

## Quality Disparities in Child Care for At-Risk Children: Comparing Head Start and Non-Head Start Settings

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**Abstract** The study objectives are to describe child care type and quality experienced by developmentally at-risk children, examine quality differences between Head Start and non-Head Start settings, and identify factors associated with receiving higher-quality child care. Data are analyzed from the Early Childhood Longitudinal Survey, Birth Cohort, a prospective study of a nationally representative sample of US children born in 2001. The sample consisted of 7,500 children who were assessed at 48 months of age. The outcome of interest is child care quality, measured by the Early Childhood Environmental Rating Scale (center care) and the Family Day Care Rating Scale (family day care). Results of descriptive and multivariate regression analyses are presented. Less than one-third of poor children were in Head Start. Child care quality was higher in Head Start centers than other centers, particularly among poor children (4.75 vs. 4.28,  $p < 0.001$ ), Hispanics (4.90 vs. 4.45,  $p < 0.001$ ), and whites (4.89 vs. 4.51,  $p < 0.001$ ). African Americans experienced the lowest quality care in

both Head Start and non-Head Start centers. Quality disadvantage was associated with Head Start family care settings, especially for low birthweight children (2.04 in Head Start vs. 3.58 in non-Head Start,  $p < 0.001$ ). Lower family day care quality was associated with less maternal education and African American and Hispanic ethnicity. Center-based Head Start provides higher quality child care for at-risk children, and expansion of these services will likely facilitate school readiness in these populations. Quality disadvantages in Head Start family day care settings are worrisome and warrant investigation.

**Keywords** Child care · Head Start program · Low income population · Preschool child · Low birthweight · Poverty

Over 60% of preschool children regularly receive non-parental child care [1], and pediatric health care providers are often asked for guidance about child care arrangements. Child care quality is known to influence development and well-being throughout childhood and beyond [2]. High-quality child care is associated with enhanced cognitive development, greater language and math proficiency, better social skills and interpersonal relationships, and improved behavioral self-regulation [3–7]. These skills and behaviors are components of school readiness which, in turn, is predictive of higher educational attainment and more favorable economic and health status in adulthood [8–10]. The American Academy of Pediatrics Committee on Early Childhood, Adoption, and Dependent Care recently underscored the importance of consistent, developmentally sound, and emotionally supportive child care, and stressed that the negative effects of poor-quality child care on school readiness and subsequent school success are magnified for children from disadvantaged situations or with special needs [11].

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While young children at risk of developmental delay due to low birthweight and/or disadvantaged family circumstances have been repeatedly shown to experience sustained benefits from enriching child care environments [12–14], these populations do not consistently receive such care. Evidence from the NICHD Study of Early Child Care suggests that children in disadvantaged and race/ethnic minority families disproportionately experience poor quality child care [3, 15]. The NICHD study also found that school readiness systematically varies across different types of child care settings. Children who attended child care centers showed better cognitive and language development relative to those in family day care and other home-based settings [16]. This is consistent with research findings that for preschool-age children, centers tend to rate more highly on global measures of quality and to be associated with aspects of higher quality including licensure/certification and more highly educated and trained caregivers [17, 18].

Child care is currently available in a wide variety of center-based, preschool, and family day care programs, and considerable past research has used a market selection perspective as a framework for examining which children are found in which type of care. For example, parents typically make greater efforts to find center-based child care for older preschoolers compared to younger infants [19]. Cost and accessibility are also important considerations [17, 18]. While child care arrangements, like other services, are ultimately selected by families, the conceptual orientation guiding the present study focuses on limitations faced by families in poverty, who often live in low-resource neighborhoods that are socioeconomically and racially segregated. As Fuller et al. [28] discuss, because many lower income and minority families lack access to the full range of child care options due to lower accessibility and affordability, these parents are not free to choose care arrangements according to their preferences [18]. It follows, therefore, that the types and quality of child care received by these populations can be understood not solely from a traditional market selection perspective but rather from a disparity perspective that takes into account institutional organization and socioeconomic and cultural impediments that limit access to quality child care.

