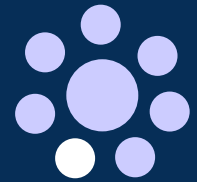


# Time Spent in Child Care

## Scorecard



### Characteristics of the Reports

Assessments of development were obtained for *more than 15,000* children to determine the relationships to time spent in centre care.

Country of Origin	
	# of Reports
Canada	0
Bermuda	1
Sweden	2
UK	1
USA	19

Research Designs	
Retrospective	Prospective
6	17
No Follow-up	Follow-up
10	13
Observational	Experimental
21	2

### Summary of Results

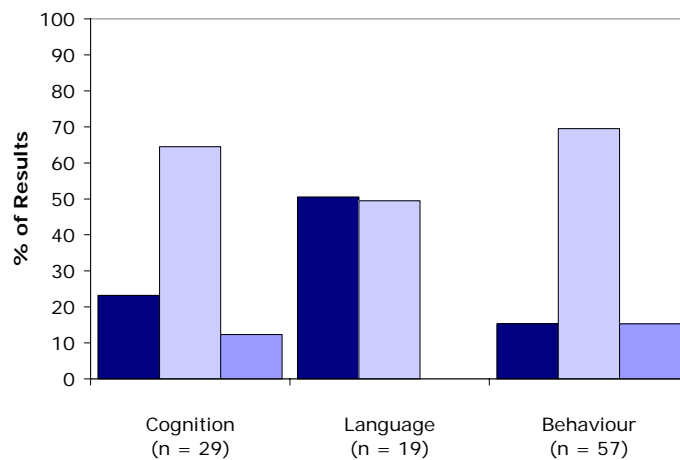
23 Reports			
Associated with Better Development	Cognition	Language	Behaviour
More time in centre care	5	7	5
Less time in centre care	2	0	3
Mixed results	0	0	3
No relationship	7	3	4

The 23 reports contained 105 tests of children's development. Each result in each report was given a value of 1 and a sign (+, 0, or -) based on whether the result met the conventional standard of research significance.

If a test contained subtests (subscales), the result of each subscale was assigned a fractional value. Fractional values could be positive, zero, or negative within the same test. For that reason, percentages of results were not always whole numbers.

A positive sign means that more time spent in centre care was related to higher scores on tests of children's development. A negative sign means that more time spent in centre care was related to lower scores on the test. Zero means that time spent in care was unrelated to the test results.

## Other Considerations



*Relationships of Time Spent in Child Care to Children's Development*

Good research methods remove (through selection or statistical control) characteristics of children and families that might masquerade as outcomes of the child care factor in question. For example, if families of children who spent more time in child care were financially poorer than those of children who spent less time in care, any differences in their development said to be due to time in care could be challenged as differences due to the impact of poverty. Removing confounding variables adds credibility to conclusions.

In the 23 reports, researchers controlled for the following variables.

Variables Most Frequently Removed from Outcomes			
Variable	# of Reports	Variable	# of Reports
Child's gender	16	Study location	4
Maternal education	13	Maternal depression	4
Family income	10	Maternal sensitivity	4
Family structure (parents, guardians)	10	Child's early abilities	3
Ethnicity	10	Maternal psychological adjustments/well-being	3
Child temperament	6	Home environment	3
Quality of care	6	Socio-economic status	3

### Other Variables Removed

**Child:** Amount of infancy day care, Birth order, Child IQ, Child outcomes at first testing, Child social skills at initial testing phase, Child social skills at school entry, Preschool experiences, Preschool risk status, Prior cognitive performance.

**Child Care/School:** Current after-school care, Features of first grade classroom, Geographic region, Home stimulation, Instructional style, Proportion of peer-group exposure, School enrolment status, Social support system, Stability of care, Type of care.

