

Discussion

This paper represents the latest installment in the ongoing study of relations between experiences in child care in the first 54 months of life and child development using data gathered in the NICHD Study of Early Child Care and Youth Development. Four issues were addressed in this report: (1) whether associations linking child functioning with child-care quality, quantity, and type detected prior to school entry and in 1st through 3rd grade continued to be evident in 5th and 6th grade; (2) whether associations between child-care experiences and child development dissipated over time; (3) whether new relations emerged between child care and child development (i.e., sleeper effects); and (4) how relations between child care and child development compared, strengthwise, to linkages between parenting quality and child development. In this latest installment at the end of 5th grade (for cognitive and academic outcomes) and 6th grades (for social and behavioral outcomes), we found evidence of all three patterns of relations between child care and child development just mentioned, as well as evidence that parenting quality proved to be a far stronger and more consistent predictor of tested achievement and teacher-reported social functioning than was child-care experience.

Two predictive associations involving child care first detected prior to school entry that were maintained through 3rd grade remained statistically significant in 5th and 6th grade; each is discussed in turn. First, *children who experienced higher quality early child care (of any kind) displayed somewhat better vocabulary scores in 5th grade than did children who experienced poorer quality care.* This potentially enduring “effect” of child-care quality on vocabulary is consistent with other evidence indicating that children’s early experience matters to their language development. Perhaps the best

example comes from Hart and Risley's (1995) work tracking 42 families for nine years and showing that one of the strongest predictors of children's vocabulary was adult talk, including talk in child care settings. In fact, Hart and Risley (1995) concluded that community child care can serve as an effective intervention for low-income children who often do not experience a rich verbal environment in the home. Because vocabulary is one of the best predictors of reading (National Reading Panel, 2000), the long-term relations that emerged in the current work between child care quality and vocabulary—for all children (i.e., not just low-income ones)—may have important implications for education policy.

The second enduring link between early child care and child development detected in this inquiry indicated that *children with more experience in center settings continued to manifest somewhat more problem behaviors through 6th grade*. The fact that this result was not moderated by age means that this seemingly adverse consequence of center-based care did not dissipate as did so many other effects of amount of child care on social functioning previously detected. Because it was level of reported problems as measured on a continuous scale that was the outcome to be explained in this inquiry, not clinical levels of problem behavior, no claim can or should be made on the basis of this report that center-based child care contributes to or predicts psychopathology.

Although it is not entirely clear why the predictive power of center-care experience vis-à-vis problem behavior endures unchanged through 6th grade, the fact that it does is consistent with van IJzendoorn et al.'s (2004) secondary analysis of 54-month data from the NICHD SECCYD. Recall that these investigators found that predictive links between overall time in any kind of care and problem behavior reported by the

NICHD Early Child Care Research Network (2003) were accounted for not just by time in non-relative care in general, but time in center care in particular. The fact that the findings from the secondary analysis reported herein (Table 7) showed that effects of time spent in any kind of non-relative care on teacher-reported externalizing problems became insignificant by 6th grade, as did effects of non-relative care on teacher-child conflict, social-emotional adjustment and academic work habits further underscores the uniquely enduring effect of center-based care. Indeed, when considered in their entirety, the results of the primary and secondary analyses suggest that not only does it matter whether care is provided by relatives or non-relatives, but whether non-relative care takes the specific form of center-based care. Consider first in this regard that the data presented in Table 7 indicate that previously-reported findings linking time in any kind of care with teacher-child conflict, social emotional competence and academic work habits (NICHD Early Child Care Research Network, 2005) were exclusively a function of time in non-relative care--in that no main or age-moderated effect of hours of relative care proved significant for these outcomes, only age-moderated effects of non-relative care (i.e., bottom of Table 7). The fact, however, that all the age-moderated effects of time in any kind of non-relative care became insignificant by the time children were in 6th grade, whereas the effect of center care on externalizing problems remained significant—and did not dissipate in strength—over time means that in the case of non-relative care, it is center care that has unique and enduring impact of a seemingly adverse kind.

One possible reason why relations between center care and problem behavior may endure is that primary school teachers lack the training as well as the time to address behavior problems, given their primary focus on academics (Rimm-Kaufman & Pianta,

2001). Ultimately, it will be important to identify the specific mechanisms that link center-care experience with problem behavior. Previous analyses show that even though time in nonmaternal care is related to somewhat less harmonious patterns of mother-child interaction in the first three years of life (NICHD Early Child Care Research Network, 1998) and to somewhat elevated rates of insecure infant-mother attachment when they coincide with low levels of maternal sensitivity (NICHD Early Child Care Research Network, 1996), it is not via attachment or parenting that time in child care—or in center care in particular—seems to operate when it comes to predicting problem behavior. As we noted in an earlier report, the actual mechanism of influence by which quantity of care—or in the current report, experience in center care--exerts the detected “effect” remains somewhat of a mystery (NICHD Early Child Care Research Network, 2003b), though some subsequent work by the NICHD Early Child Care Research Network (submitted) highlights the potential role played by agemates and thus by peer processes.

