and Bayley developmental status at 16 months were added, in order to control for stability of empathic concern and developmental differences. At step 3, temperamental fearfulness, attachment security, and sensitivity (all predictors assessed at 16 months) were included. The regression included eight predictors, so the ratio of predictors to subjects was 1:15, which is adequate (Tabachnik & Fidell, 1996).

The hierarchical multiple regression on empathic concern for the mother at 22 months selected one significant predictor: empathic concern at 16 months (beta: .19, p = .03), and a trend for Bayley developmental status at 16 months (beta: .17, p = .07). The regression was significant: \( F(8, 116) = 2.05, p = .046 \), and the predictors explained 12% of the variance in empathy to mother. Earlier empathy predicted later empathy; thus, the stability of empathy for the mother was responsible for part of the prediction. Furthermore, a higher developmental level according to the Bayley at 16 months tended to be associated with more empathic concern for the mother at 22 months, even after controlling for the stability of empathy.

In the hierarchical multiple regression on empathic concern for the experimenter at 22 months four significant predictors were selected: attachment security at 22 months (beta: .19, p = .04), sensitive structuring at 22 months (beta: -.25, p = .005), empathic concern at 16 months (beta: .23, p = .01), and fearfulness at 16 months (beta: -.20, p = .02). Again, there was a trend for Bayley developmental level at 16 months (beta: -.16, p = .07). The regression was significant: \( F(8, 116) = 3.94, p < .001 \), and the five predictors explained 21% of the variance in empathy for the experimenter. Earlier empathy predicted later empathy; thus, the stability of empathy for experimenter was responsible for part of the prediction. Also, a higher developmental level at 16 months tended to be associated with more empathy. Furthermore, less empathic concern for the experimenter was associated with more fearfulness, even after controlling for the stability of empathy and for Bayley developmental level. Lastly, more sensitive structuring and less attachment security at 22 months was associated with less empathy to the experimenter. Other variables did not enter into the regression equation. In fact, sensitive parenting at 16 months did not affect empathic concern of the children at 22 months (Table 3).

**Discussion and Conclusions**

This study focused on children’s empathic concern for distress observed in their mothers and in unfamiliar persons. Confirming the results of Zahn-Waxler and her colleagues (1992, 1982, 1979), we found evidence for the existence and development of genuine empathic concern in the second half of the second year. Empathic concern for mother’s distress increased and empathic concern for an unfamiliar person decreased substantially during this age period. From a multivariate perspective, more temperamental fearfulness at 16 months predicted less empathic concern for a stranger’s distress at 22 months, in line with Young et al.’s (1999) finding of a concurrent association between high fearfulness and low empathy for strangers. Antecedent and concurrent sensitive parenting showed disappointingly low correlations with empathic concern for mother. More sensitive structuring at 22 months was
### Table 3. Hierarchical Multiple Regressions on Empathic Concern for Mother and for Stranger at 22 Months, with Parenting, Attachment Security, and Fearfulness as Predictors (N = 125)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Empathic Concern for Mother (22 Months)</th>
<th>Empathic Concern for Stranger (22 Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>$R^2$-change</td>
</tr>
<tr>
<td>Fearfulness 22 mo.</td>
<td>-.13</td>
<td></td>
</tr>
<tr>
<td>Security 22 mo.</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Sensitive structuring 22 mo.</td>
<td>.11</td>
<td>.05</td>
</tr>
<tr>
<td>Empathy 16 mo.</td>
<td>.19*</td>
<td></td>
</tr>
<tr>
<td>Bayley 16 mo.</td>
<td>.17+</td>
<td>.07</td>
</tr>
<tr>
<td>Fearfulness 16 mo.</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>Security 16 mo.</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Sensitive structuring 16 mo.</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>Overall F-test</td>
<td></td>
<td>$R^2 = .12$</td>
</tr>
</tbody>
</table>
associated with less empathic concern for the experimenter. More attachment security at 22 months was associated with more empathy for the stranger but not for the mother. For mother as well as stranger empathy, earlier empathy predicted later empathy and there was a trend for Bayley developmental level to be associated with more empathic concern.

The study is unique in including simultaneously indicators of sensitive parenting, attachment, and temperament as predictors of empathic concern in a short-term longitudinal design. We chose to include only girls because they have been shown to develop empathic concerns earlier and more intensely than boys (Eisenberg & Miller, 1987; Mehrabian et al., 1988). Of course, the restriction to female subjects and their mothers limits the generalizability of the outcomes, but the more homogeneous sample allows for more powerful and valid conclusions than samples of mixed gender. Because of the substantial genetic component implied in the emergence of empathy (Zahn-Waxler et al., 1992b), the question is important whether parenting, child characteristics, or aspects of the parent–child relationship co-determine individual differences in empathy. We suggested that the combination or interaction of temperamental fearfulness and attachment insecurity might be crucial, as the combination of personal and interpersonal risk factors might impair the children’s development of empathic concern. It is therefore crucial to include the most pertinent predictors into one investigation. Our study was meant to explore how several antecedent and concurrent factors influence the development of empathy, separately or in combination.

