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# Stability in Center Day Care: Relations with Children's Well-being and Problem Behavior in Day Care<sup>1</sup>

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## Abstract

*Mothers and primary professional caregivers of 186 children, aged 6–30 months, participated in this study in which a new measure for daily stability in center day care was developed, describing staffing, grouping, and program features. Relative contributions of infants' daily experiences of care stability, quality of care, and mother's daily stress to the child's adjustment to day care were analyzed with hierarchical regressions. The child's adjustment was assessed with the Child Behavior Checklist (Achenbach, 1997) and with the Leiden Inventory for the Child's Well-being in Day Care. Children enrolled in fewer care arrangements showed less internalizing behavior and more well-being in the day care setting. Children had higher well-being scores when trusted caregivers were more available. Mother's family management stress was related to more internalizing problem behavior. Interactions between mother's daily stress and stability in care were found to affect the child's adjustment to day care.*

*Keywords:* center day care; stability of care; problem behavior; children's well-being

Several studies have addressed the question of whether early child care affects the child's later socio-emotional development (Bates *et al.*, 1994; Howes & Hamilton, 1993; NICHD Early Child Care Research Network, 1997b, 1998, 2001, 2002b; Van IJzendoorn, Sagi & Lambermon, 1992). In this study we investigate children's socio-emotional development when they are actually attending a day care center. Previously, little attention has been paid to the relation between child care characteristics and the infant's adjustment to the day care setting itself. In our study we are concerned with the possible influence of stability in care and child care quality on several aspects of the child's adjustment to center day care: problem behavior and socio-emotional well-being. Special attention will be paid to the concept of stability in care.

Stability in care may contribute to explaining differences in the child's adjustment to the day care setting. Children experiencing more caregiver stability in day care have

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more secure relationships with their caregivers (Barnas & Cummings, 1994; Howes & Hamilton, 1992; Raikes, 1993) and show higher degrees of social competence (Howes & Hamilton, 1993). Several aspects of the construct of caregiver stability in day care have been distinguished. For instance, it has been referred to as (a) the amount of time a caregiver spends with the child in the day care setting (Barnas & Cummings, 1994; Raikes, 1993), (b) changes in primary caregiver (Howes & Hamilton, 1992, 1993), and (c) staff turnover rate (Clarke-Stewart, Gruber & Fitzgerald, 1994; Phillips, 1987; Whitebook, Sakai, Gerber & Howes, 2001). Also, the number of different arrangements experienced by a child can be regarded as an indicator of stability in care (NICHD Early Child Care Research Network, 1997a, 1997b, 1998). All these aspects of caregiver stability describe continuity in caregivers over time. However, they do not refer to a child's daily caregiver stability experiences. That is, they do not consider the degree to which trusted caregivers (professional caregivers who most of the time care for the child) are available for the child.

For example, a child may be taken care of by different caregivers within a single day, due to rotating shifts of caregivers or participation in activities in other rooms with other caregivers. Whitebook, Howes and Phillips (1990) reported in their National Child Care Staffing Study that most centers used 'accordion' grouping. In accordion grouping, children change classrooms throughout the day. Children commonly start the day in one large group, break into smaller groups between 9 a.m. and 5 p.m., and form a large group in the late afternoon when preparing to leave. In approximately one-third of the child care groups this was the daily pattern. In other groups, this pattern of accordion grouping was extended throughout the day, especially when children were older. In addition, the centers using accordion grouping of children more often used floaters, these being teachers not assigned to a particular room. Whitebook and colleagues warned that these efficient staffing patterns might adversely affect children through the confusion of shifting rooms and adults throughout the day.

In our study we will further explore this hypothesis and elaborate on grouping and staffing patterns in center day care and their possible disadvantages for the child's adjustment to the day care setting. Howes and Hamilton (1993) pointed out that by studying changes in primary caregivers, the actual stability a child experiences in center day care might escape notice, since the stability of secondary, tertiary or more caregivers is not included. Also, the NICHD Early Child Care Research Network (1999) pointed out that their focus on the number of care arrangements a child experiences could result in an underestimate of the actual changes a child experiences within arrangements. In this study, we will enlarge upon a child's daily experience of stability in professional staff and explore whether this kind of stability in care is also related to the child's adjustment. Therefore, children's daily experiences of availability and regularity in caregivers will be examined. In addition, we will explore other aspects of a child's experience of daily stability, such as stability in peer contacts and number of different care arrangements, in relation to the child's adjustment. Based on previous studies on continuity in caregivers, we expect, with more stability in care, children will be better adjusted.

In our study we will explore whether stability in care as well as quality of care are related to the child's adjustment. Structural dimensions of quality of child care, such as professional caregiver-child ratio, caregiver education, and staff turnover rate have been found to predict the child's socio-emotional development (Clarke-Stewart *et al.*, 1994; Phillips, 1987; Vandell & Wolfe, 2000). Higher caregiver-child ratios, higher levels of education and lower staff turnover rates were associated

with more social competence, more social adjustment, and positive caregiver-child relationships.

