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## The relation of flexible child care to quality of center day care and children's socio-emotional functioning: A survey and observational study

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### Abstract

In two studies in daycare centers, we investigated a newly developed index for flexible child care describing parents' use of evening care and flexible attendance scheduling for their child. We examined the relation between this index together with stability in care, mother's stress and the child's temperament on the one hand, and quality of caregivers' behavior and a child's socio-emotional functioning in day care on the other. In Study I, the mothers and caregivers of 186 children (aged 6–30 months) participated in a survey. In Study II, approximately 18 months later, 52 children from Study I were observed in their daycare setting. Children showed more well-being in day care when they had few parallel care arrangements, and when there was more daily stability in staffing and grouping patterns. Unexpectedly, caregivers in groups with more stability in staffing and grouping patterns, showed less positive caregiving behavior. When staff turnover rate was higher, positive caregiving behavior was lower. Finally, children in more flexible child care showed more non-compliance.

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*Keywords:* Day care; Flexible child care; Non-standard hours child care; Stability in care; Socio-emotional functioning; Quality of care

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In recent years, parents using the services of center day care have urged child care centers to extend their child care facilities, i.e., to make them more “flexible,” in order to enable the parents to optimally combine work and family demands. Parents nowadays frequently work for organizations that operate early mornings, evenings, nights and weekends as well as normal

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hours. More child care is needed during parents' non-standard or varying working hours, such as early morning care, evening care, evening meals, weekend care, attendance on a varying number of days each week or attendance on different (half-)days each week. This need for more "flexible" child care has challenged the child care field to find the right balance between parental needs, child needs, and professional caregiver needs without reducing the quality of care standards. In this study, we will investigate the relation between flexible child care and stability in care, quality of caregiver-child interactions and the child's socio-emotional functioning in center day care. Flexible child care is likely to promote an easier transition between work and family life for parents (U.S. Department of Labor, Women's Bureau, 1995). In the present study, we will consider whether flexible child care solutions for working parents provided by daycare centers, are also beneficial for children.

Our concern for the possible risk of highly flexible child care was based in part on a study on Israeli infants living in kibbutzim in which infants with out-of-home sleeping arrangements (comparable to 20 hrs of non-parental care a day, with many changes in caregivers especially during the night shifts) showed less secure attachment relationships with their mother, compared to infants with home-based sleeping arrangements (Sagi, Van IJzendoorn, Aviezer, Donnell, & Mayselless, 1994). Results of another study have also possibly drawn attention to the risks of extended day care to the child's well-being. Dettling, Gunnar, and Donzella (1999) argued that their finding of increasing cortisol levels over the day for children attending child care (whereas these children would normally show an expected circadian decrease in cortisol from morning to afternoon if at home) might be related to the length of the day at the center. In a study on children attending day care only for half-days (either mornings or afternoons), this increase in cortisol levels was not found (Gunnar, Tout, de Haan, Pierce, & Stansbury, 1997). Attending a daycare center for long days or during the night might put pressure on children's ability to feel comfortable in the daycare setting as well as on their ability to manage their social interactions with (varying) caregivers and peers in the group. In less extreme circumstances, flexible child care may not have negative effects, however. One of our aims is to develop and test an index for flexible child care that describes the degree to which parents use flexible child care facilities for their child.

We do not know whether flexible child care is adapted to the needs of young children. It might be that this care decreases the continuity and predictability of everyday life, resulting in the child feeling less at ease in the daycare center. In centers with longer opening hours and flexible attendance scheduling, it is likely that more caregivers are needed to do all the shifts. Also, the need to work efficiently may result in more scheduling of children and of caregivers. Whitebook, Howes, and Phillips (1990) reported that in many daycare centers children change classrooms throughout the day (especially in mornings and late afternoons), so-called "accordion grouping." Also, floating teachers, i.e., teachers not assigned to a particular room, were sometimes used. We expect that these staffing and grouping patterns, which might interfere with children's experiences of stability in the care setting, may perhaps be more often used in flexible child care settings. In a previous study (De Schipper, Van IJzendoorn, & Tavecchio, 2001) we identified several aspects of day-to-day stability of staffing and grouping patterns for a child. For instance, we distinguished between two aspects of daily caregiver stability: stability of caregivers during the day and availability of trusted caregivers (professional caregivers who care for the child most of the time). Other aspects were group stability (stability in the

child's peer contacts) and program stability (low variability in the structure and schedule of the daily program). We expect that with centers offering more flexible care facilities for children, there will be more variability in caregivers and peer contacts resulting in fewer opportunities to establish a regular program structure.

Previous research showed that caregiver stability was an important factor for children when they are building up a positive relationship with their caregiver and developing positive peer relationships. Children who have spent more time with their caregivers or had few changes in primary caregiver had more secure relationships with them (Barnas & Cummings, 1994; Howes & Hamilton, 1992; Raikes, 1993) and showed higher degrees of social competence (Howes & Hamilton, 1993). Also, stability in peer contacts has been associated with a child's better socio-emotional functioning. Children who remained longer with the same group of children in day care were more peer-oriented as well as adult-oriented and less solitary in their activities when compared with children who had shorter histories within a given group (Galluzzo, Matheson, Moore, & Howes, 1988). In this study within daycare centers, we distinguished between two domains of stability, i.e., long-term continuity and daily stability in care. Based on studies mentioned before, we expect more long-term continuity in caregivers and in children to promote more positive caregiver–child interactions as well as less non-compliance, more well-being, and more positive peer interactions of children in day care. Three indicators of long-term continuity in care will be included: staff turnover rate, time with primary caregiver, and same-age/mixed-age group (children in mixed-age groups stay longer with the same peers). The second domain of stability in care is that of daily stability in staffing and grouping patterns. This new domain of stability for children in day care is based on variability in the presence of and in total numbers of professional staff and peers in the center at a micro level, i.e., from the perspective of a child's daily experiences in the care setting. In our study, we expect that with greater daily stability in caregiving patterns, caregivers will show more positive behavior and children will be better adjusted to day care. Furthermore, we expect long-term continuity and daily stability to differ from each other.

Because flexible child care facilities at a center may be limited and may not match parents' working hours completely, we will also consider whether children attend other care arrangements, in addition to center care. Some studies have reported that children with few changes in care arrangement, showed better adjustment (McCartney et al., 1997; NICHD Early Child Care Research Network, 1998). It may be that children in parallel care arrangements, especially different arrangements in the course of a single day, show less positive socio-emotional functioning.

We expect flexible child care to impact in different ways on children, depending on their temperamental characteristics. It may be easier for children with an easier temperament to deal with flexible child care, whereas for children with a more difficult temperament, more flexible child care may be associated with less well-being, more non-compliance and more negative peer play in day care. Thus, temperament might moderate associations between flexible child care and the child's socio-emotional functioning. Also, we expect to find a more direct relationship between temperament and the child's socio-emotional adjustment to day care, in that a more difficult temperament is related to poorer adjustment. Only a few investigations have been conducted into goodness-of-fit in child care contexts outside the family (Carey & McDevitt, 1995). A more difficult temperament has sometimes been found to be associated with more

problem behavior or less positive adjustment to day care (Hagekull & Bohlin, 1995; Klein, 1991; Zajdeman & Minnes, 1991). The NICHD Early Child Care Research Network (1998, 2001) found difficult temperament in infants to be significantly associated with later problem behavior, and less positive peer play, but no association was found within the child care setting, when caregivers or independent observers reported on this behavior. Watson and Kowalski (1999) found that children with a more difficult temperament attract more attention from caregivers. This attention was more often negative, compared to the attention given to more easy-going children. A child's difficult temperament might elicit more controlling, and less positive behavior from caregivers. We will examine whether this is particularly true for children attending more flexible child care. Examining the goodness-of-fit between the external child care environment and the child's personal characteristics, we may gain a better understanding of the child's socio-emotional functioning in day care, and the quality of caregiver-child interactions in this setting.

