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Quality of Center Day Care and Attunement Between Parents and Caregivers: Center Day Care in Cross-National Perspective

MARINUS H. VAN IJENDOORN
LOUIS W. C. TAVECCHIO
GEERT-JAN J. J. M. STAMS
MIEKE J. E. VERHOEVEN
ERNA J. REILING

*Center for Child and Family Studies
Leiden University, The Netherlands*

ABSTRACT In a sample of 43 Dutch infants and toddlers (mean age = 1.7 years) the quality of care at day care centers was assessed and compared with similar quality ratings in other European and North American countries. It was hypothesized that formal characteristics of care settings and caregivers as well as attunement between caregivers and parents would be associated with quality of care. Quality of center care was assessed with the Early Childhood Environment Rating Scale (T. Harms & R. M. Clifford, 1980), the Infant/Toddler Environment Rating Scale (T. Harms, D. Cryer, & R. M. Clifford, 1990), and the Caregiver Interaction Scale (J. Arnett, 1989). The children's interactions with both their mothers and their fathers at home were rated with several sensitivity scales. Caregivers and parents also completed questionnaires about childrearing attitudes and attunement. The results showed that the quality of center care in the Netherlands was rather good compared with that of other European and North American countries. Better quality of center care was associated with older caregivers who had less professional education, fewer years of experience, and who worked fewer hours per week. Communication and attunement between caregivers and parents did not appear to be important for quality of care.

ALTHOUGH MANY STUDIES on the socioemotional consequences of center day care have been published, on attachment in particular (Belsky, 1990; Belsky & Eggebeen, 1991; Clarke Stewart, 1993; NICHD Early Child Care Research Network, 1996), much less is known about the process of day care (Hayes, Palmer, & Zaslow, 1990; McGurk, Caplan, Hennessy, & Moss, 1993; Phillips & Howes, 1987; Scarr, Eisenberg, & Deater-Deckard, 1994). In this study we examined the quality of Dutch center day care processes in comparison with the quality of care in other European and North American countries, and we attempted to distinguish determinants of differences in quality of care. Determinants of qual

ity of care may be found in at least three areas: formal characteristics of the care setting and the caregivers, childrearing attitudes and behaviors, and communication and attunement between caregivers and parents.

Formal characteristics of children, such as age and socioeconomic status (SES) of their families, have been found to be related to quality of care. In general, children from lower SES backgrounds seem to profit more from day care because it compensates for certain shortcomings in their experiences and relationships at home. At the same time, day-care centers in low SES neighborhoods seem to provide lower quality care than centers in high SES areas (Clarke-Stewart, 1993; Phillips, Voran, Kisker, Howes, & Whitebook, 1994). It is not clear whether those associations can be found in countries with somewhat less extreme SES differences than those in which these studies were conducted, such as the Netherlands.

Formal characteristics of the professional caregivers may also be relevant. Age of caregiver, years of experience, and professional education may make some difference. In the predominantly U.S. studies, a higher level of general education (college) of caregivers has been shown to be conducive to quality care, but more specialized preparation for working with children has sometimes been revealed as a disadvantage. Caregivers with more training in child development are inclined to emphasize cognitive stimulation at the cost of socioemotional interaction (Clarke-Stewart, 1993).

With respect to years of experience, more is not necessarily better either. Having several years of experience helps the caregivers develop a professional attitude and initiate stimulating cognitive and social activities. After 10 years or more, however, day-care providers tend to become less stimulating and more restrictive (Clarke-Stewart, 1993). Formal characteristics of the child setting, such as group size and caregiver-child ratio, may also determine quality differences. Smaller groups with a larger caregiver-child ratio allow for better quality of care (Clarke-Stewart, 1993; Phillips & Howes, 1987), but beyond certain limits a ceiling effect may occur.

In some studies, childrearing attitudes have been shown to be related to the quality of childrearing behavior at home (Dekovic, Gerris, & Janssens, 1991). In particular, parents' ideas about support and control are relevant. Support entails emphasis by parents on warmth and the expression of affection. Control is usu-

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Address correspondence to Marinus H. van IJzendoorn, Center for Child and Family Studies, Leiden University, P.O. Box 9555, NL-2300 RB Leiden, The Netherlands.

ally divided into two basic strategies (Baumrind, 1968, 1971): authoritative and authoritarian control. Authoritative control involves the control of children's behavior with inductive reasoning, whereas authoritarian control forces the children to behave in a disciplined way on the basis of the parent's power.

It is unclear whether, in childrearing contexts outside the family, attitudes about control and support have the same impact on the quality of the interactions between children and their caregivers. In addition to the question about the association between childrearing attitudes and quality of care, we studied the relation between sensitive or authoritarian childrearing behavior and quality of care. Sensitive stimulating and nonauthoritarian interactions between caregivers and children may be associated with better quality of care (Clarke-Stewart, 1993).

