

Infants in group care: Their interactions with professional caregivers and parents across the second year of life

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Abstract

Seventy children were observed during structured play with their primary professional caregivers and three peers in the child care center and with their primary caregiving parents at home at 15 and 23 months of age. The same structured play tasks were used in the two settings and the quality of the children's interactions with caregivers and parents was rated using the same 7-point scales. As expected, the quality of caregiver–child interactions significantly increased between 15 and 23 months. At 15 months, the quality of caregiver–child interactions was significantly lower than the quality of parent–child interactions, particularly with regard to caregiver supportive presence and respect for the child's autonomy. At 23 months, however, the quality of caregiver–child interactions was no longer lower and in some respects even higher than the quality of parent–child interactions. At both ages, the children expressed more negativity towards their parents than towards their professional caregivers.

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1. Introduction

Developmental psychologists from different theoretical backgrounds agree that infants need a certain amount and quality of interaction with familiar adults for a healthy socioemotional and cognitive development. In Bronfenbrenner's bioecological model (Bronfenbrenner & Ceci, 1994), for example, human development is assumed to take place in “proximal processes” or the reciprocal interactions of individuals with their immediate environments. Proximal processes are the mechanisms through which human genetic potentials for effective functioning are actualized. Both parents and other adult caregivers who interact with the children on a regular basis are thus ascribed a key role in young children's development. According to attachment theory (Ainsworth, Bell, & Stayton, 1974; Bowlby, 1969/1982), the impact of the early interactions between children and their adult caregivers is also profound. Regular interactions with sensitive and responsive caregivers have been found to promote the development of secure caregiver–child attachments (Ahnert, Pinquart, & Lamb, 2006; De Wolff & van IJzendoorn, 1997), which have been found in turn to foster child socioemotional development (Thompson, 1999).

Today, many infants attend child care centers from a very early age onwards and sometimes for as much as 30 or 40 h a week. Given the significant amounts of time spent in child care, it is not surprising that young children's interactions

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with professional caregivers have been found to contribute to various aspects of their development (e.g., Ahnert et al., 2006; Burchinal et al., 2000; Hagekull & Bohlin, 1995; NICHD Early Child Care Research Network, 1997, 2002; Phillips, McCartney, & Scarr, 1987). Therefore, high-quality caregiver–child interactions are considered the key feature of high-quality nonparental child care for young children (Lamb & Ahnert, 2006; Vandell & Wolfe, 2000).

In center-based child care, professional caregivers have to divide their attention across a group of children, which may go at the cost of the quality of interactions with individual children (e.g., Goossens & Melhuish, 1996). Results of studies relating the child–caregiver ratio or the number of children per caregiver to the quality of caregiver–child interactions (for reviews see Lamb & Ahnert, 2006; Vandell & Wolfe, 2000) suggest this to be particularly true for younger children. In a recent Dutch study in which caregivers in child care centers were observed while playing with groups of three to five children, the quality of the caregiver–child interactions was significantly lower as the mean age of the children in the groups (ranging from 10 to 47 months) was lower (De Schipper, Riksen-Walraven, & Geurts, 2006). Several factors may explain this age effect. First of all, younger children are more physically dependent on their adult caregivers and have more limited communicative and self-regulatory abilities, which makes it more difficult for a caregiver to sensitively respond to the children’s signals and provide well-rounded interactions that satisfy the children’s needs. This may become all the more difficult when the caregiver has to divide her attention across several young children in a group setting. Another reason why the quality of professional caregivers’ interactions with young children may become higher as the children grow older, is that caregivers and children get acquainted with each other over time, which may promote the caregiver’s ability to understand and adequately respond to the signals and needs of a specific child and increase the child’s trust in the caregiver’s availability (Ahnert et al., 2006).