In addition, not all child care programs are designed to serve the special needs of at-risk children such as those born at low birthweight. Head Start is the major federally subsidized program addressing differential child care access by providing programs that integrate educational and supportive services into care for vulnerable young children [20]. Head Start programs enroll both poor and non-poor children, although the majority live in disadvantaged families. Evaluations of samples of Head Start facilities characterize the child care quality as generally

good [21, 22]. At the population level, however, it is not known how the quality of child care received by children at developmental risk due to disadvantaged family circumstances and/or low birthweight compares with child care received by other children, and to what extent Head Start makes a difference in the quality of care available to these vulnerable sub-groups. Furthermore the Head Start program includes both center-based and family day care services. While a demonstration project conducted in 2000 concluded that family day care homes “can meet Head Start standards of quality” [23], relatively little research has focused on systematically evaluating the relative quality of Head Start family day care settings. There is currently insufficient evidence to guide pediatric health care providers in counseling families about optimal child care options, and particularly those families raising children who are at risk or have special needs.

This study analyzes new, nationally representative data from the Early Childhood Longitudinal Survey, Birth Cohort (ECLS-B). This prospective study was sponsored by the National Center for Educational Statistics. The ECLS-B included a population-based sample of children born in 2001 selected from birth certificates, with oversampling of children born at low birthweight. Assessments were conducted to measure health, development, and the receipt of health care, child care, and other services from birth through kindergarten entry.

The research objectives of this study are: (1) to determine the types and quality of child care settings currently experienced by populations of children at elevated risk of developmental delay as compared to child care settings experienced by other children; (2) to examine differences in child care quality between Head Start and non-Head Start settings for populations of children at elevated developmental risk; and (3) to identify characteristics that are associated with enrollment in higher-quality child care settings, focusing on aspects of socioeconomic position that may facilitate or impede access to quality child care.

## Methods

### Data

ECLS-B field staff interviewed parents and administered child assessments at 9, 24, 48, and 60 months of age. Data from birth certificates and from the 48 month data collection are included in the present analyses. Parent reports about child care arrangements at 48 months are available for 7,500 children with information on birthweight, poverty status, and race/ethnicity (see Table 1). In accordance with ECLS-B confidentiality requirements (<http://nces.ed.gov/ecls/birthdatainformation.asp>), this sample size and all

**Table 1** Primary child care setting among 48 month olds by child characteristics (n = 7,500<sup>a</sup>)

Child care setting	Poor N = 2,450 (%)	Non-poor N = 5,100 (%)	African American N = 1,200 (%)	Hispanic N = 1,450 (%)	Asian N = 750 (%)	Native American N = 150 (%)	White N = 3,350 (%)	LBW N = 2,000 (%)	Not LBW N = 5,550 (%)
Head Start <sup>b</sup>	28.7 <sup>c,d</sup>	8.0	31.5 <sup>e</sup>	22.0 <sup>e</sup>	8.5	31.2 <sup>e</sup>	7.9	21.6 <sup>g</sup>	14.8
Non-Head Start zcenter care	26.3 <sup>d</sup>	56.3	37.8 <sup>e</sup>	31.6 <sup>e</sup>	59.2 <sup>e</sup>	27.0 <sup>e</sup>	54.9	43.8	46.4
Relative care	15.0 <sup>d</sup>	11.9	13.6	15.6 <sup>e</sup>	13.1	13.0	11.1	12.0	12.9
Non-relative care	4.9 <sup>d</sup>	9.6	5.5 <sup>e</sup>	6.3 <sup>e</sup>	4.2 <sup>e</sup>	5.2 <sup>e</sup>	9.5	5.4	8.0
Parental care	25.1 <sup>d</sup>	14.2	11.6	24.7 <sup>e</sup>	15.0	23.6	16.6	17.2	17.9
	100	100	100	100	100	100	100	100	100

<sup>a</sup> Sample sizes are rounded to nearest 50 per ECLS-B data confidentiality requirements (see text)

<sup>b</sup> Includes both center-based and non-center-based Head Start settings

<sup>c</sup> All percentages are weighted to represent nationally representative estimates