Large discrepancies between parents' and caregivers' childrearing attitudes and lack of communication between the adults involved in raising the child may be important factors in explaining quality differences, either because they indicate the consequences of less optimal care or because they lead to bad care. In earlier studies, some researchers concluded that caregivers and parents expressed similar opinions about care (Nelson & Garduque, 1991), whereas other researchers found different perspectives on the behavior of children and on childrearing (Feagans & Manlove, 1994). Furthermore, it is unclear how the discrepancies and correspondences between parents' and caregivers' attitudes and ideas about childrearing, quality of care, and communication will affect the development of the children in their care. For very young children, discrepant care may cause feelings of disorientation and insecurity, and attunement between caregivers and parents may be important for the continuity of care (Howes, 1991; Shimoni & Ferguson, 1992).

To a certain degree, however, some lack of attunement may provide the child with opportunities to learn and to develop skills for dealing with a heterogeneous network of relationships later in life. Furthermore, in a heterogeneous network, deficiencies in one relationship may be compensated for by the other participants in the network, as has been suggested, for example, regarding attachment (Pianta, 1992; van IJzendoorn, Sagi, & Lambermon, 1992). In this respect, the goodness-of-fit between parents and caregivers may not be important for the children's well-being in professional care settings (Erwin, Sanson, Amos, & Bradley, 1993; Kontos & Peters, 1987).

In the present study, we addressed the following issues: First, we compared the quality of Dutch center care with quality of care in other European and North American countries. Second, we attempted to distinguish the determinants of differences in quality of center care. We studied formal characteristics of the participants in center care, such as age, education, and experience, as well as formal characteristics of the setting, such as size of group and caregiver:child ratio. Third, we explored characteristics of the process of child rearing, such as caregivers' sensitive or authoritarian control, to discover those that may be related to the quality of center care. Last, we tested whether the attunement of parents' and

caregivers' childrearing attitudes and behavior is associated with quality of center care

Method

Participants

From a large representative survey study on professional care in the Netherlands, including more than 500 children with both their parents and their non-parental caregivers (van IJzendoorn, Tavecchio, Stams, Verhoeven, & Reiling, 1998), we chose a random sample of children ($N = 43$) from 43 day-care centers for an in depth observational study

Compared with the respondents of the survey, the center care participants in the observational study did not differ in terms of socioeconomic status (a combination of educational and occupational level of both parents, ranging from 3, lowest, to 16, highest), the ages of the children, mothers, and fathers involved, the size of the group, the professional education of the caregiver, experience of the caregiver in years, and the number of hours per week the child spent in day care. The caregiver child ratio was significantly larger in the center care groups selected for the observational study than in the general study, $t(46.7) = -2.03$, $p = .05$, and the center care fathers from the observational study were significantly older, $t(321) = -2.11$, $p = .04$. We may conclude that the participants in the observational study represent the survey respondents rather well, the survey sample was a nationally representative sample.

The participants came from intact Dutch families with middle-class socioeconomic backgrounds ($M = 11.4$, $SD = 2.6$). The children were 1.7 years old ($SD = 1.1$). They participated for an average of 21.1 hr ($SD = 6.5$) per week in groups with an average number of 11.1 children ($SD = 4.0$) and a ratio of caregivers to children of .27 ($SD = .12$).

The caregivers were on average 31.2 years old ($SD = 7.5$), with an average of 2.0 years of professional education ($SD = .68$) and with 5.5 years ($SD = 3.5$) of experience in day care. They worked on average for 30.0 hr per week ($SD = 6.4$) in the centers. It should be noted that the professional caregivers were interacting with a rather large number of children per week ($M = 22.4$, $SD = 15.4$) because the children attended part-time. In fact, some caregivers interacted with more than 40 young children per week.

Instruments

The quality of group care was assessed with the Early Childhood Environment Rating Scale (ECERS, Harms & Clifford, 1980) and the Infant/Toddler Environment Rating Scale (ITERS, Harms, Cryer, & Clifford, 1990). The ITERS assesses quality of care for babies and toddlers (0–30 months), and the ECERS

covers infancy and early childhood (0–72 months). The Caregiver Interaction Scale (Arnett, 1989) and the Erickson, Sroufe, and Egeland (1985) scales for sensitive interactions were used to assess the quality of the parents' and caregivers' interactions with an individual child.

Participants were asked to complete several measures of childrearing attitudes, child-caregiver relationship assessments, and questionnaires about the communication between parents and professional caregivers.

