



The Role of Early Head Start Programs in Addressing the Child Care Needs of Low-Income Families with Infants and Toddlers: Influences on Child Care Use and Quality



U.S. Department of Health and Human Services
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Administration on Children, Youth and Families
Head Start Bureau



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Early Head Start Evaluation Reports

Leading the Way: Describes the characteristics and implementation levels of 17 Early Head Start programs in fall 1997, soon after they began serving families.

Executive Summary (December 2000): Summarizes Volumes I, II, and III.

Volume I (December 1999): *Cross-Site Perspectives*—Describes the characteristics of Early Head Start research programs in fall 1997, across 17 sites.

Volume II (December 1999): *Program Profiles*—Presents the stories of each of the Early Head Start research programs.

Volume III (December 2000): *Program Implementation*—Describes and analyzes the extent to which the programs fully implemented, as specified in the Revised Head Start Program Performance Standards, as of fall 1997.

Pathways to Quality and Full Implementation in Early Head Start (December 2002): Describes and analyzes the characteristics, levels of implementation, and levels of quality of the 17 Early Head Start programs in fall 1999, three years into serving families. Presents an analysis of the pathways programs followed to achieve full implementation and high quality.

Building Their Futures: How Early Head Start Programs Are Enhancing the Lives of Infants and Toddlers in Low-Income Families: Presents analysis of the impacts that the research programs have had on children's development, parenting, and family development through 2 years of age.

Summary Report (January 2001): Synopsis of the major findings.

Technical Report (June 2001): Detailed findings and report on methodology and analytic approaches.

Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start (June 2002): Presents analysis of the impacts that the research programs have had on children's development, parenting, and family development through the children's third birthday (including two to three years of program participation).

The Role of Early Head Start Programs in Addressing the Child Care Needs of Low-Income Families with Infants and Toddlers: Influences on Child Care Use and Quality (February 2004): Describes the nature, types, and quality of child care arrangements in which Early Head Start and control group children enrolled, and presents findings on the impacts of Early Head Start on both child care use and quality.

Health and Disabilities in Early Head Start: Are Families Getting Needed Health Care Services? (December 2003): Describes health services received by Early Head Start and control group families, and analyzes services for infants and toddlers with disabilities.

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EXECUTIVE SUMMARY

In 1994, the Secretary's Advisory Committee on Services for Families with Infants and Toddlers set forth a vision for Early Head Start programs in declaring that all child care settings used by Early Head Start families, whether or not the program provides the care directly, must meet the high standards of quality embodied in the Head Start Program Performance Standards. As part of the national Early Head Start Research and Evaluation project, we collected extensive data on the child care settings used by Early Head Start and control group families for their children at three ages (14, 24, and 36 months). This report describes the patterns of child care use by Early Head Start families and the impacts that program participation had on families' child care use and the quality of care used.

Child Care Use by Early Head Start Families

A high proportion of Early Head Start families placed their children in child care during the evaluation period, with higher levels of child care use among those in center-based sites: overall, nearly two-thirds of 3-year-old Early Head Start children spent at least 30 hours per week in some kind of child care arrangement. Child care use increased slightly as children got older, going from an average of 29 hours a week around the time the Early Head Start children were 14 months old to 32 hours when they were 36 months. Almost half (48 percent) of 3-year-old children were in centers as their primary arrangement; 35 percent were in informal relative or nonrelative care.

Child Care Quality Experienced by Children in Early Head Start

Early Head Start children attending classrooms in Early Head Start centers consistently experienced good-quality care across the three ages (quality ratings averaged between 5.0 and 5.2 on the ITERS and ECERS-R). The quality of community centers Early Head Start children attended was somewhat lower, but improved over time, from a mean of 3.8 on the ITERS at 14 months to 4.9 on the ECERS-R at 36 months. Overall, at age 3, Early Head Start children in center care, whether operated by Early Head Start programs or not, experienced good quality, averaging 5.0 on the ECERS-R. Child-adult ratios in Early Head Start centers consistently met the Head Start Program Performance Standards. Furthermore, child-adult ratios in Early Head Start centers were consistently lower (fewer children per adult) than the ratios children experienced when they were in community centers. The report includes findings pertaining to family child care, but because we were not as successful in gaining access to these settings, we are less confident about characterizing the quality of informal child care.

Using a measure of caregiver-child interactions developed for this evaluation (the Child-Caregiver Observation System, C-COS), we found that in about half the observation periods coded, Early Head Start caregivers were observed talking with the focus child; the frequency of caregiver talk was greater in Early Head Start than in community centers when children were 3 years old (but not when they were 2). Early Head Start caregivers also initiated talk with the child more than caregivers in community centers did, but only at age 3. Incidents of negative

child behavior were very low for all Early Head Start children, and were not different in Early Head Start and community centers at either age.

Very high percentages of Early Head Start parents reported being satisfied with their recent primary child care arrangement—they liked how much attention the child received, how much he or she was learning, its safety features, and how “good” they thought the provider was with children. Nevertheless, 29 percent of parents said they would like to change the arrangement, if cost were not a factor (at 28 months after enrolling in Early Head Start). This was true of parents with children in community centers, as well as to those in Early Head Start centers. The longer families were enrolled in Early Head Start (and the older their children were), the more likely they were to be using a child care arrangement they liked.

When parents expressed an interest in changing arrangements, they overwhelmingly preferred center care (80 percent of parents at 28 months after enrollment); small percentages preferred relative care or other arrangements. When parents wanted to switch to center care, they typically wanted their child to learn better and to be with other children. When parents wanted to change to relative care, it was mainly for convenience and to ensure the child’s safety.

Impacts of Program Participation on Child Care Use and Quality

In impact analyses comparing child care use by program and control group families across all 17 sites in the research sample, we found that at all ages Early Head Start programs significantly increased the percentage of families using any child care, the percentage using center care, and the average hours per week that children were in care. Program participation also led to a smaller percentage of parents with primary care arrangements during nonstandard hours (both evening and weekend hours).

Early Head Start programs dramatically increased the percentage of children who were in good-quality center care at all ages at the four center-based sites and selected mixed-approach sites. Early Head Start children were 3 times more likely to be in good-quality center care than were control group children at 14 and 24 months of age, and about 1½ times more likely to be in good-quality centers at 36 months. The impacts were somewhat larger in center-based than in the Early Head Start mixed-approach sites.

It is likely that participation in the Early Head Start program was responsible for the program-control differences in center quality that we observed in sites where a sufficient sample of quality observations was available. Children in Early Head Start centers experienced significantly higher quality than did control group children in the same sites—on the ITERS at 14 and 24 months of age and on the ECERS-R at 36 months, on the Arnett scale at all three ages, and on child-adult ratios at all ages. Program children experienced classrooms with ITERS scores about 1 point higher than those experienced by control group children at 14 and 24 months of age. The program-control difference in ratio was more than 1 adult per child.

Finally, regression analyses within the Early Head Start sample demonstrated that amount and quality of center care are associated with positive developmental outcomes for the children, a finding that is consistent with an extensive child care research literature.

Conclusion

These results demonstrate the highly important role Early Head Start programs have played in responding to the vision of the Advisory Committee on Services for Families with Infants and Toddlers. Early Head Start families were not only receiving more child care but substantially more good-quality center child care than they would have received without the intervention of the Early Head Start programs. Along critical dimensions, the quality of Early Head Start center child care was higher than the quality control group children experienced, and evidence suggests that this quality is important for enhancing the children's development.

I. CHILD CARE AND EARLY HEAD START: BACKGROUND AND PURPOSE OF THE STUDY

Child care is one of many services Early Head Start programs provide to families. Furthermore, the Early Head Start national evaluation found that the vast majority of Early Head Start families used child care at some point during the child's first three years of life, and many of these families called on their Early Head Start programs to help provide or find affordable, good-quality child care. Because of the centrality of child care to many Early Head Start programs, the pervasive importance of child care for low-income families with infants and toddlers, and the challenges programs faced in developing child care options that could meet Head Start Program Performance Standards, the Administration for Children and Families commissioned this special Early Head Start policy report using data from the national evaluation.

In this report, we examine patterns of child care use among Early Head Start families at points corresponding to children's first, second, and third birthdays and then describe how Early Head Start influenced those patterns of child care use. We also examine the quality of child care used by Early Head Start children at these three birth dates. Third, since Early Head Start programs are charged with ensuring that children receive good-quality child care, we take advantage of the randomized design of the Early Head Start evaluation to examine the impact that Early Head Start had on the quality of child care experienced at all three ages, using data from the four center-based sites included in the evaluation and a subset of the mixed-approach sites, where we obtained a substantial and representative sample of observations of child care used by both program and control group children. Finally, we conducted analyses within the Early Head Start sample to examine relationships between child care use and quality and selected child outcomes at ages 2 and 3.

Thus, our research questions include, first, *descriptive* questions about the child care services used by Early Head Start families:

- What types of child care were used by families in Early Head Start and for what hours?
- What was the quality of child care used by Early Head Start families?
- How satisfied were Early Head Start families with their child care arrangements?

The research also includes questions about the *impacts* of Early Head Start on child care use:

- How did Early Head Start affect families' child care use, including the type and hours of child care?
- How did Early Head Start affect the quality of child care used?

Finally, we ask a question about relationships between child care and children's development to provide evidence relating to an important issue, albeit using an analytic approach that is not as strong as those that address the more-central research questions:

- How, and to what extent, were the child care intensity and quality experienced by Early Head Start children associated with developmental outcomes at 2 and 3 years of age?

In this chapter we begin by providing the context—how the vision of the initial blueprint for Early Head Start brought together the twin themes of quality and partnership. We then describe the Early Head Start programs and how they worked to develop child care options in their communities. Finally, we discuss the design of the Early Head Start evaluation and the study of child care embedded in that evaluation.

A. THE CHILD CARE CONTEXT FOR EARLY HEAD START

Many communities struggle to help working parents find stable, supportive child care for their infants and toddlers (Paulsell, Nogales, and Cohen 2003). Providing good-quality infant-toddler care poses stiffer challenges than care for preschool-age children, primarily because younger children need more attention from adults to meet health, safety, and developmental needs, and the corresponding need for lower child-adult ratios increases the costs of infant-toddler care.

As early as 1994, when the Early Head Start program was authorized, the lack of good-quality infant-toddler care for low-income families was a public concern, and indeed, was one of the issues that planners sought to address through the design of the program. In that year, the Carnegie Corporation released its *Starting Points* report citing major risk factors confronting a significant number of children under 3 years of age. One of the risks cited was substandard child care.¹

In light of these concerns about the quality of infant-toddler child care, the Secretary's Advisory Committee on Services for Families with Infants and Toddlers, in its blueprint for the Early Head Start program, underscored the importance of several key themes that were integral to its vision for the new program and for the role that child care services would play (U.S. Department of Health and Human Services 1994). These themes included:

- The expectation that Early Head Start would offer high-quality services—whether provided directly by program staff or through partnerships with other community services providers

¹Other risk factors cited by the report were increased chances of living with a single and younger parent; family poverty; increases in foster care; high mortality rates and low rates of immunization; and physical abuse, neglect, and unintentional injury (Carnegie Corporation of New York 1994).

- The importance to children’s healthy development of establishing secure, continuous relationships between young children and their caregivers
- The necessity of establishing strong partnerships with parents and community partners
- A mandate to undertake community-building efforts that would increase the level of community support for families with infants and toddlers.

The expectation that Early Head Start programs would form partnerships with community-based organizations and engage in community-building efforts has led naturally to partnerships between Early Head Start and the child care community, given the critical importance of child care services to low-income families with infants and toddlers. The rapid proliferation of welfare reform programs across the states in the early 1990s only intensified the need for infant-toddler child care because work requirements were, for the first time, being applied to mothers with children under 3 years.² The Committee reinforced the importance of partnerships with child care by declaring that, “child care can be provided directly or in collaboration with other community providers *as long as the Early Head Start program assumes responsibility for ensuring that all settings meet the Early Head Start performance standards*” (U.S. Department of Health and Human Services 1994, p. 16; emphasis added).

Child care subsidy programs funded jointly by federal and state governments and the funding initiatives of community and private organizations have also sought to address the need for infant-toddler care. In some cases, these programs have contributed to partnerships with Early Head Start through which good-quality infant-toddler care has developed (Mitchell, Stoney, and Dichter 1997; and Paulsell et al. 2003). At the time Early Head Start was being implemented, federal welfare reform legislation combined several child care funding streams

²State welfare reform programs were adopted under waivers of federal rules for the Aid to Families with Dependent Children (AFDC) program during the early 1990s.

into a single Child Care and Development Fund. CCDF provides funds to states and territories and tribes to assist low-income families in paying for child care, and reserves some funds for investment in quality improvement activities, technical assistance, and research. Federal funding for state child care subsidy programs increased and resources expanded further as states transferred substantial TANF resources to CCDF (Collins, Layzer, Kreader, Werner, and Glantz 2000; and Schumacher, Greenberg, and Duffy 2001). In addition, CCDF includes a \$100 million earmark for infant-toddler child care supply and quality enhancement activities (\$22 million in fiscal year [FY] 2001), which some states have used to support infant-toddler provider training and for grants linked to improvements in the quality or supply of infant/toddler child care (Administration for Children and Families 2002a).

