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The Social Ecology of School-Age Child Care

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Abstract

The goal of this longitudinal study was to examine variations in school-age child care arrangements across the elementary school years as a function of child, family, and contextual factors. Pre-kindergarten family background measures were collected through parent questionnaires and interviews. Follow-up interviews with 466 parents provided information on children's care experiences in grades 1 through 5. Some care arrangements (e.g., self care) showed considerable continuity, whereas other arrangements (e.g., school programs) changed substantially from year-to-year. Increases in use were found for self-care, sibling care, neighbor care, and activity-based care; use of day care decreased across years. Children living with working and/or single mothers spent more time in non-parent care, as did boys with behavior problems. Time spent in specific care arrangements varied as a function of child sex, behavioral adjustment, ethnicity, family socio-economic status, mothers' employment, and parents' marital status. These findings underscore the importance of developmental and ecological-contextual factors in families' choices of care arrangements.

School-age child care has emerged as a topic of considerable interest to researchers, policy-makers, and parents alike because it is used by increasing numbers of families. Although much has been written about the types of arrangements typically utilized by families in the United States (e.g., see Vandell & Posner, in press), and the extent to which involvement in these arrangements poses risks for children's social and academic adjustment (e.g., Galambos & Maggs, 1991; Pettit, Laird, Bates, & Dodge, 1997; Posner & Vandell, 1994; Steinberg, 1986), little has been written about the factors that contribute to families' choices about which types of arrangements to use. It is important to understand these factors in order to distinguish the effects of selection factors (i.e., experiences or beliefs that lead parents to choose particular arrangements) from the effects of child care on children's development. Moreover, because few studies of school age child care have been longitudinal in design, there are almost no data on the patterning of continuity versus change in care arrangements over time.

The goal of the present study was to provide a more comprehensive description of the patterning of child care arrangements throughout the grade school years than has been available in the past. Of special interest was (a) whether differing types of care are used to a greater or lesser extent depending on the child's age (indexed as grade in school), and (b) whether participation

in differing types of care is associated with earlier or later participation in the same types of care. It also was of interest to situate these descriptive data within a broader social-ecological framework in order to document variations in care as a function of child characteristics, parenting philosophy, and family background factors. Although selected aspects of these factors have been studied previously, no study has examined each set of factors within a developmental perspective. It is important to do so because the degree of children's participation in a given care arrangement likely hinges on the characteristics of the child, including age, sex, and social maturity; on characteristics of the caregiving environment, including parents' socialization goals and childrearing styles; and on characteristics of the broader social ecology, including family socioeconomic status and family structure (Lovko & Ullman, 1989; Steinberg, 1986; Vandell & Posner, in press).

In this study we use the phrase school-age child care to refer to what many writers have described as after-school care. We chose this term because it refers to all aspects of non-parent non-school care, including care that occurs in the hours before school. Descriptive research on the types of such care in use among families in the United States suggests that different types of arrangements are likely to be utilized at differing ages. The National Child Care Survey (Hofferth, Brayfield, Deich, & Holcomb, 1991), using a normative, cross-sectional sample, showed no developmental changes in the percentage of families using relative and parent care, but did show changes across the primary school years in the use of self care, center-based programs, and activities such as lessons or sports. The proportion of children experiencing self care was small but it increased linearly from age 5 to 12 from zero to 5%. In contrast, the study showed that the use of center-based day care, and family day care declined across middle childhood. The decline in the proportion of families relying on day care programs corresponds to a large increase in the proportion of children attending activities (e.g. music lessons, organized sports). However, because of the cross-sectional nature of their data, Hofferth et al. (1991) were unable to examine the year-to-year consistency versus change in the arrangements used by the families. The first goal of the current study was to consider the replicability of these developmental trends within a longitudinal analysis, and at the same time extend these findings by identifying developmental patterns of consistency and change in the amounts of time children spend in particular arrangements.

Evidence from the National Child Care Survey and several additional studies suggests that school-age care experiences vary as a function of family background characteristics. Family factors that have been identified as correlates of such care experiences include ethnicity, income, socioeconomic status (SES), and maternal employment status. Family background factors often have been studied in relation to reliance on self care or formal child care programs (e.g., school based programs, day care) as a primary form of child care. They have not been studied often in relation to informal adult care (e.g., neighbor care, relative care). However, informal care constitutes a significant portion of children's school-age care experience (Hofferth et al., 1991), and because involvement in informal care arrangements has been found to be associated with child behavior adjustment problems (Pettit, Laird et al., 1997; Vandell & Ramanan, 1991), it is important to understand the factors that contribute to children being placed in such arrangements.

Researchers have reported that self care is used more by single mothers, employed mothers, European-American mothers, and more affluent families than by married mothers, unemployed mothers, African-American mothers, and less affluent families (Cain & Hofferth, 1989; Lovko & Ullman, 1989; Posner & Vandell, 1994). Conflicting results have been reported regarding the relation between maternal education and self care with most large-scale representative studies reporting that children of well educated mothers spend more time in self care than children of less educated mothers (Coleman, Robinson, & Rowland, 1990; Hofferth et al., 1991; Vandell & Ramanan, 1991). Posner and Vandell (1994), in contrast, reported that in a

sample of lower-income urban families that self care was most common when mothers were less educated. These conflicting findings suggest the possibility that family factors other than SES or income, such as maternal work or marital status, may be most predictive of reliance on self-care.

Posner and Vandell (1994) also noted that formal child care programs were more likely to be used by mothers who were European-American and worked full-time than by mothers who were African-American and did not work outside the home. Many different types of arrangements are classified as formal child care programs and family background factors are related to specific arrangements within this broad category. For example, children from higher income families are more likely to attend enrichment lessons, whereas children from less affluent families are more likely to spend time at non-profit community centers (Hofferth et al. 1991).