Assessment of quality of group care. The ECERS consists of 37 items that were classified into seven categories (Harms & Clifford, 1980): personal care (diapering, food provision, sleep), furnishings (child-oriented furniture and arrangements), language experiences (language-oriented play materials, verbal interaction, reasoning), motor activities (stimulation of fine and global physical movements), creativity (materials, play), social experiences (sharing, conflict resolution), and adult needs (meeting room for caregivers and parents, opportunities for professional growth). The ECERS was used in groups with toddlers and in mixed-age groups.

The ITERS consists of 35 items that were also classified into seven comparable categories (Harms et al., 1990): furnishings, personal care, talking and listening, learning activities, social experiences, program structure, and adult needs. Every item was scored on a 7-point scale ranging from *inadequate* (1) to *minimal* (3), *good* (5), and *excellent* (7).

Four observers and the trainer (an experienced caregiver and research assistant with a master's degree in educational psychology) studied the videotapes of child care settings provided by Harms et al. (1990) for training. Before the start of data collection, the reliability of the coders was established. Cohen's kappas ranged from .73 to .93. During data collection, reliability was established twice. Cohen's kappas ranged from .71 to .93. The coders observed the groups from 8:00 to 12:00 a.m. After the observations, the coders spent another 30 min interviewing the caregivers about aspects of group care that they were not able to observe.

Principal components analyses of the ECERS and ITERS for center care. showed seven factors for each scale, similar to the components that Harms and her colleagues (1990) described: Furnishings, Personal Care, Learning and Creativity, Language, Social Interaction, Program Structure, and Adult Needs. A second-order principal components analysis on the seven scales showed a quite strong first component (37% explained variance) on which the scales loaded substantially, from .48 (Social Interaction) to .69 (Learning and Creativity). Adult needs did not load on this component (for a comparable outcome, see Scarr, Eisenberg, & Deater-Deckard, 1994).

To avoid a summary score based on different quality dimensions, we decided to exclude the factor Adult Needs from the overall quality rating. This exclusion led to a somewhat lower overall quality score for the Dutch centers ($M = 4.8$, $SD = .61$, $N = 43$) because the average score for Adult Needs was 4.9 ($SD = 1.08$).

$N = 43$) The alpha reliability of the six scales included in the total score for quality of care was .65

Assessment of caregiver-child and parent-child interaction The Caregiver Interaction Scale (Arnett, 1989) consists of 26 items that assess the quality of caregiver-child interactions in group care settings. After a morning or afternoon visit to the center, the coder scored the items on 4-point scales ranging from *not at all applicable* (1) to *very strongly applicable* (4). The intercoder reliability of the Caregiver Interaction Scale before and during the observations was satisfactory. Cohen's kappas ranged from .80 to 1.0 (with a difference of 1 scale point). A principal components analysis of the 26 items showed two important factors: Authoritarian Interaction and Stimulating Interaction. The loadings of the 13 items on the Authoritarian component ranged from .49 to .78, and the alpha reliability was .89. The mean score on Authoritarian Interaction was 1.8 ($SD = .48$, $N = 43$). The loadings of the 13 items on the Stimulating component ranged from .35 to .83, with an alpha reliability of .90. The mean score on Stimulating Interaction was 2.9 ($SD = .55$, $N = 43$).

The Erickson, Sroufe, and Egeland (1985) 7-point rating scales for sensitive interaction were used to assess the following dimensions of adult-child interaction in a task setting at home: emotional support ($M = 4.5$, $SD = 1.4$, $N = 43$ for mothers, $M = 4.5$, $SD = 1.2$, $N = 39$ for fathers), structuring of the task ($M = 4.8$, $SD = 1.2$, $N = 43$ for mothers, $M = 4.8$, $SD = 1.2$, $N = 39$ for fathers), quality of instruction ($M = 4.9$, $SD = 1.4$, $N = 42$ for mothers, $M = 5.0$, $SD = 1.2$, $N = 39$ for fathers), respect for autonomy ($M = 5.0$, $SD = 1.1$, $N = 43$ for mothers, $M = 4.8$, $SD = .95$, $N = 39$ for fathers), and adult's confidence ($M = 4.6$, $SD = 1.1$, $N = 43$ for mothers, $M = 4.5$, $SD = 1.2$, $N = 39$ for fathers). A hostility scale was added later but in the current study this scale did not show sufficient variance. The observed tasks were developed to be somewhat too difficult for the child to perform without the assistance of the adult, and they were age specific. Fathers and mothers were observed in different task settings.