B. EARLY HEAD START PROGRAM STANDARDS AND CHILD CARE OPTIONS

Early Head Start grantees are required to provide child development services, build family and community partnerships, and support the staff needed to provide high-quality services for children and families. Grantees select among program options specified in the performance standards to fulfill these goals. The program options include:

- ***Home-based***—provide Early Head Start program services to children primarily in the child’s home, through weekly home visits and at least two group socializations per month for each family
- ***Center-based***—provide services to children primarily through center-based child care plus other activities, and offer a minimum of two home visits per year for each family
- ***Combination option***—provide services to children in both a child care center and in the child’s home; includes a prescribed combined number of home visits and center-based experiences

In addition, grantees can propose alternative program variations to meet community needs, subject to approval by the Administration on Children, Youth and Families (ACYF) in the

Administration for Children and Families (ACF) in the U.S. Department of Health and Human Services (DHHS). Grantees may, with regional office approval, change their program options in response to emerging needs of families. For example, a home-based program may become a combination option in response to a growing need for child care and the opportunity to partner with a community child care provider who can offer care meeting the Head Start performance standards. Early Head Start evaluation reports adopted the convention of referring to programs as “mixed approach” when they offered both center- and home-based services, regardless of their official program “option.”

- ***Mixed approach***—provide services to some children primarily in the home, through weekly home visits and periodic group socializations; and to some children primarily through center-based care or family child care with periodic visits to the home and/or child care setting. Children may receive home-based services at one point and center-based services at another as they progress through the program.

Standards for the quality of Early Head Start child care services were formalized in January 1998, when the revised (and current) Head Start Program Performance Standards took effect. The standards established a clear set of expectations for the quality of both center-based child development services and child care provided in community child care settings.³ Among other things, the standards require (1) a child-staff ratio of 4 to 1 and a maximum group size of eight infants and toddlers in center-based child care settings, and (2) child care staff to have a Child Development Associate (CDA) credential within one year of being hired as an infant-toddler teacher (U.S. Department of Health and Human Services 1996).

³In August 2000, the DHHS issued draft performance standards for services provided through family child care homes (U.S. Department of Health and Human Services 2000). Under these standards, teachers in family child care homes must possess the same qualifications as center-based teachers. Ratio and group-size requirements limit groups to six children per teacher when two or fewer children are under age 3. If more than two children are under age 3, the maximum group size is four children, with no more than two children under age 2.

In keeping with the Committee's recommendation, the Head Start Bureau expects programs to help all families find and access child care arrangements if and when they need child care. Moreover, programs must make significant efforts to ensure that these arrangements, whether provided in a child care center operated by Early Head Start or through a community child care provider, adhere to the Head Start Program Performance Standards. Grantees are charged with developing systems to support and monitor this effort. The evaluation's implementation reports (*Leading the Way* and *Pathways to Quality*) have documented the challenges programs faced in meeting the child development aspects of the performance standards (ACYF 1999, 2000; and ACF 2002c). Over time, most of the programs reached compliance with these standards (ACF 2002c).

The growing importance of child care services for low-income parents with infants and toddlers has thus enhanced the salience of child care issues for Early Head Start grantees. At the same time, community child care providers have found an important source of support in Early Head Start. Across many communities, Early Head Start and child care are intertwined in a variety of ways, many of which respond to the vision of the Advisory Committee on Services for Families with Infants and Toddlers (U.S. DHHS 1994):⁴

- ***Some Community Child Care Providers Became Early Head Start Grantees.*** Community-based child care providers who operate good-quality programs are typically skilled at obtaining available funding to support their mission. Some Early Head Start grantees originated as community-based child care providers that offered good-quality infant-toddler child care before 1995, and they secured competitive Early Head Start grants to support extending their mission, for example, by adding more infant-toddler slots or by expanding comprehensive services for families (ACF 2002c).

⁴The various strategies programs used to improve the quality of child care for infants and toddlers, and their collaboration with other community-based organizations toward this goal, are described in more detail in *Pathways to Quality* (ACF 2002c).

- ***Some Early Head Start Grantees Created New Infant/Toddler Classrooms.*** Some Early Head Start grantees began as Head Start programs and extended their mission by adding services for infants and toddlers, sometimes by opening infant/toddler classrooms in the Head Start center (ACF 2002c). Some grantees started out as family support agencies (for example, former Comprehensive Child Development Programs, or CCDPs). Many of these agencies recognized the need for good-quality infant-toddler care when parents enrolled in their programs seeking child care and when the Head Start Bureau highlighted the child development aspects of the performance standards. Some responded to the need by establishing infant-toddler classrooms. These classrooms could be on site at the Early Head Start program or developed through partnership with an established child care center in the community that could find space for another classroom.
- ***Some Early Head Start Grantees Contracted with Community Child Care Providers for Child Care Services.*** Some grantees contracted for a specified number of slots in community-based child care centers or family child care homes. The Early Head Start grantee would work with these providers to ensure that performance standards were met (including ratio and training requirements). The Early Head Start funding sometimes enabled a center to keep open an infant-toddler room that included both Early Head Start and other children (Paulsell, Nogales, and Cohen 2003).
- ***Some Early Head Start Grantees Extended Quality Enhancement Assistance to Community Child Care Providers.*** Grantees also worked on quality improvement with the child care providers whom parents chose on their own. Grantees offered training and technical assistance to help with planning activities, arranging the room, communicating with parents, and running a business. Some providers received equipment (such as cribs, shelving, and outdoor play equipment), and opportunities to network with other providers. One program developed individual quality enhancement plans with providers and offered incentives, materials, and training to encourage and enable providers to make progress toward their goals (ACF 2002c).
- ***Some Early Head Start Grantees Reached Out to Family, Friends, and Neighbors Caring for Early Head Start Children.*** Early Head Start grantees implemented creative strategies for developing relationships to support quality enhancement among family, friend, and neighbor providers parents had selected. Several programs began making monthly home visits to children in these child care settings to foster a partnership between the provider and Early Head Start, to share child development information with the provider, and to work with the provider on quality improvement (ACF 2002c).

As the examples indicate, Early Head Start grantees and community child care providers work together in many ways to expand the supply of good-quality infant/toddler care. The variety of responses to families' child care needs exemplify the ways in which Early Head Start

grantees tailor their services to reflect the needs of low-income, pregnant women and families with infants and toddlers in their communities.

C. THE EARLY HEAD START NATIONAL RESEARCH AND EVALUATION PROJECT

This policy report is based on analyses conducted as part of the Early Head Start National Research and Evaluation Project, a rigorous, large-scale, random-assignment evaluation of 17 Early Head Start programs (see the study's final report—ACF 2002b). The research programs, selected purposively from the first two waves of programs funded in 1995 and 1996, are located in all regions of the country and in both urban and rural settings. The research sample of families reflects the diverse family characteristics and the major program approaches of all programs funded in 1995 and 1996.

To be eligible for Early Head Start, families must include a pregnant woman or a child under 3 years old, and for the most part, families must have income at or below the federal poverty guidelines (\$15,600 for a family of four in FY1996 when the research sample began enrolling; \$16,050 in FY1997). In addition, grantees are required to make at least 10 percent of their spaces available to children with disabilities who are eligible for Part C services under the Individuals with Disabilities Education Act in their state. Grantees may develop additional eligibility criteria to help target services to best meet the needs in their communities. Important for this study, families eligible for the Early Head Start research sample had to include a pregnant caregiver or a child younger than 12 months of age.

Once programs determined through their application process that families met the Early Head Start and the research eligibility guidelines, Mathematica Policy Research (MPR) randomly assigned the families either to the program or to the control group (with equal probabilities). Program staff then contacted the program group families, while representatives of

the local research partners notified the control group families of their status. Families were enrolled in the research sample from July 1996 through September 1998. A total of 3,001 families were randomly assigned, with 1,513 in the program group and 1,488 in the control group. The samples in most sites included between 150 and 200 families, divided fairly evenly between the two research groups.

Control group families were able to receive any services in the community except Early Head Start until their applicant child reached the age of 3 (and was no longer eligible for Early Head Start). Many control group families received parenting education and child care services without the assistance of Early Head Start. Comparing outcomes for groups that differ only in the offer of Early Head Start services ensured that our analytic comparisons of program and control group outcomes represented the effects of Early Head Start services relative to the receipt of all other community services that would be available to families in the absence of Early Head Start. Analyses of the research sample indicated that random assignment was implemented well. The random assignment process yielded equivalent groups (in terms of average baseline characteristics). For the most part, control-group families did not receive any Early Head Start services. Details about the random assignment process and its integrity are documented in the evaluation's final report (ACF 2002b).

The major focus of the evaluation were the impacts of Early Head Start on family well-being, the parent-child relationship, and children's development, which have been reported in the evaluation's interim (results through age 2; ACYF 2001) and final (through age 3; ACF 2002b) reports, and summarized in the child development literature (Love et al. 2003; and Raikes et al. in press).

To measure these impacts, the evaluation included parent surveys at specified intervals after random assignment (7, 16, and 28 months) and parent interviews coupled with child assessments

and observations of parent-child interactions at intervals linked to the child's age. These parallel data collection efforts included the following information:

- ***Parent Services Interviews***—at 7, 16, and 28 months after random assignment, measured the parent's employment and education activities, maternal and child health, and use of a broad set of services that Early Head Start programs might provide, but which families might also obtain on their own in the community. The Parent Services Interviews were designed to capture monthly information on employment and service use so that durations and changes in these activities could be examined. An exit interview conducted at the time of the 36-month birthday-related assessment provides a snapshot of the parent's economic activity and key services used at the time children were transitioning out of Early Head Start.⁵
- ***Birthday-Related Assessments***—conducted when children were 14, 24, and 36 months old, were designed to gauge children's development across cognitive, language, and social-emotional domains when they were infants, toddlers, and beginning preschoolers. Parenting knowledge, the home environment, and qualities of the parent-child relationship were also measured at the birthday-related assessments because these aspects of parenting and the child's environment relate closely to children's development.

For many types of analysis, the two streams of data can be used independently to provide, for example, a record of service use following random assignment, or measures of child development and parenting at the three age points. But some analyses require combining these data sets. The study of child care embedded in the broader Early Head Start evaluation includes elements of service use (the types and characteristics of child care arrangements used over time) and elements of the child's environment (the quality of child care).

D. THE EMBEDDED CHILD CARE STUDY

The dual nature of child care, as both a service to parents that supports employment and education activities and an environment in which children grow and develop, led us to measure aspects of child care through both data collection streams. The Parent Services Interviews

⁵Families did not have an exit interview if their 28-month Parent Services Interview occurred when the child was age 30 months or older.

measured child care use over time so that the data could easily be related to patterns of employment and education activities. The birthday-related assessments included interviews with providers and observational assessments of the child care environments so that the information could easily be related to assessments of the home environment, parenting, parent-child interactions, and children's development obtained at the same time.

- ***Parent Services Interviews.*** Parents were asked about the types of child care used, hours, cost to the family, and satisfaction with care since random assignment. From this information, variables measuring the type, duration, and stability of child care could be calculated for a specific point in time or over a period of time.
- ***Birthday-Related Assessments.*** Parents were asked about the types of care used at the time of each birthday-related assessment, thus providing a snapshot of the child care arrangements used at the time of the child assessments. For children with a regular, out-of-home child care arrangement, we conducted in-depth, observational assessments of the quality of child care used by children. From this information, global ratings of the quality of the primary child care arrangement were obtained, as well as ratings of provider behavior, snapshots of the child's experiences in child care, staff-child ratios, group size, provider education and training, and other provider characteristics.

Using these data, we conducted analyses designed to answer the questions raised at the beginning of this chapter. Our findings are reported in two chapters. Chapter II focuses on child care use and parents' satisfaction with their child care arrangements. We examine the patterns of child care use (types of arrangements) and intensity of use (amount of time in care) among Early Head Start children and then compare Early Head Start and control-group children's child care participation to assess the impact that the program had. In Chapter III, we focus on quality, reporting both the nature and range of quality of care experience by Early Head Start children and the impacts the program had on the quality of children's child care placements. We also explore the relationships among intensity and quality, on the one hand, and children's developmental outcomes, on the other. Each chapter includes descriptions of the instruments used to collect the usage and quality data and the analytic methods employed.

II. PATTERNS OF CHILD CARE USE AND EARLY HEAD START'S IMPACTS ON FAMILIES' CHILD CARE USE

The child care available to children through participation in the Early Head Start program varied by program approach (for an in-depth discussion, see *Pathways to Quality*, ACF 2002c). All four center-based programs provided Early Head Start services through center care, typically for 6 hours or more per day. Parents needing child care at other hours could often extend the child's time at the center to meet this need. Of the 11 Early Head Start programs that we considered as offering a mixed approach in 1999, six programs offered on-site child care to some children in the program, and contracted with, or referred families to, child care providers in their communities for good-quality center child care. Home-based programs also found a variety of ways to connect families with the child care they needed. For example, one undertook a community initiative to improve the quality of community child care used by its families, and another began providing respite care in a small on-site center. When families used child care settings that were not directly provided by Early Head Start programs, the community child care was sometimes arranged for by the program, while in other instances families found care on their own.