**Family:** Cognitive stimulation at home, Emotional support in home, Family literacy environment, Family size, Family stress, Husband supportiveness, Amount of maternal work, Marital conflict, Maternal age, Maternal behaviour, Maternal employment status, Maternal extroversion, Maternal IQ, Maternal separation anxiety, Maternal stimulation, Maternal vocabulary, Maternal/paternal child-rearing attitudes, Number of family moves, Number of minors, Number of siblings, Occupational prestige of the head of household, Parental attitudes, Parental education, Parental occupation, Parental practices, Parental stress level, Parental values, Parenting quality, Paternal education, Paternal occupation, Rating of benefits/risks of work, Work-family interference

### Citations, Summaries, and Abstracts

**Bates, J. E., Marvinney, D., Kelly, T., Dodge, K. A., Bennett, D. S., & Pettit, G. S. (1994). Child-care history and kindergarten adjustment. *Developmental Psychology, 30*, 690-700. [Full Text](#)**

Parents gave histories of 589 children just before kindergarten. Children were later assessed with teacher, peer, and observer measures of social adjustment in school. Children with higher day-care amounts in each of 3 eras (0–1, 1–4, and 4–5 years) scored higher on the composite negative adjustment and lower on positive adjustment (however, they also scored lower on teacher-rated internalizing problems). Day care predicted even after statistical control for measures representing alternative explanations, such as family stress and socioeconomic status, accounting for 2.7% of variance in negative adjustment and 2.9% of positive adjustment. Interactions between day care and other variables did not add to predictions of the molar adjustment composites. Extensive infancy care did not in itself predict adjustment, according to planned contrasts that controlled for total amount of day care received across the 3 eras of the child's life. (Authors' Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	589
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Age of Entry Time Spent

**Burchinal, M. R., Ramey, S. L., Reid, M. K., & Jaccard, J. (1995). Early child care experiences and their association with family and child characteristics during middle school. *Early Childhood Research Quarterly, 10*, 33-61. [Full Text](#)**

Long-term correlates of early child care and maternal employment were examined in a representative sample of 333 6- to 12-year-old middle-class children. Intellectual, social, and behavioral development and parent-child relationships were related to nonparental infant care, center or preschool experiences, and maternal employment. Contextual analyses included child, parent, and family covariates related to choice of child care and children's development.

Preschool and center day care was associated with slightly higher Wechsler Intelligence Scale for Children-Revised (WISC-R) Vocabulary scores and externalizing *t* scores on the Child Behavior Checklist. In addition, for African American children, center preschool experience was associated with 10-point-higher verbal intelligence scores and better ratings of positive behavioral attributes by parent and observers. Nonparental care during infancy and maternal employment patterns during the preschool years were not consistently related to the outcomes. The results of this study further support the growing consensus that the effects of early child care experiences must be considered in the context of parent, family, and child characteristics. (Authors' Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	333
<b>Age</b>	School Age
<b>Database</b>	Washington Family Behavior Survey
<b>Design</b>	Retrospective No Follow-up Observational
<b>Factors</b>	Age of Entry Time Spent

**Caughy, M., DiPietro, J. A., & Strobino, D. M. (1994). Day-care participation as a protective factor in the cognitive development of low-income children. *Child Development, 65*, 457-471. [Full Text](#)**

The impact of day-care participation during the first 3 years of life on the cognitive functioning of school age children was examined. 867 5- and 6-year-old children from the National Longitudinal Survey of Youth who completed the 1986 assessment were included in the sample. The dependent measures were scores on the Peabody Individual Achievement Test (PIAT) subtests of mathematics and reading recognition.