The studies described above provide evidence of relations between school-age child care and several demographic and family experience factors. However, the range of contextual factors and child care arrangements varies considerably from one study to another making the comparison of contextual factors across a range of arrangements difficult. Moreover, previous studies typically have selected children based on parent- or child-reports of care and classified children according to the predominant type of care used by the family (e.g., Galambos & Maggs, 1991; Steinberg, 1986; Vandell & Corasaniti, 1988; Vandell & Ramanan, 1991). This classification approach is a serious limitation because most families rely on two or more child care arrangements (Hofferth et al. 1991). The present study allowed for the possibility that some, if not most, children would be involved in multiple care arrangements throughout a single school year, as well as across years.

Previous research has largely overlooked two factors that may strongly influence parents' decisions regarding school-age care arrangements. It may be that parents who differ in their parenting philosophies (i.e., in their goals for their children, and in their styles of interacting with the children) opt for differing types of child care arrangements in middle childhood. For example, Steinberg (1986) and Vandell, Posner, Shumoy, and Lange (1995) found that greater parental permissiveness was predictive of greater use of self care. The current study will expand the examination of the relations between parenting philosophy and care to include a broader array of child care arrangements. A second factor that has received little research attention is the behavioral characteristics of the children. No research has examined child behavior problems as a possible selection factor, although Vandell and Corasaniti (1988) hypothesize that behavior problem children may be sent to more formal adult-supervised programs such as day care. Another possibility, discussed by Vandell and Posner (in press), is that behavior problem children may fail to make normative transitions in care arrangements. For example, such children may be slower than their peers to move from formal, structured programs to more informal, less supervised arrangements.

Because background factors may function differently in different ecological contexts, and differently for boys and girls, analyses were planned to explore how the impact of ethnicity, parents' marital status and work status, parenting philosophies, and child behavior problems may be moderated by child sex and family SES. It may be, for example, that child behavior problems are not directly related to care patterns, but rather are moderated by the sex of the child (e.g., formal structured programs may be favored for behavior problem boys, but programs emphasizing social interaction may be favored for behavior problem girls). Another possibility is that the child adjustment-care arrangement relation is moderated by SES, with only high-SES families having the resources to send their behavior problem children to formal adult-supervised programs. The exploration of the extent to which these background factors may function within specific ecological contexts is a key aspect of the current study.

Child care data were collected via face-to-face interviews with parents during the summer following the child's fifth-grade school year using a guided recall procedure developed for this study (see Bates, Marvinney, Kelly, Dodge, Bennett, & Pettit, 1994, for a similar approach). Because retrospective data are subject to recall biases, it is important to carefully consider the validity of such reports. This was done in the present study by relating the guided recall summary scores to prospectively collected measures that were similar to, but less differentiated than, the retrospective scores. Variables indexing parenting, family background, and child characteristics were available from kindergarten. These data were used to examine the longitudinal consistency and change in child care arrangements across middle childhood and to examine variations in child care utilization in each of grades 1 through 5 as a function of child, parenting, and family background factors. The analyses also provided information regarding changes in the relations between child care and family background variables over time.

Method

Participants

The current assessment of school-age child care was based on detailed, in-home interviews with 466 primary caregivers (mothers in all but three cases) conducted during the summer following the child's completion of fifth grade. Families were in the seventh year of participation in the ongoing Child Development Project, a multi-site, longitudinal study of children's social adaptation (see Bates et al., 1994; Pettit, Bates, & Dodge, 1997). Participating families initially were recruited in two cohorts from each of three sites (Nashville and Knoxville, Tennessee, and Bloomington, Indiana) in the Summer of 1987 (cohort 1) or 1988 (cohort 2). The original sample consisted of 585 families. Fifty-two percent of the children were male, 19% were of minority ethnic background, and 26% lived with single mothers at the time of recruitment. The Hollingshead (1975) four-factor index of social status, computed from educational attainment and job category information provided by the parents, averaged 40.4 ($SD = 14.0$). A range of status was represented, with 9, 17, 25, 33, and 16% of the families being classified into the five possible classes (from lowest to highest), according to Hollingshead's recommendations. To create a dichotomous score for SES, the first two classes were defined as low-SES, and the upper three classes as mid-SES. The families who subsequently participated in the child care interviews are generally representative of the original sample (51% boys, 16% ethnic minority, 32% from single parent homes, SES mean = 40.5, $SD = 14.2$).

Procedure

Information on child characteristics (e.g., behavior problems), parenting philosophy, and family background was obtained from interviews and a set of questionnaires completed by the mothers. This assessment was conducted in the families' homes when the children were about to enter kindergarten.

Information on children's care experiences was obtained six years later during a home interview conducted with mothers in the summer following their children's fifth-grade school year. All interviews were audiotaped. A guided interview protocol was used to obtain information from mothers regarding child care arrangements when their children were in first-through fifth-grade. Because many parents work early mornings or late evenings and, as a result, place their children in various forms of non-parental care during these times, this study focused on children's non-school waking hours, including mornings before school, afternoons, and evenings.

To orient mothers to the particular school year of interest, mothers were first prompted to recall major family events and life circumstances (including employment and marital status) and then were asked to identify the general types of child care arrangements used during that particular school year. This sequence was repeated until the mother had described the child care arrangements used from first- through fifth-grade. With cues, guidance, and support from the interviewer, the parent was asked to count up the number of waking hours in a typical five-day school week, and then to separate the total into the hours in which the child was in parent care, and the hours in which the child was not in parent care. Next, the hours in which the child was not in parent care were distributed among 11 types of care. The settings were: (a) older (non-adult) brother or sister care; (b) self care (i.e., the child comes home and takes care of him/herself); (c) relative care in the parent's home; (d) relative (e.g., grandparent) care in the relative's home; (e) sitter (i.e., non-relative) care in the parent's home; (f) sitter care in the sitter's home; (g) neighbor care (i.e., an informal arrangement in which the neighbor is not paid); (h) day care center; (i) family day care provider (i.e., six or fewer children in the provider's home); (j) school-based program; (k) organized activity-oriented adult-supervised care (e.g., scouts, music lessons, sports).