Thus, across all programs, Early Head Start children could be found in the full range of child care settings, including center care (some meeting Head Start performance standards and some not), family child care (regulated and not regulated), and in-home care (with relatives or nonrelatives). All these categories of arrangements are included in the analyses of child care use and quality reported here.¹

¹In this report, we refer to all in-home child care settings as "family child care," whether care was provided by a relative or nonrelative caregiver. Because the regulation of care provided

This chapter presents two sets of findings. The first is descriptive: we report on the patterns of child care arrangements families used, including who and how many used child care, how much and what kinds of child care they used, how usage varied by the program approach of the program families were enrolled in, and how satisfied they were with the arrangements they used. The second major section documents the difference that Early Head Start made in families' use of child care by comparing both the percentage of families using child care and the amount of care used with the experiences of the randomly assigned control group families. First, however, we describe how the study measured child care use.

A. MEASURING CHILD CARE USE IN THE FIRST THREE YEARS OF LIFE

Our information on the types and characteristics of child care used at children's 14-month, 24-month, and 36-month birth dates is taken from the Parent Services Interviews (PSIs) and the 36-month Parent Interview (PI). We focus on all child care arrangements used for at least 10 hours per week for 2 weeks or more at 14, 24, and 36 months of age. Because the PSIs were administered at three specific times following random assignment (or the families' initial program enrollment) and asked about the family's child care use in the period since the last PSI, we were able to document use by month and link this to children's ages. This matching of child care use to children's ages worked well for the 14- and 24-month birth dates. Moreover, response rates to the PSIs were acceptably high, ranging from 82 percent at 6 months after random assignment to 70 percent at 27 months after random assignment.

(continued)

in home settings varies from state to state, and because information about these arrangements came from parent reports, we did not collect information about whether they were registered or licensed. Thus, our references to family child care include care provided by relatives and nonrelatives, as well as regulated and unregulated care.

Matching child care information from the PSIs to the 36-month birth date posed more difficulties, because more than two-thirds of the children had not reached their third birthday when the final PSI was collected. To create the 36-month use variables for these children, we filled in missing data for the younger children using the less-complete information in the Parent Interview conducted when children were approximately 36 months old.²

B. PATTERNS OF CHILD CARE USE BY EARLY HEAD START FAMILIES AND CHILDREN

First, we describe Early Head Start program families' patterns of child care use when children were 14, 24, and 36 months old. We describe the proportion of families who used child care, the types of primary child care arrangements they used, the amount of time children spent in child care, and the number of child care arrangements they used at each age (see Box II.1).³

1. Proportion of All Early Head Start Families Who Used Child Care

Most Early Head Start children were in regular child care arrangements at all three ages we examined, and the proportion in care increased as the children got older.⁴ At 14 months of age, two-thirds (66 percent) of children were in a regular child care arrangement; the proportion

²The 36-month Parent Interview collected information that is comparable to the PSI data on some aspects of child care service use. However, other data collected in the PSI, such as the availability of child care during nonstandard work hours, were not collected in the 36-month Parent Interview. For these variables, we report on service use at age 24 months only.

³The data for these analyses are from the Parent Services Interviews, as described in Chapter I. The findings thus apply to all families who completed the PSIs, but describe child care use at the time of the birthday-related Parent Interviews. As noted, PSI data are not available for parents who completed the last PSI (at about 28 months after enrollment) before the child was 36 months old, so that the child care data were taken from the Parent Interview, which asked fewer questions.

⁴A "regular" child care arrangement is defined as one that lasted for 10 hours per week or more for at least two weeks outside the child's home (or by a nonrelative in the child's home).

Box II.1

Measures of Child Care Use Based on Parent Services Interviews at 7, 16, and 28 Months After Random Assignment

Regular Child Care Arrangement – Any child care arrangement used for the focus child for at least 10 hours per week that lasted for 2 weeks or more. Child care arrangements included care by nonrelatives and by relatives other than a resident parent, and could take place in the child’s home, in another home, or in a child care center. This report uses information pertaining to the months in which the child was 14, 24, and 36 months old.

Primary Child Care Arrangement – The type of child care arrangement used for the most hours per week in the months when the child was 14, 24, or 36 months old.

Child Care Center – A child care center, nursery school, or preschool arrangement; a Head Start or Early Head Start center; or a school-based child care setting.

Relative Provider – Care in the child’s home or in another home by a relative of the child.

Nonrelative Provider – Care in the child’s home or in another home by someone not related to the child.

No Child Care – The child was not using any child care arrangement for at least 10 hours per week, and that lasted for 2 weeks or more, during the month when he or she was 14, 24, or 36 months old.

Early Head Start Center – The child was cared for in a child care center run by the Early Head Start program; the center is expected to meet Head Start Program Performance Standards.

Number of Child Care Arrangements – Number of different child care arrangements used in the months when the child was 14, 24, or 36 months old. Each arrangement must have lasted at least 10 hours per week and for 2 weeks or more.

Hours Per Week of Child Care – Total hours per week in regular child care arrangements used concurrently in the months when the child was 14, 24, or 36 months old.

Use of Child Care During Nonstandard Hours – Child care provider ever cared for the child during evenings, in the early mornings, on weekends, or overnight. Respondents self-defined what constituted the timing of this care, for example, what “early” morning care meant.

Percentage Satisfied with Child Care – Proportion of parents who reported being satisfied or very satisfied with the child care arrangement used for the most hours since the last interview date.

dropped slightly at 24 months, and then increased to 84 percent by the time children reached 36 months of age (Figure II.1).

Families enrolled in center-based programs were most likely to use regular child care arrangements, followed by families enrolled in mixed-approach and home-based programs. This pattern is what would be expected given the stated purposes of these Early Head Start program approaches. Center-based programs were exclusively center-based, advertised themselves as such, and attracted families who were more likely to need and want center care for their children. Mixed-approach programs, which included a combination of center care and home visiting services were likely to attract more families desiring center care than purely home-based programs, but fewer of these families than the center-based programs.

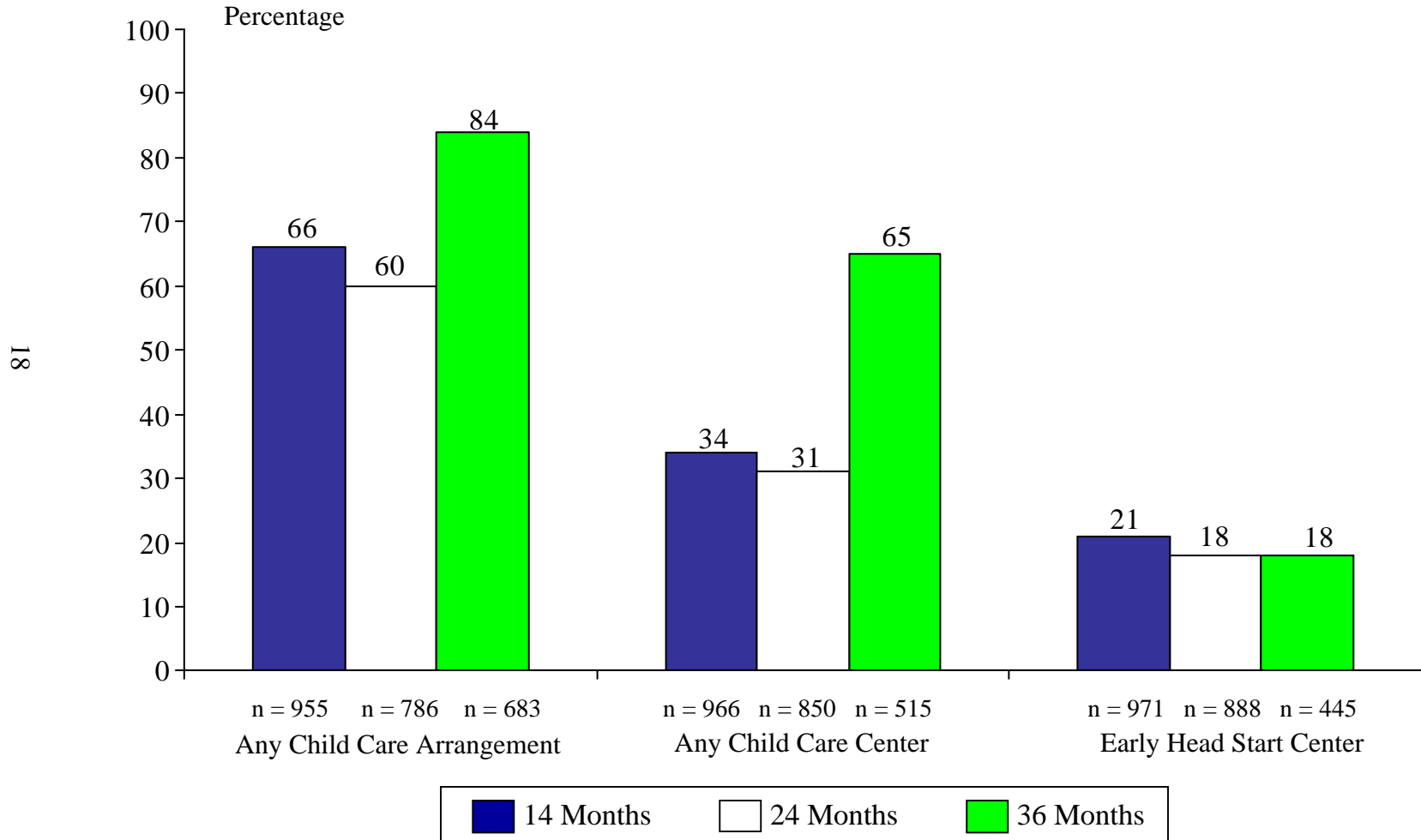
When the children were 14 months old, 84 percent of families who were enrolled in center-based programs used child care for their Early Head Start child, compared to 67 percent of families in mixed-approach programs and 55 percent in home-based programs. By 36 months, however, families in mixed-approach (87 percent) and home-based (81 percent) programs were almost as likely as families enrolled in center-based programs (86 percent) to use child care (not shown).

The use of center child care also increased as children got older—from one-third of families when children were 14 months old to nearly two-thirds of families by the time children were 36 months old (see middle section of Figure II.1). This trend is consistent with the majority of studies on child care use. Nearly one-fifth of families used an Early Head Start child care center at all three age points studied (right-hand section of Figure II.1).

As expected, more families who were enrolled in center-based programs used center child care for their Early Head Start child compared to families in mixed-approach and home-based programs. At 14 months, two-thirds of families in center-based programs used a child care

FIGURE II.1

USE OF CHILD CARE BY EARLY HEAD START CHILDREN
AT 14, 24, AND 36 MONTHS OF AGE



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old (see text for details).

Note: The percentages are average percentages across programs and are weighted for survey nonresponse.

center, compared to one-third of mixed-approach families and 17 percent of home-based families.⁵ By age 36 months, use of center care had increased among families enrolled in all three program approaches. However, as expected, a higher proportion of families in center-based programs used center care, compared to families enrolled in the other two program approaches. Approximately 80 percent of families in center-based programs used center care, compared to two-thirds of mixed-approach and half of home-based families (not shown).

2. Characteristics of Early Head Start Families Who Used Child Care

The parents' education level and economic activities at the time they enrolled in Early Head Start (that is, the time of random assignment), the household composition at that time, and whether the child was firstborn were all associated with the likelihood of using child care. Table II.1 shows the proportion of children in child care at 14, 24, and 36 months of age for groups of Early Head Start parents (or families) defined by their characteristics at random assignment. Specifically, the main patterns are that:

- ***Birth order:*** Firstborn children were more likely than later-born children to be in care when they were 14 and 24 months old, but not at 36 months.
- ***Educational attainment:*** Parents who had completed high school or had their GED were generally more likely to have their children in child care than were parents with less education.
- ***Living arrangements:*** Parents who lived alone or with other adults at the time of random assignment were more likely to have their children in child care at all three age points (in contrast to parents who lived with their spouse).
- ***Male presence in the home:*** Families without a man living in the home at baseline were more likely to have their children in care at all three age points, compared with families with a man in the home.

⁵The percentage of families in center-based programs using center care is less than 100 percent for a number of reasons. For example, some families who were enrolled in center-based programs dropped out before their child reached 14 months of age and one site did not complete its center-based facility until after the data collection.