The present study provided a unique opportunity to shed more light upon this issue because the same infants were observed while interacting with their professional caregivers in the same structured play setting and in child care groups of the same size on two occasions, namely at 15 months and 23 months of age. Moreover, the structured play setting, the size of the play groups, and the scales used to rate the quality of the caregiver–child interaction were very similar to those used in the abovementioned study by De Schipper et al. (2006), which makes the present study suitable to longitudinally examine the age effect reported in De Schipper et al.’s (2006) cross-sectional study. Based on the findings of the latter study, we expected the quality of the caregiver–infant interaction to be higher at 23 months than at 15 months.

To examine whether – as argued above – getting to know each other facilitates the interaction between professional caregivers and children, we took into account whether or not the children in our sample changed primary child care providers between the two assessments. If the quality of interactions indeed increases as the interaction partners spend more time together, improvement of the caregiver–child interaction should be observed particularly for those children who had the same primary caregiver at 15 and 23 months of age.

We also compared the quality of the infants’ interactions with their primary caregivers in the child-care center to the quality of their interactions with the primary caregiving parent at home at both ages. The caregiver–child interaction and the parent–child interaction was observed during the same structured play tasks and rated using the same scales. Only a few studies have compared the quality of caregiver–child interaction in child care with the quality of parent–child interaction at home. In studies where both professional caregivers and parents were observed during one-to-one interactions with the same children, the quality of the caregiver–child interaction was found to be the same (Feldman & Klein, 2003) or even higher (Goossens & Van IJzendoorn, 1990) than the quality of the parent–child interaction. But, comprehensibly, the quality of the parent–child interaction was generally found to be higher than the quality of the caregiver–child interaction when the children were observed during one-to-one interactions with their parents and many-to-one interactions with their professional caregivers. In an early study, Rubenstein and Howes (1979) found mothers and professional caregivers to not differ in their responsiveness to the social behaviors of 18-month-old toddlers or their verbal and cognitive stimulation of the children. In subsequent studies conducted in Germany (Ahnert, Rickert, & Lamb, 2000), Israel (Bornstein, Maital, & Tal, 1997), and the USA (Clarke-Stewart, Gruber, & Fitzgerald, 1994), mothers were found to be more responsive to children’s signals and to engage the children in more social and didactic interactions than professional caregivers who were alternatively found to create more structure, exert more discipline, and provide more opportunities for exploration than the mothers (Bornstein et al., 1997; Clarke-Stewart et al., 1994). Given that in the present study the children were observed in a one-to-one setting with their parents and in a group setting with their professional caregivers, who thus had to distribute their attention across a number of children, we expected the quality of the parent–child interaction to be higher than the quality of the caregiver–child interaction at both ages; the difference was expected to decrease over time, however.

1.1. Summary of research aims

In the present study, 70 infants were observed during structured play with their primary caregivers in the child care center and with their parents at home at 15 and 23 months of age. We expected (1) the quality of the caregiver–child interaction to increase over time, and (2) the quality of the caregiver–child interaction to be lower than the quality of the parent–child interaction at both ages. Furthermore, we explored whether the improvement of the caregiver–child interaction over time was dependent on whether or not an infant remained with the same primary caregiver between 15 and 23 months of age.