Measures

Children's Involvement in Differing Care Arrangements—Because some categories occurred infrequently (e.g., family day care), and because some categories overlapped conceptually (e.g., sitter care at parents' and sitters' home), several of the categories were collapsed on a combined rational and empirical basis to form larger care categories¹. As a result, measures of time spent in 8 types of care were derived from the interviews: (a) self care; (b) sibling care; (c) sitter care (including sitter care at parents' or sitters' home); (d) relative care (including relative care at the parents' or relatives' home); (e) day care (including center-based and family day care); (f) neighbor care; (g) school-based care; and (h) activity-oriented care. These categories vary slightly from the categories presented in earlier analyses of this dataset focusing on care experiences as predictors of later adjustment (see Pettit, Laird et al., 1997). Specifically, in the earlier report, sitter and relative care were combined as well as self care and sibling care. Because the purpose of the current study is to describe the social ecology of child care, the more extensive classification scheme was used.

Because of the interviewers' involvement in structuring the interview and providing operational definitions of the different child care arrangements, interviewer reliability was assessed. A second interviewer listened to audiotapes of 12% of all interviews and independently scored the amount of time spent by the children in each of the child care arrangements. Correlations between the primary and reliability interviewers' scores were uniformly high (all $r_s > .90$).

Validity of the retrospective data was evaluated by correlating the retrospective care scores with similar scores created from parent questionnaire data collected in the summers following the children's first- and third-grade school years. The child care categories in these earlier assessments were not identical to those in the guided recall procedure, thus limiting direct comparisons to five care arrangements: day care, sibling care, relative care, sitter care and neighbor care. The parent questionnaire data were scored on 5-point scales ranging from "occasionally or none" to "30 or more hours per week" and referred to time spent in each arrangement after school (i.e., did not include time before school). The correlations between the early parent questionnaire and later oral interview scores were moderate but highly significant with mean correlations of .30 for grade 1, and .33 for grade 3. The strongest

¹Factor and cluster analyses were conducted in an attempt to further simplify the child care arrangements by identifying similar arrangement patterns. However, these analyses did not satisfactorily identify a reliable and informative cluster or factor structure.

correlations were for day care ($r_s = .45$ and $.43$, both $p_s < .001$, for grades 1 and 3, respectively). Neighbor care had the weakest correlations ($r_s = .14$ and $.25$, both $p_s < .01$, for grades 1 and 3, respectively). Given the large differences in scoring, in the range of categories, and in assessment format we interpret these modest correlations as providing some evidence of the reliability and validity of the mothers' retrospective reports.

Child, Parent, and Family Background Variables—Information on child behavior problems was collected in the summer before kindergarten and again the summer before grade 1. Mothers were asked to complete the Child Behavior Checklist (Achenbach & Edelbrock, 1986), a standard 112-item checklist of child behavior problems, during both assessments. Mothers indicated whether each item was not true, somewhat true, or very true for their child (scored as 0, 1, and 2, respectively). Responses were summed to create a *total behavior problems score* for pre-kindergarten and pre-grade 1. Because the two scores were highly correlated ($r = .66$, $p < .001$), they were averaged to create a more reliable early behavior problems index (Spearman-Brown reliability index = $.80$). Next, two groups were created based on a median split of the behavior problems score. Children with raw mean scores greater than 27 were classified into the high behavior problems group. The low behavior problem group included all children with scores equal to or lower than 27.

Two parenting measures conceptualized as proactive and supportive parenting were generated from the pre-kindergarten mother interview (see Pettit, Bates et al., 1997 for a more detailed description of these measures). The first measure indexes mothers' reported involvement in their children's social contacts with peers. Parents were asked during the interview to describe their children's exposure to peers in each of two developmental periods (ages 1–3 and 4–5). On the basis of the parents' descriptions, the interviewer rated the "parent's awareness of and concern about the child's social experience and willingness to use such considerations to structure the child's experiences." The interviewer impressions were summarized on an extensively anchored 5-point rating scale. The ratings across the two eras were averaged to yield an overall positive involvement score ($r = .92$ across the two eras; correlation between independent raters $r = .32$). The second measure came from an orally administered questionnaire in which parents were presented with live hypothetical situations in which a child misbehaved in his or her interactions with peers (e.g., a child refuses to relinquish a toy after a reasonable length of time). Parents were asked to describe ways in which the child might have been prevented from acting this way in the first place. Parents who responded with descriptions that were "before-the-fact" received a score of "1"; descriptions that were "after-the-fact" or indicated that the act was not preventable received a score of "0." Scores were summed across the five stories ($\alpha = .70$; correlation between independent raters $r = .56$). Because the measures were significantly correlated ($r = .20$, $p < .001$), they were standardized and summed to create a single measure of *proactive parenting*. A dichotomous score based on a median split was used in some analyses.

Four family background factors were of interest in the current study. Information on *ethnicity* and *SES* was collected during the initial parent interview, as described earlier. As part of the later child care interview, mothers were asked to report their own and their spouse's *work status* (reported by the mothers as not working or working part-time, working full-time; part-time and not working were later collapsed) and their *marital status* (scored as spouse/partner in home, no spouse/partner in home) during each year as they described their child care arrangements.

Results

Overview

The first series of analyses tested for developmental continuity and change in non-parent child care arrangements in grades 1 through 5. Developmental changes in the amount of non-parent care and in specific care arrangements were identified. This was followed by an examination of the continuity in the use of arrangements. It is important to note that there can be change in the amount of time spent in an arrangement, but continuity in the use of the arrangement. The final step in the analysis plan was to examine variations in child care arrangements as a function of the set of demographic and family experience factors in an attempt to identify variables that may influence parents' decisions regarding care arrangements.

Change and Stability of Non-parent Care Arrangements

Time Spent in Non-Parent Care—A repeated measures analysis of variance (ANOVA) was conducted to examine developmental changes in non-parent care. The numbers of hours per week of non-parent care in each of grades 1 through 5 were the dependent variables in the analysis. As shown in table 1, there was a significant time effect with a linear increase in the use of non-parent care. As is apparent from the standard deviations, there were large variations in the amount of non-parent care in each grade. For example, in each grade many children were cared for exclusively by their parents (from 10% in grade 5 to 20% in grade 1). On the other hand, about one-fourth of the sample spent 15 or more hours per week, or about three hours per day, in non-parent care in each grade. Thus, it appears that increases in non-parent care from grade 1 to 5 are normative, although there is considerable variability among families.