Two observers were trained by expert coders from Utrecht University. Intercoder reliability was established in 15 dyads from three different age groups. Cohen's kappa ranged from .69 to 1.0 (with a difference of 1 scale point). During data collection, intercoder reliability was computed for 5 dyads, and overall kappa was .85, ranging from .53 to 1.0. In a principal components analysis, the four scales for sensitive interaction showed high loadings on the first component ($> .56$), and alpha reliabilities were satisfactory (.85 for mothers, .65 for fathers). The confidence scale appeared to be an outlier and was excluded from the overall sensitivity scale (see also Juffer, 1993). The sensitivity scores of the mothers ($M = 4.8$, $SD = 1.06$, $N = 43$) were not related to those of the fathers ($M = 4.8$, $SD = .95$, $N = 39$).

Assessment of childrearing attitudes To measure childrearing attitudes and attunement, we asked the respondents to complete several questionnaires. They

were also asked to assess the quality of the caregiver-child relationship. The reliability of the measures was computed in the survey sample, in which the participants of the observational study were included (van IJzendoorn et al., 1998).

The Child-Rearing Practices Report (CRPR; Block, 1981) was used to measure authoritarian and authoritative childrearing attitudes (Baumrind, 1968, 1971). In the survey, we found Cronbach's alphas of .71 (professional caregivers), .73 (mothers), and .75 (fathers) for the authoritarian pattern and .67 (mothers) and .68 (professional caregivers and fathers) for the authoritative pattern. Moreover, the CRPR scales showed independence, with correlations ranging from .00 to -.05 (van IJzendoorn et al., 1998). In the current study, the means and standard deviations for mothers, fathers, and professional caregivers on the scale for authoritarian childrearing attitude were as follows: $M = 2.7$, $SD = .59$, $N = 43$ for caregivers, $M = 3.0$, $SD = .63$, $N = 43$ for mothers, $M = 3.0$, $SD = .67$, $N = 41$ for fathers. The means and standard deviations of the scale for authoritative attitude were as follows: $M = 5.0$, $SD = .41$, $N = 43$ for caregivers, $M = 5.0$, $SD = .35$, $N = 43$ for mothers, $M = 5.0$, $SD = .38$, $N = 41$ for fathers.

The Nijmegen Child Rearing Questionnaire (NCRQ; Gerris et al., 1993) was used to assess support, which was defined as warm and responsive caregiving. In the survey, we combined the scales for responsiveness and warmth into one overall scale for support because factor analysis showed one-dimensional solutions with explained variances ranging from 36.4% (mothers) to 40.1% (professional caregivers). The alphas of the support scale were .84 (parents) and .86 (professional caregivers). The means and standard deviations of the scale for supportive childrearing attitude were as follows: $M = 4.9$, $SD = .56$, $N = 43$ for caregivers, $M = 5.3$, $SD = .42$, $N = 43$ for mothers, and $M = 5.1$, $SD = .48$, $N = 41$ for fathers.

Assessment of communication. The Parent Caregiver Relationship Inventory (PCRI; van IJzendoorn et al., 1998) was used to assess the perception of the quality of the relationship between professional caregivers and parents—in other words, “the communicative relationship.” The Child Caregiver Relationship Inventory (CCRI; van IJzendoorn et al., 1998) was used to assess the perception of the quality of the childrearing relationship, that is, the relationship between professional caregiver and child. The PCRI and CCRI were adapted from the Barrett-Lennard Relationship Inventory (Barrett-Lennard, 1962).

In the survey, we factor-analyzed the data of the PCRI and the CCRI and found one-dimensional solutions. For the PCRI, consisting of 28 Likert-type items, the alphas were .93 (fathers) and .94 (mothers and professional caregivers) with the explained variance ranging from 44.6% to 50.9%. The means and standard deviations for the participants in the current study were as follows: $M = 5.0$, $SD = .53$, $N = 43$ for professional caregivers, $M = 5.0$, $SD = .55$, $N = 42$ for the mothers, $M = 5.0$, $SD = .43$, $N = 38$ for the fathers. For the CCRI, consisting of 27 items, the alphas were .92 (professional caregivers), .93 (mothers), and .95 (fathers), with explained variances ranging from 40.9% to 56.5%. The means and

standard deviations for the participants in the current study were as follows: $M = 5.4$, $SD = .51$, $N = 43$ for professional caregivers; $M = 5.3$, $SD = .49$, $N = 42$ for the mothers; $M = 5.4$, $SD = .55$, $N = 38$ for the fathers.

Satisfaction with the relationship between child and professional caregiver was assessed with a 5-point Likert type scale (van IJzendoorn et al., 1998) consisting of 12 items. The alpha reliability was .84 for the professional caregivers, .91 for the mothers, and .93 for the fathers. The correlations between the CCRI and the satisfaction scale were as follows: .47 (professional caregivers), .65 (mothers), and .66 (fathers). All correlations were significant ($p < .001$). Means and standard deviations of the satisfaction scale were as follows: $M = 4.1$, $SD = .30$, $N = 43$ for the professional caregivers; $M = 4.2$, $SD = .36$, $N = 43$ for the mothers; $M = 4.2$, $SD = .36$, $N = 38$ for the fathers.