For mothers combining work and caregiving tasks, daily stress may be an indicator of the degree to which they are able to balance work and family demands. Children of mothers with more daily stress, may have less positive interactions with them (Crnic & Acevedo, 1995) and show more problem behavior (Abidin, Jenkins, & McGaughey, 1992; Crnic & Acevedo, 1995). These children may build up less confidence when coming in contact with other social environments such as day care, which in return makes it more difficult for them to engage in positive interactions with peers and professional caregivers in this care setting. Some studies found that mothers with more daily stress have children in centers and family daycare homes that are of lower quality (Howes & Olenick, 1986; Howes & Stewart, 1987). We expect mothers experiencing less daily stress to have children who are better adjusted to the daycare setting. In addition, we expect that children of mothers experiencing fewer daily hassles, will more often attend centers providing a more positive caregiving environment. In summary, we will investigate whether mothers' stress might interfere with or otherwise complicate a child's adaptation to day care.

The conceptual framework of our study, presented in Fig. 1, is the starting point for examining relations among the variables. To summarize, three objectives will guide the research process. First, we will construct a flexible child care index. Second, we will relate the flexible child care index to daily stability and long-term continuity in care. We expect more flexible child care to be related to more instability in staffing and grouping patterns for the child. We do not have a strong hypothesis about the relation between flexible child care on the one hand, and long-term continuity in care and daily arrangement stability on the other. Third, we want to know the contribution made by flexible child care, long-term continuity, daily stability, arrangement stability, family characteristics and the child's temperament to the quality of caregiver-child interactions and the child's socio-emotional functioning. We expect more flexible child care, less stability in care, more daily parental stress, and a more difficult temperament to be related to less positive caregiver-child interactions and less well-being, more non-compliance, and less positive peer interactions of the child. Third, based on the assumption that a good fit between a child's temperament and his environment yields a more favorable prediction of his development, we expect an easy temperament to act as a buffer against a negative effect of flexible child care on quality of caregiver-child interactions or on the child's socio-emotional functioning. In other words, is flexible child care a risk factor for children with a more difficult temperament with respect to their well-being in day care?

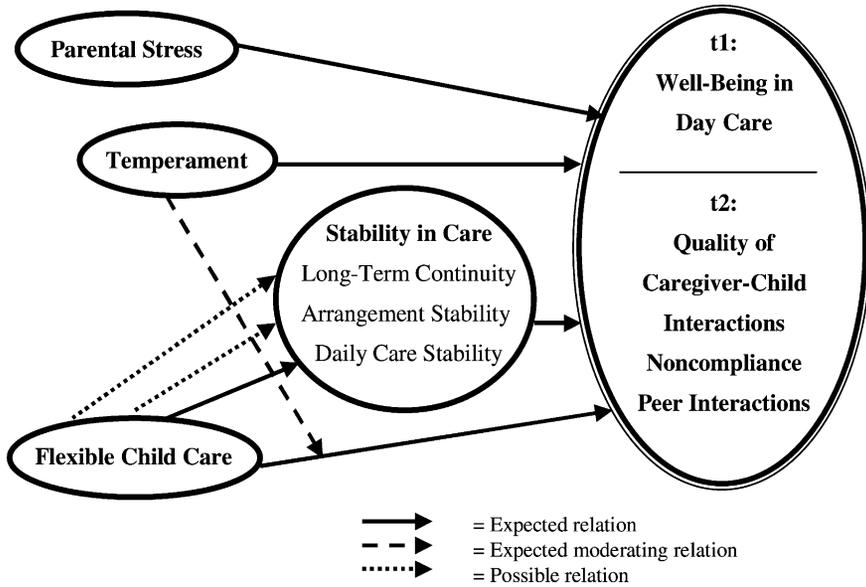


Fig. 1. Conceptual framework for the study on flexible child care, quality of caregiver–child interactions and children’s socio-emotional functioning in center day care.

The results of two studies will be reported here. The first is a survey study using primary professional caregivers’ and mothers’ data on 186 children between 6 and 30 months of age in which the construction of an index for flexible child care will be described. In this study, we also report on the contributions made by flexible child care, stability in care, family characteristics and the child’s temperament to the child’s well-being in the daycare setting. In Study II, 52 children from Study I were observed in their daycare centers, one and a half years later, at the age of 26–50 months. This study examines the contributions of flexible child care, stability in care, family characteristics and the child’s temperament to quality of caregiver–child interactions, non-compliance towards caregivers and children’s peer play.

## 1. Study I

### 1.1. Method

#### 1.1.1. Participants

The mothers and primary professional caregivers of 186 children (48% female), aged 6–30 months ( $M = 18.6$  months,  $SD = 6.88$ ), participated in this survey study. Children came from lower middle to middle upper class families. The children were enrolled in 113 different daycare centers, each child attending a separate group. Average age of entry was 5.58 months ( $SD = 4.32$ ) with a minimum of 2 and a maximum of 24 months. Average number of mornings or afternoons attending the center (“half-days”) per week was 5.32 ( $SD = 1.70$ ), which is comparable to 21–27 hrs per week, with a minimum of 2 half-days and a maximum of 10 half-days (comparable to 8–50 hrs per week).

*1.1.1.1. Recruitment.* An exhaustive list of 1,004 daycare centers in three provinces of The Netherlands (Noord-Holland, Zuid-Holland, Utrecht) was compiled through the following agencies: Chambers of Commerce, Area Health Authorities, municipalities, provincial information centers for day care, and national organizations for day care (VOG, SKON, Catalpa, Humanitas). From this list 140 centers were randomly selected and invited to participate in this study. Mothers and professional caregivers from 119 centers (85%) completed the questionnaires. The directors of the daycare centers were asked to select two groups. In each group they were asked to select a child born on or very close to a specific birth date in order to prevent them from choosing the most popular or most salient child or parent. Questionnaires were sent to the primary professional caregivers and mothers of 268 children and completed by 201 caregivers (75%) and 209 mothers (78%). The completed questionnaires provided information on 224 children (84%) in total. In our final subsample of children from the randomly selected centers, we included only those children for whom complete information from both caregiver and mother was available and who fell in the correct age range (6–30 months of age) ( $n = 162$ ).

In addition to this randomly selected subsample, we recruited centers offering extended day care and/or flexible scheduling. These centers were contacted to represent centers with more flexible child care facilities. The above-mentioned agencies identified 29 daycare centers throughout the whole country offering extended day care and/or flexible scheduling. Two of these centers were already included in the randomly selected sample of centers. After contacting these centers for additional information about their care provision, we selected only 18 of the 27 centers that met one or more of our criteria for inclusion (extended opening hours of minimally 12 up to 24 hrs per day; weekend care facilities; or provision of flexible care scheduling). Mothers and professional caregivers from 14 of the 18 centers (78%) completed the questionnaires. The directors of these centers applied the same procedure for selecting target children, except that in each center three children from three different groups were selected. Questionnaires were sent to the primary professional caregivers and mothers of 34 children and completed by 30 caregivers (88%) and 31 mothers (91%). The completed questionnaires provided information on 33 children (97%) in total. We included in our final subsample of “flexible” children only those children for whom complete information from both caregiver and mother was available and who were in the correct age range ( $n = 24$ ).

*1.1.1.2. Non-response.* In order to test the potential influence of non-response we compared gender and age of  $N = 186$  children in our final sample with gender and age of the non-respondent group ( $N = 45$ , after eliminating children not in the appropriate age range). Differences in age and gender between respondents and non-respondents were not significant (for gender:  $\chi^2(1, n = 231) = 2.21, p = .14$ ; for age:  $t(229) = -1.12, p = .26$ ).

### *1.1.2. Procedure*

Questionnaires were distributed to the parents and professional caregivers via the management of the centers. After 3 weeks a phone call was made to the directors who were asked to approach those parents and caregivers who had not yet completed the questionnaires. After another 4 weeks a second reminder was mailed to the centers. The third reminder after about a further 3 weeks consisted again of a phone call to the directors. Each participant returned the completed questionnaire directly to the university in a pre-stamped envelope.