2. Method

2.1. Participants

Recruitment of the participants occurred in two stages. In the first stage, 71 child care centers were randomly chosen from the telephone books for the west and middle of the Netherlands and then invited by letter to participate in the study. A total of 59 child care centers (or 83%) agreed to participate. Refusal was mostly due to organizational circumstances (“too busy”). In the second recruitment stage, the child care centers were asked to supply the names and addresses of parents and children meeting the following eligibility requirements. The children had to be 15 months of age and in child care for 3–4 days a week. The families had to speak Dutch. A total of 145 families were contacted by letter, and 128 (or 88%) agreed to participate. Refusal was mainly due to parental objections to the video-recording of the observations. Of the remaining 128 families, 70 families were randomly chosen to constitute the final sample; more families could not be included due to time limitations. The sample of 70 children included 39 boys and 31 girls with a mean age of 15.2 months ($S.D. = .46$) at the time of the initial assessment. In nine families, the father was the primary caregiver of the child. The parental level of education was measured along a scale ranging from low (i.e., elementary school or 8 years of formal education = 1) to high (i.e., university degree = 7). For the present sample, the education of the primary caregiving parents was found to range from 2 (=lower educational training) to 7, with an overrepresentation of higher educated parents ($M = 5.79$, $S.D. = 1.41$). This is in line with the general overrepresentation of children from higher SES families in child care centers in the Netherlands (OECD, 2000). The children attended 51 different care groups distributed across 39 child care centers. The age of the primary caregivers in the child care centers at the time of initial assessment ranged from 19 to 53 years ($M = 29.7$, $S.D. = 7.99$) at the time of the first assessment. Most caregivers had secondary vocational training (91.4%); the average level of education for the professional caregivers along the 7-point scale also used for the parents was 4.19 ($S.D. = .63$). Between the 15- and 23-month assessments, the primary caregiver at the child care center remained the same for 23 children and changed for 45 children. All of the children participated in the second assessment with the same parent when the children were 23 months of age ($M = 23.0$, $S.D. = .34$). Between the 15- and 23-month assessments, one child moved to another child care center which then refused to participate in the present study. For three other children, technical recording problems precluded the coding of a session (i.e., one parent–child interaction at 15 months; one caregiver–child interaction at 15 months; and one caregiver–child interaction at 23 months).

2.2. Procedure

At 15 and 23 months, the children were visited both in their child care centers and at home by the first author and trained graduate students. The home-visit was scheduled within 2 weeks of the center-visit and on a day that the child did not attend child care. In the child care centers, the children were videotaped during a structured play session with the primary caregiver and three peers of about the same age from the same care group. The play sessions were conducted apart from the rest of the group to prevent interference from those children not involved in the session. Each play session lasted 12 min. The primary caregivers were asked to have the children perform four consecutive tasks lasting 3 min each (i.e., put a puzzle together, read a book, play with a doll, and play with clay). The caregivers were told that they could help the children whenever they felt that this was needed and that they should focus on the target child in particular. In the home, one of the parents (i.e., the child’s primary caregiver) and the child were videotaped during a 12-min structured play session involving the same four interaction tasks as in the child care center.

2.3. Instruments and measures

The videotapes of the structured play sessions were rated using 7-point scales developed by Erickson, Sroufe, and Egeland (1985). The behavior of the caregiver/parent towards the target children session scored for: (1) supportive presence or the extent to which the caregiver/parent constitutes a secure base for the child and thus provides emotional support and encouragement when needed; (2) respect for the child's autonomy or acknowledgement of the child's individuality, motives, and perspective with low scores in particular reflecting intrusiveness on the part of the caregiver/parent; (3) structure and limit setting or the flexible and well-timed provision of the structure and limits needed for the child to succeed on a task; (4) quality of instruction or the degree to which instructions are well-timed, stated clearly, paced at a rate that allows comprehension, and graded in logical steps that the child can understand; and (5) hostility or the extent to which the caregiver/parent expresses anger at the child or rejects the child.

The behavior of the child during the structured play sessions was scored for: (1) negativity or the degree to which the child shows anger, dislike, or hostility towards the caregiver/parent; (2) avoidance or a tendency to avoid interaction with the caregiver/parent by ignoring the person, leaving the situation, or resisting attempts to engage the child in an interaction; (3) compliance or the degree to which the child shows a willingness to listen to suggestions and comply with caregiver/parental requests; and (4) affection or expressions of positive affect expressed towards the caregiver/parent. The validity of the rating scales used to evaluate the quality of the parent–child interaction has been extensively documented in previous research (Erickson et al., 1985; Riksen-Walraven, Meij, Hubbard, & Zevalkink, 1996; van Bakel & Riksen-Walraven, 2002a, 2002b; Vereijken, Riksen-Walraven, Kondo-Ikemura, 1997; Zevalkink, Riksen-Walraven, & Van Lieshout, 1999).

