Chapter 5

LOW INCOME WORKING FAMILIES: CHILDREN’S DEVELOPMENT AND CHILD CARE QUALITY

This chapter explores variations in cognitive and social-emotional developmental outcomes among the 307 children who participated in the study. Cognitive development for infants and toddlers was assessed directly by researchers, and included early learning skills such as visual reception, fine motor, receptive vocabulary, and expressive vocabulary. For preschool-age children, cognitive development was also assessed directly by researchers, and included receptive vocabulary, social awareness (e.g., give name, date of birth), color naming, and counting. Preschool cognitive outcomes also included academic attitudes such as creativity, verbal intelligence, independence, task orientation, and distractibility, assessed by parent and caregiver ratings. Children’s social-emotional development was assessed by caregiver and parent ratings of children’s social competence and problem behaviors (e.g., anger/aggressiveness and anxiety-withdrawal). For a complete description of the child development measures see Appendix A.

Relationships between child care quality (discussed in Chapter 4) and children’s cognitive and social-emotional outcomes were examined using correlation and regression analyses (see Appendix F for these statistics). The level of mothers’ education, the child’s age in months, the child care setting, and the community of residence were included as control variables in these analyses.

CHILDREN’S COGNITIVE OUTCOMES

Infants/Toddlers

Each infant and toddler’s visual reception (performance in processing visual patterns), fine motor skills (visual-motor ability), receptive vocabulary (understanding of words), and expressive vocabulary (ability to produce language—words and sounds) were assessed directly by researchers using the Mullen Scales of Early Learning. An overall Early Learning composite score was then created based on these subtests.

The majority of infants and toddlers in this low-income working family sample were less advanced in these areas of cognitive competence than average children of the same age. While the average score for the Mullen Early Learning Composite based on a sample of children of any given age across all income levels is 100, infants and toddlers in this sample had a mean score of 85 (SD = 16, Mdn = 87). Scores of children in this research sample ranged from 56 to 143, with only 15% scoring above the test average (100) for infants and toddlers. No differences in infant and toddler early learning skills were found among the four communities. Figure 5.1 displays the distribution of scores.

Preschool-Age Children

Preschool-age children’s cognitive skills were assessed a number of ways. Early academic skills were assessed directly by research assistants. (See Appendix A for detailed descriptions of these assessments.) Children were asked to state their first and last name, age, and month and day of birth (FACES social awareness...
task), name 10 colors (FACES color naming task), and count 10 bears while pointing to 10 objects (FACES bear counting task). The Peabody Picture Vocabulary Test-Third Edition (PPVT-III) was also administered to assess each child’s receptive vocabulary. Academic attitude was assessed by parent and caregiver ratings of each child’s creativity, verbal intelligence, independence, task orientation, and distractibility using portions of the Classroom Behavior Inventory (CBI). Scores on the CBI range from 1 (not at all like the child) to 5 (very much like the child).

One-third of the preschool-age children were able to state their first and last name, age, and month and day of birth; about half of the children were able to recall three out of five. On average, children could identify eight of 10 colors, and 55% of children could identify nine to 10 colors. Nearly two-thirds were able to complete the counting task (counting up to 10 bears). Similar to the Early Learning scale for the infant and toddler sample, the majority of preschool-age children in this research sample scored lower in receptive vocabulary than average of the same age, according to published norms. While the average test score based on a sample of children of a given age across all income levels is 100, children in this sample had a mean score of 88 (SD = 17 Mdn = 89). Scores ranged from 29 to 132, with only 20% of this sample scoring above the national average for preschool children. Figure 5.2 displays the distribution of scores.

These results suggest that the typical preschool-age child from this sample of low income working families was at the 20th percentile in receptive vocabulary ability when compared to typical children in the same age range.

There were differences among the four communities in preschool children’s receptive vocabulary (PPVT-III) abilities. Children in the Lake County sample (M=82) scored lower on receptive vocabulary ability than children in St. Joseph, Allen, and Marion counties (M=92, M=89, and M=88, respectively). These differences remained even after mother’s education and child’s age in months were taken into account. Figure 5.3 displays these differences.