### 1.1.3. Measures

**1.1.3.1. Leiden Inventory for Flexible Child Care (LIFCC).** To obtain information about parents' use of flexible care facilities for their child at the center, all 186 mothers completed a structured questionnaire about 11 aspects relating to extended day care and flexible scheduling during the previous 2 weeks for their child. These 11 aspects were: early morning care, starting time in morning, evening care, time of going home in evening, overnight care, weekend care, hot meals in the evening, attending the center on a varying number of days each week, attending the center on different (half-)days each week, attending the center for less than four half-days a week, no fixed time schedules for dropping off or picking up the child. Nine of these variables were dichotomous. For two variables, mothers indicated either the time of start in the morning or the time of going home in the evening. These two variables were recoded into variables with 3 or 4 categories. We were especially interested in the facilities the parents really used and not in what kind of facilities were possible in the child care center.

**1.1.3.2. Daily stability in care.** The child's daily stability experiences in the care setting were measured with the Leiden Inventory for Daily Stability in center care (LIDS) using a set of 6-point Likert-type items for professional caregivers. In De Schipper et al. (2001), we reported on the construction of the scales. A higher score on each scale indicated more daily stability. The first scale consisted of seven items concerning the *availability of trusted caregivers*, especially in stressful situations ( $M = 5.16$ ,  $SD = 0.47$ ). Cronbach's alpha in this study was 0.72 ( $n = 181$ ). One of the items of this scale was: "When this child is sad, there's always a trusted caregiver around to soothe him." *Stability of caregivers during the day* consisted of six items ( $M = 4.38$ ,  $SD = 0.86$ ). Cronbach's alpha in this study was 0.70 ( $n = 180$ ). One of the six items of this scale was "In the course of a single day there are changes in caregiver for this child (reversed)." The third scale, *group stability*, was composed of six items concerning daily stability in peer contacts for the child ( $M = 4.47$ ,  $SD = 0.81$ ). Cronbach's alpha was 0.65 ( $n = 172$ ). One item was "In this group, children are dropped off and picked up all day long (reversed)." The fourth scale consisted of six items describing differences in the structure and setting of the daily program (*program stability*,  $M = 4.96$ ,  $SD = 0.63$ ). One of the items of this scale was "The daily schedule for eating, sleeping and playing is the same every day for this child." Cronbach's alpha was 0.56 ( $n = 175$ ). The final scale, *arrangement stability*, was composed of three items indicating a variety of care arrangements for the child in addition to center day care ( $M = 5.10$ ,  $SD = 0.74$ ). One of the items of this scale was: "This child attends several child care arrangements in the course of a single day (reversed)." Cronbach's alpha was 0.65 ( $n = 172$ ).

We also constructed an overall index of the child's experiences of daily stability within the child care setting. In a principal components analysis (PCA) the structure of eight variables concerning stability in care was investigated. The variables included were: four daily stability scales (availability of trusted caregivers, daily caregiver stability, group stability, and program stability), total number of different caregivers in charge of the group ( $M = 3.05$ ,  $SD = 1.29$ ), number of different caregivers the child had encountered during the past 2 weeks ( $M = 4.74$ ,  $SD = 2.00$ ), number of different children the child had encountered during the past 2 weeks ( $M = 16.78$ ,  $SD = 10.66$ ) and group size ( $M = 10.55$ ,  $SD = 2.82$ ). The solution with one principal component fitted the data most adequately. On this component all variables loaded

0.30 or higher, explaining 33.2% of the variance. Cronbach's alpha was 0.69. We included the eight variables in a composite for daily stability in center care, after standardizing all items and reversing four. A higher score on this composite indicated more daily stability in care and in peer contacts for the child in the child care setting. Daily arrangement stability may be an important additional variable focusing on daily care stability outside the center care setting. Therefore, this variable will be included in the regression analysis of well-being separately from the composite of daily stability within center care.

*1.1.3.3. Characteristics of long-term continuity in care.* Professional caregivers completed questions about three characteristics of long-term continuity: staff turnover rate, time with primary caregiver and same-age/mixed-age group. Average staff turnover rate in the last 3 months for the specific group in which the target child participated was 1.92 (SD = 2.16). The average time with primary caregiver (in months) was 9.48 (SD = 6.28). Most of the children attended same-age groups (70.4%), the remainder mixed-age groups.

*1.1.3.4. Leiden Inventory for Maternal work-family Stress (LIMS).* The questionnaire for the mothers included 12 6-point Likert-type items indicating daily stress for the parent originating from combining work and parenting demands, such as: dropping off and picking up the child from the daycare center, leaving work on time, and managing child care and household tasks. Items from a questionnaire designed by Van Dijke, Terpstra, and Hermanns (1994) were used and several items concerning scheduling stress were added. From this questionnaire two scales were derived. The first scale consisted of eight items indicating *family management stress*, such as combining household tasks, work and parenting. The four items of the second scale indicated *scheduling stress* for the transitions between work and care. The internal consistency for each scale was satisfactory. Cronbach's alphas were 0.86 ( $n = 170$ ) for family management stress and 0.76 ( $n = 176$ ) for scheduling stress. Mean scores for each scale were computed. A high score on each scale indicated that the mother experienced a lot of stress.

*1.1.3.5. Temperament (Infant Characteristics Questionnaire).* The Infant Characteristics Questionnaire (ICQ) (Bates, Freeland, & Lounsbury, 1979) was selected to assess the child's temperament as perceived by their mothers. The ICQ consisted of 33 7-point Likert-type items including a general "key" item asking directly for the overall degree of difficulty the child presents for the parent. A principal component analysis confirmed the presence of a strong difficulty component, on which 17 items, including the "key" item, loaded highly. Cronbach's alpha was 0.87 ( $n = 178$ ). The mean score for this scale was computed. A high score on the scale indicated that the child had a more difficult temperament.

*1.1.3.6. Family socio-economic status (SES).* Family socio-economic status was based on a combination of the educational and vocational background of both parents using the sample specific factor loadings and standard deviations of the four factors (see also Bernstein & Brandis, 1970). Children came from lower middle to middle upper class families ( $M = 4.88$ ,  $SD = 1.12$  on a scale from 1 to 6).

*1.1.3.7. Leiden Inventory for the Child's Well-Being in Day Care (LICW-D).* The child's well-being in day care was measured with 12 6-point Likert-type items for professional

caregivers. The Inventory was adapted from the well-being scale used in a previous Leiden Daycare Study (Van IJzendoorn, Tavecchio, Stams, Verhoeven, & Reiling, 1998). In De Schipper et al. (2001) we reported on the construction of the scale. Several aspects of well-being in day care were included, such as well-being in the presence of caregivers, and with group members and fascination for toys. Two items of the scale were “This child enjoys attending the daycare center” and “This child feels at ease with all the professional caregivers.” The internal consistency of the 12 items, after reversing half of the items, was satisfactory: Cronbach’s alpha was 0.81 ( $n = 159$ ). The mean score for this scale was computed, with higher scores meaning more well-being in day care. In a previous study (De Schipper et al., 2001), we found this well-being scale to be quite strongly correlated with the internalizing behavior scale of the Child Behavior Checklist (Achenbach, 1997), but not with the externalizing behavior scale, which supports its validity.

#### 1.1.4. *Statistical analyses*

Categorical principal components analysis (CatPCA) (Meulman, Heiser, & SPSS, 1999) was used to investigate the structure of the categorical variables covering flexible child care. Next, we computed the bivariate correlations of flexible child care with stability of care variables. Third, the model presented in the introductory section to explain differences in the child’s well-being was explored in a multivariate approach using a hierarchical regression in which family characteristics, temperament, and child care variables were included. The interaction between flexible child care and the child’s temperamental difficulty was included in the final block of the regression using a product-term of the standardized variables. The interaction effect was explored by post hoc comparisons of associations within the group of children with an easier temperament vs. children with a more difficult temperament, using a median split to define the two groups.