Graduate students – trained by the second author – rated the videotapes. The inter-rater reliabilities (i.e., intraclass correlations computed for 20% of the tapes) were found to be above .85 for all of the scales. The structured play sessions at home and in the child care centers for the children at 15 and 23 months were scored by different observers blind to the scores for the other sessions.

3. Results

3.1. Preliminary analyses

Tables 1 and 2 present the correlations among the caregiver–child interaction ratings (Table 1) and the correlations among the parent–child interaction ratings (Table 2) at both ages. Despite the sizable intercorrelations, we decided to keep the ratings representing different qualities of the interaction apart, because earlier research has shown children's interactions with their parents to differ from their interactions with professional caregivers in some respects but not

Table 1
Intercorrelations of caregiver–child interaction ratings at 15 months (below diagonal, $n = 69$) and 23 months (above diagonal, $n = 68$)

	Caregiver behavior					Child behavior			
	1	2	3	4	5	6	7	8	9
Caregiver behavior									
(1) Supportive presence	–	.77***	.72***	.77***	–.17	–.29*	–.33**	.52***	.34**
(2) Respect for autonomy	.78***	–	.44***	.51***	–.20	–.17	–.21	.34**	.37**
(3) Structure and limits	.76***	.41**	–	.66***	–.08	–.48***	–.52***	.72***	.34**
(4) Quality of instruction	.92***	.64***	.83***	–	.07	–.24*	–.30*	.51***	.27*
(5) Hostility	–.35**	–.47***	–.08	–.27*	–	.35**	.35**	–.17	–.11
Child behavior									
(6) Negativity	–.50***	–.49***	–.19	–.48***	.47***	–	.79***	–.72***	–.23
(7) Avoidance	–.74***	–.75***	–.56***	–.69***	.44***	.59***	–	–.67***	–.34**
(8) Compliance	.69***	.61***	.60***	.68***	–.26*	–.45***	–.78***	–	.39**
(9) Positive affect	.54***	.51***	.39**	.47***	–.27*	–.28*	–.48***	.47***	–

* $p < .05$.

** $p < .01$.

*** $p < .001$, two-tailed.

Table 2

Intercorrelations of parent–child interaction ratings at 15 months (below diagonal, $n = 69$) and 23 months (above diagonal, $N = 70$)

	Parent behavior					Child behavior			
	1	2	3	4	5	6	7	8	9
Parent behavior									
(1) Supportive presence	–	.77***	.64***	.82***	–.39**	–.43***	–.51***	.65***	.32**
(2) Respect for autonomy	.74***	–	.42***	.61***	–.35**	–.46***	–.47***	.60***	.32**
(3) Structure and limit	.51***	.25*	–	.77***	–.16	–.38**	–.44***	.72***	.34**
(4) Quality of instruction	.75***	.55***	.58***	–	–.29*	–.34**	–.40**	.64***	.34**
(5) Hostility	–.39**	–.36**	–.08	–.25*	–	.15	.31**	–.22	–.15
Child behavior									
(6) Negativity	–.55***	–.46***	–.38**	–.57***	.36**	–	.51***	–.75***	–.10
(7) Avoidance	–.68***	–.49***	–.52***	–.60***	.27*	.58***	–	–.66***	–.23
(8) Compliance	.73***	.52***	.63***	.71***	–.45***	–.66***	–.77**	–	.33**
(9) Positive affect	.48**	.36**	.41***	.27*	–.11	–.12	–.32**	.32**	–

* $p < .05$.** $p < .01$.*** $p < .001$, two-tailed.

others (Bornstein et al., 1997; Clarke-Stewart et al., 1994). Parental level of education and number of hours in child care were found to be unrelated to the quality of the children's interactions with their professional caregivers and parents.