There were differences among the four communities in preschool children’s receptive vocabulary (PPVT-III) abilities. Children in the Lake County sample (M=82) scored lower on receptive vocabulary ability than children in St. Joseph, Allen, and Marion counties (M=92, M=89, and M=88, respectively). These differences remained even after mother’s education and child’s age in months were taken into account. Figure 5.3 displays these differences.

In general, children were rated positively in academic attitudes by both parents and caregivers. The mean scores were not significantly different for parent (M = 3.68) and caregiver reports (M = 3.53) (possible score range was 1 to 5). Therefore, on average, both caregivers and parents rated preschool-age children as relatively creative, verbally intelligent, independent, task-oriented, and not very distractible. In general, parents and caregivers viewed the children as having positive academic attitudes. Parent ratings of academic attitudes did vary by county. Lake County parents rated their children somewhat higher (M=3.80) than did parents in Marion County (M=3.53). Children in St. Joseph and Allen counties fell between (M=3.70). Even after controlling for the effect of mother’s education and child’s age, these differences remained. Figure 5.4 displays academic attitude scores from parent and caregiver reports.
In general, preschool-age children in center-based care performed higher on all measures of cognitive competence than did children in home-based care. However, children in center-based care were older and also had mothers with slightly higher education levels. When the influence of mother’s education and child’s age were statistically controlled, these differences in cognitive competence disappeared. When we examined differences among the six specific child care settings, the difference found between home-based and center-based child care also faded. The only difference that remained was in the children’s ability to state their first and last name, age, and month and day of their birth. Children in licensed center care/preschools could correctly complete about four out of five of these items, while children in licensed family child care and relative care could correctly complete two to three out of the five items. Child care ministries, unlicensed family child care, and Head Start fell in the middle. When licensed and unlicensed settings were compared, the only difference that emerged was in color naming. Preschool-age children in licensed child care were able to name almost eight colors, while children in unlicensed care named approximately six. However, this licensed-unlicensed difference may have been due to child age and mother education, because the differences disappeared when these characteristics were statistically controlled.

**CHILDREN’S SOCIAL-EMOTIONAL OUTCOMES**

**Infants/Toddlers**

Parents and caregivers reported children’s social competence and behavior problems using the Brief Infant Toddler Social and Emotional Assessment (BITSEA). In general, both parents and caregivers rated children low on behavior problems and high on social competence. Cut-off points to determine extreme scores for Problem Behavior and Social Competence scales were examined. Compared to a test sample researched by the BITSEA authors, children with scores above the 75th percentile on the Problem Behavior Scale and those with scores below the 25th percentile on the Social Competence Scale are of special interest. Children with scores in the highest quartile for behavior problems or the lowest quartile for competence on the BITSEA are not considered to have psychopathology or delayed competence, but they may be considered at-risk and warrant further assessment. Twenty-six percent (26%) of children in this research sample were identified by parents and 49% were identified by caregivers to have competence scores in the lowest 25th percentile. Figure 5.5 displays the distribution of scores from parent and caregiver social competence reports.
WHAT IS THE RELATIONSHIP BETWEEN CHILD CARE QUALITY AND CHILDREN’S COGNITIVE AND SOCIAL-EMOTIONAL DEVELOPMENT? DOES TYPE OF CHILD CARE OR COMMUNITY OF RESIDENCE MAKE A DIFFERENCE IN THESE RELATIONSHIPS?

The relationships between child care quality and children’s cognitive and social-emotional competence were examined. Statistical analyses were conducted to determine if there were significant associations between child care quality measures and children’s developmental competence measures, and also to determine if these associations still existed after the effects of mother’s education level, child’s age in months, and child care setting were considered. The effects of mother’s education, child age, and type of child care were examined separately first, and then combined with child care quality indicators. Multi-level regression analyses were also used to determine if relationships between quality and children’s competence varied by community. The relationships between mother’s education, child’s age, and child’s competence were controlled in each analysis, so we could more clearly determine if there is a link between child care quality and child development.

Global Quality and Child Competence

Global quality of child care settings (ECERS-R and FDCRS scores) was positively related to aspects of cognitive competence among both infants/toddlers and preschool-age children. We found no relationship, however, between global quality and social-emotional competence for either age group.