Only a few studies have included professional caregiver ratings of problem behavior in describing the child's adjustment to a day care setting. Some studies on problem behavior in day care and preschool settings reported prevalence data of problem behaviors in young children (Achenbach, 1997; Crowther, Bond & Rolf, 1981; Luk, Leung, Bacon-Shone & Lieh-Mak, 1991), but did not analyze predictors of these problem behaviors. Other studies reported the effects of early child care experience on later adjustment and behavior problems in preschool and kindergarten (Bates *et al.*, 1994; Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Borge & Melhuish, 1995; NICHD Early Child Care Research Network, 1998, 2002b). The NICHD Early Child Care Research Network (1998) studied the effects of child care and family characteristics on (among others) children's problem behavior in the non-parental care setting using a representative sample of more than 1000 children. When children experienced better child care quality in the first year of life, i.e. more positive caregiving, they showed less problem behavior in day care at the ages of 2 and 3. In our study we will look more closely at how infants and toddlers adjust to the day care setting, and at short-term effects of stability in day care and quality of care.

We need to bear in mind that certain so-called problem behaviors may be age-appropriate, reflecting developmental changes or age-related conflict (Campbell, 1995; Koot, 1993), e.g., defiance and noncompliance can be seen partly as age-appropriate behavior for toddlers as the child is struggling with a need for autonomy. So, in assessing problem behavior in very young children caution is needed when defining certain behaviors as maladaptive. Yet we assume broad band factors of problem behavior to be important indicators of the child's adjustment to a day care setting. Several studies have shown a relatively high degree of stability of broad band factors of externalizing and internalizing problem behavior, from preschool to middle childhood (Lavigne *et al.*, 1998; Mesman & Koot, 2001; see also Campbell, 1995, for an overview). This stability of problem behavior was even found in a study comprising children as young as 18 months (Mathiesen & Sanson, 2000). In a population-based sample, Mathiesen and Sanson (2000) found moderate test-retest reliability from 18 months to 30 months of age for externalizing and internalizing behavior scales. They also reported considerable stability in factor structure across age.

When entering center day care, young children should feel comfortable in the presence of caregivers. It will help them to cope with challenges they might encounter in the day care setting. The concept of well-being can be defined as the degree to which a child feels at ease with his or her caregiver, and it also includes how comfortable the child is in the physical setting of the center and with the other children in the group. This concept is derived from an earlier study of Van IJzendoorn, Tavecchio, Stams, Verhoeven, and Reiling (1998a) and elaborates on positive dimensions of a child's adjustment to day care. Van IJzendoorn *et al.* (1998a) found that children who had higher scores on their well-being measure had parents and teachers who communicated better with each other. The measure of young children's socio-emotional well-being in day care is not meant to assess stage-salient developmental tasks or specific skills and it is therefore especially useful in a group of very young children with varying ages. In this survey, we will examine the relation between the child's socio-emotional well-being in day care and problem behavior, on the one hand, and stability in care and child care quality, on the other.

In recent child care research the development of the child has been regarded as understood best when both the home environment and the child care environment are taken into account (Ahnert & Lamb, 2001; NICHD Early Child Care Research Network, 1997b, 1998, 2001a, 2002a; Van IJzendoorn *et al.*, 1998a; see also Clarke-Stewart *et al.*, 1994). In accordance with the theoretical notion that a child develops within multiple social contexts (Bronfenbrenner, 1979; Bronfenbrenner & Crouter, 1983) and is involved in transactional processes within and across these different contexts (Sameroff & Chandler, 1975), both child care and family characteristics should be combined to optimally explain differences between children in problem behavior and well-being. Therefore, we will include not only child care characteristics but also family characteristics, such as socio-economic status, hours of work outside the home of both father and mother, and mother's daily stress, to explain differences between children in their adjustment to the day care setting. Mother's daily stress is seen as an indicator of the degree to which a mother is able to combine work and family responsibilities. When a mother often experiences daily hassles this might affect a child's well-being. We expect mother's daily stress to contribute in two ways. First, we expect a direct relationship between maternal stress and the child's well-being and problem behavior. This association was previously found within the home setting (Abidin, Jenkins & McGaughey, 1992; Creasey & Jarvis, 1994; Crnic & Greenberg, 1990; Deater-Deckard, Pinkerton & Scarr, 1996; Mesman & Koot, 2000; Shaw, Winslow, Owens & Hood, 1998), and may also apply when parental stress is related to a child's adjustment to the day care setting. Second, there may be an interaction effect of maternal stress and daily stability in care on the child's adjustment to the day care center. This would provide us with a clearer insight into the complex ways in which family and child care characteristics may interact with each other. For example, high levels of care stability might act as a buffer against negative associations between parental stress and the child's well-being in the day care setting.

In summary, in this study we will explore three hypotheses. First, based on the assumption that the quality of child care and especially stability in care experienced daily will influence the child's adjustment to day care, we expect that higher quality and more stability in care will enhance the child's well-being in the day care setting and reduce the risk of problem behavior. Second, based on the assumption that family characteristics will influence the child's adjustment to the day care setting, we expect mother's daily stress to be associated with more problem behavior of the child and less well-being in the day care setting. Third, we expect an interaction effect in that high stability in care may act as a protective factor against the influence of daily parental stress on the child's well-being and problem behavior, whereas low stability in care would lead to a strong association between parental stress and well-being or problem behavior.

## **Method**

### *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. The children were enrolled in 113 different day care 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 hours per week, with a minimum of 2 half-days and a maximum of 10 half-days.

*Recruitment.* An exhaustive list of 1004 day care 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 day care 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 within the correct age range ( $n = 162$ ).