Contentment with the exchange of information between parent and professional caregiver was measured with a 5-point Likert type scale consisting of five items. The alpha reliability was as follows: .82 for the professional caregivers ($M = 4.0$, $SD = .41$, $N = 43$), .85 for the mothers ($M = 4.1$, $SD = .46$, $N = 43$), and .84 for the fathers ($M = 4.2$, $SD = .38$, $N = 39$). Contentment with the exchange of information is only one aspect of communication and attunement between parents and professional caregivers. Therefore, we decided to compute an overall score for quality of communication.

The quality of communication between parent and professional caregiver from a shared perspective was assessed with a scale consisting of six variables: perception of the quality of the relationship between parent and professional caregiver (PCRI-father, PCRI-mother, PCRI-caregiver), and the contentment with the exchange of information between parent and professional caregiver as experienced by the father, the mother, and the professional caregiver. The communication scale was the sum of the standardized items. The alpha reliability (.74) of the communication scale was sufficient. The mean score on the communication scale was 10.1 ($SD = .58$, $N = 42$). In addition to the qualitative dimension of communication, we included a quantitative indicator for the amount of communication between parents and caregivers. Time for communication is the ratio between the number of hours of parent-caregiver communication per hours of care. The mean score was .03 ($SD = .021$, $N = 43$). The parents of the average child visiting the center for 20 hr per week communicated with the professional caregiver for about 36 min per week.

Results and Discussion

Quality of Dutch Day Care in International Perspective

The quality of center care in the Netherlands was found to be rather high, with a mean overall score of 4.8 ($SD = .61$). The means and standard deviations for the ECERS/ITERS scale for quality of care in 43 Dutch day care center groups and comparable data from several other countries are reported in Table 1.

Harms et al (1990) defined scores between 1 and 3 as low, between 3 and 5 as moderate, and between 5 and 7 as good or excellent. In our sample, there were few centers with low quality care, and 40% of the centers qualified as good or excellent. Dutch center care appeared to be strong in terms of furnishings ($M = 5.1$, $SD = .98$), social interaction ($M = 5.3$, $SD = .97$), and program structure ($M = 5.2$, $SD = 1.24$), it was somewhat weaker in terms of personal care ($M = 4.3$, $SD = 1.06$), learning activities ($M = 4.3$, $SD = .82$), and language ($M = 4.7$, $SD = 1.01$). (Emphasis on social stimulation instead of learning activities is also characteristic of Swedish day-care centers, see Karrby & Giota, 1994, 1995).

In international perspective, the quality of Dutch care was also comparatively good. Table 2 contains data from ECERS/ITERS studies on quality of care in the United States (Helburn, 1995; Hestenes, Kontos, & Bryan, 1993; Howes & Hamilton, 1993; also in Dunn, 1993; Phillips, Voran, Kisker, Howes, & Whitebook, 1994,

TABLE 1
Quality of Center Day Care in Europe and North America

Country	Sample	N ^a	SLS ^d	ITERS/ECFRS	
				M	SD
<i>Europe</i>					
Netherlands ^b	Center care	43	Repr	4.8	.61
Portugal	Tietze et al (1996)	88	Repr	4.4	.63
Sweden ^c	Kariby & Giota (1995)	40	Repr	4.4	.78
Germany ^c	Tietze et al (1996)	103	Repr	4.4	.74
Greece	Petrogiannis & Melhuish (1996)	25	Mixed	3.5	.70
England	Mooney et al (1996)	60	Mixed	3.0	.70
Italy	Varin et al (1996)	6	Mixed	3.7	—
Europe total		365		4.2	.90
<i>North America</i>					
United States	Phillipsen et al (1995)	398	Repr	4.0	.90
	Scarr et al (1994)	363	Mixed	3.5	1.05
	Phillips et al (1994)	50	Low	4.1	.98
	Hestenes et al (1993)	30	Middle	4.4	.71
	Howes & Hamilton (1993)	54	Middle/ lower	4.1	1.01
U S A total		895		3.8	1.01
Canada	Schliecker et al (1991)	10	Repr	4.4	1.56

Note. ITI RS = Infant/Toddler Environment Rating Scale. ECFRS = Early Childhood Environment Rating Scale.

^aNumber of observed groups. ^bThis study. Total score is computed on the basis of mean scale scores.

^cSocioeconomic status (repr = representative sample). Including the former East German counties.