### 1.2. *Results*

#### 1.2.1. *Construction of flexible child care index*

The 11 variables of the Leiden Inventory for Flexible Child Care (LIFCC) had two to four categories. To avoid using categories with low marginal frequencies, as they might produce an unreliable solution, each category contained at least three subjects. None of the 186 children had been in night care and only one in weekend care during the previous 2 weeks. Therefore, these two aspects of flexible child care were excluded from further analyses. CatPCA (Meulman et al., 1999) was used to reduce the number of variables to principal components that describe the original data as well as possible. The nine variables were treated ordinally. The solution with one component fitted the data adequately, explaining 34.8% of the variance. Six variables loaded 0.55 or higher on this component. The category quantifications of each variable showed that the measurement level of these six variables was indeed ordinal. The variable “the child is attending the center for less than four half-days a week” did not load strongly on the component. Also, the two variables concerning “care before 8 a.m.” and “starting time in morning” did not load highly on the component. The variables, with their categories, cell frequencies and category quantifications are presented in Table 1. The stability of the solution was tested by means of the bootstrap procedure (Efron & Tibshirani, 1993). A

Table 1

Description of the Leiden Inventory for Flexible Child Care: overview of variables, with their categories, cell frequencies, category quantifications and component loadings ( $N = 186$ )

Facilities that parents used for their child during the previous 2 weeks	Categories		Frequency	Quantifications	Component loading
Care before 8 a.m.	No	1	132	-0.64	0.05
	Yes	2	54	1.56	
Starting time in morning (if the child had started at different times: average starting time)	$\geq 8$ a.m.	1	132	-0.23	0.29
	7.30–7.59 a.m.	2	45	-0.23	
	<7.30 a.m.	3	9	4.44	
Care after 5.30 p.m. <sup>a</sup>	No	1	127	-0.68	0.59
	Yes	2	59	1.47	
Time of going home in evening (if the child had gone home at different times: average time of going home) <sup>a</sup>	$\leq 5.30$ p.m.	1	127	-0.53	0.76
	5.31–6.00 p.m.	2	45	0.54	
	6.01–7.00 p.m.	3	11	2.70	
	>7.00 p.m.	4	3	4.36	
Evening meals <sup>a</sup>	No	1	171	-0.30	0.63
	Yes	2	15	3.38	
Attendance on a varying number of days each week <sup>a</sup>	No	1	163	-0.38	0.79
	Yes	2	23	2.66	
Attendance on different (half-)days each week <sup>a</sup>	No	1	159	-0.41	0.76
	Yes	2	27	2.43	
Parents used no fixed time schedules for dropping off or picking up their child <sup>a</sup>	No	1	151	-0.48	0.66
	Yes	2	35	2.08	
Attendance less than 4 half-days a week	No	1	164	-0.37	0.31
	Yes	2	22	2.73	
Weekend care <sup>b</sup>	No	1	185		
	Yes	2	1		
Overnight care <sup>b</sup>	No	1	186		
	Yes	2	0		

<sup>a</sup> Variables included in the flexible child care index.

<sup>b</sup> Variable not included in analysis of CatPCA.

thousand new samples were drawn, with replacement, from the current dataset. The average of the bootstrapped component loadings is an estimate of the parameter. Therefore, the distance between the original component loading and the average component loading of all the bootstraps is an indication of bias. The biases in our analysis varied from 0.0006 to 0.0884 for all variables and from 0.0046 to 0.0147 for the six variables loading highly on the component. The

confidence intervals were small, which is an indication of the stability of the solution found (see *Linting & Groenen, 2002*, for similar analyses). As the bootstrap procedure replicated our results, we included the six variables in a composite for flexible child care, using standardized variables. The composite score ranged from  $-2.84$  to  $15.80$ , with higher scores indicating more flexible child care. Cronbach's alpha for internal consistency of the six standardized variables was  $0.80$ .

### *1.2.2. Correlates of the flexible child care index*

The correlations of the flexible child care index with various aspects of daily stability in center care show that flexible child care was significantly associated with caregiver stability during the day ( $r(184) = -.39, p < .001$ ) and group stability ( $r(184) = -.49, p < .001$ ). For children in more flexible care there was less stability of caregivers in the course of a single day and less stability in peer contacts. In addition, a significant association was found between flexible child care and program stability ( $r(184) = -.16, p < .05$ ). Children in more flexible care experienced less daily routine in the daycare program. No significant association was found with availability of trusted caregivers. The stability in care composite was significantly associated with the flexible child care index (see *Table 2*). When children attended less flexible child care they experienced more daily stability in the care setting. Furthermore, no significant association was found between flexible child care and daily arrangement stability.

In *Table 2*, the correlations between flexible child care and three long-term continuity in care variables are presented. No significant associations were found with staff turnover rate, same-age vs. mixed-age group or time with primary caregiver.

### *1.2.3. Unraveling child well-being in day care: a multivariate approach*

*Table 2* presents the bivariate correlations between flexible child care, long-term continuity and daily stability in care, daily arrangement stability, mother's daily stress, the child's temperament and the child's well-being. In the introductory section we presented a conceptual model for explaining differences in the child's well-being in day care. This model was explored using a hierarchical regression approach in which background variables and family characteristics were entered first, then the child's temperament, followed by child care variables and, finally, one interaction term was included in the regression equation. In the first block of independent variables, gender, age of the child, and SES were entered into the equation. In the second block, family management stress and scheduling stress of the mother were included. In the third block, temperamental difficultness was included. In the fourth block staff turnover rate, same-age/mixed-age group and time with primary caregiver were entered. In the fifth block, the composite for daily stability in care and daily arrangement stability were entered. In the sixth block, the flexible child care index was included. In the final block, the interaction between flexible child care and the child's difficultness was entered into the equation.

*Table 3* presents the hierarchical regression of child and family characteristics, temperament, stability in care and flexible child care on the LICW-D. Three variables and one interaction contributed significantly to the equation. Temperament was associated with the child's well-being in day care. Children perceived by their mothers as more difficult, were reported by their caregivers as being less satisfied and less happy in center day care. Participation in more stable

Table 2

Pearson correlations between child and family characteristics, long-term continuity and daily stability in care, arrangement stability, flexible child care, and the child's well-being in day care ( $N = 186$ )

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender <sup>a</sup>	1.48	0.50												
2. Age	18.63	6.88	0.03											
3. Socio-economic status	4.88	1.12	0.06	-0.14										
4. Family management stress	2.65	0.81	-0.14	0.05	0.18*									
5. Scheduling stress	2.85	1.00	0.02	-0.18*	0.25**	0.41***								
6. Difficultness	3.16	0.65	0.00	0.27***	-0.03	0.27***	0.13							
7. Turnover rate	1.92	2.16	-0.06	-0.06	0.12	-0.06	-0.04	-0.10						
8. Same/mixed-age <sup>b</sup>	1.30	0.46	0.02	0.03	-0.14	-0.15*	-0.04	0.08	-0.21**					
9. Time with caregiver	9.48	6.28	0.10	0.19*	-0.13	-0.03	0.07	0.13	0.04	0.23**				
10. Daily care stability	0.00	0.56	-0.10	-0.12	0.03	0.00	0.01	-0.05	0.14	-0.21**	-0.04			
11. Arrangement stability	5.11	0.74	0.21**	-0.11	0.07	-0.06	-0.04	-0.07	-0.15*	0.05	0.05	0.02		
12. Flexible child care	0.00	4.23	0.01	-0.06	0.11	0.04	0.12	-0.07	-0.13	0.07	0.00	-0.46***	0.07	
13. Well-being child	4.86	0.51	0.10	-0.03	0.01	-0.07	0.02	-0.21**	-0.02	0.02	0.01	0.20**	0.25**	0.05

<sup>a</sup> 1 = boy, 2 = girl.