3.2. The quality of the caregiver–child interaction over time

To test our first hypothesis, i.e., whether the quality of the infants' interactions with their professional caregivers improved over time, a GLM repeated measures analysis was undertaken with the nine scale scores for the caregiver–child interaction (five for the caregiver and four for the child) as the dependent variables, age (15 versus 23 months) as the within subjects factor, and changing versus not changing caregivers as the between-subjects factor. The multivariate main effect of age on the quality of the caregiver–child interaction was significant ($F(9,57) = 3.71, p < .01$). The mean scores and the univariate F -values in Table 3 show that, as expected, the quality of the caregiver–infant interaction increased over age. All five of the caregiver behaviors improved significantly with age: the caregivers showed more supportive presence, more respect for the child's autonomy, more adequate structure and limit setting, higher quality instructions, and less hostility at 23 months than at 15 months; the children, on their part, showed significantly less

Table 3

Mean ratings, standard deviations, and F -values for the quality of caregiver–child interaction at 15 months versus 23 months

	15 Months		23 Months		F
	M	S.D.	M	S.D.	
Caregiver behavior					
Supportive presence	4.13	1.70	4.90	1.37	13.75***
Respect for autonomy	4.32	1.61	4.94	1.17	12.40**
Structure and limits	4.68	1.43	5.04	1.53	4.81*
Quality of instruction	3.79	1.45	4.26	1.31	5.14*
Hostility	1.18	0.49	1.01	0.12	8.14**
Child behavior					
Negativity	1.40	0.87	1.22	0.62	1.60
Avoidance	2.56	2.04	1.51	1.23	19.11***
Compliance	4.96	1.10	5.56	1.11	17.24***
Positive affect	2.19	1.50	2.29	1.43	0.20

* $p < .05$.** $p < .01$.*** $p < .001$.

Table 4

Mean ratings, standard deviations, and *F*-values for the quality of caregiver–child interaction versus parent–child interaction at 15 and 23 months

	15 months (<i>n</i> = 68)					23 months (<i>n</i> = 68)				
	Child care		Home		<i>F</i>	Child care		Home		<i>F</i>
	<i>M</i>	S.D.	<i>M</i>	S.D.		<i>M</i>	S.D.	<i>M</i>	S.D.	
Caregiver/parent behavior										
Supportive presence	4.13	1.70	4.91	1.23	13.72***	4.90	1.37	4.96	1.44	0.08
Respect for autonomy	4.32	1.61	5.04	1.22	11.97***	4.94	1.17	5.21	1.22	2.59
Structure and limits	4.68	1.43	4.79	1.31	0.32	5.04	1.53	4.71	1.48	2.29
Quality of instruction	3.79	1.45	4.06	1.38	1.76	4.26	1.31	4.41	1.30	0.52
Hostility	1.18	0.49	1.12	0.64	0.44	1.01	0.12	1.12	0.37	4.70*
Child behavior										
Negativity	1.40	0.87	2.03	1.51	14.04***	1.22	0.62	2.09	1.44	24.53***
Avoidance	2.56	2.04	2.07	1.52	3.99*	1.51	1.23	1.78	1.28	2.20
Compliance	4.96	1.10	4.74	1.21	2.32	5.56	1.11	4.91	1.37	15.44***
Positive affect	2.19	1.50	2.46	1.47	1.64	2.29	1.43	2.09	1.26	1.26

* $p < .05$.** $p < .01$.*** $p < .001$.

avoidance and significantly more compliance with their caregivers at 23 months than at 15 months. The children's negativity and positive affect expressed towards their caregivers did not change between 15 and 23 months. The absence of a significant Age \times Change of caregiver interaction effect showed the improvement of the caregiver–child interaction to not differ for those children who had the same caregiver over time versus those children who did not.

3.3. The caregiver–child interaction as compared to the parent–child interaction

Our second hypothesis – that the quality of the caregiver–child interaction would be lower than the quality of the parent–child interaction at both ages – was tested for the two ages in separate GLM repeated measures analyses. The nine behavior ratings (five for the caregiver or parent and four for the child) were the dependent variables while caregiver–child versus parent–child interaction constituted the within-subject factor. The mean scores and associated *F*-values for the univariate comparisons of the caregiver–child versus parent–child interaction at 15 and 23 months are presented in Table 4.