Time Spent in Specific Arrangements—It was of interest to examine the amount of time spent by children in each of the eight arrangements across elementary school to identify developmental changes in the use of particular child care arrangements. The numbers of hours per week spent by each child in each of the eight arrangements were included in a repeated measures multivariate analysis of variance (MANOVA). Eight sets of within subjects factors were included with each set comprising one type of care in each of grades 1 through 5. There was a significant multivariate main effect for time and univariate tests indicate that the time main effect was significant for self care, sibling care, sitter care, day care, neighbor care, school-based programs, and activity-oriented care. Table 1 also presents the number of hours per week spent in each type of care in each grade along with the results of post-hoc tests of year by year comparisons. There was a linear increase in the time spent in self care, sibling care, and activity-oriented care from grade 1 to grade 5. In contrast, there was a linear decrease in time spent in day care from grade 1 to grade 5. Table 1 also includes the number of families involved in each arrangement in each grade. Inspection of these numbers reveals conclusions that are similar to those for the number of hours spent in each type of care.

Arrangement Continuity/Discontinuity—In order to examine the continuity/discontinuity in arrangement use, we first determined whether each family reported any involvement in non-parent care in each grade. Then for each care arrangement, in each grade, the family was classified as involved (i.e., spent 1 or more hours in the arrangement) or not involved in the arrangement. Next, the prospective and retrospective continuity of non-parent care and each non-parental care arrangement was examined. In this case, prospective continuity refers to the percentage of families involved in an arrangement type in an earlier grade who also were involved in the arrangement in a later grade, whereas retrospective continuity refers to the percentage of families involved in an arrangement in a later grade, who also were involved in the arrangement in an earlier grade. High prospective continuity indicates that once children become involved in the arrangement they are not likely to stop using the arrangement (i.e., few drop out of the arrangement). High retrospective continuity indicates that relatively

few children have added the arrangement. Note that we assessed continuity in terms of arrangement type (e.g., day care) and not in terms of specific arrangements (e.g., two different day care centers may have been used in different years).

Shown in table 2 are both the mean year-to-year (e.g., grade 1 to grade 2, grade 2 to grade 3, etc.) indices of continuity as well as indices describing continuity over selected two- and four-year time periods. Overall, the arrangements show more prospective continuity than retrospective continuity. This is probably due to the increase in the number of arrangements used by the families from grade 1 to grade 5, which would result in a bias toward higher prospective continuity and lower retrospective continuity because, in general, families are adding arrangements but not dropping arrangements used in earlier years (see Pettit, Laird et al., 1997 for evidence of this pattern in these data). To summarize table 2, the examination of prospective and retrospective continuity indicates a general pattern of increasing complexity in child care across the elementary school years. Although families tend to be consistent in their use of child care arrangements from year to year, some arrangements are more consistently utilized than others. Once self care and activity-oriented care are initiated they tend to remain a part of a family's pattern of care in subsequent years.

Care Use as a Function of Child, Parent, and Family Background Variables

The final series of analyses was conducted to examine variations in care use as a function of child, parent, and family background variables. Bivariate relations among the child, parent, and family background variables and the amounts of time spent in each care arrangement (averaged over the five years) were computed. Single indicators of work and marital status were created for these analyses. Parents were classified as single if they reported being single at any time when their children were in grades 1 through 5. Similarly, parents were classified as employed if they reported being employed *full-time* at any time when their children were in grades 1 through 5. This recoding of marital and employment status was considered to be an acceptable approach given the high degree of year to year stability in both marital status and employment status, and the need to have a single measure of each for subsequent repeated measures analyses. Table 3 includes both the range of correlations (labeled range) obtained from the yearly work and marital status variables as well as the correlations obtained after collapsing across the five years (labeled work and marital status). Collapsing work and marital status in this manner did not appear to dramatically alter their associations with the child care variables. The bivariate relations indicate that work status, marital status and SES have the strongest and most consistent relations with child care experiences. Child sex, early behavior problems, and proactive parenting were less predictive of the time spent in different care arrangements.

To examine developmental changes in the relations between the background and care variables, and to assess the independence of the background factors as predictors of child care use, a series of repeated measures analyses of variance (ANOVA) was conducted. Separate models were computed for total non-parent care and each of the eight types of non-parent care. The care variables in grades 1 through 5 served as dependent variables. The time main effects are redundant with analyses presented earlier and will not be discussed. Seven dichotomous independent variables (child sex, ethnicity, behavior problems, family SES, parents' marital status, mothers' work status, and proactive parenting) were included in the models. All two-way interactions involving SES and child sex and all interactions with time (two-way and three-way) also were included in the model². Higher-order interactions were suppressed because of the large number of factors and arrangement types. One advantage of this analysis scheme is

²For non-parent care and each of the child care arrangement, 7 main effects, 11 sex and SES interactions, and 18 time interactions were tested. Three main effects, five sex or SES interactions, and eight time interactions would be expected to be significant on the basis of chance ($p = .05$). Altogether, 12 main effects, 8 sex or SES interactions, and 14 time interactions were significant.

that all background factors and interactions were examined simultaneously; thus, all child, parent, and family background factors were evaluated controlling for all other factors. The time interactions were examined by conducting analyses separately for each grade. Mean scores across grades 1 through 5 for each type of care were computed for the interpretation of effects not involving a time interaction. Results will be summarized by background factor with child sex and family SES main effects discussed last. Table 4 summarizes all significant effects.