TABLE 2
Correlations Between Formal Care Characteristics and
Quality of Center Day Care ($N = 43$)

Care characteristic	<i>M</i>	<i>SD</i>	Quality of care	
			Quality	Stimulation
Parents' SES	11.4	2.6	.19	-.14
Age of child	1.7	1.0	.21	-.08
Hours in care	21.1	6.5	-.30*	-.13
Age of caregiver	31.2	7.5	.36**	.21
Professional education	2.0	.68	-.06	-.10
Experience	5.5	3.5	-.17	-.21
Hours at work	30.0	6.4	-.41**	-.13
Caregiver/child ratio	.27	.12	-.18	.22
Group size	11.1	4.0	.10	-.16
Number of children	22.4	15.4	.16	.00

Note. SES = socioeconomic status.

* $p < .05$; ** $p < .01$ (one-tailed).

Phillipsen, Cryer, & Howes, 1995; Scarr et al., 1994), Canada (Schliecker, White, & Jacobs, 1991), and several European countries (Sweden: Karrby & Giota, 1994, 1995; Germany and Portugal: Rossbach & Tietze, 1994; Tietze, Bairrao, Leal, & Rossbach, 1996; England: Mooney, Munton, & Rowland, 1996; Greece: Petrogianis & Melhuish, 1994, 1996; and in Italy: Varin, Crugnola, Molina, & Ripamonti, 1996). In some cases, we used meta-analysis to compute the overall means and standard deviations. In Greece, Dragonas, Tsiantis, and Lambidi (1995) used the ECERS, but they did not report its mean and standard deviation.

The Dutch centers ranked higher than the U.S. centers and highest among the European centers. Comparing the Dutch center care with the combined samples from the United States ($N = 895$), we found a significant and substantial difference, $t(936) = 10.1$, $p < .0001$. The difference amounted to an effect size of 1 standard deviation. Even if we compared the Dutch centers with a representative sample from the United States (Phillipsen et al., 1995), the difference remained significant and substantial, $t(439) = 7.74$, $p < .0001$ (heterogeneous variances). The effect size (d) was 0.91. The Dutch centers also showed a higher quality rating compared with Sweden, $t(81) = 2.59$, $p = .01$; Portugal, $t(129) = 3.45$, $p = .0004$; Germany, $t(144) = 3.12$, $p = .001$; Greece, $t(66) = 8.02$, $p < .0001$; and England, $t(101) = 13.57$, $p < .0001$. Statistical comparison with Italy was impossible because the standard deviation for the Italian study was lacking, but the means showed a difference of more than 1 scale point in favor of the Dutch centers. The comparison between the Netherlands and Canada was not significant because of the large standard deviation of the Canadian mean quality rating.

The combined European centers were rated significantly higher than the combined U S centers $t(1252) = 6.53$ $p < .0001$. It should be noted that the standard deviation for the Dutch mean quality rating was rather small ($SD = .61$), the quality of the Dutch centers appeared therefore to be more homogeneous than in most other countries, in particular the United States ($SD = 1.01$).

As has been noted, the caregiver-child ratio in the selected Dutch center care groups was somewhat larger than in the aforementioned representative survey sample. The difference, however, was small: 1 caregiver to 4.3 children nationwide, and 1 caregiver to 3.7 children in the observation study. Our results indicate that in the current study the caregiver-child ratio was not associated with quality of care.

The Caregiver Interaction Scale (Arnett, 1989) for authoritarian and stimulating childrearing behavior was associated with quality of care as assessed by the ECERS/ITERS. In center care, higher quality was related to less authoritarian and more stimulating interaction of the professional caregiver with the target child ($r = -.38$ and $r = .49$, respectively). In particular, the correlations with language experiences ($r = -.40$ and $r = .42$) and social interaction ($r = -.47$ and $r = .61$) were important. Furthermore, the observations of caregivers' behavioral styles were not strongly related to their childrearing attitudes. The strongest association was found between the caregivers' authoritarian attitudes and their authoritarian interactive styles ($r = .39$, $N = 43$, $p < .01$, one-tailed). Caregivers' authoritative childrearing attitudes were significantly related to stimulating interaction ($r = .30$, $p < .05$, one-tailed, $N = 43$) and to authoritarian interaction ($r = -.27$, $p < .05$, one-tailed, $N = 43$) in the expected direction. More authoritarian interaction was associated with a less authoritative and a more authoritarian attitude. More stimulating interaction was associated with a more authoritative childrearing attitude.