<sup>d</sup> Difference in percentage between poor and non-poor groups significant at  $p < 0.05$  based on  $t$  test

<sup>e</sup> Difference in percentage between indicated group and whites significant at  $p < 0.05$  based on Scheffe's test

<sup>g</sup> Difference in percentage between low birthweight and non-low birthweight significant at  $p < 0.05$  based on Student  $t$  test

other unweighted sample sizes reported have been rounded to the nearest 50. Standardized observational ratings of the quality of child care settings were conducted for a randomly selected subsample of the ECLS-B cohort; analyses involving child care quality are restricted to those with complete data on quality of child care and other study variables (n = 1,550).

## Measures

### Child Care Quality

Two closely related measures of child care quality were analyzed. These measures were chosen because they include multiple dimensions of child care quality and have been widely used in previous research. A recent review [24] found positive relationships between child care quality measured by these environmental rating scales and child outcomes including scores on the Bayley Scales of Infant Development Mental Development Index, Woodcock-Johnson-R math achievement subsets, the Peabody Picture Vocabulary Test and other assessments of language and literacy development, and children's socio-emotional development and social competence.

**Early Childhood Environmental Rating Scale, Revised Edition (ECERS-R)** This observational measure of quality in center-based child care was developed and updated by Harms et al. [25, 26]. ECLS-B study personnel completed the ECERS-R scale consisting of 43 items that yield an overall score and subscale scores measuring learning activities, listening and talking, program structure, interaction, personal care routines, and furnishings and display. Items are scored

from 1 to 7 with descriptors for odd numbers such that 1 = inadequate, 3 = minimal, 5 = good, and 7 = excellent care. Inter-rater reliability for the ECERS-R in this study was 96%.

**Family Day Care Rating Scale (FDCRS-R)** This instrument, developed by Harms and Clifford [27], measures quality in family day care settings and is similar in structure and administration to the ECERS-R. It contains 40 items grouped in subscales that include learning activities, language/reasoning, social development, basic care, and space and furnishings. The FDCRS-R is scored in a manner similar to the ECERS-R on a 1–7 scale. Inter-rater reliability for the FDCRS-R was 83%. The FDCRS-R and ECERS-R scores are not directly comparable, however, because the number and characteristics of some scale items differ, and previous research using principal components analysis identified slightly different underlying constructs [28].

Due to high data collection costs, child care settings for children in Alaska and Hawaii were excluded, as were cases where the sample child was in care less than 10 h per week or where the language of the care setting was not English or Spanish. The child care observation sample was also stratified to ensure sufficient numbers of settings for children living below the poverty level, between 100 and 150% of poverty, and >150% of poverty. The participation rate among eligible centers was 64%, and reasons for non-completion included provider refusal, center was closed for the summer at the time the observation was conducted, and unavailability of care provider. A small monetary incentive was provided to participating centers. Sampling weights provided in the ECLS-B dataset were used in the analyses

to adjust for sample design and non-participation. Child care centers were visited throughout the time period between October of 2005 and June of 2006. The complete child care observation session, including the ECERS-R or FDCERS-R and other assessments, took approximately 3½ h to complete.

### *Individual and Contextual Characteristics*

**Low Birthweight** Birthweights <2,500 grams were considered low birthweight.

**Poverty** Poverty status was determined using methodology that is standard in national surveys, based on family size and household income. Parents were asked about the size of the family living in the household, and also whether their annual household income was \$25,000 and less or greater than \$25,000; they were also asked detailed range questions within the broader range. Income at 48 months was used to classify families as being either in poverty or not in poverty by comparison to the relevant Federal poverty level threshold.

**Race/Ethnicity** Child race/ethnicity was ascertained from parent responses to questions providing a fixed set of categories, with the option to choose more than one race. Race/ethnic categories included white, African American, Hispanic, Asian, Native American, and other/mixed race. In the analyses of child care quality, Native American and other/mixed race were excluded due to small numbers of children.