- **Infants/Toddlers**

  Infants and toddlers in child care programs of higher global quality (ECERS-R or FDCRS) scored higher on early learning skills (visual reception, fine motor, receptive vocabulary, and expressive vocabulary) than infants and toddlers in child care programs of lower global quality. Higher levels of mother’s education were also related to higher scores of early learning skills. There was no relationship between child’s age, type of child care setting, and these early learning skills. When relationships with mother’s education level, type of child care setting, and child’s age were controlled, the relationship between global quality and early learning skills remained. Therefore, children who were cared for in the same type of child care setting and who had mothers with similar education levels were likely to exhibit higher...
early learning skills if their child care setting was of higher
global quality. Figure 5.7 provides a comparison of poor-
to-minimal and mediocre-to-excellent quality programs. It
should be recalled, however, that most infants and toddlers
in our study received lower than average scores on the early
learning measure, regardless of child care quality.

FIGURE 5.7. RELATIONSHIP BETWEEN GLOBAL QUALITY
AND INFANT/TODDLER EARLY LEARNING COMPOSITE
SCORES

![Graph showing relationship between global quality and infant/toddler early learning composite scores.]

Note: ECERS-R and FDCRS categories were coded as follows:
1-3.49 = poor to minimal care, 3.50-7 = mediocre to excellent care.

When the effect of community was considered, the relation-
ship between global quality and infant/toddler early learning
skills varied. Figure 5.8 depicts early learning skills in the
four communities. In Marion and Allen counties, the dif-
fERENCE in early learning skills between infants/toddlers in
low and high global quality settings was noticeable, but only
statistically significant in Allen County. Lake County displayed
the strongest relationship between global quality and early
learning skills, but also averaged the lowest global quality
and the least variation in global quality among communities.
In St. Joseph County, no significant relationship between
global quality and early learning skills was present; on
average, infants and toddlers in low and high quality child
care settings scored similarly on early learning skills. One
explanation for this lack of difference in 3 counties is that
the quality of child care for infants and toddlers does not
vary too much and is relatively low in all counties.

FIGURE 5.8. EARLY LEARNING COMPOSITE SCORES IN
HIGH AND LOW QUALITY CHILD CARE SETTINGS IN THE
FOUR COMMUNITIES

![Bar graph showing early learning composite scores in high and low quality child care settings for four communities.]

Note: ECERS-R and FDCRS categories were coded as follows:
1-3.49 = poor to minimal care, 3.51-7 = mediocre to excellent care.

• Preschool-age Children

Preschool-age children in child care settings of higher
global quality (ECERS-R or FDCRS) scored higher on early
academic skills than children in child care settings of lower
global quality. Mother’s education and type of child care
setting were not related to children’s scores of early aca-
demic skills. Older children tended to score higher on early
academic skills than younger children. When relationships
with mother’s education level, type of child care setting,
and child’s age were controlled, the relationship between
global quality and early academic skills remained. Figure
5.9 illustrates this relationship. Variables that made up early
academic skills (i.e., FACES tasks and receptive vocabulary)
were submitted to factor analyses, and factor scores were
used for regression analyses. These variables had a mean
of 0 and standard deviation of 1. Positive scores indicate
higher levels of early academic skills while negative scores
indicate lower levels of early academic skills.

FIGURE 5.9 RELATIONSHIP BETWEEN GLOBAL CHILD
CARE QUALITY AND PRESCHOOL-AGE CHILDREN’S
EARLY ACADEMIC SKILLS SCORES

![Graph showing relationship between global quality and preschool-age children’s early academic skills scores.]

Note: 5.9 Relationship between global quality and early academic skills of preschool age children.
The relationship between global quality and preschool children’s early academic skills scores did not vary among the four communities. In conclusion: Regardless of community residence, children who were cared for in the same type of child care settings and had mothers with similar education were more likely to exhibit higher early academic skills if their child care setting was of higher overall quality.

Structural Quality and Child Competence
Some aspects of structural quality (adult-child ratio, caregiver education, and caregiver specialized training) were not associated with children’s cognitive outcomes. There were associations, however, between indicators of structural quality and the social-emotional competence of both infants/toddlers and preschool-age children.