Work Status—In each grade, children whose mothers worked full- time spent more time in non-parent care ($M_s = 11.6$ to 13.2 $SD_s = 8.4$, to 8.9) than children whose mothers were not employed full-time ($M_s = 5.2$ to 8.4 $SD_s = 6.6$ to 8.1 ; $F_s(1,464) = 26.05$ to 98.09 , all $p_s < .001$). The specific care arrangements that contributed to this effect were sibling care ($M_s = 1.0$ and $.7$, $SD_s = 2.1$ and 1.7 , for employed and non-employed mothers, respectively), sitter care ($M_s = 1.3$ and $.4$, $SD_s = 3.1$ and 1.5), and school-based programs ($M_s = 1.6$ and $.2$, $SD_s = 3.6$ and $.7$). In each grade, children whose mothers were employed spent more time in day care ($M_s = 4.2$ to 1.2 , $SD_s = 7.4$ to 4.3) than children whose mothers were not employed ($M_s = .7$ to $.2$, $SD_s = 2.9$ to 1.4 ; $F_s(1,464) = 10.59$ to 41.15 , all $p_s < .001$). However, because the overall use of day care decreased with advancing age in both groups, the magnitude of the work effect diminished with age. In grades 3 and 4, children of working mothers spent more time in relative care (both $M_s = 2.4$, $SD_s = 5.9$ and 6.3 , for grades 3 and 4, respectively) than did children whose mothers were not employed full-time ($M_s = 1.1$ and 1.2 , $SD_s = 3.5$ and 4.1 ; $F_s(1,464) = 8.61$ and 6.35 , both $p_s < .01$). In short, children whose mothers worked full-time for one or more years when the children were in elementary school spent more time in sibling care, sitter care, relative care, day-care, and school-based programs than children whose mothers were not employed full-time.

Marital Status—Children living in single parent low-SES families spent more time in sibling care ($M = 1.3$, $SD = 2.4$) than children living in single parent mid-SES families ($M = .6$, $SD = 1.7$) or children living in intact mid-SES families ($M = .6$, $SD = 1.6$), but not more than children living in intact low-SES families ($M = 1.1$, $SD = 2.5$). More time was spent in activity-oriented care by children in single parent mid-SES ($M = 2.6$, $SD = 3.4$) and intact low-SES families ($M = 2.1$, $SD_s = 2.2$) than by children living in intact mid-SES ($M = 1.3$, $SD = 1.3$) or single parent low-SES families ($M = 1.6$, $SD = 1.8$). In grade 1 only, children living in single parent mid-SES families spent more time in neighbor care ($M = 2.2$, $SD = 4.7$) than all other groups of children ($M_s = .5$, $.7$, and $.5$, $SD_s = 1.3$, 2.6 , and 1.5 , for intact mid-SES, single parent low-SES and intact mid-SES respectively; $F(1, 458) = 5.91$, $p < .01$). Children living in single parent homes spent more time in non-parent care ($M_s = 12.2$ and 11.5 , $SD_s = 8.3$ and 8.0 , for males and females, respectively) than children living in intact families ($M_s = 9.1$ and 8.1 , $SD_s = 7.5$ and 5.8). To summarize, children living in single parent families spent more time in non-parent care than children living in intact families. It appears that single parents favored sibling care, neighbor care, and activity-oriented care, but that these choices differed according to the families' SES.

Ethnicity—European-Americans spent more time in sitter care ($M = 1.0$, $SD = 2.7$) than African-Americans ($M = .2$, $SD = .54$). In grade 5, African-Americans spent more time in non-parent care ($M = 13.4$, $SD = 9.9$) than did European-Americans ($M = 10.0$, $SD = 8.2$; $F(1, 464) = 9.71$, $p < .01$). In grades 3 and 5, African-American children spent more time in self care ($M_s = .7$ and 3.1 , $SD_s = 1.9$ and 4.9) than European-American children ($M_s = .2$ and 1.8 , $SD_s = 1.0$ and 3.7 ; $F_s(1,464) = 10.00$ and 6.57 , both $p_s < .05$). Similarly, in grades 1 and 2, African-American children spent more time in relative care ($M_s = 3.1$ and 3.2 , $SD_s = 5.9$ and 6.3) than did European-American children ($M_s = 1.3$ and 1.5 , $SD_s = 4.1$ and 4.4 ; $F_s(1,464) = 10.99$ and 7.56 , both $p_s < .05$). Low-SES African-American children spent more time in neighbor care ($M = 3.0$, $SD = 5.4$) than any other group ($M_s = 1.2$, $.4$, and $.8$, $SD_s = 2.9$, $.9$, and 2.1 , for low-

SES European-Americans, mid-SES African-Americans, and mid-SES European-Americans, respectively). Likewise, African-American males spent more time in neighbor care ($M = 3.1$, $SD = 5.7$) than any other group (M s = 1.0, .9, and .8, SD s = 2.6, 2.3, and 2.1, for African-American females, European-American females, and European-American males, respectively). In grade 5 only, African-American males spent more time in activity-oriented care ($M = 4.9$, $SD = 5.8$) than all other groups (M s = 2.7, 2.4, and 2.7, SD s = 4.4, 2.9, and 3.5, for African-American females, European-American females, and European-American males, respectively; $F(1,462) = 4.33$, $p < .05$). Overall, African-American children spent more time in self care, relative care, and neighbor care (especially boys and low-SES children), whereas European-American families favored sitter care.

Proactive Parenting—There was only one marginally significant effect for proactive parenting. In grade 5 only, girls with highly proactive parents spent more time at school-based programs ($M = 1.4$, $SD = 4.1$) than any other group (M s = 3, .6, and .6, SD s = 1.5, 2.6, and 2.5, for girls with parents low in proactive parenting, boys with highly proactive parents, and boys with parents low in proactive parenting, respectively; $F(1,455) = 3.64$, $p < .06$).

Early Behavior Problems—Children with high levels of early behavior problems spent more time in self care ($M = .8$, $SD = 1.5$) than children with low levels of early behavior problems ($M = .5$, $SD = 1.0$). In grade 1 only, high behavior problem males spent more time in non-parent care ($M = 10.4$, $SD = 9.1$) than low behavior problem males ($M = 7.6$, $SD = 7.9$) and high behavior problem females ($M = 7.5$, $SD = 7.2$), but not more than low behavior problem females ($M = 8.6$, $SD = 8.0$; $F(1,447) = 6.60$, $p < .01$). This pattern suggests that boys with behavior problems get moved into non-parent care earlier than other groups of children. This hypothesis was tested by computing the grade level of first entry into non-parent care (coded as 1–5). This score was subjected to an analysis of variance with behavior problems and child sex as factors. Results revealed a significant behavior problems $\times$ sex interaction, $F(1,429) = 4.75$, $p < .05$. Although the behavior problem boys had the lowest mean (indicating an earlier entrance into non-parent care), no two-groups differed from one another via post-hoc comparisons. In sum, early behavior problems were associated most strongly with both boys and girls spending more time in self care during elementary school.