In addition to day-care participation, the impact of the pattern of day-care was examined by analyzing the effect of the number of years in day-care, the timing of initiation of day-care, and type of day-care arrangement. After controlling for confounding factors, there were significant interactions between all 3 measures of day-care patterning and family income for reading recognition performance. This association was further examined by exploring the interaction between the pattern of day-care participation and the quality of the home environment. Initiation of day-care attendance before the first birthday was associated with higher reading

<b>Country</b>	USA
<b>Sample Size</b>	867
<b>Age</b>	Preschool & School Age
<b>Database</b>	NLSY
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Age of Entry Time Spent Type of Care

recognition scores for children from impoverished home environments and with lower scores for children from more optimal environments. In addition, a significant interaction between the type of day-care arrangement and the quality of the home environment emerged for mathematics performance. Center-based care in particular was associated with higher mathematics scores for impoverished children and with lower mathematics scores for children from more stimulating home environments. These findings are discussed in the context of developmental risk. (Authors' Abstract)

**Chin-Quee, D. S., & Scarr, S. (1994). Lack of early child care effects on school-age children's social competence and academic achievement. *Early Development and Parenting, 3*, 103-112.**

[Full Text](#)

Teacher ratings of social competence and academic achievement were obtained from a sample of 127 Bermudian children at ages 5, 6, 7 and 8 years. The children were studied first during their pre-school years, when they had been exposed to various amounts and qualities of day care. Quality of care was found to be important to the children's intellectual and social development while they were in the day care settings but not after 1-4 years of primary schooling. In hierarchical and simultaneous regressions, family background characteristics, not child care amounts or qualities, were found to be predictive of social competence and academic achievement in the primary grades. By school age, the effects of infant and preschool child care experiences were no longer influential in children's development, but family background continued to be important. These findings and their implications for child care are discussed. (Authors' Abstract)

<b>Country</b>	Bermuda
<b>Sample Size</b>	127
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Age of Entry Quality Time Spent

**Christian, K., Morrison, F. J., & Bryant, F. B. (1998). Predicting kindergarten academic skills: Interactions among child care, maternal education, and family literacy environments. *Early Childhood Research Quarterly, 13*, 501-521.**

[Full Text](#)

This investigation used structural equation modeling to examine sources of children's reading, vocabulary, general information, mathematics, and letter recognition skills upon entrance to kindergarten. Potential predictors included ethnicity, gender, child IQ, family literacy environment, maternal education, and months in child care centers. Family literacy environment had positive causal links with four of five academic measures. Greater number of months in child care centers was associated with higher mathematics scores among children from less educated mothers who scored low on a measure of family literacy environment. In

<b>Country</b>	USA
<b>Sample Size</b>	538
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Retrospective No Follow-up Observational
<b>Factors</b>	Time Spent

contrast, no effects of child care were found for children from mothers with more education. Implications include the need for strong parental involvement in children's development and subsidized child care for children in need. (Authors' Abstract)

**Field, T. (1991). Quality infant day-care and grade school behavior and performance. *Child Development*, 62, 863-870. [Full Text](#)**

Relations between attendance in stable high-quality day-care programs and grade school behavior and performance were determined using 2 longitudinal data sets. The first sample included grade school children who had received stable, full-time infant day-care and preschool day-care

<b>Country</b>	USA
<b>Sample Size</b>	84
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Prospective No Follow-up Observational
<b>Factors</b>	Time Spent

until they reached school age in the same high-quality day-care center. In this sample the amount of time (months) spent in full-time center care was positively related to the number of friends and extracurricular activities of the children. In addition, more time in the center was positively related to parents' ratings of the children's emotional well-being, leadership, popularity, attractiveness, and assertiveness and negatively related to aggressivity. Study 2 sampled sixth graders who had also received varying amounts (months) of stable full-time day-care, but this group attended a variety of quality day-care centers. In this sample the amount of time in day-care was related to the teachers' ratings of their emotional well-being, attractiveness, and assertiveness. In addition, children with more time in high-quality day-care showed more physical affection during peer interactions, were more often assigned to the gifted program, and received higher math grades. (Author's Abstract)

**Gullo, D. F., & Burton, C. B. (1992). Age of entry, preschool experience, and sex as antecedents of academic readiness in kindergarten. *Early Childhood Research Quarterly*, 7, 175-186. [Full Text](#)**

Readiness, or preparing young children for the formal curriculum, is garnering much attention and controversy in the field of early childhood education. Many factors have been examined in efforts to determine what affects academic readiness. The purpose of this study was to examine the effects of children's age of entry, number of