<sup>b</sup> 1 = same-age group, 2 = mixed-age group.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

Table 3

Multiple hierarchical regression analysis of family characteristics, temperamental difficultness, long-term continuity of care, daily stability in care, arrangement stability, and flexible child care on the child's well-being in day care<sup>a</sup> ( $N = 186$ )

S. no.	Variables	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> change	<i>F</i> change
1	Gender	0.08	0.08	.11	.01	.01	0.72
	Age	0.01	0.08				
	SES	-0.01	-0.03				
2	Family management stress	0.00	0.00	.13	.02	.00	0.35
	Scheduling stress	0.02	0.03				
3	Difficultness	-0.16	-0.20**	.24	.06	.04	8.21**
4	Staff turnover rate	0.00	-0.01	.25	.06	.00	0.15
	Same-age/mixed-age group	0.07	0.06				
	Time with caregiver	0.00	-0.02				
5	Daily care stability	0.24	0.27**	.39	.15	.09	9.41***
	Arrangement stability	0.14	0.20**				
6	Flexible child care	0.02	0.14	.41	.17	.02	3.59
7	Difficult $\times$ flexible child care	-0.02	-0.15*	.44	.19	.02	4.18*

<sup>a</sup>  $F(13, 172) = 3.10, p < .001$  for the total model.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

child care was associated with more well-being of children in the daycare setting. Children who experienced more daily stability of caregivers and peers were more at ease in the daycare setting. In addition, children in few parallel care arrangements showed more well-being. Finally, the interaction between a difficult temperament and flexible child care was significant. We compared the betas of flexible child care in the group of more easy-going children vs. the group of more difficult children, after the other independent variables were controlled for. For children with an easier temperament, more flexible child care was associated with more well-being in day care ( $\beta = 0.25, p < .05$ ), whereas for children with a more difficult temperament, this association was absent ( $\beta = 0.02, p = ns$ ). Overall, the regression equation explained 19% of the variance of the child's well-being in day care. Finally, an exploratory hierarchical regression analysis was carried out for well-being in day care with one different interaction term included in the final step of the equation, namely the interaction between daily stability in care and the child's temperament. This interaction did not add significantly to explanations of differences in the child's well-being.

### 1.3. Discussion

In this survey study of 186 young children enrolled in center day care an index for flexible child care was constructed, indicating that evening care, evening meals and flexible scheduling facilities are related to each other in a consistent way. Early morning care was not associated with the other facilities, suggesting that when children go to day care early, they do not remain at the center till late in the evening more or less often, nor do they attend the center on irregular days or hours more or less often compared to children who do not go to day care early in the morning. It is the first study in which this form of flexible child care has been related to aspects

of the daily stability of the caregiving environment which might affect children's well-being in day care and their socio-emotional development.

We expected daily stability in care patterns to be a crucial aspect in how flexible child care might affect children in their daily care setting. To begin with, our results do indicate that children with more daily stability in center care feel more at ease, as we found an increase in variety and number of professional caregivers and peers to be associated with less well-being. Flexible child care, however, was not related to the child's well-being. Thus, parental use of more flexible child care does not seem to imply that a child will feel less happy in the daycare setting. Rather, a child's well-being may be affected by the daily stability in staffing and grouping patterns in (flexible) center day care. The results suggest that (flexible) daycare centers should try to prevent the number of (different) caregivers and children in flexible care from increasing, as this may lead to instability of caregivers and peers in a group, thereby increasing the likelihood that children's socio-emotional development is affected negatively.

Yet, this is not the whole story, as our findings suggest that children with an easier temperament show better adjustment to flexible child care, compared to children in less flexible care and/or with a more difficult temperament. It may be that these "easy-going" children are better able to cope with the various kinds of "instabilizing" factors (e.g., greater variability in caregivers and peers and varying attendance schedules) that occur in centers offering flexible care.

Furthermore, our findings indicate that children who, in addition to center care, attend other care settings, show less well-being in day care. These findings corroborate the [NICHD Early Child Care Research Network \(1998\)](#) study that found more changes in care arrangement were related to more problem behavior in 2-year-olds. In examining parents' use of flexible child care, it seems also relevant to consider children's parallel care arrangements as these may be partly a consequence of a center's limited flexible child care facilities. Children who experience switches in child care environment within a short time period appear to have difficulty in coping with these parallel care arrangements, resulting in less well-being.

When parents use more flexible child care facilities, one of the implications seems to be that the child experiences less stability of caregivers during the day, less stability in peer contacts, and less structure in his or her daily program. The results indicate that in centers offering more flexible child care facilities for parents, not only are more caregivers needed to do all the shifts, but more scheduling of children and of caregivers is needed. This way of organizing center day care seems to result in more variability in caregivers, peer contact and program structure; in other words, children in more flexible care experienced less daily stability at the center. More flexible child care does not, however, appear to imply that trusted caregivers are less often available for the child. Also, long-term continuity of care, i.e., staff turnover rate and time with primary caregiver, and daily arrangement stability were not associated with flexible child care. Arrangement stability, long-term continuity and daily stability in center care are three different and relatively independent aspects of stability in care.

The results of this study are limited in that they do not reflect associations over time nor include observational measures of the child's well-being in day care. In Study II, we will further examine the contributions of flexible child care, stability in care, family characteristics

and the child's temperament to quality of caregiver–child interactions, children's peer play and non-compliance towards caregivers.

## 2. Study II

### 2.1. Method

#### 2.1.1. Participants

In the second, in-depth observational study, 52 children from the survey study were included in a follow-up study approximately one and a half years later. Each child was observed for one morning in his or her group in the daycare center. All children (27 girls, 52%), aged 26–50 months ( $M = 36.7$  months,  $SD = 7.0$ ), attended the same daycare center as at the time of Study I. The children were enrolled in 43 different daycare centers, each child attending a separate group. Average number of mornings or afternoons the children attended the center (half-days) per week was 5.04 ( $SD = 1.49$ ), which is comparable to 20–25 hrs per week with a minimum of 2 half-days and a maximum of 10 half-days.

*2.1.1.1. Recruitment.* Children were selected by means of a stratified random sample. In this second study, 40 children from our randomly selected sample of 162 children (from Study I) were selected, as well as 12 children from our additional sample of 24 children from centers offering flexible child care (also from Study I). Our aim was to maximize the variance in caregiver stability as well as the variance in flexible child care. Therefore, children from the randomly selected survey sample were recruited by means of their score on the two daily caregiver stability scales “caregiver availability” and “stability of caregivers during the day,” using a product term of the scales. As a result, children in the originally randomly selected sample were divided in three groups: children experiencing low caregiver stability (lowest quartile of the product term), children experiencing average caregiver stability (middle 50%), and children experiencing high caregiver stability (highest quartile). A fourth group consisted of the 24 children from centers offering extended day care and/or flexible scheduling. In each group a random sample of 15 was selected, with a maximum of 8 boys or 8 girls. When a child or center did not participate, another child was recruited that matched in caregiver stability, gender, and age. Children from single parent families were excluded. Finally, 14 children participated in the first group (low caregiver stability), 14 children in the second group (average caregiver stability), 12 children in the third group (high caregiver stability), and 12 children in the fourth group (flexible care sample). The mean scores on the caregiver stability product term for each group (with a minimum of 9 and a maximum of 34 for the total group) were 17.2 ( $SD = 3.4$ ), 23.4 ( $SD = 1.7$ ), 29.3 ( $SD = 2.4$ ), and 18.3 ( $SD = 5.7$ ), respectively. The groups differed significantly on caregiver stability. Scheffé tests for post hoc comparisons revealed that all groups differed from each other except for the flexible care group and the low caregiver stability group.