The stability of empathic concern for both mother’s distress and for stranger’s distress is low. The individual development of empathy still seems to be rather labile during the second year of life, and environmental pressures may easily change the course of an individual child’s empathic concern. In fact, this is not surprising for an ability that emerges only by the end of the first year of life. Empathic concern for the mother increases from 16 to 22 months, whereas empathy for the stranger decreases. At 16 months children do not show more empathy toward their mothers than to an unfamiliar person but at 22 months they are more empathic to their mother. It should be noted that we asked the mother to cough as an additional simulation during the home visit, but we felt it might be too distressing to the child when the experimenter was also involved in a second simulation during the same session. That may imply that the assessment of empathic concern for the mother is somewhat more accurate than the assessment of empathic concern for the experimenter. Nevertheless, it is somewhat disconcerting that an association between empathic concern in different contexts (for mother and for stranger) is (still) absent in the second year of life. Empathic concern for mother and for strangers may be different sides of the picture, as we found partly different correlates for both types of empathy. At an early age the ability to empathize with another person might be overridden by feelings of anxiety in meeting with an unfamiliar person. Beyond two years of age fear of strangers may become less forceful, and empathic concern to unfamiliar persons may become somewhat easier to perform. In our study, more fearful/anxiety-prone girls are less empathic to an unfamiliar person later in the second year, presumably because they are more affected by the presence of the stranger. This finding is in line with Young et al.’s (1999) study showing that at 2 years of age more inhibited toddlers display less empathic feelings toward an unfamiliar person.
We suggested that parental sensitivity would be associated with more empathic behavior (van IJzendoorn, 1997). In the current study, we were not able to substantiate this suggestion. Instead, more sensitive structuring seemed to be related to less empathic concern for strangers. Furthermore, in this study sensitive parenting does not seem to be relevant at all in relation to empathic concern for the mother. Firstly, these partly contradictory findings may indicate how fragile the development of empathic concern in the second year still is. Secondly, the absence of an association between parenting and empathy might be the implication of a substantial genetic component in empathic concern, in particular in the beginning of life, and environmental influences may be unique instead of shared. Thirdly, it may show that the causal order between parenting and empathy can easily be conceived as reversed: children with more empathic competence may require less structuring by their parents as they may be able to anticipate the parents’ wishes and directives better than children with less empathic concern. Fourthly, we did not assess sensitive parenting in the context of the child causing harm to another person. It may be that only in this empathic context sensitivity and structuring is an effective empathy training. Lastly, because the mother was asked to be unobtrusively present during the tasks assessing empathy for the stranger, the non-reactive mother may have been more uncommon for those children whose mothers are generally more sensitively structuring similar situations, thus leaving those children diverted from empathic behavior to the stranger. Nevertheless, previous investigations did find significant parenting effects (Robinson et al., 1994; Zahn-Waxler et al., 1979; Zahn-Waxler & Radke-Yarrow, 1990), and more research is needed to reconcile these diverging findings.

It should be noted that in a multivariate approach to predicting empathy for an unfamiliar person, only sensitive structuring adds some predicted variance in addition to the parent–child attachment relationship, and the child’s developmental level and temperament. The combination of temperamental fearfulness and attachment insecurity did not predict lower empathic concern at 22 months to mother nor to a stranger. The combination of two risk factors did not seem to impair the display of empathic concern or the emergence of the ability to feel empathic to the mother and the stranger. The influence of parenting does not change with controlling for differences in temperament or attachment. The multiple pathways to committed compliance that Kochanska (1995, 1997) found—dependent on the child’s temperament—does not seem to apply to empathic concern, although empathy has been suggested to be one of the major constituents of morality later in the child’s development (Hoffman, 1984).

The current study showed a marginal role of (sensitive) parenting in the development of empathic concern in the second year of life. We should point out, however, that our sample of middle- to higher-middle-class families with one female child may be too homogeneous to allow parenting style explaining substantial parts of the variance in empathy, and that in more heterogeneous populations parenting may certainly make a difference.

In summary, our study shows that insecure and fearful children express less empathic concern for a stranger over time; these children may be vulnerable to become anxious and disturbed in the presence of an adult who displays negative emotions. Parental sensitivity does not appear to play an important role in guiding the girls to more empathic concern with their mothers’ or other people’s distress. Before children are able to deal with negative emotions of other persons they may have to come to terms first with their own feelings of insecurity and fear.
References


### Acknowledgments

This study was supported by a grant from the Netherlands Foundation for Scientific Research (NWO, grant nr 575-28-001) to Marinus van IJzendoorn. The authors gratefully acknowledge the support in collecting and coding of the data from: Marlies van Dolderen, Helma Marchand, Marielle Boek, Mirjam Gevers Deynoot, Coralijn Nas, Charlotte Kokke, Liesbeth Plaque, and Esther Oortwijn, and the numerous undergraduate students who happily participated in the laborious coding tasks. We also thank Dr Femmie Juffer for training students in coding sensitivity. The paper was partly written during the sabbatical leave of Marinus van IJzendoorn at the Department of Psychology, University of California at Berkeley.