<b>Country</b>	USA
<b>Sample Size</b>	4539
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Retrospective No Follow-up Observational
<b>Factors</b>	Age of Entry Time Spent

years of preschool, and sex on academic readiness at the end of kindergarten. A total of 4, 539 children participated in the study. Of these, 104 children started public school at age 3 (K3), 1, 234 started school at age 4 (K4), and 3, 201 started at age 5 (K5). At-risk status was determined using the Cooperative Preschool Inventory (Caldwell, 1974), and first-grade readiness was determined using the Metropolitan Readiness Test (MRT; Nurss & McGauvran, 1974). Controlling for risk status, regression analysis revealed that age of entry and number of

years of preschool accounted for a significant amount of the variance, while sex did not. Analyses of covariance indicated that children who entered the public school preschool program at K3 or K4 scored significantly higher on the MRT than children who entered at K5. The findings also indicated that if children were the youngest in their class they did not score as high as their older counterparts in the K4 and K5 cohorts. However, no difference was found on achievement scores between the oldest and the youngest for the K3 cohort. (Authors' Abstract)

**Lamb, M., Hwang, C. P., Broberg, A., & Bookstein, F. (1988). The effects of out-of-home care on the development of social competence in Sweden: A longitudinal study. *Early Childhood Research Quarterly, 3, 379-402.*** [Full Text](#)

In this study, 140 Swedish preschoolers and their parents were first contacted, observed, and interviewed when the children averaged 16 months of age. Subsequently, 53 children entered day-care centers, and 33 were enrolled in family day-care facilities. Further assessments of the children, their families, and their care facilities took place 3, 12, and 24 months after the initial assessment. As predicted, type of child care had no apparent impact on the children's sociability or personality maturity, as measured 24 months after the study began. However, the quality of care received both at home and in the out-of-home care facilities, reported family social support, and child gender helped predict personality maturity (as reported by the mothers using the Block CCQ) and observed social skills with familiar peers and unfamiliar adults. (Authors' Abstract)

<b>Country</b>	Sweden
<b>Sample Size</b>	140
<b>Age</b>	Infant & Preschool
<b>Database</b>	---
<b>Design</b>	Prospective Follow-up Experimental
<b>Factors</b>	Quality Time Spent

**Larsen, J. M., & Robinson, C. C. (1989). Later effects of preschool on low-risk children. *Early Childhood Research Quarterly, 4, 133-144.*** [Full Text](#)

This longitudinal study examines the effects of preschool attendance upon school achievement scores and out-of-school activities for 196 second and third grade children, 125 of whom had attended a university-affiliated preschool and 71 of whom were nonattenders. They were from low-risk educationally advantaged families. Males who had attended preschool scored significantly higher on the reading vocabulary, total reading, spelling, total language, and total battery components of achievement measures than did males who had not attended preschool. A preschool effect upon achievement scores for females from these age groups was not found. Contrary to assumptions that home and family experiences are sufficient to enhance development and learning for low-risk children, the findings of this study seem to indicate that, for males, preschool

<b>Country</b>	USA
<b>Sample Size</b>	196
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Prospective Follow-up Experimental
<b>Factors</b>	Time Spent

attendance does have a significant effect on later school achievement scores, especially in language-related areas. (Authors' Abstract)

**McCartney, K., Scarr, S., Rocheleau, A., Phillips, D., Abbott-Shim, M., Eisenberg, M., et al. (1997). Teacher-child interaction and child-care auspices as predictors of social outcomes in infants, toddlers, and preschoolers. *Merrill-Palmer Quarterly*, 43, 426-450.**

[Full Text](#)