TABLE II.1

PERCENTAGE OF PROGRAM FAMILIES IN CHILD CARE AT 14, 24, AND 36 MONTHS BY FAMILY CHARACTERISTICS

Age of Child Family Characteristics at Enrollment	14 Months		24 Months		36 Months	
	Total Sample Size	Percent in Care	Total Sample Size	Percent in Care	Total Sample Size	Percent in Care
Child Is Firstborn	619	71	493	65	446	86
Child Is Later Born	368	60	317	53	260	84
Parent's Education Is Less than 12 years	433	63	361	56	294	83
Parent's Education Is 12 years or GED	272	67	226	62	207	87
Parents Education Is More Than 12 Years	254	73	206	65	182	83
Parent Lives with Spouse	250	48	218	39	169	71
Parent Lives with Other Adults	383	72	317	71	270	89
Parent Lives Alone with Child	364	74	285	64	276	89
Adult Male Not in Household	607	72	492	66	453	90
Adult Male in Household	390	58	328	51	262	76
Parent Employed	234	82	198	76	193	87
Parent in School/Training	218	78	174	69	161	90
Parent Unemployed/Out of the Labor Force	512	56	421	49	337	80
White, Non-Hispanic	368	64	303	54	256	80
Black, Non-Hispanic	363	78	285	71	275	89
Hispanic		55	189	53	146	84
Other Race/Ethnicity	36	58	28	50	24	75

Source: Background characteristics information gathered at enrollment. Information on child care collected from the Parent Service Interviews (PSIs) and the Parent Interviews (PIs).

Note: Most children had not reached their 36-month birthday by the time the 26-month PSI was collected. If the child was 36 months old by that time, child care information was obtained from the PSI. If the child was not 36 months old at the time of the last PSI, 36-month child care information was taken from the 36-month birthday PI. The background characteristics above are the only ones for which the distribution of children in care and not in care significantly differed at any time point.

- **Employment status:** Parents employed at baseline were more likely to have their children in care at 14 and 24 months, but not when children were 36 months old. Parents who were out of the labor force and not in school or training at baseline were less likely to have their children in care at all three ages.
- **Race/ethnicity:** African American parents were more likely to use child care at all three ages than White or Hispanic parents, although the difference in usage was considerably smaller when the children were 36 months old.

3. Types of Primary Child Care Arrangements Used

We next examined the *primary* child care arrangements of Early Head Start families, that is, the regular arrangement that the child was in for the most hours per week. The primary child care arrangement could be an Early Head Start center, another child care center in the community, or some form of family child care.

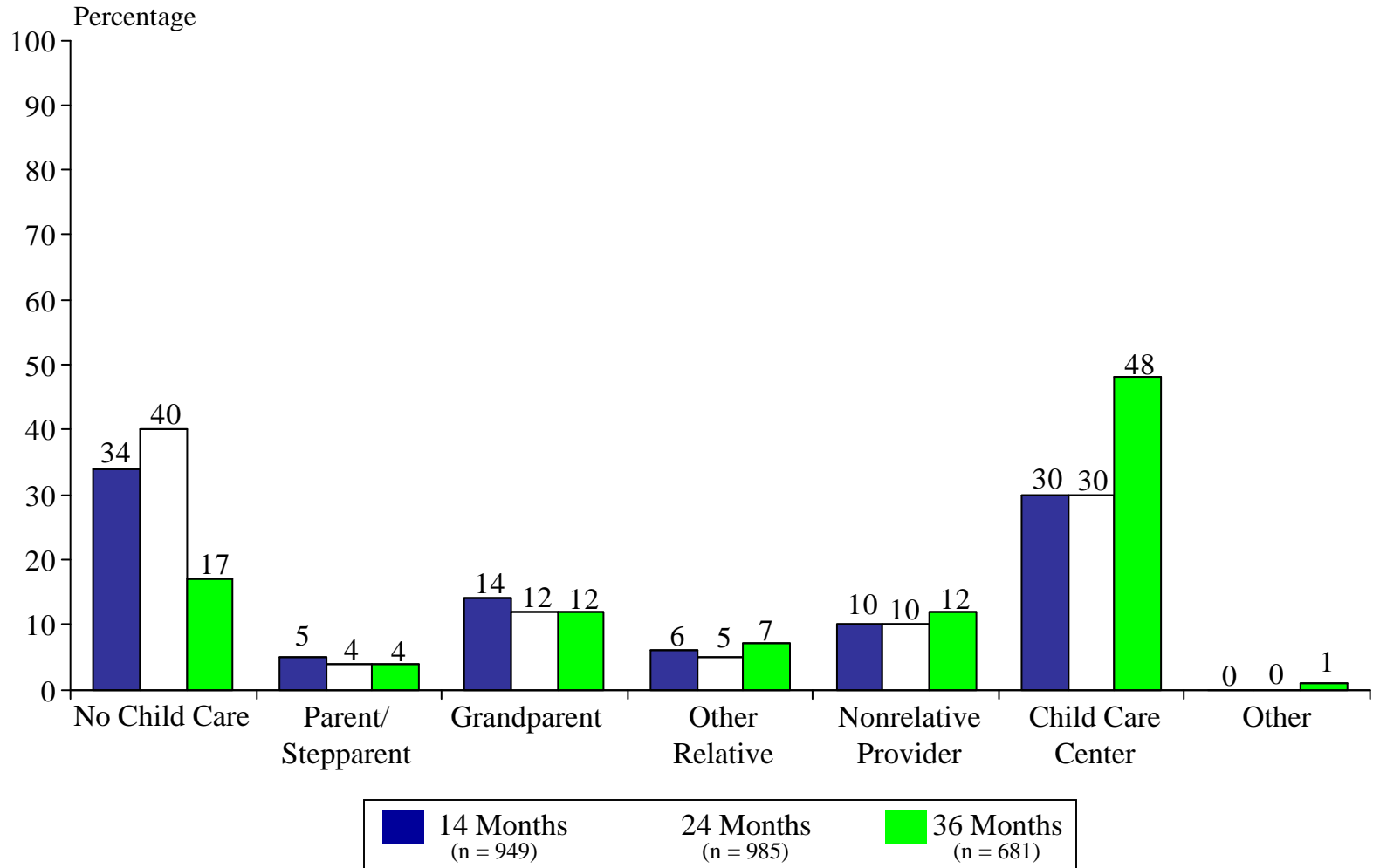
Among all Early Head Start children using child care, center care was the most common primary child care arrangement at all age points (Figure II.2), which differs from the pattern of infant-toddler child care arrangements found in the general population. This probably reflects the fact that many Early Head Start programs provided center care. Approximately one in five Early Head Start families used a relative (most often, a grandparent or great-grandparent) as their child's primary child care provider. One in 10 families used a nonrelative, home-based provider—such as a licensed family child care home or a friend or neighbor—as the Early Head Start child's primary child care provider.

Although Early Head Start families were more likely to use center care as their primary arrangement for the child at any age, the proportion using center care increased substantially as the children became older, a trend consistent with child care choices observed in the general population (Capizzano, Adams, and Sonenstein 2002; Ehrle, Adams, and Tout 2001; and Smith 2002). When the children were 14 and 24 months of age, 30 percent of families relied primarily

FIGURE II.2

PRIMARY CHILD CARE ARRANGEMENTS OF EARLY HEAD START CHILDREN
AT 14, 24, AND 36 MONTHS OF AGE

22



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: The percentages are average percentages across programs and are weighted for survey nonresponse.

on a child care center for their Early Head Start child. By age 36 months, nearly half of families (48 percent) used a child care center as their child’s primary arrangement (Figure II.2).

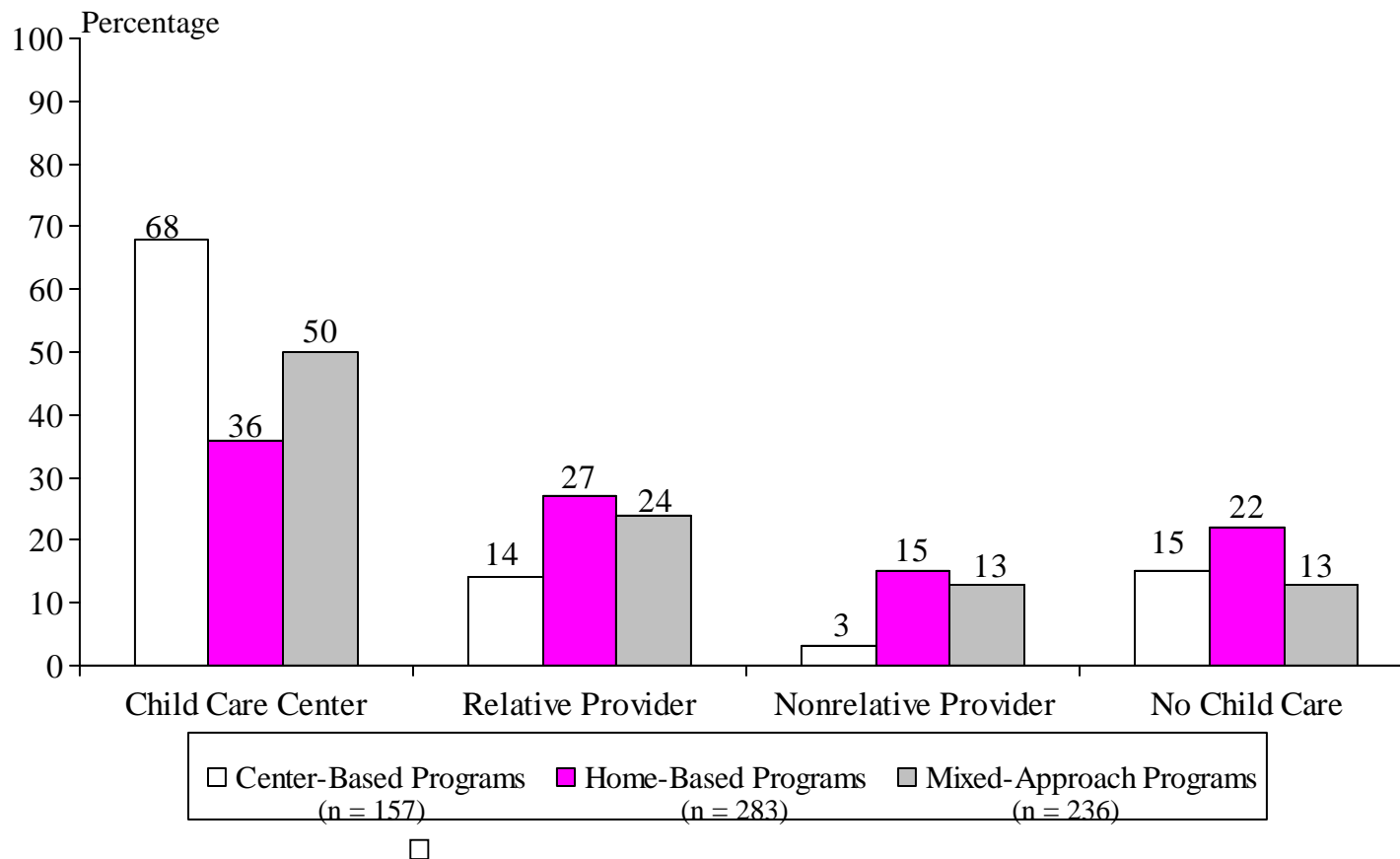
At each age, the type of primary arrangement also varied by the program approach Early Head Start families enrolled in. As expected, families who were enrolled in center-based programs were more likely than families in home-based or mixed-approach programs to use child care centers at 36 months of age (as seen in Figure II.3, the percentage using child care centers across the three program approaches was 68, 36, and 50 percent, respectively). When their children were 36 months of age, families enrolled in home-based programs were most likely to use relatives as primary child care providers (27 percent); comparable percentages for families in center-based and mixed-approach programs were 14 and 24 percent, respectively (Figure II.3). Use of nonrelative, family child care providers across program approaches followed a pattern similar to the patterns of using relative providers. Families in home-based programs were most likely to use a nonrelative, family child care provider (15 percent), compared to families in center-based (3 percent) and mixed-approach (13 percent) programs (Figure II.3).

A substantial proportion of children received care in their primary child care arrangement during nonstandard work hours on at least one occasion. For example, at 24 months of age, 34 percent of all children had ever received care in their primary child care arrangement during evening hours, 61 percent during early morning hours, 21 percent during weekend hours, and 16 percent during overnight hours (Figure II.4).⁶

⁶These percentages total more than 100 percent because some primary nonstandard arrangements took place in more than one time period (for example, during evenings and weekends). Respondents self-defined what constituted “evening,” “early morning,” and “weekend” hours.