In addition to this randomly selected subsample, we recruited centers offering 'non-standard hours child care,' such as extended day care and/or flexible scheduling. These centers were contacted to increase the variance in daily stability in care. The above-mentioned agencies identified 27 day care centers throughout the whole country offering 'non-standard hours child care.' After contacting these centers for additional information about their care provision, we selected only 18 centers that met one or more of our criteria for inclusion: extended opening hours of minimally 12 hours up to 24 hours per day; weekend care; provision of flexible care scheduling; or other 'flexible' care facilities. Mothers and professional caregivers from 14 out of 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 ( $n = 24$ ).

*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:  $t(229) = -1.12, p = .26$ ).

### *Procedure*

In a pilot study on 40 children from 40 different day care centers several measures were pre-tested. In the main study, questionnaires were distributed to parents and

professional caregivers through the management of the centers. After three 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 four weeks a second reminder was mailed to the centers. The third reminder after about a further three 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.

### *Measures*

*Child Behavior Checklist.* The child's internalizing and externalizing behaviors were assessed with the CBCL Teacher Report Form for 2–5-year-old children (CBCL-TRF/2–5). Achenbach (1992, 1997) documented satisfactory validity of this instrument. Koot (1993) validated the CBCL Parent Report Form in a large Dutch sample of 24–48-month-old children. Koot also provided us with the Dutch translation of the CBCL-TRF/2–5 for use in this day care study. Recently, Achenbach and Rescorla (2000) reported the validation of the CBCL-TRF/2–5 for younger infants (18 months up) in day care settings using the same set of items. Achenbach and Rescorla (2000) reported age differences for only one item of the externalizing behavior scale (older children were more often lying and cheating) and for none of the items of the internalizing behavior scale. Preliminary results proved sufficiently promising to allow inclusion of the measure in the current study (Koot, personal communication, January 6, 1998). In our study, professional caregivers completed the CBCL-TRF/2–5 for 150 children (47% female) from 12–30 months of age. Cronbach's alphas were high: .85 for internalizing behavior, .93 for externalizing behavior ( $n = 132, 136$ , respectively). Even in the youngest age group (12–24 months) of 92 children (45% female) the alpha reliabilities were excellent: .82 for internalizing behavior, and .93 for externalizing behavior ( $n = 81, 81$ , respectively). The scale for internalizing behavior consisted of 34 3-point Likert-type items. The scale for externalizing behavior consisted of 40 items. The mean scores for each scale were computed. Scores on internalizing behavior ranged from .00 to 1.10 ( $M = .18, SD = .18$ ). When the mean score was multiplied by the total number of items, the score of 6.12 was similar to the raw score of the normative sample (6.8 and 6.6 for boys and girls, respectively (Achenbach, 1997)). Scores on externalizing behavior ranged from .00 to 1.45 ( $M = .30, SD = .25$ ). When the mean score was multiplied by 40, the score of 12 was similar to the raw score of the normative sample (11.4 and 8.9 for boys and girls, respectively). Because the CBCL is not validated for children under the age of 18 months, a subsample of 93 children aged 18–30 months will be used in our analyses concerning internalizing behavior ( $M = .19, SD = .21$ ) and externalizing behavior ( $M = .33, SD = .28$ ).

*Leiden Inventory for the Child's Well-being in Day Care (LICW-D).* The child's well-being in day care was measured with a set of 6-point Likert-type items for professional caregivers. Four aspects of well-being in day care were included in the Inventory: general well-being, well-being in the presence of caregivers, with group members, and within the physical care setting. The Inventory is an elaboration of the 5-item Well-being Scale used in a previous Leiden Day Care Study (Van IJzendoorn *et al.*, 1998a). To extend the small number of items in the original scale a total of 28 items was constructed. The Inventory was further developed and validated in a pilot study on 40 children from 40 different day care centers. Two professional caregivers completed the pilot version of the questionnaire for the same child, and lack of inter-

observer agreement per item led to adaptation of the item content. In the main study the dimensionality of the adapted version of the LICW-D was investigated using Principal Components Analysis (PCA). A randomly selected subset of 90 children was used to explore the structure of the data and the results were replicated in a second subset of 96 children. Preliminary analyses could not confirm the a priori structure that was used in developing the Inventory, distinguishing general well-being, well-being in the presence of caregivers, with group members, and within the physical environment. In particular, several items relating to the child's feeling at ease within the physical environment did not show a clear pattern. A second approach was to include the 12 items correlating significantly with the 'key' item 'This child enjoys attending the day care center' in the analysis. The solution with one principal component fitted the data most adequately. This was replicated in the second subset of children. The component loadings ranged from .33 to .69 in this second subset, with an average component loading of .55. The internal consistency of the 12 items, after reversing half of the items, was satisfactory: Cronbach's alpha was .81 ( $n = 159$ ). The mean score on the 12 items was computed, with higher scores meaning more well-being in day care ( $M = 4.86$ ,  $SD = .51$ ). Two other items of this scale were 'This child tends to avoid contact with other children (reversed)' and 'This child feels at ease with all the professional caregivers'.