**Child Sex** Females were the reference category.

**Child Age** Because some children were assessed before or after 48 months of age, age in months was included as a control.

**Mother's Education** Mother's education was classified as: (1) ≤8th Grade; (2) 9–12th Grade; (3) High School graduate; (4) Some college; (5) College graduate (reference).

**Marital Status** Mothers were coded as married or unmarried at 48 months, with married as the reference.

**Mother's Employment** Mothers were classified as employed full-time (35+ h/week), part-time (<35 h/week), or not employed (reference).

**Region of Residence** Residential location was classified as Midwest, South, West, or North (reference).

**Rurality** Based on 2000 US Census definitions, ECLS-B classifies residence as: (1) urban, inside an urbanized area; (2) urban, inside an urban cluster; or (3) rural. For this analysis, the two urban classifications were combined to create a rural/urban variable, with urban as reference.

**Head Start** Child care settings are identified as either Head Start or not Head Start settings. The vast majority of children in Head Start programs live in families who are below the federal poverty threshold, but program guidelines specify that up to 10% of children enrolled in a Head Start program can come from families with incomes above 130% of the poverty threshold.

### *Analyses*

Frequency distributions for types of primary child care settings at 48 months were computed by poverty, race/ethnicity, and birthweight status. Mean quality of child care scores and standard deviations were computed for each risk category, for the full sample and separately for Head Start and non-Head Start center and family day care facilities. The significance of differences in means was determined by *t* tests. Ordinary least squares regression models were estimated with quality of family day care score (FDCRS-R) as the dependent variable. All analyses were weighted, and were conducted using SAS version 9.1.8 software. This research was approved by the Pennsylvania State Human Subjects Institutional Review Board (IRB).

### *Results*

Table 1 displays the primary child care settings experienced by children with different risk characteristics at 48 months. As expected based on program eligibility requirements, poor children were more likely to enroll in Head Start than non-poor children (28.7 vs. 8.0%,  $p < 0.05$ ), however it is notable that the Head Start program reached fewer than one-third of all poor children. Considerable race/ethnic variation was seen in child care settings. Those most likely to be enrolled in Head Start were African Americans (31.5%), and Native Americans (31.2%), while only 7.9% of the white population was enrolled ( $p < 0.05$ ). Although Hispanic families experience similar rates of economic disadvantage as African American families [29], Hispanic children are much less likely to be in Head Start [22.0 vs. 31.5% ( $p < 0.05$ )], and more likely to be in parental care (24.7 vs. 11.6%). Approximately one-fifth of children born at low birthweight were enrolled in Head Start. The majority of white and non-poor children received child care primarily in non-Head Start centers. The largest percentages of children experiencing only parental care were seen among those in poverty (25.1%), Hispanics (24.7%), and Native Americans (23.6%).

Mean quality of care ratings are presented by risk category in Table 2. Looking first at center care, overall quality scores are similar for poor compared to non-poor children and for non-White compared to White children, but are somewhat lower for children born at low birthweight

**Table 2** Mean overall quality of care by child characteristics in center care<sup>a</sup> and family day care<sup>b</sup> settings

	Center care (n = 1,250 <sup>c</sup> )		Family day care (n = 300)	
	Mean quality score	STD <sup>d</sup>	Mean quality score	STD
Poor	4.55	0.97	2.86 <sup>e</sup>	1.08
Non-Poor	4.58	1.05	3.65	1.06
Non-White	4.54	1.03	2.88 <sup>e</sup>	0.99
White	4.60	0.99	3.75	1.06
Low Birthweight	4.46	0.98	3.40	1.22
Non-Low Birthweight	4.58	1.03	3.41	1.07

<sup>a</sup> Center-based quality of care measured by the Early Childhood Environment Rating Scale (ECERS-R) [21, 22]

<sup>b</sup> Family-based quality of care measured by the Family Day Care Rating Scale (FDCRS-R) [23]

<sup>c</sup> Sample sizes rounded to nearest 50 per ECLS-B data confidentiality requirements (see text)

<sup>d</sup> STD refers to standard deviation

<sup>e</sup> Between groups, Student *t* test;  $p < 0.001$

relative to other children (4.46 vs. 4.58), although this difference is not significant. Quality ratings varied more greatly in family day care homes than in centers. The mean quality rating of 2.86 among poor children is nearly a full point lower than the rating among non-poor children of 3.65 ( $p < 0.001$ ), and a similar discrepancy is found among non-White compared with White children (2.88 vs. 3.75;

$p < 0.001$ ). This is close to a one standard deviation difference in quality. The corresponding effect sizes (Cohen's *d* values) are .74 and .85, respectively, which indicate large differences.