Infants, toddlers, and preschoolers (N = 718), who were enrolled in 120 child-care centers from Massachusetts, Virginia, and Georgia, were assessed for social outcomes. Four auspices of child-care centers were sample: nonprofit, local for-profit, national chains for-profit, and church-sponsored. There were few associations between teacher-child interaction and children's social outcomes, with the exception that teacher-child interaction was associated with social bids by toddlers and preschoolers in the centers. Higher work-family interference was associated with poorer social outcomes generally. Children in nonprofit centers had better social outcomes on some measures, although effects were small. Policy and research implications are discussed. (Authors' Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	718
<b>Age</b>	Preschool
<b>Database</b>	---
<b>Design</b>	Retrospective No Follow-up Observational
<b>Factors</b>	Age of Entry Quality Stability Time Spent

**NICHD (2003). Does quality of child care affect child outcomes at age 4.5? *Developmental Psychology*, 39, 451-469.**

[Full Text](#)

Research reveals associations between child-care quality and child outcomes. But are these associations causal? Data from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care, a longitudinal study of children from birth to age 4 1/2, were used to explore 5 propositions that would support a causal argument. Three propositions received support, principally in the cognitive domain: (a) Associations between quality and outcomes remained even with child and family factors controlled; (b) associations between care and outcomes were domain specific; and (c) outcomes were predicted by quality of earlier care with concurrent care controlled. The 4th proposition, that associations between quality and outcomes would be significant with earlier abilities controlled, received limited support. There was no support for the 5th proposition, that quality and outcomes would exhibit dose-response relations. (Author's Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	1364
<b>Age</b>	Preschool
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Quality Time Spent

**NICHD (2003). Social functioning in first grade: Associations with earlier home and child care predictors and with current classroom experiences. *Child Development*, 74, 1639-1662. [Full Text](#)**

Family and child care factors from birth to 54 months, achievement and social outcomes at entry to school, and qualities of first-grade classrooms were used to predict first-grade social functioning for 864 children from the NICHD Study of Early Child Care. Child gender, mothers' partner status, maternal education and depressive symptoms, sensitivity of mothering, and amount of time spent in nonmaternal child care were significant predictors. Home and child care variables predicted social functioning through associations with prior social functioning rather than directly. More teacher-led structured activities in first-grade classrooms predicted mother's reports of more internalizing behavior. Classrooms rated as more emotionally supportive predicted lower levels of mother-reported internalizing behavior and concurrently observed indicators of competence. (Author's Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	864
<b>Age</b>	Preschool & School Age
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Quality Time Spent

**NICHD Early Child Care Research Network (1998). Early child care and self-control, compliance, and problem behavior at twenty-four and thirty-six months. *Child Development*, 69, 1145-1170. [Full Text](#)**

To evaluate child-care effects on young children's self-control, compliance, and problem behavior, children enrolled in the NICHD Study of Early Child Care were tested and observed in the laboratory and in child care at 24 and 36 months, and mothers and caregivers completed questionnaires. Indicators of child-care quantity, quality, stability, type, and age of entry, along with measures of family background, mothering, and child characteristics obtained through the first 3 years of life were used to predict 2 and 3 year child functioning. Results revealed (1) mothering to be a stronger and more consistent predictor of child outcomes than child care; (2) little evidence that early, extensive, and continuous care was related to problematic child behavior, in contrast to results from earlier work; (3) that among the child-care predictors, child-care quality was the most consistent predictor of child functioning, although limited variance could be explained by any (or all) child-care variables; and (4) that virtually none of the anticipated interactions among child-care factors or between them and family or child measures proved significant. (Author's Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	1085
<b>Age</b>	Preschool
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Age of Entry Quality Stability Time Spent Type of Care

**NICHD Early Child Care Research Network (2000). The relation of child care to cognitive and language development. *Child Development*, 71, 960-980. [Full Text](#)**

Children from 10 sites in the United States were followed from birth to age 3 to determine how experiences in child care relate to cognitive and language development (*Ns* varied between 595 and 856, depending on the assessment). Multiple assessments of family and child care environments and of cognitive and language competence were collected.