*Leiden Inventory for Daily Stability in Center Care (LIDS)*. The child's experience of daily stability in the care setting was measured with a set of 6-point Likert-type items for professional caregivers. The Inventory was developed especially for this study. We constructed six scales describing staffing, grouping, and program features of the day care environment: caregiver availability, caregiver continuity, group stability, program stability, arrangement stability, and attendance stability. In the Appendix, for each scale three items are presented. The validity of the pilot version of the Inventory was explored in a pilot study on 40 children from 40 different day care centers. Two professional caregivers completed the questionnaire for the same child, and lack of interobserver agreement per item led to adaptation of the item content. In the main study, the dimensionality of the LIDS was investigated using Principal Components Analysis (PCA) within each domain of daily center day care stability, i.e., staffing, grouping, and program features. A randomly selected subset of 90 children was used to explore the structure of the data and the results were replicated in a second subset of 96 children. In the first PCA, 13 items concerning daily stability in staffing patterns were included in the analysis. The solution with two principal components fitted the data most adequately, indicating a two-dimensional structure. A replication corroborated this solution. The seven items in the first component concerned the availability of trusted caregivers, especially in times of stress ('caregiver availability'). The second component indicated daily experienced changes in caregiver continuity ('caregiver continuity'). The internal consistency of each set of items was satisfactory. Cronbach's alphas were .72 ( $n = 181$ ) for the availability of trusted caregivers, and .70 ( $n = 180$ ) for changes in caregiver stability experienced daily. Mean scores for each component were computed, after reversing two items of the first and four items of the second scale. A high score on each scale indicated more caregiver stability experienced by the child. Associations with several other indicators of caregiver stability documented the discriminant validity of the caregiver continuity scale (number of caregivers with whom the child interacted during the past two weeks:  $r(182) = -.38$ ,  $p < .001$ ; total number of different caregivers in charge of the group:  $r(183) = -.37$ ,

$p < .001$ ; staff turnover rate:  $r(175) = .06$ ,  $p = .41$ ), and of the caregiver availability scale (no associations were found with the three variables:  $r(182) = -.11$ ,  $p = .14$ ;  $r(183) = .04$ ,  $p = .60$ ;  $r(175) = .01$ ,  $p = .92$ , respectively).

With regard to daily group stability, ten items were included in scale construction. In the first PCA, the solution with one principal component fitted the data most adequately. A replication corroborated this solution. Cronbach's alpha was .65 ( $n = 172$ ) for 'group stability'. Mean scores for this scale were computed, after reversing four items out of six. A high score on the scale indicated more daily stability in peer contacts experienced by the child.

Finally, the structure of 14 items elaborating on daily stability in program features was explored. The solution with three principal components fitted the data most adequately. The three-dimensional solution was replicated in the second subset of children. The four items loading on the first component concerned the 'attendance stability' of the child, with lower scores indicating more variety of care schedules for a child within center day care. Higher scores on the three items of the second component indicated fewer parallel care arrangements for the child in addition to center day care ('arrangement stability'). The six items on the third component described differences in the structure and setting of the daily program: 'program stability.' The internal consistency of the first two scales was satisfactory. Cronbach's alphas were .77 ( $n = 177$ ) for attendance stability, .68 ( $n = 175$ ) for daily care arrangement stability. For program stability, Cronbach's alpha was .56 ( $n = 175$ ). Mean scores for each component were computed, after reversing three items of the first, two items of the second, and two items of the third scale. A high score on each scale indicated more daily stability experienced by the child. We also asked mothers to rate the attendance stability and arrangement stability of their children. Mothers' ratings on the attendance stability scale and the arrangement stability scale correlated .71 ( $p < .001$ ) and .49 ( $p < .001$ ), respectively, with caregivers' ratings, indicating fairly to good inter-observer agreement. In Table 1, the correlations between the six stability scales (rated by caregivers) are presented. In the first part of Table 2, the means and standard deviations of the six scales are presented.

*Characteristics of Center Care.* In the questionnaire for professional caregivers three aspects of structural day care quality were assessed, namely professional caregiver-child ratio, education of the caregiver, and staff turnover rate. Average professional caregiver-child ratio was .28 ( $SD = .08$ ) with a minimum of .14 and a maximum of .70. Most caregivers (84%) had completed three or four years of vocational education for professions in the field of human welfare and health care (level 2 or 3). Another 11% had completed four years of college (level 4). Only 5% of the caregivers had not completed a vocational or higher education in human welfare and health care (level 1). In the Netherlands the caregiver-child ratio and the education of caregivers are regulated by state guidelines. Average staff turnover rate in the last three months for the specific group in which the target child was participating was 1.92 ( $SD = 2.16$ ) with a minimum of 0 and a maximum of 13.

*Leiden Inventory for Maternal Work-Family Stress (LIMS).* The questionnaire for the mothers included twelve 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 day care center, leaving work on time, and managing child care and household tasks. A questionnaire designed by Van Dijke, Terpstra &

**Table 1. Pearson Correlations Between Child, Family, and Care Characteristics (N = 186)**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Gender																	
2. Age	.03																
3. Socio-econ. Status	.06	-.14															
4. Hours Work Mother	.05	-.18*	.18*														
5. Hours Work Father	-.14	.00	.11	-.06													
6. Fam Manag. Stress	-.14	.05	.18*	.07	.18*												
7. Scheduling Stress	.02	-.18*	.25**	.13	-.07	.41***											
8. Number Half-days	.14*	.01	.20**	.36***	.02	.24**	.10										
9. Age of Entry	-.21**	.32***	-.02	-.22**	.11	.08	-.08	-.13									
10. Adult-Child Ratio	-.04	-.28***	-.04	.01	.04	-.02	.05	.02	.02								
11. Education CG	-.01	-.04	.08	.03	-.03	-.22**	-.08	.05	-.12	.06							
12. Turnover Rate	-.06	-.06	.12	-.02	-.06	-.06	-.04	-.03	-.10	.04	.03						
13. Caregiver Avail.	.01	.00	.02	-.01	.04	.02	.00	-.06	-.05	.04	-.05	.01					
14. Caregiver Contin.	-.03	.11	-.02	-.12	.15*	-.03	-.13	-.09	.01	-.04	.01	.06	.18*				
15. Group Stability	-.05	.03	.00	-.16*	.09	.01	-.09	-.06	.05	-.07	-.07	.15*	.20**	.50***			
16. Attendance Stab.	-.03	-.03	-.04	-.05	.00	.04	.03	.16*	-.01	.07	.02	.08	.12	.19*	.44***		
17. Arrangement Stab.	.21**	-.11	.07	-.05	-.08	-.06	-.04	.14	-.09	.07	.00	-.15*	.15*	.03	.07	.00	
18. Program Stability	-.09	.15*	.00	-.01	.16*	.03	-.01	-.10	.05	-.12	-.15*	.10	.33***	.22**	.27***	.06	-.01