Quality of Care and Characteristics of Care Settings and Professional Caregivers

Formal characteristics of care. The correlations between formal characteristics of the day care settings and quality of care as assessed with the ECERS/ITERS and the Arnett Caregiver Interaction Scale are reported in Table 2. Because the ECERS/ITERS quality rating focused on the level of the group, the correlations with characteristics of the individual children are less informative. In center care, higher quality is associated with older caregivers ($r = .36$, $p < .01$, $N = 43$) and with caregivers who work fewer hours per week ($r = -.41$, $p < .01$, $N = 43$). Stimulating interaction, as assessed with the Arnett (1989) scale, was not significantly associated with formal characteristics of center care.

To test the associations between formal characteristics and quality of care in a multivariate procedure, we performed a hierarchical discriminant function analysis on moderate versus good quality center care. In the first step, age of caregiver was included; in the second step, professional education, experience, and

hours of work per week were added, in the third step, group size, number of children per week, and the caregiver child ratio were included. Within each step, the predictors were selected stepwise. The results of the discriminant analysis are reported in Table 3. Good quality center care could be discriminated from moderate quality center care on the basis of four predictors: age of caregiver (older caregivers were associated with better quality), professional education (less educated caregivers were associated with better quality), years of experience (caregivers with less experience were associated with better quality), and hours per week at work (working fewer hours was associated with better quality care). That is, after effects of age differences were controlled, professional education, experience, and working hours were related negatively to quality of care.

Childrearing attitudes and quality of care. Childrearing attitudes and perceptions were not related to quality of care as assessed with the ECERS/ITERS. As noted earlier, childrearing attitudes were, however, associated with authoritarian and stimulating interaction in the expected direction. More authoritarian interaction was also associated with a less positive view of the caregivers on their relationships with the children ($r = -.25$). Adding the caregivers' childrearing attitudes to the fourth step of the (aforementioned) hierarchical discriminant analysis on quality of center care, we did not find additional predictive power beyond that of the formal characteristics.

Attunement and Quality of Care

Quality and communication. Would better and more intensive communication between caregivers and parents lead to higher quality of care? The correlations

TABLE 3
Results of a Hierarchical Discriminant Function Analysis
on Quality of Center Care

Step/predictor	Bivariate correlation	Correlation of predictor with discriminant function	Univariate $F(1, 39)$	Wilks's lambda ^a	p^b
1 Age of caregiver	.36	.57	8.35 ^{††}	.82	.006
2 Education	-.06	-.24	1.43	.81	.017
Experience	-.17	-.33	2.73	.69	.003
Hours at work	-.41	-.66	10.99 ^{††}	.61	.001

^aCanonical correlation for discriminant function = .63. [†]Significance level for predictor to enter and/or stay at each step.

^{††} $p < .01$

between time for communication and quality of communication, on the one hand, and quality of care (ECERS/ITERS) and quality of interactions (Arnett, 1989), on the other hand, were not significant. That is, more or better communication was not associated with better care.

Attunement of attitudes and behavior. Discrepancies between parents' and caregivers' attitudes and perceptions of the caregiver-child relationship seemed only marginally related to quality of care. Of 20 correlations, only 2 were significant. Contrary to our expectations, larger discrepancies in attitudes about the importance of support between caregivers and mothers regarding center care were associated with higher quality of care ($r = .33$). Smaller discrepancies in perceptions of the caregiver-child relationship between caregivers and fathers were related to higher quality of care ($r = -.30$). In light of the number of insignificant correlations, attunement of attitudes does not seem to be an important factor in the quality of care.

Do children with a sensitive and stimulating parent also experience better quality of day care? That is, are childrearing processes at home and at the center attuned to each other? In center care, there were no associations between parental sensitivity and quality of care as assessed with the ECERS/ITERS (maternal sensitivity: $r = -.10$, $N = 43$; paternal sensitivity: $r = .14$, $N = 39$). Associations with authoritarian childrearing as assessed with the Arnett (1989) scales were lacking as well (maternal sensitivity: $r = -.03$, $N = 43$; paternal sensitivity: $r = .10$, $N = 39$). Stimulating interaction was correlated with maternal sensitivity in center care ($r = -.34$, $p < .05$, $N = 43$) but not with paternal sensitivity ($r = -.17$, $N = 39$). Contrary to expectation, the children with more sensitive mothers were faced with less stimulating professional caregivers. In this respect, center care did not seem to be attuned to the home experiences at all. With respect to sensitive and stimulating child rearing, we must conclude that center care and home entail quite independent contexts.