There were no significant differences in gender, age and SES between the four groups (for gender:  $\chi^2(3, n = 52) = 0.26, p = .97$ ; for age:  $F(3, 48) = 0.32, p = .81$ ; for SES:  $F(3, 48) = 0.33, p = .81$ ) or between the children from the randomly selected survey sample

and the additional sample (for gender:  $\chi^2(1, n = 52) = 0.26, p = .61$ ; for age:  $t(50) = -0.16, p = .87$ ; for SES:  $t(50) = 0.54, p = .59$ ).

*2.1.1.2. Non-response.* The directors of daycare centers of 97 children were asked to participate. Participation was not possible for 45 children. The main reason for non-participation was that the child had left the daycare center (42%). Several directors indicated they were too busy (22%) and sometimes parents did not want to participate (18%). Thus, 52 children did participate as indicated above. In order to test the potential influence of non-response, we compared gender, age, family characteristics, structural aspects of quality of care and the child's well-being of the 52 observed children and the non-participating 45 children. No significant differences in gender, age, age of entry, SES, parents' hours of work outside the home, caregiver-child ratio, staff turnover rate, education of caregiver, group size and the child's well-being were found.

### *2.1.2. Procedure*

Observations (by the first author or a trained research assistant) took place during one morning visit at the daycare center. Each child was videotaped during his or her daily activities at the center for one hour, in two half-hour sessions. The observers remained as unobtrusive as possible and did not speak to the children or teachers during videotaping. The first half hour was videotaped 15 min after the child's parent had left. The second half hour started between 10.00 and 11.00 a.m., mostly during free play. The primary caregiver was given a questionnaire to be completed the same week. The director of the child care center was interviewed by phone, and three questionnaires were sent to the parents (one for the father, one for the mother and one about family (background) variables to be completed by one of the parents). The questionnaires completed by the parents and the primary caregiver were returned directly to the university in a pre-stamped envelope. Father reports were not used in the present study.

The visit to the center took place after we received written consent from both the director of the center and the parents agreeing to the target child's and professional caregivers' participation in this observation study. Also, the parents of the other children in the group of the child were informed by letter that video recording would take place.

### *2.1.3. Measures*

*2.1.3.1. Leiden Inventory for Flexible Child Care.* Parents were asked to complete a questionnaire about the use of six aspects of flexible child care during the previous 2 weeks as in Study I (see Table 1). These variables about flexible care facilities for the child were recoded into the same categories as in the first study. Then, each variable was recoded into the standardized values obtained for each category in the first study. A composite score was made for the same six variables with a minimum and maximum score of  $-2.84$  and  $15.80$ , respectively. The stability over time of flexible child care was strong ( $r(50) = .71, p < .001$ ). The scores of Study I and II were averaged.

*2.1.3.2. Daily stability in care.* The scales for stability in care were derived from the LIDS, completed by the primary caregiver, in the same way as was done in Study I. Mean scores of standardized variables for the overall *daily stability in center care* composite were computed.

The composite included four scales of the LIDS and four other variables: caregiver availability ( $M = 5.15$ ,  $SD = 0.47$ ), caregiver stability ( $M = 4.32$ ,  $SD = 0.74$ ), group stability ( $M = 4.40$ ,  $SD = 0.86$ ), and program stability ( $M = 4.67$ ,  $SD = 0.72$ ), total number of different caregivers in charge of the group (reversed) ( $M = 3.13$ ,  $SD = 0.71$ ), number of different caregivers the child had encountered during the past 2 weeks (reversed) ( $M = 5.57$ ,  $SD = 3.20$ ), number of different children the child had encountered during the past 2 weeks (reversed) ( $M = 17.79$ ,  $SD = 7.54$ ), group size (reversed) ( $M = 12.74$ ,  $SD = 2.67$ ). A higher score on this composite indicated more daily stability in caregivers and in peer contacts for the child in the daycare setting. No significant association over time was found for this stability in care composite ( $r(50) = .09$ ,  $p = .55$ ).

As in Study I, one scale of the LIDS, *daily arrangement stability*, was examined separately from the composite of daily stability in center care. A moderate association over time was found for daily arrangement stability ( $r(50) = .35$ ,  $p < .05$ ).

*2.1.3.3. Long-term continuity in care.* In the interview with the director of the center, information about staff turnover rate in the daycare center during the previous 12 months was gathered and a staff turnover percentage was computed. The primary professional caregiver completed questions about time with primary caregiver and same-age vs. mixed-age groups.

*2.1.3.4. Maternal daily hassles.* A scale for maternal work-family stress was composed, derived from the Parenting Daily Hassles Measure (Crnic & Greenberg, 1990). Mothers completed two sets of 5-point Likert-type items about the frequency and intensity of daily hassles. Only the intensity items were used in our analyses. *Parenting task stress*, the degree to which the mother experiences stress in her parenting tasks, consisted of eight items. This scale correlated significantly with the family management stress scale in Study I ( $r(50) = .53$ ,  $p < .001$ ).

*2.1.3.5. Temperament (Infant Characteristics Questionnaire).* The mother as well as the primary caregiver completed the ICQ. In Study I the difficulty scale consisted of 17 items. A mean score for difficulty was computed for both mothers' and caregivers' report in this second study, based on these same 17 items (for mothers:  $M = 3.19$ ,  $SD = 0.50$ ; for caregivers:  $M = 3.01$ ,  $SD = 0.71$ ). Mother's report in Study I and II correlated significantly ( $r(50) = .44$ ,  $p < .01$ ). No correlation was found between mother and caregiver report ( $r(50) = .20$ ,  $p = .16$ ). To further explore the child's experiences within the daycare setting, only the caregiver's perception of the child's temperament was included in subsequent analyses.

*2.1.3.6. Quality of caregiver-child interactions.* The Observational Record of the Caregiving Environment (ORCE) (NICHD Early Child Care Research Network, 1996, 2000) was used to assess the quality of caregiving received by the individual child. Each child was observed at his or her daycare center for two half hours sessions in a single one morning. Observations were videotaped and caregiving behavior of caregivers involved with the child was coded on eight rating scales by trained observers for each half hour. Analogous to the NICHD Early Child Care Research Network (2000) study, the composite variable was generated by averaging the mean scores on six 4-point quality ratings: sensitivity/responsiveness to the child's non-distress expressions, positive regard, stimulation of cognitive development, detachment (reversed), flat

affect (reversed), and intrusiveness (reversed). The first five scales were also used in composites at 24 as well as 36 months in the NICHD study. The scale for intrusiveness was only used in the composite at 36 months in that study. Cronbach's alpha for this composite variable in the current study was 0.87. The quality of sensitivity to distress was rated for only 12 children (the other children did not show distress during the observation period). Similar to the [NICHD Early Child Care Research Network \(1996\)](#) study, no variation was found on the rating for negative regard. These two rating scales were excluded from the composite. The manuals of the ORCE for age 24 and 36 months were translated into Dutch and integrated into one for the purpose of this study. The second author trained research assistants after carefully reviewing the written materials, watching pilot observations and consulting with Dr. Alison Clarke-Stewart. Observers were trained using videotaped pilot observations and some additional observations in this study, used only for training purposes. Interobserver agreement with the trainer for quality of caregiver–child interactions was 0.87 and 0.84 for the two research assistants.

*2.1.3.7. Child socio-emotional functioning.* The ORCE ([NICHD Early Child Care Research Network, 1998, 2001](#)) was also used to assess the child's non-compliance, negative, and positive/neutral peer interactions. A trained observer, different from the observers of the quality ratings, coded the two 30 min observations. Incidence of the child's behavior was recorded using 1 min time sampling (observing for 30 s and recording for 30 s). The incidence of *non-compliance* with caregivers' requests was composed of the frequencies of two behavioral categories: the child's autonomous self-assertion and defiance. Autonomous self-assertion reflected the percentage of times that the child responded to caregiver directives by saying "no" or "mine" or some other empathic but non-aggressive assertion or by refusal to cooperate. Defiance reflected the percentage of responses to caregiver directives that involved expressions of anger or aggression or intensifying an explicitly prohibited behavior by the child (see also [NICHD Early Child Care Research Network, 1998](#)). Interobserver agreement was 96% (26 episodes over 7 children, episodes in which caregiver gave directives). The incidence of *negative peer interactions* described the proportion of peer interaction in which a child was giving or receiving an unfriendly overture, including physical and verbal aggression (see also [NICHD Early Child Care Research Network, 2001](#)). Interobserver agreement was 98% (170 episodes over 7 children). The incidence of *positive or neutral interactions* described how frequently the child was engaged with other children in any type of non-negative interaction (see also [NICHD Early Child Care Research Network, 2001](#)). Interobserver reliability was 85% (170 episodes over 7 children). The second author trained the research assistant.