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

**Table 2. Means and Standard Deviations of Independent Variables, and Pearson Correlations Between Independent Variables and Child Adjustment**

	<i>M</i>	<i>SD</i>	CBCL ( <i>N</i> = 93)		Well-being ( <i>N</i> = 186)
			Intern.	Extern.	
Gender <sup>a</sup>	1.48	.50	-.24*	-.27**	.10
Age	18.63	6.88	.04	-.03	-.03
Socio-economic Status	4.88	1.12	.11	.12	.01
Hours of Work Mother	26.36	6.99	-.05	-.11	.09
Hours of Work Father	40.71	8.23	.05	.01	.08
Fam. Manage. Stress	2.65	.81	.28**	.12	-.07
Scheduling Stress	2.85	1.00	.05	-.04	.02
Age of Entry	5.58	4.32	.04	.01	-.03
Number of Half-days	5.32	1.70	.02	.07	.12
Caregiver-Child Ratio	.28	.08	.04	.08	.05
Education Caregiver	3.65	.76	-.10	.02	-.01
Staff Turnover Rate	1.92	2.16	.08	.11	-.02
Caregiver Availability	5.16	.47	-.01	-.06	.21**
Caregiver Continuity	4.38	.86	-.12	-.18	.15*
Group Stability	4.47	.81	-.05	-.11	.11
Attendance Stability	4.96	1.08	.14	.04	-.01
Arrangement Stability	5.11	.74	-.34**	.01	.25**
Program Stability	4.96	.63	-.07	-.02	.16*

Note: <sup>a</sup> 1 = boy, 2 = girl; \**p* < .05; \*\**p* < .01.

Hermanns (1994) was used and several items concerning scheduling stress were added. In a randomly selected subset of 90 children the structure of 12 items covering daily stress was investigated through PCA and the results were replicated in a second subset of 96 children. The solution with two principal components fitted the data most adequately. The eight items in the first component indicated '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 alpha was .86 (*n* = 170) for family management stress. Cronbach's alpha was .76 (*n* = 176) for scheduling stress. Mean scores for each component were computed (see Table 2). A high score on each scale indicated that the mother experienced a lot of stress.

*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). Only three children came from lower SES families.

### Statistical Analyses

First, preliminary analyses were carried out to test for differences in child, family, and care characteristics between children from the randomly selected sample and from the additional 'flexible child care' sample. Second, the model presented in the introductory section was tested in a multivariate approach using a hierarchical regression for each child adjustment variable. The interactions between each stability scale and mothers' family management stress were included in the final block of the regression using a product-term of the standardized variables. The interaction effects were explored by post hoc comparisons of associations either within each group of children experiencing lower daily care stability versus higher daily care stability, or within each group of children with mothers experiencing more stress versus less stress, using a median split to compose the two groups. Third, the same model was tested for the CBCL scales for a larger sample including younger children (12–30 months) ( $n = 150$ ).

## Results

### Preliminary Analyses

In Table 1 the correlations between child, family, and care characteristics, work–family related stress, quality of care, and stability in care variables are presented. In Table 2 the means and standard deviations of all child, family, and care variables are presented. Preliminary analyses were carried out to test for differences in child, family, and care characteristics between children from the randomly selected sample and from the additional 'flexible child care' sample. Staff turnover rate was higher in the randomly selected sample ( $M = 2.05$ ,  $SD = 2.21$ ) compared to the 'flexible child care' sample ( $M = 1.04$ ,  $SD = 1.52$ ) ( $t(184) = 2.15$ ,  $p < .05$ ). No significant differences in gender, age, age of entry, number of half-days, socio-economic status, hours of work of both parents, family management stress, scheduling stress, caregiver–child ratio, and education of the professional caregiver were found. In addition, no differences in the child's internalizing and externalizing behavior and well-being in day care were found between the randomly selected sample and the additional sample.

### Correlations Between Child Adjustment Variables

The two CBCL scales, internalizing and externalizing behavior correlated significantly ( $r(91) = .42$ ,  $p < .001$ ). The validity of the Leiden Inventory for the Child's Well-being in Day Care was supported by a significant association with internalizing behavior ( $r(91) = -.62$ ,  $p < .001$ ). No association was found with the externalizing behavior scale. Children with more internalizing behavior showed lower scores on the Child's Well-being Inventory as completed by professional caregivers.