Conclusions

The quality of center care in the Netherlands is rather good compared with that of other countries, including the United States. In particular, Dutch centers appear to be equipped well and to display a clear program structure. Professional caregivers emphasize social interaction, but they seem to give less weight to personal care (i.e., hygiene) and cognitive stimulation. One of the determinants of the quality of Dutch center care may be the strict national regulation of some important conditions of child care, such as group size and professional education. In one of the most extensive U.S. studies on day care, Helburn (1995; Helburn et al., 1995) and her colleagues showed that the quality of care is higher in those states that regulate the structural characteristics of quality most stringently. In fact, a similar explanation may pertain to the better quality of care found in the

European studies than in the U S studies (Lamb Sternberg, Hwang & Broberg 1992, Melhuish & Moss, 1991)

Another reason for the comparably high quality of care in the Netherlands may be the strong financial support of the Dutch government at the time of the assessments. In 1990, the Dutch government decided to stimulate center care for a period of 4 years, to enable more mothers of young children to participate in the labor market. Under these favorable financial conditions, the quality of care may be higher than in other times. The rather alarming state of the English day care centers after several years of Thatcherism seems to illustrate the same point from the opposite direction. The centers in London were among the lowest ranking centers in Europe and the United States, and the average quality rating was just minimal.

How can differences in quality between the Dutch centers be explained? Formal characteristics of the professional caregivers appear to be the most powerful predictors of quality of care. Older caregivers provide better quality than younger caregivers. Controlling for age differences, we also found that less experienced and less educated caregivers who spent fewer hours per week at the center provided higher quality of care. This outcome is contrary to our expectations as well as to some other studies in the same domain, in which more education was related to better quality of care (Clarke Stewart 1993, Phillips & Howes, 1987). If professional education emphasizes stimulation of cognitive development, however, it was found to lead to a relative neglect of social stimulation (Clarke-Stewart 1993).

Furthermore, we speculate that working in day care is rather exhausting and does not provide many career opportunities. Professional caregivers raise children in group settings in which several children demand their attention. At the same time, they have to relate to the parents of the children and to their colleagues in the center. Their salaries are quite modest, and most caregivers do not have any chance to be promoted to higher level jobs within or outside the organization. The absentee rate and the number of caregivers who move out of day care jobs each year are higher than in comparable areas (Commissie Kwaliteit Kinderopvang 1994). Caregivers with fewer years of experience in day care who work fewer hours per week may cope better with the rather unfavorable working conditions and restricted career perspectives than caregivers with more experience and longer working hours. Of course, these interpretations are post hoc and therefore speculative. Further research is necessary to document the mechanisms of the associations between quality of care and formal characteristics of caregivers.

Formal characteristics of the care setting do not seem to play an important role in explaining quality differences. The caregiver:child ratio and the group size were not associated with quality of care. Because these characteristics are regulated by the state, they may not show sufficient variation to explain differences between centers. In addition, the quality of care itself appears to be rather homo-

geneous. These two factors may have caused restriction of range in predictor and outcome variables, and they may have weakened the association between formal characteristics of the setting and quality of care. Caregiver:child ratio and group size may be necessary conditions for establishing a minimum level of quality, beyond this level, however, other factors such as caregiver characteristics may become more important.

Childrearing attitudes, communication, and attunement between caregivers and parents do not appear to be important in explaining quality differences. It is remarkable, for example, that the satisfaction of parents and caregivers with their communication as well as the time they spent on communication was not associated with the quality of care. In addition, discrepancies between parents and caregivers existed as to the most adequate childrearing style (supportive, authoritarian, and authoritative), but larger discrepancies were not related to a lesser (or better) quality of care.

We also found substantial discrepancies between the sensitivity and stimulation children experience at home and in center care. Children from sensitive homes may find themselves in insensitive center care, and children from insensitive homes may experience stimulating interaction with the professional caregiver. Home and center care seem to be independent circuits; communication exists, but attunement is unimportant for quality of care, if this quality is already rather good. Restriction of range may be the reason for this absence of expected associations, and we should be cautious in interpreting failures to reject the null hypotheses.

Our findings, nevertheless, were anticipated. Ten years ago, Kontos and Peters (1987) speculated regarding the possibility that discontinuities between home and day care would not damage the development of the children involved. Lack of attunement may create opportunities for growth if inadequate home care is compensated for by adequate center care. Inadequate center care may not be sufficient to impair the development of children from adequate homes. Children should be prepared to live in an extended network of relationships, and discrepancies between childrearing contexts may facilitate the development of adaptive coping strategies (Kontos & Peters, 1987).

An important limitation of the present study is its restriction to process quality, that is, the conditions and dimensions of the interactions between caregivers and children. We were not able to describe the consequences of day care, that is, its impact on socioemotional and cognitive development. The consequences of day care are not necessarily connected to the interactive process of care. In studies using the ECERS/ITERS or the Arnett (1989) scales for stimulating interaction, the consequences of care have been found to be related to the process of care. Better quality of care was shown to lead to better socioemotional and cognitive development of children (Harms et al., 1990). A question for future researchers is whether attunement between caregivers and parents is associated with children's development.

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