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Are Child Developmental Outcomes Related to Before/After-School Care Arrangements?

NICHD Early Child Care Research Network¹

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POWER POINT 4

More than 60% of families in the United States with children ages 5 to 14 years have mothers who are in the labor force (Smith, 2002). The before/after-school hours are challenging for these families because children's school days typically are shorter than parents' workdays. Families use a variety of child care arrangements during nonschool hours, including before/after-school programs located at schools, day-care centers, or community centers, lessons and enrichment activities, adult sitters, fathers, and non-adult care. Participation in these different care arrangements is not mutually exclusive, and many children are reported to have multiple arrangements. The widespread participation in out-of-school care raises questions about the effects of these arrangements on children's cognitive and social development. In particular, are some types of care associated with positive developmental outcomes whereas other types of care are associated with negative developmental outcomes?

POWER POINT 5

Previous research in this area is limited, especially during the primary grades. Pettit and colleagues assessed this issue in their retrospective study of early arrangements. Others such as

Marshall and Howes have considered effects of out-of-school care in single communities.

Mahoney's recent research has focused on children of low-income families.

POWER POINT 6

In the current study, we had two specific study aims:

To identify family and child factors that predicted children's participation in before/after-school care during kindergarten and first grade, and

To examine relations between before/after-school care and child developmental outcomes, controlling for selection factors.

POWER POINT 7

The NICHD Study of Early Child Care is well-suited to examine these issues. Families were recruited at 10 research sites across the U.S. for this prospective longitudinal study. The sample is large and diverse. Extensive measures of family background, early child care, and child prior functioning have been collected.

POWER POINT 8

When study children were 1 month old, 1,364 families at the 10 research sites completed a home visit and were enrolled in the study. The sample was diverse and consisted of 52% boys, 24% children of color, 11% mothers not completing high school, and 14% single-parent families. Most of the study children (85%) began first grade in the fall of 1997. The remainder began first grade in the fall of 1998. The analysis sample for this paper is composed of 933 families who completed assessments of out-of-school care arrangements, demographic characteristics, observed parenting, reported parenting beliefs, and child developmental outcomes at first grade.

POWER POINT 9

Mothers were interviewed by telephone on four occasions (fall and spring of

kindergarten, and fall and spring of first grade) about the study children's out-of-school care. Mothers were asked a series of questions about 11 nonmaternal care arrangements: (a) husband/partner at home or elsewhere without the mother present; (b) child's brothers or sisters with no adult present; (c) home with adult relative or adult sitter; (d) home with a sitter under age 18 who is not a brother or sister; (e) home alone without siblings, sitter, or adult present; (f) another home with an adult present; (g) another's house such as a friend's without an adult present; (h) before/after-school program; (i) structured activities or lessons such as coached sports or music lessons; (j) other locations with adult supervision; and (k) other locations without adult supervision, such as the park, the mall, or video arcade. Mothers were first asked, "During the past week, from 7 a.m. to 7 p.m., did *child* spend any non-school time in *insert type of arrangement*." Mothers were then asked how much time was spent in all arrangements of this type in the past week. Mothers also were asked the ages of siblings who provided care and the specific types of structured activities or lessons.

POWER POINT 10

For the current analyses, the 11 arrangements were collapsed into five categories that were similar to those reported in the National Child Care Survey: (a) *before/after-school programs*; (b) *lessons or extracurricular activities*; (c) *sitter care*, which included home with adult relative or sitter, other home with adult present, other location with adult present; (d) *father care*, which included home or elsewhere with father or mother's partner; and (e) *nonadult care*, which included home alone, home with minor-age sibling, home with minor-age sitter, other home with no adults present, other location with no adults present. Almost all of the nonadult care was provided by an older sibling who was a minor (ranging from 55-72% of the cases of nonadult care in the 4 interviews) or by a sitter who was a minor (ranging from 24-40% of the

cases of nonadult care in the 4 interviews).

POWER POINT 11

Because mean number of hours in each of the five types of out-of-school care was highly skewed, we created a dichotomous participation score for each type of care for each interview. Cumulative participation scores for each arrangement were then calculated as the proportion of interviews (maximum of four interviews) that a specific arrangement was used. Children received a score of 0 if they *never* spent time in the arrangement during kindergarten and first grade; 1 if they *sometimes* spent time in the arrangement, defined as more than 0 and less than 66% of the interviews; and 2 if they *consistently* participated in the arrangement, defined as 66% or more of the interviews.

POWER POINT 12

This slide presents percentages of children who never, sometimes, and consistently participated in each type of out-of-school care during kindergarten and first grade. Children were most likely to participate in extracurricular activities, father-care, and sitter-care, and least likely to be in nonadult care.

POWER POINT 13

To examine our first study aim, ordinal logistic regression analyses were used to predict three levels of cumulative participation (never, sometimes, consistent) in each type of out-of-school care.

POWER POINT 14

List family predictors

POWER POINT 15

List child predictors

POWER POINT 16

As indicated in column 2, children were more likely to participate in before/after-school programs if mothers were not partnered, mothers worked more hours, families had higher incomes, children were enrolled in full-day kindergarten, mothers endorsed less harsh disciplinary practices, and if children had experienced more hours in child care prior to kindergarten, more center-based child care, and less father care.

As indicated in column 3, children were more likely to participate in extracurricular activities when mothers were more educated, mothers worked fewer hours, families had higher incomes, and children had fewer early child care hours but more center care.

As indicated in column 4, children were more likely to be cared for by sitters if mothers were not partnered, family incomes were higher, mothers were less sensitive, children had more hours in early child care, but less center care and less father care.

Father care (see column 5) was more likely in two-parent households, in Hispanic households, if mothers were employed for more hours, children had more early child care hours, and fathers had provided more early child care.