Child Sex—In addition to the interactions involving child sex described above, boys spent more time in non-parent, neighbor, and activity-oriented care (M s = 10.1, 1.2, and 2.3, SD s = 7.9, 3.0, and 2.6) than girls (M s = 9.4, .9, and 1.8, SD s = 6.9, 2.3, and 2.0). Low-SES boys spent more time in neighbor care ($M = 2.8$, $SD = 5.2$) than any other group (M s = 1.1, .9, and .7, SD s = 2.7, 2.2, and 1.7, for low-SES females, mid-SES females, and mid-SES males, respectively). Low-SES boys also spent more time in non-parent care ($M = 11.9$, $SD = 8.7$) than low-SES females ($M = 9.0$, $SD = 7.4$), but neither group differed from mid-SES boys or girls (both M s = 9.6, SD s = 7.6 and 6.7). Overall, boys spent more time in activity-oriented care than girls, and low-SES boys spent more time in non-parent care than low-SES girls and more time in neighbor care than all other children.

SES—In addition to the SES interactions described above, children living in mid-SES homes spent more time in neighbor care ($M = 1.9$, $SD = 4.4$) than children in low-SES homes ($M = .8$, $SD = 2.0$).

To summarize, each of the seven background factors were related to the extent of involvement in at least two of the eight child care arrangements. Work status was the background factor most directly related to child care experiences as children of full-time employed mothers spent more time than other children in day care, sitter care, sibling care, and school-based programs. Mothers' work status was not related to time spent in self care or activity-oriented care. SES and child sex had few main effects but moderated the impact of several other factors including

marital status and child behavior problems. All of the remaining background factors, with the exception of proactive parenting, were related to the amount of time children spent in at least two of the child care arrangements.

DISCUSSION

In this study we identified patterns of consistency of use and changes in the extent of use of non-parent child care arrangements in the elementary school years. We found that child care use varied as a function of several demographic and family experience variables. From grade 1 to grade 5, there was a significant, but moderate, linear increase in the use of non-parent child care. The developmental trends identified in the use of specific care arrangements in this study are largely consistent with the trends identified by Hofferth and colleagues (1991). Specifically, in the current study and in Hofferth et al.'s (1991) report, there was stability in the use of relative care, increases in the use of self care and activity-oriented care, and decreases in the use of day care across the elementary school years. It appears that there is a developmental transition from reliance on formal, structured arrangements to more informal, less supervised arrangements, but also emergence of involvement in activity-based care.

The current study extended previous findings by examining the year-to-year continuity and change in the use of specific arrangements. These analyses suggest that once children become involved in any particular type of arrangement (with the exception of day care), they will be involved in the same type of arrangement in later years. Differences in the year-to-year continuity among the eight care arrangements is striking. Self care and activity-oriented care are highly consistent, suggesting that once parents choose to let their children become involved in activities, or care for themselves after school, the children continue to be involved in activities and to care for themselves. Involvement in school based programs, in contrast, is much less consistent, especially after grade 3. Moreover, the school based programs have low prospective and retrospective continuity, indicating that it is not simply that children drop out of school programs after grade 3. From our data, we cannot determine whether families became dissatisfied with school programs or whether there were large year-to-year variations in the availability of programs in the communities where the families lived.

In addition to identifying consistencies and developmental changes in the use of particular child care arrangements, one goal of the current study was to identify a set of factors that would help to predict which families would use each arrangement. We focused on selected aspects of the family ecology that were expected to serve as child care selection factors. Previous research (e.g., Hofferth et al. 1991; Posner & Vandell, 1994; Vandell & Ramanan, 1991) has established that child care groups based on the predominant type of care used differ from one another in many demographic categories. The current study replicated many of these findings while examining a wider range of child care situations and selection factors simultaneously. As reported in prior work (e.g., Cain & Hofferth, 1989), children whose mothers worked full time were found to spend more time in most care arrangements. The ethnicity difference in the use of self care reported in previous research (i.e., Hofferth, et al., 1991; Posner & Vandell, 1994) also was replicated in the current study. African-Americans spent more time in non-parent care overall and in self, relative, and activity-oriented care, whereas European-American children spent more time in sitter care. One notable lack of replication was the finding that children whose mothers worked full time did not spend more time in self care than other children, although these children did spend more time in sibling care. It is possible that working mothers were under-reporting self care. Alternatively, it may be that self care is occasionally used by most families (at least in grade 5) and that significant differences only emerge when comparing families that use self care as their primary child care arrangement with other families. Unfortunately, we were not able to test this possibility as too few families reported relying on self care as their primary care arrangement.

Child sex and family SES also were related (as either main effects or moderators) to the amount of time children spent in several different child care arrangements. Boys from lower SES families spent more time in relative care, and boys spent more time than girls in neighbor and activity-oriented care. These findings are consistent with the patterns described in the National Child Care Survey (Hofferth et al., 1991). SES moderated the impact of ethnicity and marital status, and child sex moderated the impact of behavior problems, parenting philosophy, and marital status, suggesting that family SES and child sex provide valuable information on the context surrounding parental decisions regarding school-age child care.

It was somewhat surprising that the proactive parenting and child behavior problems variables were not more predictive of child care usage. Proactive parenting was related to school program use and more behavior problems were associated with greater involvement in self care. Bivariate analyses indicated that proactive parenting and child behavior problems were related to involvement in several child care arrangements, but that these effects became non-significant once additional family and child background factors were considered. Thus, it appears that family decisions regarding child care are more strongly influenced by situational and contextual factors, such as work hours, SES, and child sex, than by parents' childrearing philosophies, or children's behavior.