• **Infants/Toddlers**
  Higher levels of caregiver general education were related to higher ratings of infant/toddler social-emotional competence, as rated by parents. Mother’s education and type of child care setting were not related to social-emotional competence ratings by parents. Older children were rated higher on social-emotional competence than younger children. When mother’s education, type of child care setting, and child’s age were taken into account, the relationships between caregiver general education and social-emotional competence disappeared. Therefore, when mothers were more educated, when the child was older, and when they were in certain types of child care, children were more likely to be cared for by caregivers with higher levels of general education. While there was a link between these variables and social-emotional competence, it is impossible to disentangle their separate influences. This did not vary by community.

Caregiver specialized education in child development/early childhood education was also related to higher ratings of infant/toddler social-emotional competence, as rated by parents. When relationships with mother’s education level, type of child care setting, and child’s age were controlled, this relationship remained. Infants and toddlers with mothers of similar education and cared for in the same type of child care settings were more likely to be rated higher on social-emotional competence by parents if their caregiver had more specialized education in child development or early education. This relationship did, however, vary by community. In St. Joseph County this relationship remained, while in Marion and Allen counties the relationship was weaker. In Lake County the relationship did not exist. Figure 5.10 presents these relationships.

![Figure 5.10. Social-emotional competence scores of infants and toddlers in the four communities](image)

**Note.** Positive score on social-emotional competence indicates more social competence and fewer problem behaviors; negative score on social-emotional competence indicates lower social competence and more problem behaviors.

• **Preschool-age Children**
  Preschool-age children who were cared for by caregivers with higher levels of education were rated higher on social-emotional competence by their caregivers. Mother’s education, type of child care setting, and child’s age were not related to social-emotional competence rated by caregivers. However, when relationships with mother’s education level, type of child care setting, and child’s age were controlled, the relationship between caregiver education and social-emotional competence diminished. While there was a link between these variables and social-emotional competence, it is impossible to disentangle their separate influences. This did not differ for the four communities.

Process Quality and Child Outcomes
Indicators of process quality (including caregiver sensitivity, caregiver talk, and interpersonal relationships within the child care setting) were positively related to cognitive and social-emotional competence among both infants/toddlers and preschool-age children.

• **Infants/Toddlers**
  Greater caregiver sensitivity (positive, warm, and non-punitive interactions with children) and a greater percentage of high-level caregiver talk (questioning, expanding, describing, and prompting/suggesting) were related to higher early learning composite scores for infants and toddlers. The relationship between caregiver sensitivity and early learning composite scores remained even after maternal educa-
tion, type of child care setting, and child's age were taken into account. This relationship did not vary by community. Therefore, infants/toddlers with mothers of similar education and cared for in the same type of child care setting were more likely to exhibit higher early learning skills if the caregiver was involved in positive, warm, and non-punitive interactions with children, regardless of community residence. Figure 5.11 illustrates this relationship. The relationship between caregiver talk and early learning skills was not statistically significant when mother’s education, type of child care and child’s age were considered. This did not vary by community.

The relationship between caregiver talk and social-emotional competence varied by community. In Marion, Allen, and Lake counties the relationship was present, with the strongest relationship in Marion County. Thus, infants and toddlers in Marion, Allen, and Lake counties were more likely to be rated higher on ratings of social-emotional competence if their caregivers used high caregiver talk more often. In St. Joseph County we found no statistically significant relationship between ratings of social-emotional competence and caregiver talk. Figure 5.13 illustrates these relationships.

A greater percentage of high-level caregiver talk was related to higher ratings of social-emotional competence by the parent. When relationships with mother’s education level, type of child care setting, and child’s age were controlled, the relationship between caregiver talk and social-emotional competence remained. Therefore, infants and toddlers with mothers of similar education and cared for in the same type of child care settings were more likely to be rated higher on social-emotional competence by the parent if the caregiver used a greater percentage of high-level talk with the child. Figure 5.12 presents these differences.