## 2.2. Results

### 2.2.1. Correlates of flexible child care

Table 4 presents the correlations between flexible child care, long-term continuity and daily stability in center care, and daily arrangement stability. Flexible child care and the daily stability composite were significantly associated. When children were in more flexible child care, there was less daily stability of caregivers, peers, and program. On the other hand, flexible child care showed a positive association with long-term continuity in care. Children attending more flexible care had known their primary caregiver for a longer period than children attending less

Table 4  
 Pearson correlations between child, family and care characteristics, quality of caregiver–child interactions, non-compliance and peer interactions ( $N = 52$ )

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender <sup>a</sup>	1.52	0.50														
2. Age	36.7	7.0	0.24													
3. Socio-economic status	5.04	0.93	−0.04	−0.29*												
4. Daily stress	1.71	0.40	−0.05	0.03	0.15											
5. Difficultness	3.01	0.71	−0.15	−0.30*	0.10	0.29*										
6. Turnover rate	0.14	0.18	−0.07	−0.02	−0.04	−0.09	0.25									
7. Same/mixed-age <sup>b</sup>	1.33	0.47	−0.15	−0.05	−0.03	0.11	0.08	0.09								
8. Time with caregiver	15.4	10.3	0.10	0.47***	−0.21	−0.09	−0.05	0.04	0.31*							
9. Daily care stability	0.00	0.49	0.00	0.12	−0.01	0.22	−0.03	−0.24	−0.27	−0.14						
10. Arrangement stability	5.19	0.68	−0.15	0.04	−0.06	0.11	−0.10	0.01	0.15	0.10	−0.01					
11. Flexible child care	0.42	4.13	0.18	0.13	0.10	−0.01	0.00	−0.09	0.27	0.28*	−0.28*	0.14				
12. Quality of care	3.19	0.37	−0.15	−0.01	0.05	−0.28*	−0.33*	−0.31*	0.13	0.01	−0.26	0.08	0.13			
13. Non-compliance	0.12	0.19	−0.02	−0.28*	−0.10	0.14	0.24	0.02	−0.03	−0.09	−0.05	0.16	0.23	−0.14		
14. Negative peer interactions	0.12	0.07	−0.27	−0.41**	0.24	−0.19	0.15	0.03	−0.14	−0.15	−0.14	0.02	−0.01	0.17	0.08	
15. Positive peer interactions	0.59	0.17	0.12	0.30*	−0.13	−0.14	−0.30*	−0.12	−0.11	0.16	0.12	−0.09	0.18	−0.01	−0.04	0.15

<sup>a</sup> 1 = boy, 2 = girl.

<sup>b</sup> 1 = same-age group, 2 = mixed-age group.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

Table 5

Multiple hierarchical regression analysis of mother's daily parenting task stress, temperamental difficultness, staff turnover rate, daily stability in care, and flexible child care on quality of caregiver–child interactions<sup>a,b</sup> ( $N = 52$ )

Variables	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> change	<i>F</i> change
1. Mother's daily stress	−0.60	−0.24	.33	.11	.11	6.03*
2. Difficultness	−0.28	−0.20	.42	.18	.07	4.28*
3. Staff turnover rate	−2.10	−0.38**	.52	.27	.09	5.87*
4. Daily care stability	−0.58	−0.29*	.59	.34	.07	5.31*
5. Flexible child care	0.00	0.00	.59	.34	.00	0.00

<sup>a</sup> Controlled for gender, age, socio-economic status, time with primary caregiver, same-age/mixed-age groups and daily arrangement stability.

<sup>b</sup>  $F(5, 46) = 4.80, p < .01$  for the total model.

\*  $p < .05$ .

\*\*  $p < .01$ .

flexible care. Again, flexible child care was not significantly associated with daily arrangement stability.

### 2.2.2. *Unraveling quality of caregiver–child interactions and the child's socio-emotional functioning: a multivariate approach*

The correlations of child, family and care characteristics with quality of caregiver–child interactions, non-compliance, negative peer interactions, and positive or neutral peer interactions are shown in Table 4. The model for explaining differences in quality of caregiver–child interactions and the child's socio-emotional functioning, presented in the introductory section, was explored using a hierarchical regression approach. The same model was explored for caregiver–child interactions and each child adjustment measure. In preliminary analyses three background variables (age, gender and family SES), and three care variables which did not show significant correlations with any of the dependent variables (time with primary caregiver, same-age/mixed-age group and daily arrangement stability, see Table 4), were entered together in a standard multiple regression for each dependent variable. This resulted in a residual for each of the four dependent variables. In order to limit the number of independent variables, we used the residuals in further regression analyses. The remaining five independent variables were entered separately in five steps in each hierarchical regression in the following order: mother's daily parenting task stress, the child's temperament, staff turnover rate, daily stability in care, and flexible child care. Finally, exploratory hierarchical regression analyses were conducted on the four residuals of the dependent variables with one additional variable included in the sixth step of the equation, namely the interaction between flexible child care and the child's temperament. This interaction appeared not to be significant in any of the four regression equations.

2.2.2.1. *Quality of caregiver–child interactions.* The results of the regression analysis for quality of caregiver–child interactions are presented in Table 5. Four variables in the multiple hierarchical regression on the ORCE rating of quality of caregiver behavior contributed significantly to the equation: mother's daily stress, the child's temperament, staff turnover rate, and daily stability in care. Professional caregivers of children, whose mothers showed more daily

Table 6

Multiple hierarchical regression analysis of mother's daily parenting task stress, temperamental difficultness, staff turnover rate, daily stability in care, and flexible child care on the child's non-compliance in day care<sup>a,b</sup> ( $N = 52$ )

Variables	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> change	<i>F</i> change
1. Mother's daily stress	0.36	0.15	.19	.04	.04	1.88
2. Difficultness	0.20	0.14	.24	.06	.02	1.04
3. Staff turnover rate	0.15	0.03	.24	.06	.00	0.01
4. Daily care stability	0.09	0.05	.24	.06	.00	0.14
5. Flexible child care	0.07	0.31*	.38	.15	.09	4.69*

<sup>a</sup> Controlled for gender, age, socio-economic status, time with primary caregiver, same-age/mixed-age groups and daily arrangement stability.

<sup>b</sup>  $F(5, 46) = 1.46, p = .19$  for the total model.

\*  $p < .05$ .

parenting hassles, showed lower quality caregiving behavior. When children were perceived as more difficult by their primary caregiver, they experienced caregiving behavior of lower quality from their caregivers. The beta weights of mother's stress and the child's temperament did not remain significant after the other variables were entered. Caregivers in daycare centers with higher staff turnover rates showed less positive caregiving towards the children. Caregivers in centers with more daily stability in care showed less positive caregiving interactions. Because this last finding was unexpected, we further explored which caregiving behaviors were associated most strongly with stability in care. Two subscales of positive caregiving correlated significantly with daily stability in care: detachment ( $r(50) = .32, p < .05$ ) and flatness of affect ( $r(50) = .28, p < .05$ ). More stability in care was associated with more detachment and flatness of affect in caregivers. In addition, we further explored which aspects of daily stability were related to quality of caregiver-child interactions. When the total number of caregivers in charge of the group was higher, caregivers showed more positive behavior ( $r(50) = .28, p < .05$ ).