Table 3 presents mean quality scores for Head Start and non-Head Start center-based and family day care settings calculated separately by poverty status, race/ethnicity, and birthweight category. Looking first at center care, mean child care quality ratings are consistently higher in Head Start as compared to non-Head Start for all groups. Statistically significant differences are seen favoring Head Start centers among poor children (4.75 vs. 4.28), Hispanics (4.90 vs. 4.45), Asians (4.76 vs. 4.43), whites (4.89 vs. 4.51), and non-low birthweight children (4.77 vs. 4.48). Among race/ethnic groups, center care for African American children is rated lowest in quality in both Head Start and non-Head Start settings. Poor children in non-Head Start centers also experience care of significantly lower quality than non-poor children (4.28 vs. 4.55). These results are consistent with the view that neighborhoods in which African American families reside are comparatively more constrained regarding high-quality child care options.

The lower part of Table 3 provides mean quality scores for family day care settings. In contrast to findings for centers, a quality disadvantage is associated with Head Start in family day care. The quality gap is particularly large for low birthweight children in family day care, where the mean quality score of 2.04 in Head Start is significantly lower than the mean of 3.58 in non-Head Start

**Table 3** Comparison of child care quality by child characteristics in Head Start and non-Head Start Centers<sup>a</sup> and family day care<sup>b</sup>

	Head Start (HS)		Non-Head Start (nonHS)		HS–nonHS difference <i>p</i> value
	Mean quality score	STD <sup>d</sup>	Mean quality score	STD	
I. Center care (n = 1,250 <sup>c</sup> )					
Poor children	4.75	0.87	4.28	1.04	<0.001
Non-poor children	4.74	1.02	4.55	1.05	ns <sup>e</sup>
African American	4.47	1.00	4.32	1.17	ns
Hispanic	4.90	0.76	4.45	1.09	<0.001
Asian	4.76	0.80	4.43	0.97	0.04
White	4.89	0.79	4.51	1.02	<0.001
Low birthweight	4.55	0.92	4.40	1.01	ns
Non-low birthweight	4.77	0.90	4.48	1.07	<0.001
II. Family day care (n = 300)					
Poor children	2.74	1.21	2.89	1.05	ns
Non-poor children	2.75	0.67	3.70	1.07	<0.001
African American	2.37	0.56	2.82	0.86	ns
Hispanic	2.18	0.50	2.96	1.05	ns
Asian	2.66	1.15	3.40	0.99	ns
White	3.26	0.85	3.79	1.07	ns
Low birthweight	2.04	0.90	3.58	1.19	<0.001
Non-low birthweight	2.80	0.97	3.48	1.07	0.003

<sup>a</sup> Center-based quality of care measured by the Early Childhood Environment Rating Scale (ECERS-R) [21, 22]

<sup>b</sup> Family-based quality of care measured by the Family Day Care Rating Scale (FDCRS-R) [23]

<sup>c</sup> Sample sizes rounded to nearest 50 per ECLS-B data confidentiality requirements (see text)

<sup>d</sup> STD refers to standard deviation

<sup>e</sup> Not statistically significant

settings ( $p < 0.001$ ). As was the case for center care, family day care ranks among the lowest quality for African American children compared with white children in both Head Start and non-Head Start facilities; Head Start family day care settings for Hispanic children are also of significantly poorer quality than those of white children. A large disadvantage is also seen for poor children in non-Head Start facilities (2.89 vs. 3.70).