For the comparison at 15 months, the multivariate model proved significant ($F(9,59) = 4.54, p < .001$). As expected, the parent–child interactions were of a higher quality than the caregiver–child interactions. In particular, the children's parents showed more supportive presence and greater respect for the children's autonomy than their professional caregivers, and the children showed significantly less avoidance of their parents than of their professional caregivers (see Table 4). Notably, the children expressed significantly more negativity towards their parents than towards their professional caregivers.

At 23 months, the multivariate model also proved significant ($F(9, 59) = 5.12, p < .001$), indicating a significant difference between the children's interactions with their professional caregivers and parents, but the direction of the difference was contrary to our expectations. The univariate tests in Table 4 show the quality of the caregivers' behavior to no longer differ from the quality of the parents' behavior with the exception of caregiver hostility, which was even lower than parental hostility expressed toward the child. The children were significantly more compliant with their professional caregivers than with their parents. And finally, just as at 15 months, the children expressed significantly more negativity towards their parents than towards their professional caregivers.

At 15 months, thus, the quality of the caregiver–child interaction in general, and caregiver supportive presence and respect for the child's autonomy in particular, was lower than the quality of the parent–child interaction. This is not to say, however, that the quality of the caregiver–child interactions was also low in an absolute sense. To gain an impression of just how many children received *inadequate* care from their professional caregivers and parents at both ages, we inspected the scores on the scale for *supportive presence*, as this aspect of caregiving behavior (closely related to the

concept of “sensitive responsiveness”; De Wolff & van IJzendoorn, 1997) is probably the most important for young children in light of its crucial role in child socio-emotional and cognitive development. In the description of the seven-point supportive presence scale, ratings up to 3 are presented as reflecting a definitely *inadequate* level of supportive presence; a rating of 3 is given to a caregiver who is observed to be clearly “. . . unreliable as a supportive presence”. (Erickson, Egeland, & Sroufe, 1983, p. 3). When the children were 15 months of age, 42% of the professional caregivers in the present sample received a rating of 3 or less for supportive presence, while 11.6% of the parents received such a rating. When the children were 23 months of age, however, the percentage of professional caregivers receiving a rating of 3 or less had decreased to 14.7%, which is even somewhat lower as compared to the percentage of parents (17.1%) receiving such a rating. At the opposite end of the supportive presence scale, ratings of 6 or 7 indicate very high levels of supportive presence. Such high ratings were obtained by 24.6% of the professional caregivers and 33.3% of the parents at 15 months, and by 36.8% of the professional caregivers and 38.6% of the parents at 23 months.

4. Discussion

The present study longitudinally observed young children’s interactions with their professional caregivers in child care centers and with their parents at home, using the same structured play tasks and the same rating scales to assess the quality of the interactions. As expected on the basis of previous research results, the quality of the children’s interactions with their professional caregivers was significantly lower than the quality of their interactions with parents at 15 months. More in particular, professional caregivers showed less supportive presence and less respect for the children’s autonomy when compared to the parents. At 23 months, however, the quality of the caregiver–child interaction had significantly increased and was no longer lower than the quality of the parent–child interaction. In some respects, and particularly with regard to the *children’s* behavior, the quality of the caregiver–child interaction was even higher than the quality of the parent–child interaction by that age. The increase in the quality of the caregiver–child interaction was not different for children who did and those who did not change primary caregivers between 15 and 23 months. A final remarkable finding was that the children showed more negativity towards their parents at home than towards their professional caregivers at both ages.