FIGURE II.3

PRIMARY CHILD CARE ARRANGEMENTS FOR EARLY HEAD START CHILDREN
AT 36 MONTHS OF AGE, BY PROGRAM APPROACH



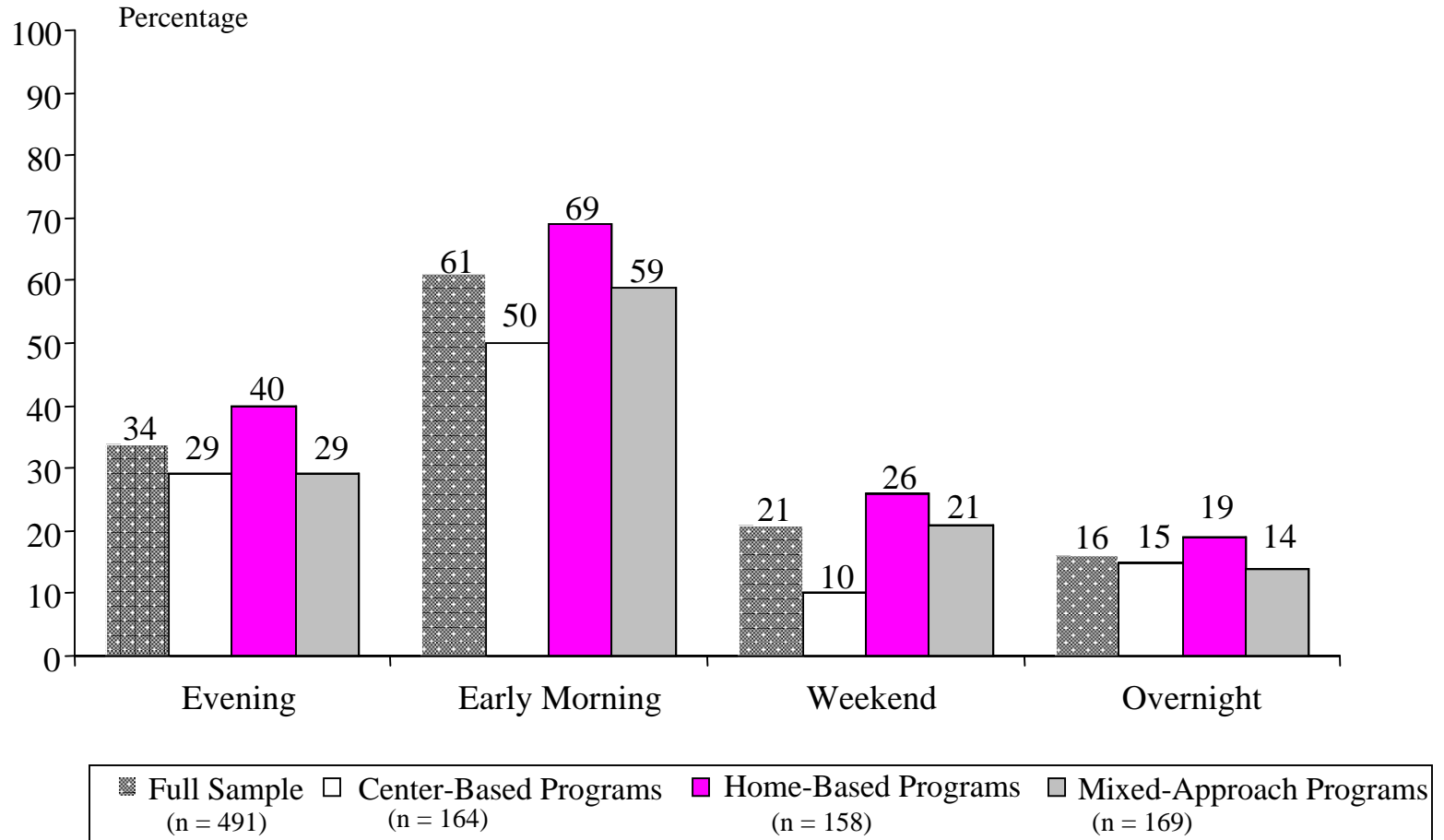
24

Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: The percentages are average percentages across programs in any given group and are weighted for survey nonresponse.

FIGURE II.4

PERCENTAGE OF EARLY HEAD START CHILDREN WHO RECEIVED THEIR PRIMARY CHILD CARE DURING NONSTANDARD HOURS, AT 24 MONTHS OF AGE, BY PROGRAM APPROACH



25

Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after program enrollment.

Note: The percentages are average percentages of children who have a primary arrangement across programs and within each program approach and are weighted for survey nonresponse. Base is the 785 families who reported a primary arrangement at 24 months. Total exceeds 100 percent because a given primary arrangement may have occurred in more than one time period. Primary arrangements can include Early Head Start and community child care.

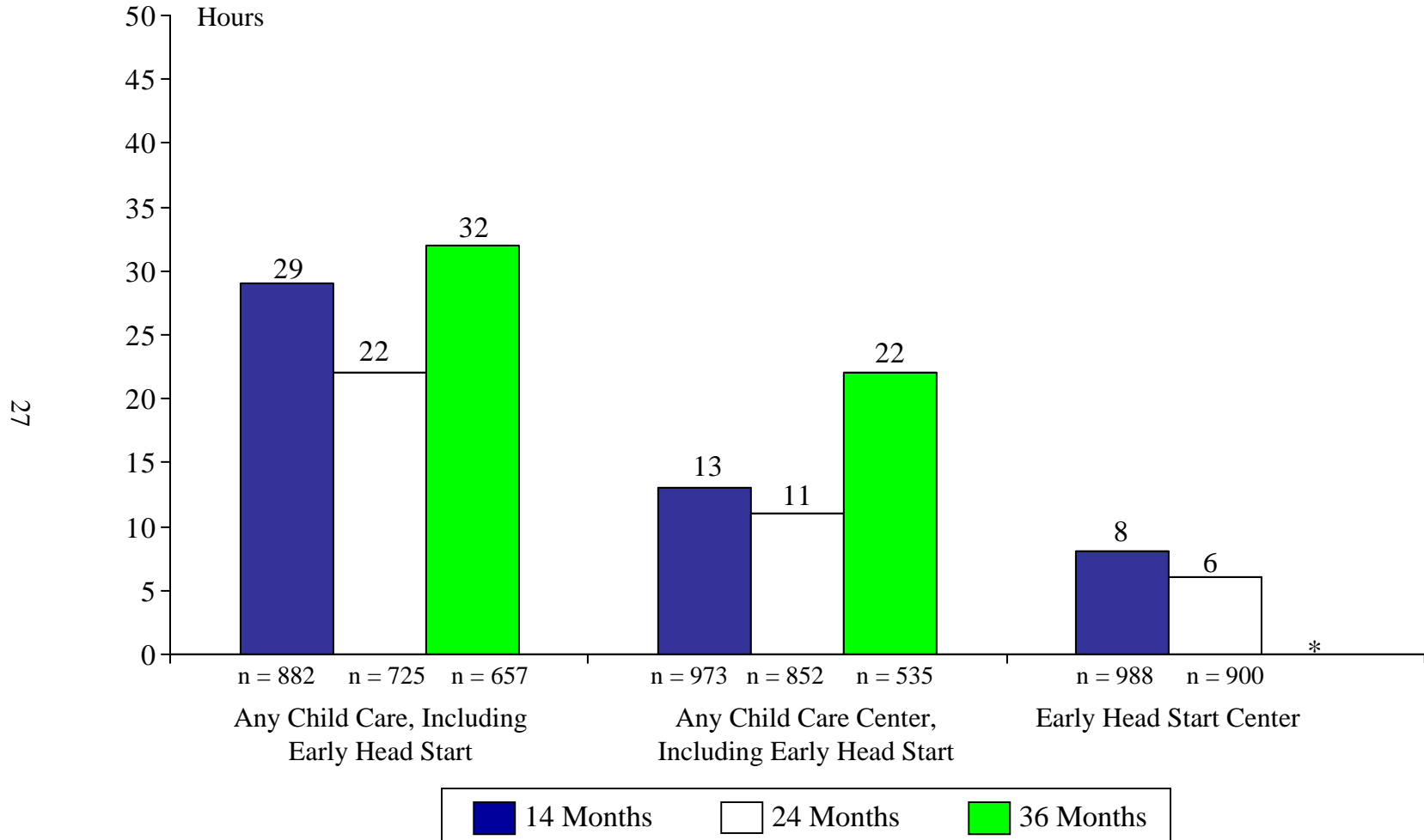
The primary child care providers for the families enrolled in home-based programs were more likely to offer care during nonstandard hours than were the primary providers used by families in center-based or mixed-approached programs. For instance, 40 percent of primary providers used by home-based families had ever provided evening care, compared to 29 percent of the primary providers used by center-based and mixed-approach families. These differences may be due, in part, to the higher proportion of home-based families who used relative and nonrelative family child care providers as their primary child care arrangement, in contrast to the proportion of center-based and mixed-approach families. Because they cared for the child at home, relatives and other family child care providers may have been able to offer more flexible hours of care than child care centers could.

4. Intensity of Child Care Service Use

The average number of hours that Early Head Start children—across all 17 programs—spent in their regular child care arrangements increased as they got older, as is typically the case. Considering all children in the sample, including those who had zero hours in child care, at age 14 months, children spent 29 hours per week, on average, in their regular child care arrangements (including Early Head Start centers and any other arrangements they were in), compared to 32 hours a week by 36 months of age (Figure II.5). Nearly half (49 percent) of the Early Head Start children spent at least 30 hours in their regular child care arrangements at 14 months, and by 36 months of age, nearly two-thirds (65 percent) spent at least 30 hours a week in care (Figure II.6). The proportion of children who spent 30 or more hours a week in their regular child care arrangements stayed about constant (or declined slightly) between 14 and 24 months, then increased substantially by 36 months across all three program approaches. At

FIGURE II.5

AVERAGE HOURS PER WEEK IN CHILD CARE FOR EARLY HEAD START CHILDREN AT 14, 24, AND 36 MONTHS OF AGE



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

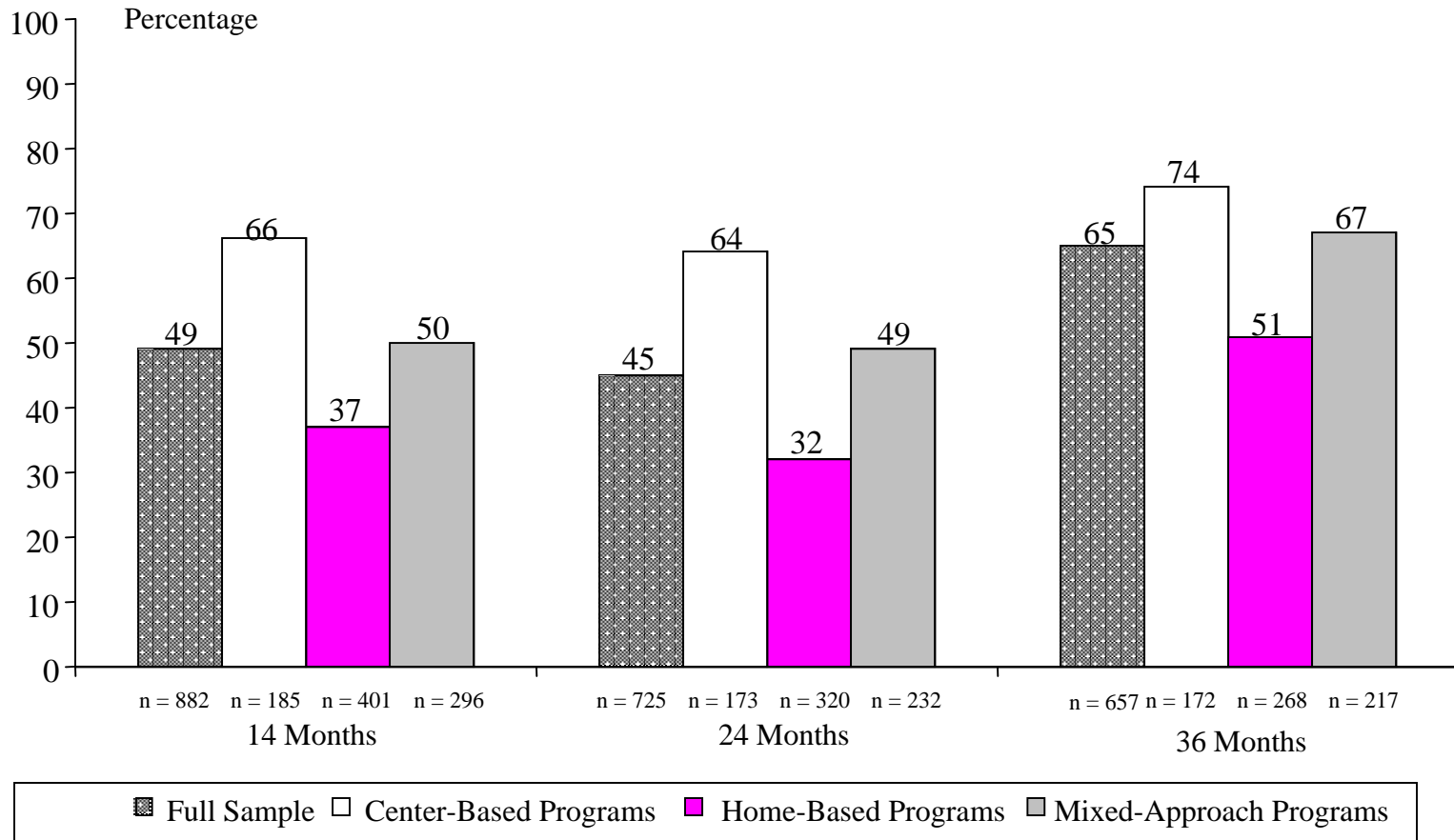
Note: The percentages are average percentages across programs and are weighted for survey nonresponse.

*Data not available at 36 months.