The identification and understanding of developmental trends in child care and family selection effects are important because they help to contextualize care experiences. The examination of developmental changes in child care provides the opportunity to consider how care experiences may promote or hinder the completion of particular developmental tasks such as establishing autonomy and developing a social support network. School-age child care, even out of home care, does not exist outside the broader family context. Family decisions regarding the use of child care reflect family resources, beliefs, and opportunities. Vandell and Posner (in press) suggest two reasons the social ecology of school age child care must be considered to appreciate the developmental relevance of child care experiences. First, what appear to be adjustment differences that result from child care experiences may, in fact, be characterized as adjustment differences resulting from pre-existing child behavior, family context, or parenting differences. An illustration of the importance of considering family factors was provided by Lovko and Ullman (1989) who report that the relations between adjustment and self care situation variables were significantly reduced after controlling for child background variables. Second, there is increasing evidence that care effects are moderated by family experiences. Steinberg (1986) reported that the relation between lax parental supervision after school and susceptibility to peer pressure was moderated by parental authoritativeness. Given the absence of direct parental supervision after school, adolescents with more authoritative parents reported being less susceptible to peer pressure than their peers from less authoritative homes. Family SES and child sex also have been identified as moderators of child care experiences with the moderation varying across the type of care being considered (Galambos & Maggs, 1991; Pettit, Laird et al., 1997; Steinberg, 1986). The identification of the natural distribution of these moderating factors helps to understand the context in which school-age child care is experienced, and may help to identify children and families at risk for, or experiencing, adjustment difficulties.

Recommendations and Limitations

There are two primary recommendations to be drawn from the current study. The first recommendation is to recognize normative developmental changes in the patterning of care, patterning which may have differing implications for children's well-being. In the current study, we found that across the primary school years children come to spend more time caring for themselves after school, more time in adult-supervised, activity-oriented child care situations, and less time in formal day care programs. These changes represent normative

developmental achievements and should not be considered as signs of problems. Instead, future researchers should evaluate whether developmentally premature entry (rather than absolute entry) into particular types of care is problematic. We also found that most families report using the same arrangements from year to year, but that some arrangements experience more turnover than others. The consistency in care suggests that studies reporting a correlation between a type of care at one age and a child outcome should consider the possibility that it is not care at that age that is responsible for the effect, but rather that care across ages or at another age is responsible. The implications of involvement in arrangements with differing rates of turnover need to be systematically examined.

The second recommendation of this study is to devote more attention to understanding school-age child care in context. The findings from the current study converge with those from past research and indicate that families do not randomly choose child care arrangements. Economic factors, family composition factors, parenting practices, and child behaviors are all related to child care usage, and likely influence how children experience particular child care arrangements. The data suggest that the self care experience will likely be different for a child living in an intact, high-SES family as opposed to a child living in a single-parent, low-SES family.

The current study addressed one of the large gaps in prior descriptions of school age child care by providing a longitudinal assessment of child care through the primary school years. These data are limited because they are retrospective in the sense that mothers provided information after the fact. This retrospective longitudinal approach may have limited the examination of some of the developmental trends. For example, the retrospective approach may have over-estimated the year-to-year continuity in arrangements and under-estimated the grade effects in the repeated measures analyses. However, the current, retrospective child care data replicate results presented in other descriptive reports and converge with prospective data collected previously. Moreover, the majority of the demographic and family context information was collected prospectively, thus reducing recall bias when examining background factors.

Although this study provided a more comprehensive assessment of the context within which child care is experienced, the measures of context were limited. To simplify the interpretation of context effects, some continuous variables (e.g., SES, parenting) were dichotomized and other variables were measured with less than ideal precision (e.g., work status). Considerably more information regarding the context of child care may be learned by studies providing a more comprehensive assessment of a limited range of contextual factors.

In conclusion, parent reports of child care examined in the current study indicate increases in most types of non-parent child care and in particular child care combinations. The results of this study also suggest systematic associations between child care use and family situations. These findings accentuate the need to consider both the developmental timing and the ecological context of care experiences in order to better understand the role of school age child care in child development.

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Table 1

Hours Per Week in Each Child Care Arrangement in Grades 1 through 5

Child Care Arrangement	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Non-Parent Care (373,374,390,404,418)	8.7 _a	8.3	9.5 _b	8.5	9.8 _c	8.7	10.3 _d	8.7	10.6	8.5
Self Care (9,16,32,85,196)	.07 _a	.6	.1 _b	.9	.3 _c	1.2	.8 _d	2.2	2.0 _e	3.9
Sibling Care (43,45,61,88,95)	.5 _a	2.1	.6 _{ab}	2.6	.7 _b	2.2	1.0 _c	2.8	1.1 _c	2.9
Relative Care (90,95,91,91,84)	1.6	4.5	1.8	4.7	1.8	5.0	1.9	5.4	1.5	4.6
Sitter Care (49,63,60,47,36)	1.0 _{ab}	3.5	1.2 _a	3.8	.9 _{ab}	3.2	.7 _{bc}	3.0	.6 _c	2.7
Day Care (88,72,49,49,29)	2.6 _a	6.1	2.2 _b	5.5	1.7 _c	5.0	1.3 _d	4.4	.7 _c	3.3
Neighbor (78,86,93,94,99)	.8 _a	2.5	1.0 _b	2.8	1.2 _c	3.6	1.1 _{bc}	3.3	1.1 _{bc}	3.1
Activity-Oriented (218,250,279,278,294)	1.3 _a	2.2	1.8 _b	2.7	2.0 _c	2.7	2.4 _d	3.4	2.7 _e	3.6
School-Based (36,36,54,54,49)	.9 _{ab}	3.5	.9 _a	3.4	1.1 _b	3.8	1.1 _b	3.6	.7 _a	2.9
										2.42 [*]

Notes: $n = 466$. For non-parent care types Multivariate Wilks' Lambda $F(32, 434) = 119.81, p < .001$. Columns with different subscripts are significantly different via paired T-tests. Numbers in parentheses indicate the number of families reporting any involvement in each arrangement in grades 1 through 5

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 2

Longitudinal Continuity in Care Arrangements

Arrangement	Prospective Continuity ¹				Retrospective Continuity ²			
	Yearly ³	1 to 3	3 to 5	1 to 5	Yearly	3 to 1	5 to 3	5 to 1
Non-Parent Care	96	94	96	95	93	88	89	84
Self Care	93	88	88	78	44	25	14	4
Sibling Care	84	79	56	69	70	56	25	44
Sitter Care	69	69	31	32	73	57	42	53
Relative Care	79	76	56	64	81	75	59	69
Day Care	66	41	22	49	86	73	66	83
Neighbor Care	85	77	68	78	80	65	54	74
School Program	70	69	37	36	64	46	41	27
Activity-Oriented	90	93	82	86	83	73	78	64

¹Notes: Prospective continuity refers to the percentage of families using an arrangement in an earlier grade who also use the arrangement of care in a later grade.