Because the overall disparities in child care quality by poverty and race/ethnicity were most pronounced in family day care settings (see Table 2), regression models were estimated to quantify the association of various characteristics with receipt of higher quality family day care services. In Model 1 of Table 4, poverty status is included as the only covariate, and the negative and statistically significant coefficient is consistent with the quality disadvantage seen among poor children in the bivariate analysis. Model 2 adds a group of sociodemographic, birth-related, and child care variables to the regression. This model reveals that the association between poverty and lower quality child care can largely be accounted for by the included covariates. For example, location in the Southern region is significantly associated with lower quality family day care. However, the strongest effects are seen for mothers' education, which shows a graded relationship such that increasing education is associated with higher quality child care. Race/ethnicity is also a significant factor, with African American and Hispanic children experiencing significantly lower care quality even after controlling for poverty, mother's education and the other covariates. After taking geographic and sociodemographic factors into account, Head Start family day care settings continue to be significantly associated with lower quality ratings.

**Discussion and Conclusions**

Utilizing a nationally representative dataset, this study provides new information about the types and quality of child care settings currently experienced by populations of children at elevated risk of developmental delay, and how the quality of Head Start programs compares to other types of child care. Several key themes that emerge from the analyses are discussed below.

*Head Start centers provide a means of accessing high quality child care for at-risk populations of children, but reach comparatively few children who could benefit from them*

The analyses of center-based child care quality were remarkable in that not only did Head Start programs do as well as non-Head Start programs, they were superior and especially so for groups of children most likely to need

**Table 4** OLS regression modeling child care quality in family day care<sup>a</sup> (n = 300<sup>b</sup>)

	Family day care quality score	
	Model 1	Model 2
Intercept	3.64 <sup>e</sup>	2.51 <sup>d</sup>
Poor at 48 months	-0.78 <sup>e</sup>	-0.14
Head Start at 48 months		-0.48 <sup>c</sup>
Male		-0.07
Low birthweight		0.12
Child age in months at 48 months		0.03
African American		-0.56 <sup>d</sup>
Hispanic		-0.54 <sup>d</sup>
Asian		-0.34
Other/Mixed race		-0.32
Mother's education, 8th grade or below		-0.89 <sup>d</sup>
Mother's education, 9th–12th grade		-0.67 <sup>d</sup>
Mother's education, high school grad		-0.64 <sup>e</sup>
Mother's education, some college		-0.32 <sup>c</sup>
Not married at 48 months		-0.11
Mother's employment, part time		0.26
Mother's employment, full time		0.28
Mid-West		-0.19
South		-0.49 <sup>c</sup>
West		0.20
Rural		0.20
R <sup>2</sup>	0.109	0.325

<sup>a</sup> Family-based quality of care measured by the Family Day Care Rating Scale (FDCRS-R) [23]

<sup>b</sup> Sample size is rounded to nearest 50 per ECLS-B data confidentiality requirements (see text)

<sup>c</sup>  $p < 0.05$

<sup>d</sup>  $p < 0.01$

<sup>e</sup>  $p < 0.001$

them. Particularly among disadvantaged children, average care in the non-Head Start centers was significantly lower in quality than care in Head Start centers. Since high-quality child care has been shown to improve long-term developmental outcomes [2], this is good news for potentially vulnerable children who are enrolled in Head Start centers. In addition, Head Start regulations require that all children receive a standardized health and developmental screening within 45 days of enrollment, and that further diagnostic testing, examination, and treatment by an appropriate licensed or certified professional be obtained for each child with an observable, known or suspected health or developmental problem. The regulations also require that health services in Head Start settings be supported by staff or consultants with appropriate training to deal with these issues. These requirements are aimed at

ensuring that needed supports are in place to care for developmentally at-risk children such as those born at low birthweight.

Unfortunately, however, the findings also underscore the comparative disadvantage experienced by many at-risk children who are eligible but not enrolled. Our nationally representative estimates suggest that Head Start programs reach less than one-third of impoverished children and only about one-fifth of those born at low birthweight. While some eligible families may have intentionally chosen other child care options, lack of capacity is an important factor in light of a recent federal study finding that a majority of the Head Start programs contacted had waiting lists [30]. Although funding for Head Start was recently increased by \$122 million through enactment of Public Law 111-117 in December of 2009, those funds are designated to offset cost of living increases and existing operating expenses rather than to increase the enrollment capacity.