### Exploring Child Adjustment to Day Care: A Multivariate Approach

In the introductory section we presented a model for explaining differences in child well-being and child problem behavior. The model was tested using a hierarchical regression approach in which background variables, mother's daily stress and daily stability in care variables were subsequently included in the regression equation. In the first block of independent variables, gender and age were entered. In the second

block, family socio-economic status (SES) and mother's family management stress were entered into the equation. In the third block of independent variables, number of half-days attending the center were entered. In the fourth block, the six scales for daily stability in care were entered. In the final block, the interactions between the stability scales and maternal family management stress were included. In order to reduce the number of independent variables, the final block included only those interaction terms that appeared to be significant in a preliminary series of regressions in which each interaction term was added separately in the last step. In addition, hours of work of both parents, scheduling stress, age of entry, and quality of care variables were excluded as they were not associated with any of the child's adjustment variables in bivariate analyses. Table 2 presents the Pearson correlations of the background variables, two maternal stress variables, three structural indicators of quality, and six different aspects of day care stability, on the one hand, and three child adjustment measures on the other.

*Child Behavior Checklist.* Table 3 presents the results of two multiple hierarchical regressions of background variables, family management stress, stability in care, and interactions between stability in care and maternal stress on the CBCL scales for internalizing and externalizing problem behavior. Of the child characteristics, gender contributed significantly to the regression on internalizing behavior. Boys showed more internalizing problem behavior than girls. Family management stress of the mother was a significant variable. Mothers who experienced more daily stress in combining work and family demands had children with more internalizing problem behavior. Of the daily stability variables, stability in care arrangements associated significantly with internalizing problem behavior. More parallel care arrangements were associated with more internalizing problem behavior. Two interaction terms appeared to be significant,

**Table 3. Multiple Hierarchical Regression Analyses of Background Variables, Mother's Family Management Stress, and Stability in Care on the CBCL Scales for Internalizing<sup>1</sup> and Externalizing<sup>2</sup> Problem Behavior (N = 93)**

	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> change	<i>F</i> change
<i>Internalizing Problem Behavior</i>						
1. Gender	-.07	-.17	.24	.06	.06	5.62*
2. Family Management Stress	.02	.08	.35	.12	.06	6.44*
3. Arrangement Stability	-.04	-.15	.45	.21	.08	9.38**
4. Fam. Man. Stress X Arrangement Stability	-.05	-.35	.57	.32	.11	14.78***
5. Fam. Man. Stress X Availability Caregiver	.06	.27	.62	.39	.07	9.66**
<i>Externalizing Problem Behavior</i>						
1. Gender	-.15	-.27	.27	.07	.07	7.29**

Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

<sup>1</sup> $F(5,87) = 10.99, p < .001$  for the total model.

<sup>2</sup> $F(1,91) = 7.29, p < .01$  for the total model.

namely the interaction between family management stress and arrangement stability, and the interaction between family management stress and availability of a trusted caregiver. In the group of children attending more parallel care arrangements, more family management stress of the mother was associated with more internalizing problem behavior ( $r(47) = .42, p < .01$ ); whereas in the group of children with less parallel care arrangements, the association between mother's family management stress and internalizing problem behavior was absent ( $r(42) = -.03, p = .83$ ). In the case of the interaction between stress and caregiver availability, in the group of children with greater availability of a trusted caregiver, more family management stress was associated with more internalizing problem behavior ( $r(52) = .51, p < .001$ ); whereas for children experiencing less availability, mother's family management stress was not related to internalizing problem behavior ( $r(37) = -.16, p = .32$ ). The overall regression equation was significant ( $F(5,87) = 10.99, p < .001$ ), explaining 39% of the variance in internalizing problem behavior.

When the same regression equation was tested in a larger sample including younger children (12–30 months,  $n = 93$ ), the above results were replicated ( $F(5,144) = 10.44, p < .001$ ), explaining 27% of the variance.

The regression equation for externalizing behavior included gender of the child, which explained 7% of the variance ( $F(1,91) = 7.29, p < .01$ ). Boys showed more externalizing problem behavior. No other independent variable or interaction term contributed significantly to the regression.

When the same regression equation was tested in a larger sample including younger children (12 to 30 months,  $n = 93$ ), gender contributed significantly to the equation. In addition, age of the child was included in the regression, with older children showing more externalizing problem behavior ( $F(2,147) = 5.10, p < .01$ , explaining 7% of the variance).

*Child's Well-being in Day Care.* In Table 4 the hierarchical regression of background variables, mother's family management stress, daily stability in care variables, and interaction terms on the Leiden Inventory for the Child's Well-being in Day Care is presented. Two aspects of day care stability contributed significantly to the equation. Fewer switches in care arrangements and greater availability of trusted caregivers were associated with more positive experiences of the children in day care. One interaction term appeared to be significant, namely the interaction between family management

**Table 4. Multiple Hierarchical Regression Analysis of Background Variables, Mother's Family Management Stress, and Stability in Care on the Leiden Inventory for the Child's Well-being in Day Care<sup>1</sup> (N = 186)**

	<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. Arrangement Stability	.13	.19	.25	.06	.06	12.24**
2. Availability Caregiver	.19	.18	.30	.09	.03	5.88*
3. Fam. Man. Stress X Availability Caregiver	-.13	-.24	.39	.15	.06	12.28**

Note: \* $p < .05$ ; \*\* $p < .01$ .

<sup>1</sup> $F(3,182) = 10.62, p < .001$  for the total model.

stress and availability of trusted caregivers. In the group of mothers experiencing less family management stress, children showed more well-being when caregivers were more available ( $r(92) = .43, p < .001$ ). In the group of mothers experiencing more family management stress, the association between caregiver availability and the child's well-being was absent ( $r(90) = .02, p = .82$ ). Overall, the two stability variables and one interaction term explained 15% of the variance of the child's well-being in day care ( $F(3,182) = 10.62, p < .001$ ).