<b>Country</b>	USA
<b>Sample Size</b>	856
<b>Age</b>	Infant & Preschool
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Quality Time Spent Type of Care

Analyses that adjusted for maternal vocabulary score, family income, child gender, observed quality of the home environment, and observed maternal cognitive stimulation indicated that the overall quality of child care, and language stimulation in particular, was consistently but modestly related to cognitive and language outcomes at ages 15, 24, and 36 months. The effect sizes for high (top quartile) versus low (bottom quartile) quality ranged from .18 to .48. After adjusting for child care quality, cumulative experience in center-based care was associated with better outcomes than was participation in other types of care. The amount of time children spent in care was not related to outcomes. Children in exclusive maternal care did not differ systematically from children in child care. Tests for lagged relations of earlier child care experiences to later performance (adjusting for current child care) showed that language stimulation predicted subsequent cognitive and language performance 9 to 12 months later. Although children in center care at age 3 performed better than children in other types of care, earlier experience in child care homes was associated with better performance at age 3 than was experience in other types of care. The relations of child care variables to outcomes did not vary consistently as a function of family income, quality of home environment, child gender, or ethnic group. (Author's Abstract)

**NICHD Early Child Care Research Network (2001). Child care and children's peer interaction at 24 and 36 months: The NICHD study of early care. *Child Development*, 72, 1478-1500. [Full Text](#)**

Data from the National Institute of Child Health and Human Development Study of Early Child Care were examined to determine how children's experiences in child care were related to peer competence at 24 and 36 months of age, after controlling for the effects of family and child characteristics. Peer competence

<b>Country</b>	USA
<b>Sample Size</b>	706
<b>Age</b>	Preschool
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Quality Time Spent

was assessed using mother and caregiver ratings as well as observations of children with their peers in child care, and at 36 months from observations of dyadic play with a familiar peer. Consistent, albeit modest, relations were found between child-care experiences in the first 3

years of life and children's peer competencies. Positive, responsive caregiver behavior was the feature of child care most consistently associated with positive, skilled peer interaction in child care. Children with more experience in child-care settings with other children present were observed to be more positive and skilled in their peer play in child care, although their caregivers rated them as more negative with playmates. Children who spent more hours in child care were rated by their caregivers as more negative in peer play, but their observed peer play was not related to the quantity of care. Child-care experiences were not associated with peer competence as rated by mothers or as observed in dyadic play with a friend. Maternal sensitivity and children's cognitive and language competence predicted peer competence across all settings and informants, suggesting that family and child-care contexts may play different, but complementary roles in the development of early emerging individual differences in peer interaction. (Author's Abstract)

**NICHD Early Child Care Research Network (2003). Does amount of time spent in child care predict socioemotional adjustment during the transition to kindergarten? *Child Development*, 74, 976-1005.** [Full Text](#)

To examine relations between time in nonmaternal care through the first 4.5 years of life and children's socioemotional adjustment, data on social competence and problem behavior were examined when children participating in the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care were 4.5

<b>Country</b>	USA
<b>Sample Size</b>	1364
<b>Age</b>	Preschool & School Age
<b>Database</b>	NICHD
<b>Design</b>	Prospective No Follow-up Observational
<b>Factors</b>	Time Spent

years of age and when in kindergarten. The more time children spent in any of a variety of nonmaternal care arrangements across the first 4.5 years of life, the more externalizing problems and conflict with adults they manifested at 54 months of age and in kindergarten, as reported by mothers, caregivers, and teachers. These effects remained, for the most part, even when quality, type, and instability of child care were controlled, and when maternal sensitivity and other family background factors were taken into account. The magnitude of quantity of care effects were modest and smaller than those of maternal sensitivity and indicators of family socioeconomic status, though typically greater than those of other features of child care, maternal depression, and infant temperament. There was no apparent threshold for quantity effects. More time in care not only predicted problem behavior measured on a continuous scale in a dose-response pattern but also predicted at-risk (though not clinical) levels of problem behavior, as well as assertiveness, disobedience, and aggression. (Author's Abstract)