A greater percentage of adult responsive interaction with the child was related to lower ratings of social-emotional competence by the parent. When mother’s education, type of child care setting, and child’s age were taken into account, the relationship between the percentage of caregivers involved in complex interactions and lower ratings of social-emotional competence by the parent diminished. Therefore, when children’s mothers were more educated, when the child was older, and when they were in certain types of child care, they also were cared for by caregivers who used a more adult responsive interaction. While there was a link between these variables and social-emotional competence, it is impossible to disentangle their separate influences. This was true for all communities.
• **Preschool-age children**

More positive ratings of the caregiver-child relationship by the caregiver and greater observed caregiver sensitivity were related to higher scores in children’s early academic skills. However, when the relationship of mother’s education, type of child care setting, and child’s age were controlled, these relationships proved not statistically significant. Therefore, when children’s mothers were more educated, when the child was older, and when they were in certain types of child care, the caregiver-child positive relationship and caregiver sensitivity was also higher. While there was a link between these variables and early academic skills, it is impossible to disentangle their separate influences. This relationship did not differ for the four communities.

A greater percentage of high-level caregiver talk (questioning, expanding, describing, prompting/suggesting) was linked to higher scores of early academic skills and higher ratings of social-emotional competence, rated by caregivers. The relationship between caregiver talk and early academic skills remained even after mother’s education, type of child care setting, and child’s age were considered. The relationship between caregiver talk and early academic skills did not vary by community. Therefore, preschoolers with mothers of similar education and cared for by the same type of child care setting were more likely to exhibit higher early academic skills if they experienced a higher-level caregiver talk, regardless of community residence. The relationship between caregiver talk and social-emotional competence proved not statistically significant when the effect of mother’s education, type of child care setting, and child’s age were taken into account. Therefore, when children’s mothers were more educated, when the child was older, and when they were in certain types of child care, they also were cared for by caregivers who used higher level talk. While there was a link between these variables and social-emotional competence, it is impossible to disentangle their separate influences. This was true for each of the four communities.

Greater caregiver sensitivity was also correlated with higher early academic skills. However, when the relationship of mother’s education, child’s age, and type of child care setting were controlled, these relationships proved not statistically significant. Therefore, when children’s mothers were more educated, when the child was older, and when they were in certain types of child care, they also received more sensitive care. While there was a link between these variables and early academic skills, it is impossible to disentangle their separate influences. This finding was consistent among the four communities.

Positive ratings of the parent-caregiver relationship by the parent were also related to higher ratings of the child’s academic attitude and higher ratings of social-emotional competence by the parent. Mothers’ education, type of child care setting, and child’s age were not related to either academic competence or social-emotional competence. When relationships with mother’s education, type of child care setting, and child’s age were controlled, the relationships remained. These relationships did not vary by community. Therefore, preschool-age children who were cared for in the same type of child care settings with mothers of similar education were more likely to be rated higher on social competence and academic attitudes if their parent rated the parent-caregiver relationship more positively, regardless of community residence.

Similarly, more positive ratings of the parent-caregiver relationship by the caregiver were related to higher ratings of children’s social-emotional competence, rated by the caregiver. This relationship changed slightly after the type of child care setting was considered. The relationship was strong for licensed center care/preschools, child care ministries, licensed family care, and unlicensed family care. For Head Start settings, this relationship did not exist, while for relative care the relationship was opposite. Therefore, with the exception of Head Start and relative care, children cared for by caregivers who rated the parent-caregiver relationship more positively were more likely to be rated higher on social-emotional competence, regardless of mother’s education, child’s age in months, and community residence. Figure 5.14 illustrates these differences.
FIGURE 5.14. RELATIONSHIP BETWEEN PARENT-CAREGIVER RELATIONSHIP AND PRESCHOOL-AGE CHILDREN’S SOCIAL-EMOTIONAL COMPETENCE REPORTED BY CAREGIVERS IN DIFFERENT CHILD CARE SETTINGS

More positive ratings of the caregiver-child relationship by the caregiver were related to higher ratings of children’s social-emotional competence by both parents and caregivers. These links between caregiver-child relationships and children’s social-emotional competence remained even after maternal education, type of child care setting, and child’s age were taken into account. Therefore, children who were cared for in the same type of child care settings with mothers of similar education were more likely to be rated higher on social-emotional competence if their caregiver-child relationship was more positive, regardless of community residence. Figure 5.15 illustrates this relationship.