FIGURE II.6

PERCENTAGE OF EARLY HEAD START CHILDREN IN CHILD CARE FOR AT LEAST 30 HOURS PER WEEK AT 14, 24, AND 36 MONTHS OF AGE, BY PROGRAM APPROACH

28



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after program enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: The percentages are average percentages across programs in any given group and are weighted for survey nonresponse. They include use of all types of child care for at least 30 hours per week.

all three ages, center-based programs had the highest proportion of children in care for 30 or more hours a week, followed by mixed-approach and then home-based programs (Figure II.6).

The average number of hours that children spent in child care centers nearly doubled between 14 and 36 months of age. At 14 months, children spent an average of 13 hours a week in center child care (including both Early Head Start and community centers, and averaging in those who spent no time in child care). By 36 months, they spent 22 hours a week, on average, in child care centers (see middle section of Figure II.5). Families in center-based programs—as we would expect—used the most hours of center care, followed by families in mixed-approach and home-based programs. When their children were 36 months old, two-thirds of center-based families, half of mixed-approach families, and 40 percent of home-based families used at least 30 hours a week of center care for their Early Head Start child (Figure II.7).

5. Number of Regular Child Care Arrangements Used

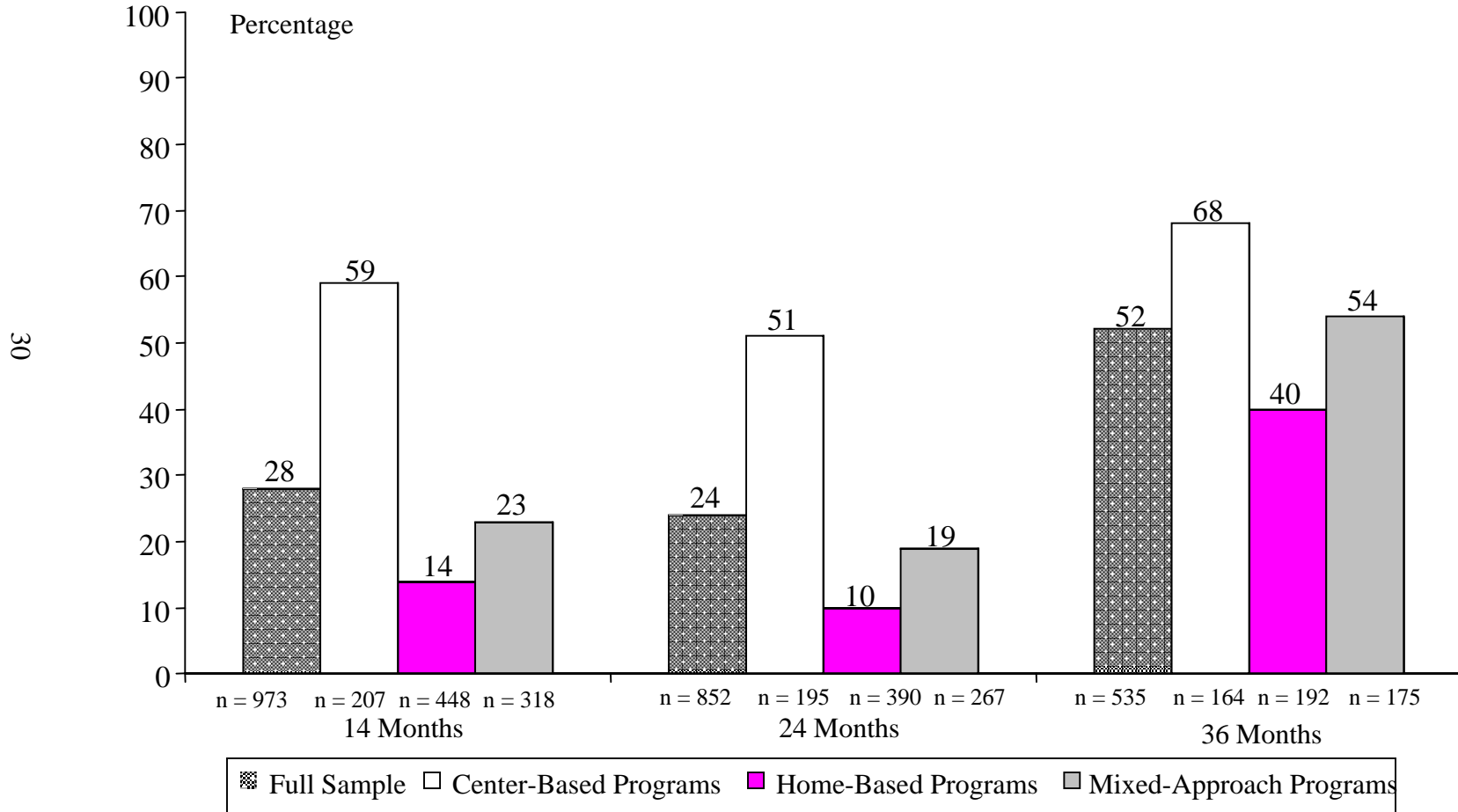
Most Early Head Start families used only one regular child care arrangement for their Early Head Start child at 24 months of age. Fifteen percent, however, used more than one regular, concurrent arrangement (not shown). Across program approaches, families in center-based programs were the ones most likely to use multiple concurrent child care arrangements, suggesting that Early Head start centers did not provide child care during all the hours that families needed it. Thirty percent of center-based families used multiple concurrent arrangements, compared to 15 percent of mixed-approach families and 6 percent of home-based families.

6. Early Head Start Families' Satisfaction with Child Care Arrangements

Parents seek many different features in a child care setting. For infants and toddlers, they look for a warm, supportive provider, a safe environment, and attention to health issues (Larner

FIGURE II.7

PERCENTAGE OF EARLY HEAD START CHILDREN IN CENTER CHILD CARE FOR AT LEAST 30 HOURS PER WEEK AT 14, 24, AND 36 MONTHS OF AGE, BY PROGRAM APPROACH



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: The percentages are average percentages across programs in any given group and are weighted for survey nonresponse.

and Phillips 1994). Parents also look for an affordable arrangement, a location close to home or work, hours of care that coincide with their needs, providers they can trust not to harm the child, and cultural continuity (Emlen 1998; Mitchell, Cooperstein, and Lerner 1992; and Porter 1991). Parents may also need a setting that can accommodate children of very different ages. Because these needs may compete with one another, parents must often make tradeoffs among desired features as they choose among the available arrangements.

Perhaps because parents make tradeoffs among desirable features of care and choose what they perceive to be the best of the available arrangements, past research has found that parents typically report high levels of satisfaction with their child care arrangements. In summarizing the literature on parents' satisfaction with care, Phillips (1995) noted that about 95 percent of low-income families with children under age 5 in care say they are satisfied or highly satisfied. Families enrolled in Early Head Start and using child care also expressed a high degree of satisfaction with the child care they used for their children. At an average of 28 months after program enrollment, 95 percent of families expressed satisfaction with their recent primary child care arrangements (Figure II.8). Nearly three-fourths of families were very satisfied. At 7 and 16 months after enrollment, levels of satisfaction were similar to those at 28 months.

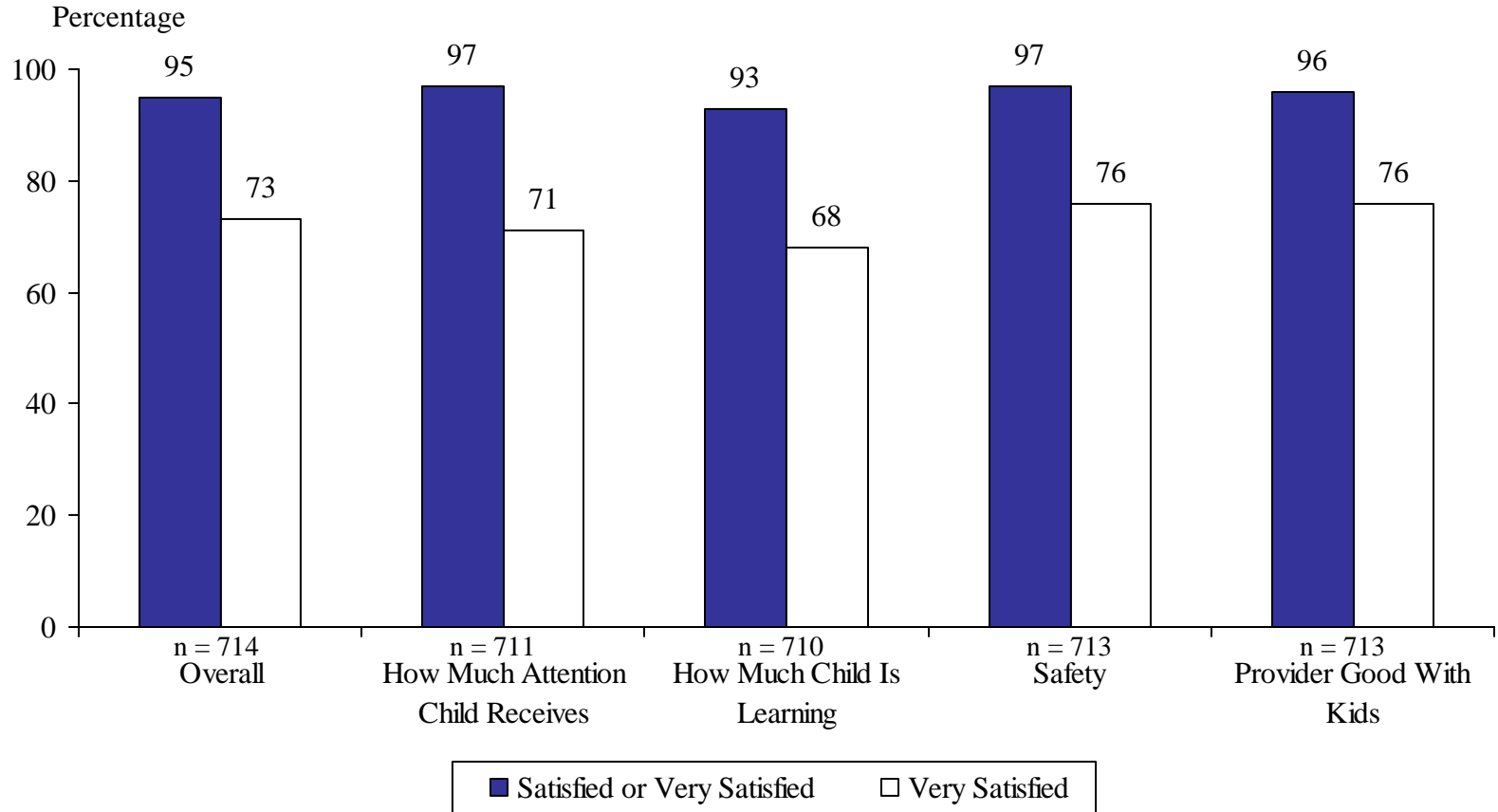
When asked specifically about aspects of the primary child care arrangement that are associated with the quality of the child's experience, Early Head Start parents reported similarly high levels of satisfaction. For example, 97 percent were satisfied with the amount of attention their children received, 93 percent were satisfied with how much their children were learning, 97 percent were satisfied with how safe their children were, and 96 percent were satisfied with how good their provider was with children.

The proportion of parents who were very satisfied with these aspects of child care ranged from 68 to 76 percent. A somewhat lower proportion of parents in home-based programs said

FIGURE II.8

SATISFACTION WITH PRIMARY CHILD CARE ARRANGEMENTS 28 MONTHS AFTER ENROLLMENT

32



SOURCE: Parent Services Follow-Up Interviews completed an average of 28 months after enrollment.

NOTE: The percentages are average percentages across programs and are weighted for survey nonresponse.

they were very satisfied with these aspects of their child care arrangements, compared to parents in center-based and mixed-approach programs (not shown). For example, while 79 percent of center-based parents and 78 percent of mixed-approach parents were very satisfied with their children’s safety in child care, 73 percent of home-based parents were very satisfied. In the area of child learning, more center-based parents were very satisfied (74 percent), compared to 68 percent of mixed-approach and 65 percent of parents in home-based programs (not shown).

Research by Emlen and colleagues (1998, 1999) indicates that parents’ reports of high levels of satisfaction with child care can mask concerns over arrangements that are not ideal, although they may be perceived as the best available for the family. Emlen’s research showed that while 93 percent of parents rated their child care arrangements as perfect, excellent, or good, fewer said they would choose the arrangement again (84 percent), and an even smaller proportion said that, “the care I have is just what my child needs” (68 percent). Among Early Head Start families at 28 months after enrollment, nearly one-third of parents said they would prefer to change child care arrangements if cost were not a barrier (not shown). However, the proportion of parents who wanted to change child care arrangements dropped over time—from 38 percent at 7 months after enrollment to 30 percent at 16 months and 29 percent at 28 months—suggesting that as children became older, parents were more likely to find a child care arrangement they liked.

The proportion of parents who wanted to change child care arrangements varied somewhat by program approach. Families in home-based programs were somewhat more likely (32 percent) to prefer a different child care arrangement at 28 months after enrollment, compared to 26 percent of parents in mixed-approach and 28 percent in center-based programs (not shown).