²Retrospective continuity refers to the percentage of families using an arrangement in a later grade who also used the arrangement in an earlier grade.

³Yearly refers to the mean year-to-year continuity (i.e., grade 1 to grade 2, grade 2 to grade 3, etc.).

Table 3
Correlations Among Background Variables and Mean Time Spent in Different Child Care Arrangements Across Grades 1 through 5

Background Variable	Child Care Arrangement							
	Self Care	Sibling Care	Sitter	Relative	Day Care	Neighbor	School Program	Activity- Based
Work Status	.03	.23***	.18***	.10*	.29***	.01	.25***	-.06
(Range)	-.03/.07	.09/.22	.08/.18	.04/.14	.16/.32	-.03/.04	.19/.25	-.06/.04
Marital Status	.11*	.07	-.04	.19***	.08	.14**	-.05	.01
(Range)	-.02/.12	-.04/.16	-.08/.02	-.05/.24	-.06/.07	.07/.14	-.05/.01	-.02/.04
Child Sex	-.08	-.01	-.03	-.01	.02	-.05	.06	-.11*
Child Ethnicity	.15***	.03	-.12**	.09	-.02	.15**	-.06	.08
Proactive Parenting	-.11*	-.09	.07	-.04	.05	-.15**	.12*	-.04
Behavior Problems	.06	-.08	.01	.13**	.04	-.01	-.07	.05
Family SES	-.14**	-.02	.05	-.16**	.05	-.19***	.12*	-.01

Notes: work status coded 1 if mother worked full-time one or more years; marital status coded 1 if no spouse/partner was in the home for one or more years; females coded 1; ethnicity coded 1 for African-Americans; all other valued coded 0. Range refers to the range of correlations between the marital and work status variables and the care variables within each grade (e.g., mothers' work status during grade 1 correlated with child's hours in self care during grade 1). $n = 456$ to 466.

*
 $p < .05$,

**
 $p < .01$,

 $p < .001$

Table 4

Child Care Use as a Function of Child, Parent, and Family Background Variables (significant effects only)

Background Variable	Care Variable	F	Direction of Means
Work Status			
1. Main Effects	Non-Parent Care	64.59***	working > not working
	Sibling Care	16.56***	working > not working
	Sitter Care	13.68***	working > not working
	School Program	12.94***	working > not working
	Day Care	27.86***	working > not working
1a. X time	Non-Parent Care	4.56***	working > not working (all years, but smaller difference in g.5)
	Relative Care	2.74*	working > not working (g. 3 & 4)
	Day Care	4.00*	working > not working (all grades, but decreasing magnitude)
Marital Status			
1. X time	Neighbor Care	5.20***	n.s. in all years (single > intact)
2. X SES	Sibling Care	5.83*	single low-SES > single mid-SES & intact mid-SES
	Activity-Oriented	6.66**	single mid-SES & intact low-SES > intact mid-SES & single low-SES
2a. X SES X time	Neighbor Care	4.84***	single mid-SES > all others (g. 1 only)
3. X sex	Non-Parent Care	3.90*	male and female single > male and female intact
	School Program	3.96*	no two groups differed significantly from one another (female single highest, male single lowest)
3a. X sex X time	School Program	3.00*	n.s. in all years (females > males with decreasing magnitude)
Ethnicity			
1. Main Effects	Non-Parent Care	4.22*	African-Americans > European-Americans
	Sitter Care	4.81*	European-Americans > African-Americans
1a. X time	Non-Parent Care	2.61*	African-American > European-American (g. 5 only)
	Self Care	3.52**	African-American > European-American (g. 3 and 5 only)
	Relative Care	3.30*	African-Americans > European-Americans (grades 1 and 2 only)
	Activity-Oriented	3.39**	African-Americans > European-Americans (g. 5 only)
2. X SES	Neighbor Care	9.43**	African-American low-SES > all others
3. X sex	Neighbor Care	4.68*	African-American males > all others
3a. X sex X time	Activity-Oriented	3.09*	African-American males > all others
Proactive Parenting			
3a. X sex X time	School Program	2.88*	high female > low male (g. 2); high female > all others (g. 5)
Early Behavior Problems			

Background Variable	Care Variable	F	Direction of Means
1. Main Effects	Self Care	6.21 *	high behavior problems > low behavior problems
1a. X time	Neighbor Care	3.52 **	n.s. in all years (low > high in g. 1 and 2; high > low in g. 3 – 5)
3a. X sex X time	Non-Parent Care	2.59 *	high males > high females & low males (g. 1 only)
Child Sex			
1. Main Effects	Non-Parent Care	4.32 *	males > females
	Neighbor	14.53 ***	males > females
	Activity-Oriented	10.88 ***	males > females
2. X SES	Non-Parent Care	4.66 *	Low-SES males > low-SES females
	Neighbor Care	7.61 **	Low-SES males > all others
SES			
1. Main Effects	Neighbor Care	15.08 ***	mid > low
2a. X SES X time	Activity-Oriented	2.85 *	n.s. in all grades (low > mid in g. 1 and 2; mid > low in g. 3 – 5)

Notes: d.f. = 1,423 for all main effects and interactions not involving time, d.f. = 4,420 for all time interactions

* $p < .05$,

** $p < .01$

*** $p < .001$