**2.2.2.2. Child's socio-emotional functioning.** The results of the regression analysis for *non-compliance* are presented in Table 6. Children in more flexible child care showed less compliance in the daycare setting. This finding should be interpreted with caution, because the total model was not significant [ $F(5, 46) = 1.46, p = .19$ ]. None of the independent variables contributed significantly to the regressions on either the child's *negative interactions* or *positive/neutral interactions with other peers*.

### 2.3. Discussion

In Study II, our newly developed index for flexible child care was used together with characteristics of stability in care, mother's daily hassles and the child's temperament to explain differences in children's socio-emotional functioning and quality of caregiving behavior in day care. Our daycare observations of 52 children from Study I, now toddlers and preschoolers, indicated that children who attended more flexible child care, showed less compliance with their caregivers. In addition, quality of caregiving behavior was lower when staff turnover rate of the center was higher. Furthermore, and rather unexpectedly,

caregivers' behavior was less positive for children with more daily stability in the daycare center.

The results of Study II suggest that the child's non-compliance towards caregivers increases with more flexible care. Previous studies have found that children with extensive child care experience showed more non-compliance and problem behavior (Bates et al., 1994; Belsky & Eggebeen, 1991; Borge & Melhuish, 1995; NICHD Early Child Care Research Network, 1998), and some studies have reported better adjustment in children when they had few changes in care arrangements (McCartney et al., 1997; NICHD Early Child Care Research Network, 1998). Our results indicate that it may not be daily stability in care that accounts for this association, nor long-term continuity in care. Perhaps a less regular daily schedule complicates a child's transition from home to day care, resulting in more defiant behavior towards caregivers. Although this result should be interpreted with caution, previous findings of child care effects on non-compliance justify further research to explore the present finding.

In daycare centers with more long-term continuity in teaching staff, caregivers appear to be more involved in children's activities and to stimulate their development. This is in accordance with previous studies relating a higher staff turnover rate to lower quality of care (Phillips, 1987; Scarr, Eisenberg, & Deater-Deckard, 1994) as well as studies into the effects of more caregiver stability on the quality of attachment relationships (Barnas & Cummings, 1994; Howes & Hamilton, 1992; Raikes, 1993). In a large-scale child care staffing study, Whitebook, Sakai, Gerber, and Howes (2001) found that turnover rate affected quality of care indirectly. The level of training was the best prediction of higher quality of care, whereas highly trained staff more often worked in centers with lower turnover rates. Whitebook et al. (2001) reported alarming staff turnover rates in child care centers. In their study, 76% of the professional caregivers had left their job within four years. In this respect it is surprising that no larger and more direct effects of staff turnover rate have been found in previous research.

A striking result was that the toddlers and preschoolers in Study II who had been in more flexible child care had known their primary caregiver for a longer period compared to children attending less flexible care. This long-term continuity in caregivers may have compensated for possible detrimental effects of flexible child care on the child's socio-emotional functioning. Replication of this association is needed to know whether it was sample specific.

Lower daily stability in center care was related to more positive caregiver interactions for children at toddler and preschool age. This rather unexpected result is not easy to explain. More caregiver involvement in particular was related to less daily stability in care. It may be that caregivers are aware of the instability in care and compensate by being more positively oriented towards these children. Another explanation is that when there is more daily stability in care, caregivers probably know each other better and may tend to be more oriented towards each other and less towards the children in the group, compared to caregivers who work with a larger number of different colleagues. De Ruyter (1971), for example, found that group leaders in residential treatment settings for children initiated about twice as much contact with children when working alone, compared to when they were working with one of the other two permanent group leaders. At any rate, replication of this result is needed to know whether it was sample specific, and to explore alternative hypotheses for the present finding.

We found that a more reactive temperament was related to less positive caregiving behavior. Watson and Kowalski (1999) also found that caregivers give children with a more difficult

temperament more negative attention. The results suggest that more difficult children receive more directives and less positive attention from their caregivers.

In accordance with a few previous studies (Howes & Olenick, 1986; Howes & Stewart, 1987), we found mother's daily parenting stress was related to less positive professional caregiver–child interactions. Perhaps children also experience less positive interactions with their mother and take these interaction patterns with them to child care. Yet, in Study I and II, mother's daily stress was not related to the child's socio-emotional functioning in day care. Howes and colleagues suggested that parents with fewer hassles have more opportunity to seek good quality child care, whereas parents with low resources are less able to find day care of high quality which promotes their children's well-being. Another explanation may be that parents who feel that their children are in good hands, feel less stressed when combining work and family responsibilities.

In this study, we found few associations of flexible child care, arrangement stability, daily stability and long-term continuity in care with the child's social competence. These results concur with the large-scale study of the *NICHD Early Child Care Research Network* (2001). In this study on children's peer relations at 24 and 36 months, the effects of care characteristics on peer interactions in child care found were few and modest. It might also be, as we stated earlier, that more continuity in terms of the primary caregiver enables children to cope better with less daily stability and more flexible child care.

In our study a much smaller sample of children was observed in center day care. We carefully selected the children from a random sample of child care centers and an additional sample of centers offering more flexible care. The results of this study are limited, as we chose not to include children who had left the center. Also, we were not able to evaluate to what extent selection effects for type of care may have affected the results found. However, these choices also allowed us to describe more precisely what happens within a daycare setting. In future research more attention should be paid to caregiver characteristics. It is likely that characteristics such as depression, daily stress, attitudes towards work and income are related to professional caregivers' positive caregiving behavior in day care in the same way as these characteristics affect mothers' sensitivity to their child's needs (see, for example, *NICHD Early Child Care Research Network*, 1999).

### **3. General discussion**

In The Netherlands, highly flexible child care, such as overnight care, is not used very often. Also, most mothers of young children work part-time (NGR, 2001), resulting in a low percentage of children attending full-time day care. The restricted range of flexible child care in this study may underestimate the possible negative effects of flexible child care on the child's socio-emotional development.

We were able to construct an index for flexible child care. The “test–retest reliability” of this index one and a half years later was satisfactory. Further research is needed to understand how non-standard working hours of parents affect the child's care arrangements and his or her well-being. Research in the U.S. showed that parents working irregular hours more often use different child care arrangements (*NICHD Early Child Care Research Network*, 1997a; Folk &

Yi, 1994). There might be reason for concern for children with parents working non-standard hours, as instability in care arrangements appears to be a risk factor for developing insecure attachment relationships with less sensitive mothers (NICHD Early Child Care Research Network, 1997b). In our survey study, we also found that children who attended parallel care arrangements showed less well-being in day care. Future research should shed further light on how family life and the child's well-being are affected when children are in non-parental care during non-standard hours.

In this study, support was found for the importance of stability of care in young children's lives. Long-term continuity in caregivers, that is, low staff turnover rate, appears to improve caregiver–child interactions. In addition, a newly explored stability domain, that of daily stability of caregivers, peers and program structure seems to promote young children's well-being in the daycare setting. The NICHD Early Child Care Research Network study put great efforts in precisely describing children's number of (different) care arrangements throughout the first years in life (NICHD Early Child Care Research Network, 1997a, 1999). However, the researchers noted that this primary focus on changes in arrangements over time may have underestimated the actual changes a child experienced within an arrangement (NICHD Early Child Care Research Network, 1999). Although the relation between daily stability in center care and quality of caregiver–child interactions needs to be explored further, the daily stability of caregivers, peers and program structure is a new domain of stability in day care that complements research into the effects of caregiver continuity (Barnas & Cummings, 1994; Howes & Hamilton, 1992, 1993; Raikes, 1993) as well as research into the effects of instability in care arrangements (NICHD Early Child Care Research Network, 1997b, 1998). The same mechanisms of stability and continuity are likely to play a role in affecting the child's socio-emotional development. A child needs time, continuity and stability in caregiving patterns to feel comfortable and happy in the daycare setting.

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