**NICHD Early Child Care Research Network (2004). Type of child care and children's development at 54 months. *Early Childhood Research Quarterly*, 19, 203-230. [Full Text](#)**

The types of non-maternal child care received by more than 1000 U.S. children were examined from birth to 54 months and related to family selection factors and to child outcomes. Individual children tended to

experience a variety of different types of care and not to fit into clear patterns of either stable care types or progressive patterns of movement from less structured to more highly structured care settings. Across the entire sample, however, hours in center care were higher in the preschool period than earlier, whereas hours in relative

<b>Country</b>	USA
<b>Sample Size</b>	1287
<b>Age</b>	Preschool
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Time Spent Type of Care

care remained stable and hours in child care homes decreased. Mothers who were single, those with more education and less traditional beliefs about child rearing, and families with higher incomes and fewer children in the household were more likely to use more hours of center care than other families; single mothers and those with fewer children also used more hours of care in child care homes. Minority families, those with low incomes, and mothers with less education and fewer children used more hours of relative care. With family selection factors and quality of child care controlled, only hours in center care across the time period from 3 to 54 months were related to child outcomes. Children who experienced more center care were reported by caregivers at 54 months to have somewhat higher externalizing behavior problem scores than other children, although these scores were not in the clinical or at-risk range. Center care hours were also related to cognitive and language outcomes, with more hours in infancy associated with lower preacademic test scores and more hours in the toddler period with higher language scores. (Author's Abstract)

**NICHD, & Duncan, G. J. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. *Child Development*, 74, 1454-1475. [Full Text](#)**

The National Institute of Child Health and Human Development (NICHD) Study of Early Child Care compared 3 statistical methods that adjust for family selection bias to test whether child care type and quality relate to cognitive and academic skills. The methods included: multiple regression models of 54-month outcomes, change models of differences in 24- and 54-month outcomes, and residualized change models of 54-month outcomes adjusting for the 24-month outcome. The study was unable to establish empirically which model best adjusted for selection and omitted-variable bias. Nevertheless, results suggested that child care quality predicted cognitive outcomes at

<b>Country</b>	USA
<b>Sample Size</b>	1364
<b>Age</b>	Infant & Preschool
<b>Database</b>	NICHD
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Adult-Child Ratio Quality Teacher Education Time Spent

54 months, with effect sizes of .04 to .08 for both infant and preschool ages. Center care during preschool years also predicted outcomes across all models. (Authors' Abstract)

**Sundell, K. (2000). Examining Swedish profit and nonprofit child care: The relationships between adult-to-child ratio, age composition in child care classes, teaching and children's social and cognitive achievements. *Early Childhood Research Quarterly, 15, 91-114.*** [Full Text](#)

This study investigated the effects of program auspice (non profit vs. profit child care), adult-to-child ratios (1:4.6 –1:8.7), and age span of the child care class on teaching and children's social and cognitive achievement. The sample included 394 3- to 5-year-old children from 32 child care centers. Results show that the profit child care centers had larger child groups than non profit child care centers, a lower adult:child ratio, and a positive staff attitude toward teaching goals. Age, gender, social background, and age span of the child care class were significant predictors of children's social and cognitive achievements. Adult-to-child ratio and teaching style did not prove to be good predictors of children's social or cognitive achievements. (*PsycINFO* Abstract)

<b>Country</b>	Sweden
<b>Sample Size</b>	394
<b>Age</b>	Preschool
<b>Database</b>	---
<b>Design</b>	Prospective No Follow-up Observational
<b>Factors</b>	Adult-Child Ratio Age of Entry Time Spent

**Thornburg, K. R., Pearl, P., Crompton, D., & Ispa, J. M. (1990). Development of kindergarten children based on child care arrangements. *Early Childhood Research Quarterly, 5, 27-42.*** [Full Text](#)

The effects of day care on the development of 835 kindergarten children were analyzed. Associations with child care arrangements (no day care, part-time care, and full-time day care) from birth to age 5 and for only the first year of life are discussed. Overall differences in early child care arrangements were more predictive of differences in social development than of differences in intellectual and gross motor performance. Similarities in certain behavioral variables between children at home and in full-time care are noted. Socioeconomic status, sex, and race differences are also reported. (Authors' Abstract)