Compared to non-Hispanic White children, African American children were more likely, and "Other" ethnicity children were less likely, to be in nonadult care (see Column 6). Nonadult care was more likely if mothers were employed for fewer hours, family income was lower, and children had fewer hours in early child care.

POWER POINT 17

Girls were more likely than boys to participate in extracurricular activities. Children with better language skills at 54 months also were more likely to participate in extracurricular activities.

POWER POINT 18

SECOND AIM: EXAMINATION OF RELATIONS BETWEEN BEFORE/AFTER-SCHOOL CARE AND CHILD DEVELOPMENTAL OUTCOMES

Multivariate analyses of covariance were conducted to determine if cumulative participation in each type of out-of-school care was associated with child developmental outcomes in the latter part of first grade. Covariates were all of the family and child factors included in the logistic regressions predicting participation. In addition, we controlled for child functioning at 54-months using measures that were comparable to the first grade child outcomes. Cumulative participation for each type of out-of-school care was entered simultaneously because preliminary analyses indicated that the different types of care were not sufficiently interrelated to cause colinearity problems. When significant MANCOVAs were obtained, separate ANCOVAs were conducted for the dependent variables in that domain, followed by pairwise *t*-tests to determine which means were significantly different.

POWER POINT 19

There were three sets of child developmental outcomes – academic outcomes, teacher reported social outcomes, mother reported social outcomes.

POWER POINT 20

Cumulative participation in extracurricular activities was significantly associated with children's academic outcomes in first grade. Significant ANCOVAs were found for letter-word identification, a measure of pre-reading skills, and applied problems, a measure of math skills.

POWER POINT 21

For Letter-Word Identification, children who consistently participated in extracurricular activities had higher scores than children who sometimes or never participated in extracurricular

activities. Similar results were obtained for Applied Problems. Children who consistently participated in extracurricular activities had higher scores than children who sometimes or never participated in this type of out-of-school care.

POWER POINT 22

To better understand the relations between extracurricular activities and child developmental outcomes at first grade, we examined more closely the amount and types of these activities at each of the four interviews. Children who participated in extracurricular activities typically had a single type of extracurricular activity each week. Few children participated in more than two extracurricular activities each week. Children typically spent between 1 to 3 hr per week in extracurricular activities.

POWER POINT 23

The most common activities reported by mothers were organized team sports and individual sports such as karate or swimming. Children also participated in dance and music lessons, organized clubs such as Brownies, and religion classes. Activities that were explicitly academic in focus, such as reading or science clubs, were infrequent.

POWER POINT 24

Father care was associated with teacher-reported social outcomes, controlling for family factors.

POWER POINT 25

Children who were consistently cared for by their fathers were reported by teachers to display fewer externalizing behaviors than children who were sometimes or never cared for by their fathers, controlling for family factors. When 54-month externalizing was included as a control variable, however, the significance level changed from $p < .05$ to $p < .07$.

POWER POINT 26

Cumulative participation in programs, sitter care, and nonadult care was not associated with first-grade child developmental outcomes.

POWER POINT 27

The overarching finding from our first set of substantive analyses was that out-of-school care arrangements were associated with a wide array of family factors. In this study we also found some evidence that children's prior functioning was related to cumulative participation in out-of-school care. In particular, children who demonstrated better language skills at 54 months were more likely to consistently participate in extracurricular activities during kindergarten and first grade than children who had poor language skills as preschoolers. This association suggests some early tracking of more competent students into the kinds of enrichment activities that are posited to facilitate positive developmental outcomes (Larson, 1994). Interestingly, these activities were not explicitly devoted to academic enhancements.

Other types of out-of-school care (programs, sitter care, father care, and nonadult care), however, were not predicted by behavioral or linguistic competencies at 54 months. Thus, in the primary grades at least, out-of-school care was more related to family factors than to child factors. As the study children develop, however, we expect child characteristics to play a larger role in influencing the types of out-of-school care selected, in part because the children will be given more "voice" by their parents in choosing arrangements as they get older.

POWER POINT 28

Our primary aim was to evaluate relations between out-of-school care and children's developmental outcomes. Associations with child outcomes were evident for two specific types of care: extracurricular activities and father care. Even after we controlled for a wide array of

family characteristics and for children's prior performance, extracurricular activities continued to predict child academic outcomes. In particular, children who consistently participated in extracurricular activities obtained higher scores on standardized tests of pre-reading and math skills than children who participated less consistently in these activities. Although there is a growing body of research indicating that enrichment activities have academic and cognitive benefits for preadolescents and adolescents, the present study is the first to demonstrate that similar benefits accrue to students in the early primary grades. These findings suggest that one way in which out-of-school time can be marshaled to improve school performance is through providing children with opportunities to participate in extracurricular activities such as sports, music lessons, and clubs. School districts that are developing plans to ensure that no child is left behind might include extracurricular activities as part of a comprehensive strategy.

Child developmental outcomes also were related to father care. Children who were consistently cared for by their fathers were reported by first-grade teachers to have fewer externalizing problems than children who were never or only sometimes cared for by their fathers.

Although the current study has notable strengths (a relatively large, diverse sample; a prospective, longitudinal design; multiple measures of family characteristics and child development; longitudinal assessments of out-of-school care), it also has limitations. The sample is not nationally representative, and there has been differential attrition of families of color, low-income households, and single-parent households. Consequently, one should be cautious about generalizing the current findings to the United States as a whole, especially the findings related to the prevalence rates. Also, the NICHD Study did not include clinical trials in which children were randomly assigned to different types of out-of-school care. So, it is possible that

unmeasured factors may account for the significant relations found between extracurricular activities and child developmental outcomes. Thus, experimental studies are needed to contrast the effects of different types of out-of-school activities.