Whatever the reasons that quality and type of care remained associated with children’s vocabulary and problem behavior, respectively, the modest magnitude of all effect sizes involving child care cannot be ignored. Even though there are certainly grounds for questioning the developmental significance of the enduring “effects” detected, we regard them as noteworthy and meaningful because of the large number of children in America who experience extensive and/or low quality child care prior to school entry. This contemporary situation raises questions about the potential *collective* consequences--across classrooms, schools, communities, and society at large—of small enduring developmental differences among children who vary in their early child care experience (Belsky, 2001; NICHD SECCYD, 2003a, 2006). What happens if early child

care affects many children in small ways? Do teachers provide higher or lower levels of instruction, spend more or less time managing their classes? Are playgrounds more or less friendly places in which to spend time? To address these issues, future research will need to focus on classroom and playground dynamics instead of focusing solely on individual child outcomes.

In addition to revealing two associations between child care experience and child development that endured over time, results also indicated, as already noted, that some previously detected relations became weaker across the elementary school years. In particular, relations linking more time spent in any kind of child care to somewhat higher levels of behavior problems, which had been evident prior to school entry and in kindergarten and 1st grade, attenuated and were no longer statistically significant in 5th (or even 3rd) grade. The same was true with respect to links between amount of care and teachers' reports of conflicted relationships with the study children and between quality of care and reading skills. Caution seems warranted before concluding definitively that these earlier detected associations have permanently disappeared, however, if only because at earlier developmental periods we found that significant relations between child care and child development that had seemingly disappeared subsequently re-emerged (NICHD Early Child Care Research Network, 2003a). Moreover, developmental theorists have posited that important transitions, such as beginning a new school, entering puberty, or dealing with adolescence more generally can create challenges in which "old" issues are resurrected (Caspi, 1998). The fact that transition to middle and high school results in less teacher oversight and support for academic achievement, creating challenges for youths who require more scaffolding to maintain

their academic achievement (Roeser, Eccles & Sameroff, 2000), raises the prospect that relations between child care and child development that were present early, then disappeared by the late-elementary-school years, could re-emerge in adolescence. At the same time, it must be acknowledged that even the small associations that endure to 6th grade may themselves attenuate to the point of becoming non-significant or, if they remain, be of no functional significance to children's development, either in terms of individual functioning or the functioning of groups of children. Examination of social and academic functioning in middle school and high school, therefore, represents an important next step in understanding the relations between child care and developmental outcomes.

One new relation between early child care and children's development, representing a possible "sleeper effect", emerged in this inquiry. Children whose child-care hours increased between 3 and 54 months of age scored somewhat lower on vocabulary in 5th grade. This is the first time that a link has been detected between the amount of care and academic functioning (or cognitive functioning more generally) in the NICHD SECCYD. This fact, coupled with the findings from the follow-up analyses showing the effect in question was an apparent artifact of other factors leads us not to offer an explanation of it.

Associations linking child care experience with child development in the late-elementary-school years were smaller in size and less pervasive than those associated with families and parenting (see Table 6, bottom subsection). This is not surprising not only because such results are consistent with earlier study findings but because children are being studied six to seven years after leaving child care for elementary school. Most

of the study children were enrolled in more than one child-care setting before they started school and experienced multiple different classrooms and after-school arrangements subsequent to school entry. On average, in fact, study children experienced more than five different care arrangements between three and 54 months of age and six different classrooms between kindergarten and 5th grade. In comparison, family experiences and parenting were relatively stable. Parents and children also share genes, further contributing to the relative strength of associations between parenting and child functioning through 6th grade.

Presuming, as seems likely, that links between parenting quality and child development are not entirely a function of shared biology, the parenting results emerging from this study of child care highlight the potential for interventions aimed at enhancing parenting to yield greater developmental benefits for children than ones geared toward modifying child care, perhaps by improving child care quality. It is probably misguided, however, to pit these two intervention strategies against one another, especially because efforts made to enhance the quality of parenting do not preclude efforts to modify the child care experience. Moreover, synergistic effects may emerge when both avenues of intervention are pursued simultaneously (Love et al., 2005).

Despite the many strengths of the NICHD SECCYD--including a large, diverse sample, a prospective longitudinal design, a rich array of measures obtained from multiple methods and multiple respondents--it has limitations. The sample was not specifically drawn to be nationally representative. Also, the study design is correlational, so causal inferences can only be drawn with caution, if at all. Further, and as already noted, the study only addresses relations between child care and child development at the

level of individual children, not potentially cumulative effects on larger social groupings of children. Nonetheless, the repeated comprehensive measurements of environmental contexts of child care, school, and family in conjunction with repeated assessments of both cognitive and social functioning have provided a unique opportunity to address the issues of potentially enduring or dissipating effects of early experience after taking into consideration many confounding and competing explanatory factors. The NICHD Early Child Care Research Network continues to monitor the study children's development into middle adolescence to determine whether experiences in early child care (its quality, quantity, or type) relate to academic performance in high school and if the behavior problems associated with early center care presage problem behaviors in high school.