FIGURE 5.15. RELATIONSHIP BETWEEN CAREGIVER-CHILD RELATIONSHIP AND PRESCHOOL-AGE CHILDREN’S SOCIAL-EMOTIONAL COMPETENCE REPORTED BY PARENTS

CONCLUSIONS

Children of low-income working parents in this sample scored lower than established average levels in some areas of cognitive competence. Even prior to the age of 3 years, children in this sample are behind their age mates in cognitive competence. This finding has important policy implications and suggests the need for enrichment in both family and child care settings to promote these children’s early cognitive development. The availability of quality child care for infants and toddlers in this sample is of special concern based on the results of this research, since global quality ratings for the youngest children were at a minimal level or below, regardless of type of child care setting.

Global, structural, and process child care quality indicators were associated with children’s cognitive and social-emotional competence, even after controlling for mothers’ education and children’s age. Therefore, efforts to improve child care quality are likely to have a positive impact on the development of children like those in this sample. In general, the relationships between child care quality and child competence did not vary by community, nor by child care setting. These links between quality and child development are robust. Improving child care quality for low-income working families is an issue that deserves attention in these Indiana communities, and probably in other communities.
CHILDREN AND CAREGIVERS: DOES ETHNICITY OR ETHNIC MATCH INFLUENCE RELATIONSHIPS IN CHILD CARE?

MICERE ODEN, UNDERGRADUATE RESEARCH ASSISTANT, FEBRUARY 2, 2005

(Note: Micere Oden participated in the Community Child Care Research Project (CCCRP) as an undergraduate research assistant from 2002 to 2004. This is a summary of the independent study she conducted using the CCCRP data. Micere graduated from Purdue in December, 2004 with a B.S. in Youth, Adult, and Family Services.)

The objective of this study was to discover how ethnicity relates to interactions and relationships between caregivers and children. Using the data from the Community Child Care Research Project, I investigated whether or not child ethnicity, caregiver ethnicity, and caregiver-child ethnic match were associated with (1) caregivers’ perceptions of their relationships with children and (2) the proportion of time caregivers talked to children.

Research Question 1: Are child ethnicity and caregiver ethnicity associated with caregiver-child relationships?

Research Question 2: Is caregiver-child ethnic match associated with caregiver-child relationships?

Research Question 3: Are child ethnicity and caregiver ethnicity associated with the amount of time caregivers talk to children?

Research Question 4: Is caregiver-child ethnic match associated with the amount of time caregivers talk to children?

Method

The study was conducted in four urban communities in Indiana: Marion, Lake, Allen, and St. Joseph Counties. The sample consisted of 307 low-income working families with young children who were being cared in out-of-home child care settings. Families who were eligible for this study had: annual family income less than $35,000, head of the household was “working” at least 20 hours a week, family had a child between 6 months to 6 years old, and the child was in enrolled in out-of-home child care at least 15 hours per week for the past 2 months, family was not on TANF (Temporary Assistance for Needy Families), and child care setting agreed to participate.

- Caregiver-Child Relationship. The Student Teacher Relationship Scale (STRS) assesses the child care provider’s feelings and perceptions regarding their interpersonal relationship with the child. The total number of items on the STRS is 30. Average scores can range from 1 (low quality relationship) to 5 (high quality relationship). Four scores were calculated from the caregiver’s completion of the STRS. The total score indicates the teacher’s overall positive perceptions about their relationship with the child. The STRS also has subscales for closeness, conflict, and dependency.

- Caregivers’ Talk with Children. Using observation by observers using time-sampling techniques (20-second intervals) we coded the caregiver’s talk with the child to reflect the type of verbalizations they used. Whether the caregiver’s talk was initiated or in response to the child was coded; then type of talk was coded. Types of talk coded included: “high level talk” (questions, expansions, prompts/suggestions, and describing) and “low level talk” (praise/acknowledgement and directives).

Results and Implications

The results suggested that caregivers’ perceptions of their relationships with the children were not related to the ethnic background of the child, and caregivers’ ethnic match with the child was not related to the relationship they had with the focal child. Second, caregivers’ ethnicity did not relate to the proportion of time they talked to children, and caregivers’ ethnic match with the children did not relate to the proportion of time they talked to children.

The implications of this study, when considered with the other results of the CCCRIP, are that the provision of high quality, nurturing, and age-appropriate care and education for children of low income working families in child care settings contributes to positive adult-child relationships and a richer learning environment, regardless of the ethnicity of the caregivers and the children. I found no evidence that children’s ethnicity or ethnic match with their child care providers were associated with these important child care quality variables.