The substantial increase in the quality of infants’ interactions with their professional caregivers between 15 and 23 months of age is perhaps the most important finding in the present study. Unexpectedly, the quality of the caregiver–child interaction was no longer lower and in some respects even higher than the quality of the parent–child interaction at 23 months. Even though the professional caregivers had to distribute their attention across the target child and three other children, the quality of the caregivers’ behavior towards the target child was just as good as or better than the quality of parental behavior towards the same child during the same tasks. The finding that the increase in the quality of the caregiver–child interaction between 15 and 23 months was observed for both those children who did and those who did not have the same caregiver over time suggests that the improvement cannot simply be ascribed to the caregivers and children getting to know each other better. Probably, the rapid progress in the development of communicative, cognitive, and motor skills during the second year of life and children’s increasing orientation toward peers makes the children less dependent on the caregiver and easier to manage in a group setting; earlier observations of the same children during free play in the “natural” child care setting showed the *frequency* of the children’s interactions with their professional caregivers to significantly decrease between 15 and 23 months (Gevers Deynoot-Schaub & Riksen-Walraven, 2006). Observing the target children’s interactions with the three peers involved in the caregiver–child structured play task was beyond the scope of the present study, but future research may shed more light on the relation between caregiver–child and child–child interactions during such tasks.

At both 15 and 23 months of age, the children in the present study expressed more negativity towards their parents than towards professional caregivers, which has also been found in earlier studies (Ahnert et al., 2000; Nelson & Garduque, 1991; Rubenstein & Howes, 1979). Ahnert et al. found toddlers attending child care centers to cry and whine less during the day than home-reared toddlers but more in the evening in the presence of their mothers than home-reared toddlers. One possible explanation for the higher levels of negative affect demonstrated by the children at home after child care might be that they “save” any distress from negative experiences at the child care center for expression at home with their primary attachment figures (Ahnert et al., 2000; see also Aviezer, Sagi-Schwartz, & Koren-Karie, 2003). However, our observations of the parent–child interaction were conducted on the days that the children did *not* attend child care. That is, our finding of more negativity expressed towards parents than professional

caregivers holds for both child care days and home-care days. Given that the present study is the fourth to show greater negativity toward parents than professional caregivers, the finding is clearly robust. Additional research is nevertheless needed to unravel the mechanisms underlying the phenomenon (see also Ahnert & Lamb, 2003).

It may be questioned if the quality of the caregiver–child interactions observed during 12 min of structured play actually reflects the quality of everyday caregiver–child interactions. In another recent study of Dutch child care centers (De Schipper et al., 2006), the ecological validity of similar structured play observations was demonstrated by showing clear associations between the quality of the caregivers' behavior during the structured play sessions and the quality of their behavior during lunchtime as rated using very similar scales. The caregivers' behavior during the structured play sessions was also found to significantly correlate with their behavior throughout the morning when assessed with the widely used Caregiver Interaction Scale (CIS; Arnett, 1989).

The results of the present study have implications for child care policy and practice. The results suggest that it is difficult to provide adequate support to particularly the youngest children in group care: 42% of the target infants received inadequate support from their primary professional caregivers at 15 months, versus 14.7% at 23 months. In light of this, it might be questioned whether group care is the most appropriate type of nonparental child care for very young children. This may particularly be true for temperamentally difficult infants, who were recently shown to be even more at risk for receiving low quality care than their less difficult peers (Albers, Riksen-Walraven, & De Weerth, 2007). But the substantial number of professional caregivers who were observed to provide *very high* levels of supportive presence to the children at 15 months (24.6%) suggest that providing high-quality care to young children in a group setting is certainly possible. Decreasing the number of children per caregiver may be an option for improving the quality of caregiver interactions with very young children, given that this was shown to be effective in a recent experiment conducted in Dutch child care centers (De Schipper et al., 2006). Improving caregiver education and training may be another possibility for increasing the quality of professional caregivers' interactions with very young children in child care centers; in the Netherlands, most professional caregivers in child care centers have received secondary vocational training which is very general and does not specifically prepare them for working with very young children.

Finally, given the former and other typical characteristics of the system of center-based child care in the Netherlands (see also OECD, 2000), the generalization of our findings to other countries with a different child care context has to be treated with caution. Further research is needed to examine whether the results also hold for center-based child care in other countries.

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