Of those families who said they would like to change child care arrangements, 80 percent preferred a center arrangement at 28 months after enrollment—either in a child care center

(49 percent) or in a nursery school, preschool, or Head Start center (31 percent) (Figure II.9). Smaller proportions of families at 28 months preferred relative providers (8 percent), nonrelative providers such as friends or neighbors (5 percent), or other types of arrangements (6 percent).

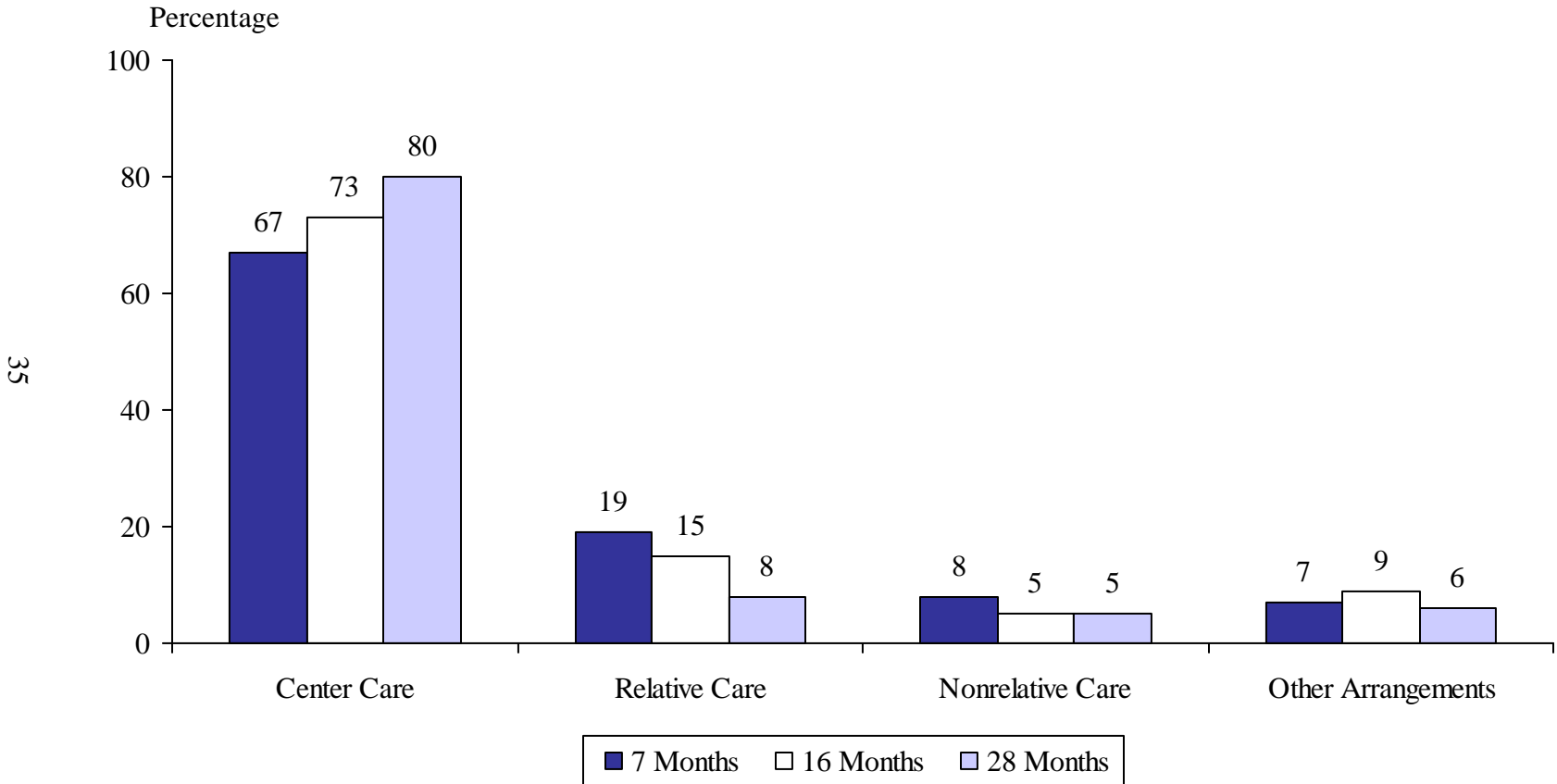
The proportion of families who preferred a center arrangement increased over time, perhaps because parents' child care preferences shifted from home to center settings as their children got older. At 7 months after enrollment, 67 percent of those wanting to change arrangements wanted center care. By 16 months after enrollment, that proportion increased to 73 percent (and to 80 percent at 28 months). Similarly, the percentage of families who wanted to change arrangements to relative care decreased over time—from 19 percent at 7 months after enrollment, to 15 percent at 16 months, and 8 percent after 28 months in the program. The reasons families wanted to change arrangements varied according to the type of arrangements they preferred (Figure II.10). Of those who preferred center care, nearly half thought centers would help their children learn better, and 20 percent wanted their child to be with other children. Families who preferred relative care cited increased safety and convenience as their primary reasons for wanting to change arrangements.

7. Summary of Child Care Use Findings

Most Early Head Start children were in regular child care arrangements at all three ages (14, 24, and 36 months), with 84 percent in care at 36 months. Parents using child care differed somewhat from those who did not in that child care users were more highly educated, more likely to be living alone, more likely to be African American, and more likely to be employed at random assignment. The types of primary arrangements used varied by the age of the child. It may be useful for programs to know that the percentage of families using center care increases as children get older. The amount of care used by families also increases with age, but only slightly. Even though some families did not place their children in out-of-home care at all, the

FIGURE II.9

TYPES OF CHILD CARE ARRANGEMENTS PREFERRED BY EARLY HEAD START FAMILIES WHO WANTED TO CHANGE ARRANGEMENTS

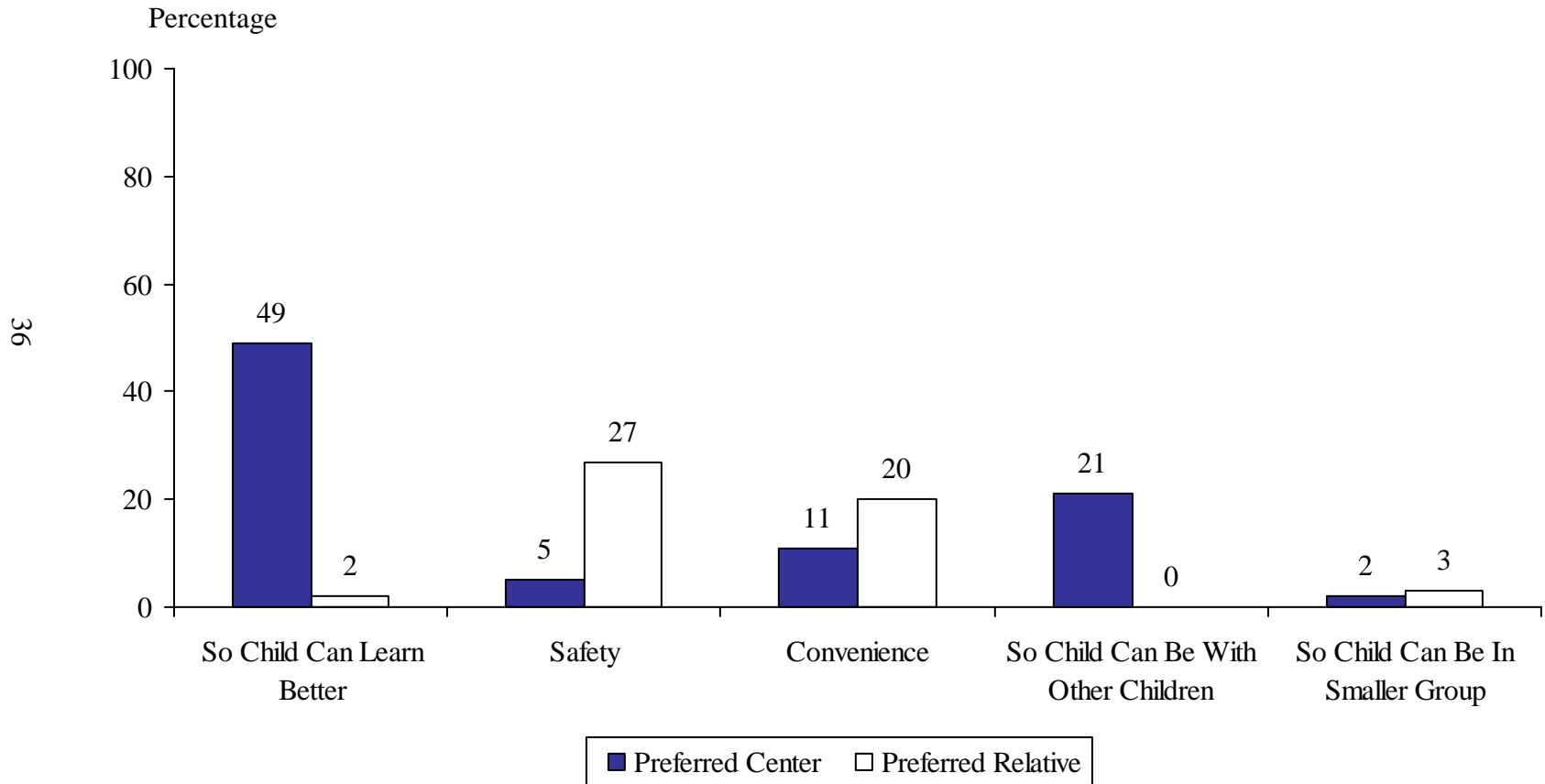


SOURCE: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment. Sample sizes as follows: 7 months: 317 out of 317 who wanted to change; 16 months: 251 out of 264 who wanted to change; 28 months: 284 out of 294 who wanted to change.

NOTE: The percentages are average percentages across programs and are weighted for survey nonresponse.

FIGURE II.10

MAIN REASONS FAMILIES WOULD WANT TO CHANGE CHILD CARE ARRANGEMENTS,
BY TYPE OF CARE PREFERRED, 28 MONTHS AFTER ENROLLMENT



SOURCE: Parent Services Follow-Up Interviews completed an average of 28 months after enrollment. N = 287, of the 294 families who wanted to change.

NOTE: The percentages are average percentages across programs and are weighted for survey nonresponse.

average child spent 29 hours a week in care at 14 months and 32 hours when they were 36 months old. At all three ages, families enrolled in center-based programs were more likely to have their children in child care 30 or more hours per week, with mixed-approach and home-based programs having lower proportions. Early Head Start families were highly satisfied with the child care they received, but if they could make a change and did not have to worry about costs, about 30 percent would change, and most of them would prefer to use a child care center rather than family child care.

C. IMPACTS OF EARLY HEAD START PROGRAM PARTICIPATION ON FAMILIES' CHILD CARE USE

As noted in Chapter I, one of Early Head Start's goals is to ensure families access to needed child care. In this section we report the results of our analysis of the impacts that the program had on child care use. In the next chapter, we describe impacts on the quality of the care used by Early Head Start and control group families.

1. Approach to Analyzing Impacts on Child Care Use

The impacts of the Early Head Start programs on child care use and amount (or intensity) of use were analyzed using the same methods used for analyzing service use in the national evaluation's interim and final reports (see ACYF 2001; and ACF 2002b, Chapter II). That is, we estimated regression-adjusted means of child care usage for Early Head Start program and control group families to produce precise impact estimates adjusted for any differences in observable characteristics of program and control group families due to random sampling and interview nonresponse. All eligible applicants who completed a 28-month PSI were included in these analyses. We also weighted the impacts at each site equally in analyzing the overall impacts of Early Head Start on child care use.

We included a large number of explanatory (control) variables in the regression models using data collected at baseline with the Head Start Family Information System (HSFIS). Child care use data were obtained in the Parent Services Interviews (PSI), but, as noted earlier, we created age-related child care use variables by linking PSI data to the age of the child, supplementing the later PSI variables with data from the 36-month Parent Interviews to fill in missing data for children who were not yet 36 months old when the final PSI was completed.