## Discussion

In this study we developed a new measure to assess children's daily stability experiences in center day care. We constructed six scales describing staffing, grouping, and program features of the day care environment: caregiver availability, caregiver continuity, group stability, program stability, arrangement stability, and attendance stability. We explored whether more daily stability in care would enhance the child's well-being in the day care setting and reduce the risk of problem behavior. Results show that several aspects of stability in care relate positively to the child's adjustment to day care. Children who, in addition to center care, attend several other care settings, show more internalizing problem behavior and have less well-being in day care. When caregivers are more often available, children feel more at ease in the center.

In several ways the above results provide new insights into previous child care research, as we found that children experiencing more parallel care arrangements showed more internalizing problem behavior. The NICHD Early Child Care Research Network (1998) found that the number of changes in care arrangements was related to problem behavior at age 24 months. This result was found for mothers' CBCL report and observed noncompliance of children in day care, but it did not reach significance for the caregivers' report about problem behavior in the day care setting. Our study showed that the association between arrangement stability and internalizing problem behavior was also present in a group of children with ages ranging from 18–30 months. The findings indicate that early experience of parallel care arrangements may lead to less positive adjustment to day care. Perhaps children under 30 months are especially vulnerable to switches in child care arrangements. We were unable to establish, on the basis of our survey study, whether the effects of daily arrangement (in)stability are short-lived or long-term effects. In addition to the NICHD Early Child Care Research Network study, however, our results showed that more parallel care arrangements were associated not only with more internalizing problem behavior, but also with the child feeling less at ease and satisfied in day care. Besides the child's history of care arrangements (NICHD Early Child Care Research Network, 1998), it seems relevant to consider day-to-day experiences of changes in child care environment, as these may also have a negative effect on the child's adjustment to day care. The results suggest that children who experience switches in child care environment within a short time period have difficulty in coping with these parallel care arrangements, resulting in a lower feeling of well-being and more internalizing problem behavior.

Furthermore, we looked more closely at other aspects of day-to-day stability in the child's care environment. The results show that better adjustment to the day care setting was associated with greater availability of caregivers. Children experiencing greater availability of one or more of their trusted caregivers, especially in more stressful situations, were perceived by their caregiver as feeling more at ease in the day care setting. This result is consistent with studies by Barnas and Cummings (1994) and

Raikes (1993) who found that children who spent more time with their caregiver showed a more secure relationship with this person. Studies by Howes and Hamilton (1992, 1993) also showed the relevance of caregiver stability for the quality of the relationship with this caregiver. It is likely that a child needs a certain amount of 'interaction history' with caregivers to adapt to a day care setting and to feel at ease in this environment. This basic feeling of well-being might contribute (later in development) to higher quality of relationships with caregivers and peers.

We also explored several aspects concerning caregiver stability, group stability, and stability in program features and their associations with children's problem behavior and well-being. In multivariate analyses, no associations were found between daily caregiver continuity, group stability, program stability, and attendance stability, on the one hand, and the child's adjustment to day care on the other. Also, no associations were found between structural aspects of quality of care, such as professional caregiver-child ratio, education of the caregiver and staff turnover rate, and the child's socio-emotional and physical well-being or problem behavior. These results concur with those of Van IJzendoorn, Tavecchio, Stams, Verhoeven, and Reiling (1998b), who did not find associations between structural aspects of quality of care and observed quality of care. Van IJzendoorn *et al.* (1998b) argued that this may be due to state regulations concerning the caregiver-child ratio and the education of caregivers in the Netherlands. Therefore, these structural aspects of quality may not show sufficient variation to explain differences in the child's well-being in our study as well. In the same way, lack of variation in the stability in care variables may explain the low associations between the child's adjustment to day care and group stability, caregiver continuity, program stability, and attendance stability. The validity of the stability scales needs to be explored in further research. The NICHD Early Child Care Research Network (1999) noted that focusing on the number of care arrangements a child experiences over time may have led to less sensitivity to changes in caregivers within arrangements. Howes and Hamilton (1993) also pointed out that focusing on changes in primary caregiver might overestimate the actual stability a child experiences within day care, as the availability of secondary, tertiary or more caregivers is not taken into account. The two caregiver stability scales elaborate on the role of different (trusted) caregivers for the child. Our newly developed Inventory of the child's daily experiences of stability also pays attention to aspects other than arrangement stability and primary caregiver stability. This study gives insight into the staffing, grouping, and program features of center day care and how these features can enhance feelings of well-being and adjustment to the day care setting. Future research is needed using this Inventory in samples with a greater variability in quality of care and stability in care.

In our study we addressed the question of which aspects of child care quality and stability promote children's adjustment to day care. Therefore, we applied an elaborated version of Van IJzendoorn *et al.*'s (1998a) well-being measure to assess the child's well-being in the day care setting. In our sample of 6-30-month-old children, no gender or age effects were detected. Future research including observations of the child in the day care setting might further validate caregivers' perception of the child's well-being. Also, caregivers' ratings of children's problem behavior in day care gave us insights into the child's functioning in day care. Although at this early age, internalizing and externalizing behavior might not yet indicate maladaptive functioning, the consistent results for 18-30-month-olds and 12-30-month-olds suggest the meaningfulness of the instrument as an indicator of the young child's adjustment to day care.