<b>Country</b>	USA
<b>Sample Size</b>	835
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Retrospective No Follow-up Observational
<b>Factors</b>	Time Spent

**Vandell, D. L., & Corasaniti, M. A. (1990). Variations in child care: Do they predict subsequent social, emotional and cognitive differences? *Early Childhood Research Quarterly*, 5, 555-572.**

[Full Text](#)

A sample of 236 predominantly middle class 8-year-olds from a state with minimal child care standards were examined for possible differences associated with earlier child care histories. In comparison to children in part-time child care (less than 30 hours a week) or exclusive maternal care, children with more extensive child care experiences since infancy were rated by teachers and parents as having more poor peer

relationships, work habits, and emotional health, and as being more difficult to discipline. In this minimal standard environment, extensive infant care was also associated with more negative nominations from classmates, poorer academic and conduct report card grades, and lower standardized test scores. In

<b>Country</b>	USA
<b>Sample Size</b>	236
<b>Age</b>	School Age
<b>Database</b>	---
<b>Design</b>	Prospective No Follow-up Observational
<b>Factors</b>	Age of Entry Time Spent

stepwise regressions that included family social class, parents' marital status, family size, number of family moves, child gender, childbirth order, and current after school care, children's extensive experience in infant care was the single best predictor (in a negative direction) of ratings by parents, teachers, and peers, and of report card grades and standardized test scores. Child care history continued to be a significant negative predictor of child outcomes in full regression models that incorporated child and family variables. These results are in marked contrast with findings of positive social and cognitive development associated with early, extensive child care in Sweden (a country characterized by high child care standards and opportunities for paid parental leave during early infancy). (Authors' Abstract)

**Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. *Child Development*, 75, 296-312.**

[Full Text](#)

A large literature has documented the influence of child care on young children's development, but few studies have examined low-income children in community care arrangements. Using data from Welfare, Children, and Families: A Three-City Study ( $N=204$ ), this study examined the influence of child care quality and the extent of care on low-income children's (ages 2–4 years) cognitive and socioemotional development over

<b>Country</b>	USA
<b>Sample Size</b>	204
<b>Age</b>	Preschool
<b>Database</b>	Welfare, Children, & Families: A Three-City Study
<b>Design</b>	Prospective No Follow-up Observational
<b>Factors</b>	Quality Time Spent Type of Care

time. Higher levels of child care quality were modestly associated with improvements in children's socioemotional development, and extensive hours in child care were linked to increases in children's quantitative skills and decreases in behavior problems. Analyses suggest that child care

quality may be particularly salient for subgroups of children from low-income families. (Authors' Abstract)

**Wadsworth, M. E. J. (1986). Effects of parenting style and preschool experience on children's verbal attainment: Results of a British longitudinal study. *Early Childhood Research Quarterly, 1*, 237-248. [Full Text](#)**

In order to assess the relative strengths of mothers' education, parenting styles, and children's experience of preschool in predicting children's verbal attainment scores, this study made use of data derived from a cohort of children born in England, Wales, and Scotland in March of 1946 ( $N = 5,362$ ). The parenting styles of cohort members have been studied from the time members' firstborn children were 4 years old. Tests administered when these second-generation children were 8 years old assessed children's abilities in vocabulary, reading, and sentence completion. Although preschool experience was an independent and significant predictor of verbal attainment scores, its power was small when compared with mothers' education. In addition, preschool attendance had no significance in predicting the scores of children whose mothers were relatively understimulating. (Author's Abstract)

<b>Country</b>	UK
<b>Sample Size</b>	5362
<b>Age</b>	School Age
<b>Database</b>	Medical Research Council National Survey of Health and Development
<b>Design</b>	Prospective Follow-up Observational
<b>Factors</b>	Time Spent