*Race/ethnic disparities in child care quality are present across types of child care settings, with African American and Hispanic children most likely to experience lower-quality child care*

Findings from the present study are consistent with previous research indicating that African American children are generally enrolled in child care that is of comparatively lower quality. For example, child care data from the Cost, Quality, and Outcomes Project and the NICHD Study of Early Child Care examined by Burchinal and Cryer [31] demonstrated that caregiving environments of African American children received lower quality ratings than those of white children in both studies. Aspects of care quality evaluated included caregiver responsiveness and sensitivity, qualities known to be associated with optimal facilitation of child development and school readiness. Consistent with a disparities perspective, these results can be interpreted as evidence that residential location in comparatively resource-poor and segregated neighborhoods limits the ability of minority families to secure high-quality child care for their children. Although individual factors such as higher maternal education are generally associated with better child care quality, personal characteristics and preferences can be of limited influence in circumstances where the range of child care options is constrained by institutional organization. Given the current emphasis on reducing racial gaps in school achievement, increasing African American and Hispanic children's access to high quality child care should be an integral part of the policy approach to this issue [32–34].

*Head Start family day care programs do not appear to provide quality advantages for at-risk children, and this warrants further investigation*

The delivery of Head Start services in family day care homes began in the mid-1980s to meet the needs of families facing constraints to center-based care including lack of transportation and incompatible work hours [35]. A federally-funded demonstration project evaluating Head Start services in family child care home settings published in 2000 concluded that family child care homes appeared to provide a viable option for delivering Head Start services, especially in more remote rural areas and among families who need extended hours of care for their children [35]. While overall quality ratings were not statistically different between family child care homes and center classrooms in that study, in comparison to family settings the centers were more likely to be in compliance with several indicators that generally correspond to items in the ECERS-R including having equipment and materials accessible and inviting to children, keeping the premises clean and free of hazardous materials, and having appropriately sized furniture and utensils. This is consistent with descriptive analyses in the present study which suggest that low birthweight children experience lower quality care in Head Start family day care settings compared to non-Head Start family settings. This difference is also apparent among non-poor children, and while this group is not the focus of the present research, the finding raises concern about Head Start family day care settings more generally. The multivariate results indicate that Head Start family day care programs had lower overall quality scores compared to non-Head Start family-based settings, even after taking family characteristics and residential location into account, suggest that further evaluation may be needed to identify potential areas for quality improvement. Attention to state licensing regulations and accreditation standards for child care facilities is also warranted, as stricter requirements are known to be drivers of quality improvement [36, 37].

The analyses presented are subject to limitations, including the size of the sample for some subgroups of interest. Although the ECLS-B oversampled children who were born at low birthweight, for example, the numbers of these children in each child care setting were comparatively small. This is the result of the ECLS-B collecting child care services data for only a subgroup of settings. Larger sample sizes would allow for more precise estimates and might reveal important differences experienced by low birthweight and other subgroups of children. It is also the case that approximately one-third of the child care centers selected for observation were not visited, due to refusals, unavailability, or other issues. Although statistical weights were incorporated into the analyses, bias could have been introduced due to non-response. It would also be helpful to know more about variation among Head Start facilities, particularly regarding the degree to which they adhered to federally established program guidelines. Parents' preferences

and decision-making processes regarding child care are also important factors not assessed in ECLS-B.

In conclusion, population-based evidence confirms that center-based Head Start programs generally provide comparatively higher quality child care for groups of children at developmental risk and particularly those in poverty. Expansion of these programs will likely result in greater promotion of school readiness in at-risk populations, which will in turn foster higher ultimate educational attainment and greater long-term well-being. However, family day care facilities sponsored by Head Start were shown to be of lower quality than non-Head Start facilities, a finding that should be investigated further.

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