The associations found between mothers' family management stress and internalizing problem behavior in the day care setting support the assumption that family characteristics influence the child's adjustment to the day care center. In line with our hypothesis, we found that mothers experiencing more stress in combining household tasks, work, and parenting have children with more internalizing problem behavior. Several studies have shown higher degrees of parental stress to be associated with more problem behavior (Creasey & Jarvis, 1994; Crnic & Greenberg, 1990; Deater-Deckard *et al.*, 1996; Mesman & Koot, 2000). Our study corroborates these results in that in our study family management stress was also associated with the child's problem behavior in a different setting (i.e., center day care) and assessed by a different rater (i.e., the professional caregiver). The results are in accordance with research that included both family and day care characteristics in explaining the child's socio-emotional development at home and in day care (Clarke-Stewart *et al.*, 1994; NICHD Early Child Care Research Network, 1997b, 1998, 2002a).

To further explore the complex ways in which family characteristics, in particular maternal work-family stress, and day care characteristics interact with each other, we investigated the interactions between mother's family management and each stability scale with respect to the child's well-being and problem behavior. This study revealed several interaction effects of mother's family management stress with arrangement stability or caregiver availability. First, arrangement stability seems to affect the association between mother's family management stress and the child's internalizing behavior. For children in more parallel care arrangements, more family management stress was associated with less adjustment to day care, whereas for children in more stable care arrangements, this association was absent. The results suggest that high arrangement stability provides some protection from adverse effects of mother's family management stress on the child's adjustment to day care. A child seems to have more opportunities to develop independently from the home setting, when he or she is in only a few care arrangements. However, when children experience several parallel arrangements, more family management stress seems to interfere with their adjustment to the day care setting. Our results agreed with the NICHD Early Child Care Research Network (1997b), which found that when relatively insensitive mothering was coupled with low arrangement stability or low quality of child care, children were more likely to have insecure attachment relationships with their mother.

The results of the interactions between availability of trusted caregivers and mother's family management stress with respect to the child's adjustment show a different pattern. The main association between family management stress and the child's internalizing problem behavior was especially true for children experiencing more caregiver availability. These results might indicate that caregivers anticipate more problematic functioning of a child when they are familiar with family stressors, by giving a child more attention. Otherwise, they might react to more problematic functioning of the child in such cases. Also, when the trusted caregiver is less available for the child, especially in stressful situations, some behavior and feelings of the child might go unnoticed by the caregiver, in particular when behaviors are of a more internalizing nature. The interaction of caregiver availability and mother's family management stress with respect to the child's socio-emotional well-being showed that the main association of more caregiver availability with the child feeling more at ease was particularly true when mothers experienced less family management stress. When children had mothers with more daily stress, the frequent presence of a well-known

caregiver did not appear to add to their well-being in the child care setting. The results might indicate that daily caregiver stability makes a difference for children who experience few family stressors. As yet, our results cannot specify the direction of the various interactions that need independent replication. Further research into the complex ways in which stability in care interacts with family characteristics to produce child outcome variables should be a high priority on our research agenda.

In summary, our results indicate that parents and caregivers should be aware that (very) young children are probably less able to cope with parallel care arrangements. Also, trusted caregivers' availability may enhance the child's feeling at ease in day care. Furthermore, more maternal family management stress seems to have a negative impact on the child's socio-emotional functioning in day care, especially when the child experiences several parallel care arrangements. Finally, we identified a new aspect of caregiver stability, i.e. caregiver availability, which led to some interesting and diverging results regarding its role in children's adjustment that warrant further research. The results of our study are limited in that they reflect associations at a single point in time, and some of the associations are based on reports of the same observer (e.g., the caregiver). Further research is needed to replicate the results looking at both short-term and long-term effects of day-to-day stability, especially given the possible higher vulnerability of younger children as compared to children older than 30 months. We are aware that restricting our study to center day care implies limited applicability of our findings. In the Netherlands, for example, higher educated parents make more frequent use of center day care (SCP, 2002). However, the restriction to center day care gave us the opportunity to study more closely what happens within the day care setting. Our newly developed instrument on daily experiences of stability in care describes fairly high stability experiences for children in child care centers in the Netherlands. Even so, the results indicate that more stability contributes to better adjustment to the day care setting.

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## Note

1. This study serves as part of a dissertation to be submitted by the first author to Leiden University in partial fulfillment of the requirements for the doctoral degree.

## **Appendix**

### *Leiden Inventory for Daily Stability in Center Care (LIDS)*

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#### Caregiver Availability

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When this child is upset, a trusted caregiver takes care of him/her.

During the whole day there's a trusted caregiver present for this child.

This child is handed over to his/her usual trusted caregiver in the morning.

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#### Daily Caregiver Continuity

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There are changes in caregiver for this child in the course of a single day.\*

Each day this child is taken care of by different caregivers.\*

In this group, the caregivers work on fixed days.

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#### Group Stability

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In this group, children are dropped off and picked up all day long.\*

Other children in this child's group attend the day care center on fixed days.

The composition of this child's group varies in the course of a single day.\*

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#### Attendance Stability

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This child attends the day care center on fixed days.

This child attends the day care center on variable days.\*

This child attends the day care center on different half-days each week.\*

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#### Arrangement Stability

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This child attends several child care arrangements in the course of a single day.\*

This child attends several child care arrangements (at the day care center, with family, with a babysitter, etc.).\*

After a day at the child care center, this child goes home immediately.

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#### Program Stability

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This child isn't tied to a fixed daily schedule.\*

The daily schedule for eating, sleeping, and playing is the same every day for this child.

At the day care center, this child is cared for in one room.

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\* reversed