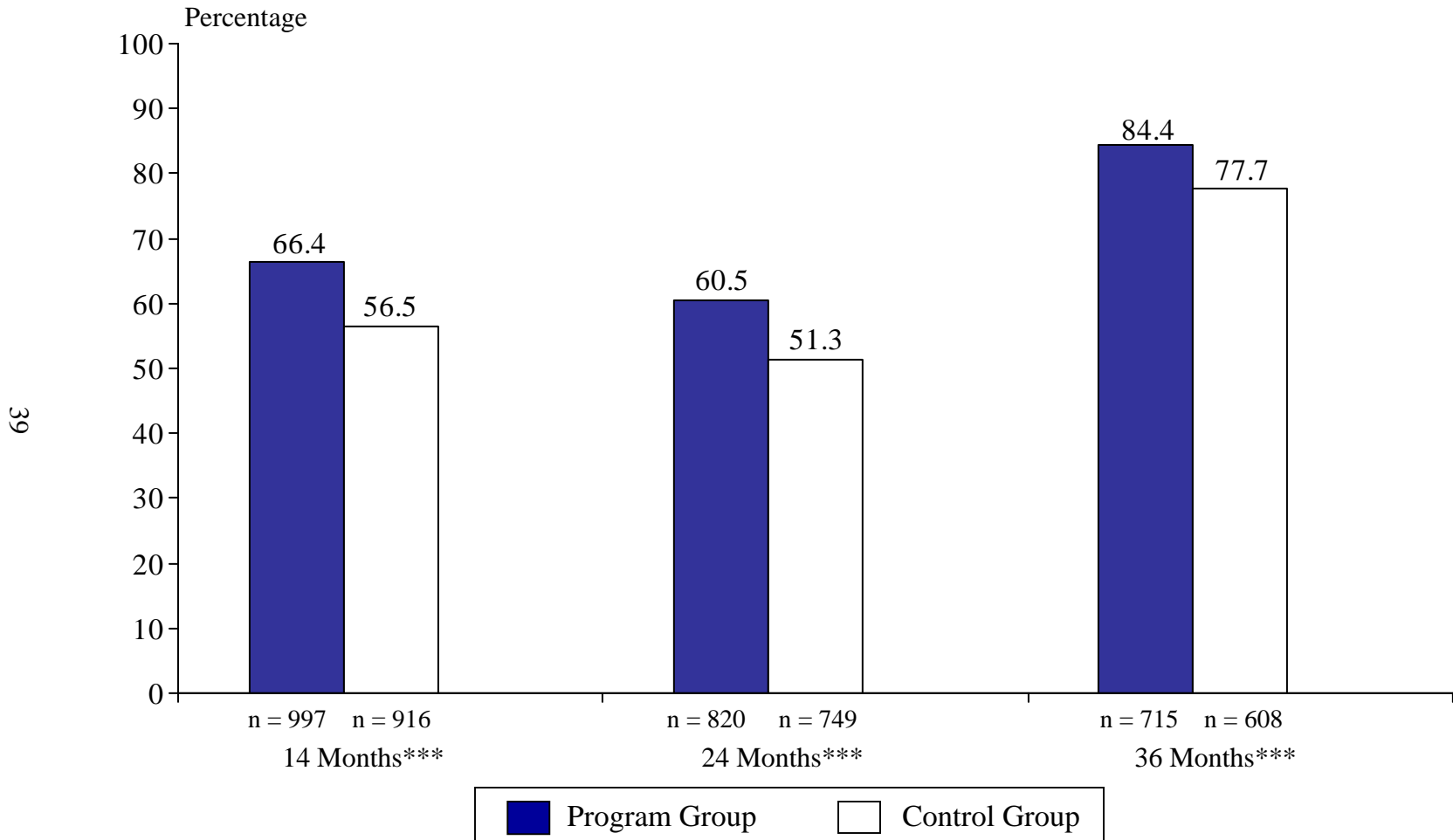
2. Early Head Start Program Impacts on the Percentage of Families Using Child Care and on the Amount of Care Used

While most families in both program and control groups used child care, Early Head Start children were significantly more likely than control children to be in child care at all three ages. These program-control differences (that is, the impact of Early Head Start program participation) became smaller as children got older and increasing numbers of control families placed their children in child care. At 14 months of age, 66 percent of Early Head Start children were in child care, compared to 57 percent of control group children. By 36 months of age, the percentage of Early Head Start children in any child care rose to 84 percent, while the percentage of control group children in child care increased to 78 percent (Figure II.11)—a smaller difference, though still significantly different statistically.

The impact of Early Head Start program participation on families' use of center care was greater than the impact on any child care use, and this was true at all three ages (as seen by comparing Figures II.11 and II.12). At 14 months of age, 34 percent of program families used a child care center (including those operated by Early Head Start and community centers), compared to 17 percent of control families (Figure II.12). While the proportion of children in center care increased in both groups as children got older, the size of the impact on use of center child care decreased somewhat, as more control families placed their children in child care

FIGURE II.11

IMPACTS ON CHILD CARE USE AT 14, 24, AND 36 MONTHS OF AGE



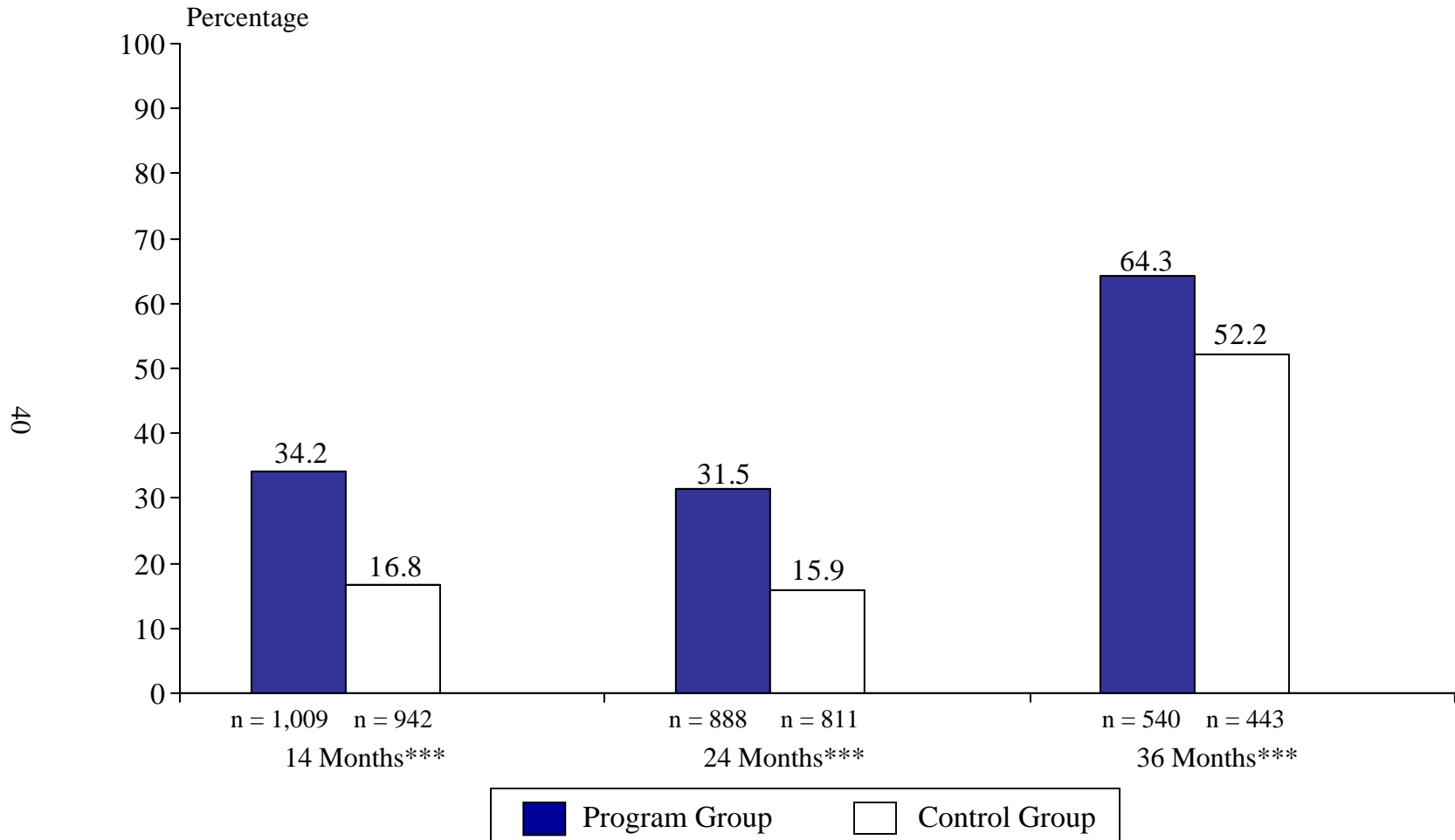
Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

FIGURE II.12

IMPACTS ON USE OF CENTER CHILD CARE AT 14, 24, AND 36 MONTHS OF AGE



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

centers. By the time they were 36 months old, nearly two-thirds (64 percent) of program group children were in center care, compared to approximately one-half (52 percent) of control group children.

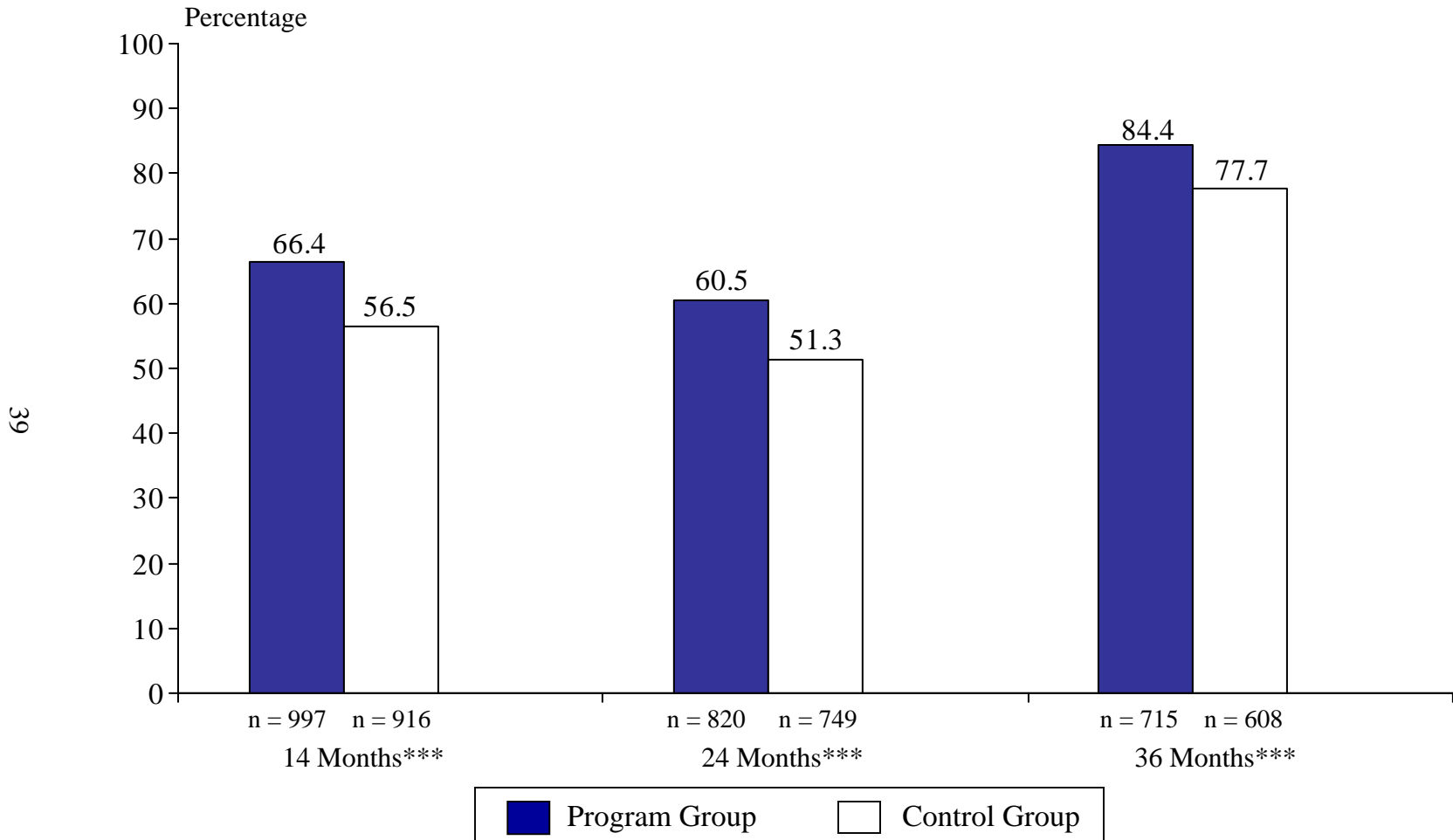
Not only did participation in Early Head Start programs make it more likely that families would use any child care: it also made a significant difference in the *amount* of child care that families used, compared with control group families. By the time children were 36 months old, program children were in any child care for 32 hours a week and in center care for 23 hours a week, on average (Figures II.13 and II.14). In contrast, control group children spent an average of 28 hours a week in any child care and 18 hours a week in center care, about four-fifths of the center care time used by program families.

Early Head Start families were significantly more likely than control families to use multiple, concurrent child care arrangements (more than one arrangement at a time). At 24 months of age, 15 percent of program families used concurrent arrangements, compared to 11 percent of control families (not shown). Program families may have had a greater need for multiple arrangements to cover all the hours during which they needed child care because they used significantly more center care than control families. Centers may have been less likely than family child care providers, including relatives, to offer care during nonstandard hours, such as evenings and weekends.

Early Head Start families were significantly *less* likely to use child care during nonstandard hours—control group families were significantly more likely to have ever used child care during evenings and weekends than were Early Head Start families (Figure II.15). Control group families used a higher proportion of family child care providers, such as relatives and other in-home child care providers, who may have been able to offer more flexible hours of care. In

FIGURE II.11

IMPACTS ON CHILD CARE USE AT 14, 24, AND 36 MONTHS OF AGE



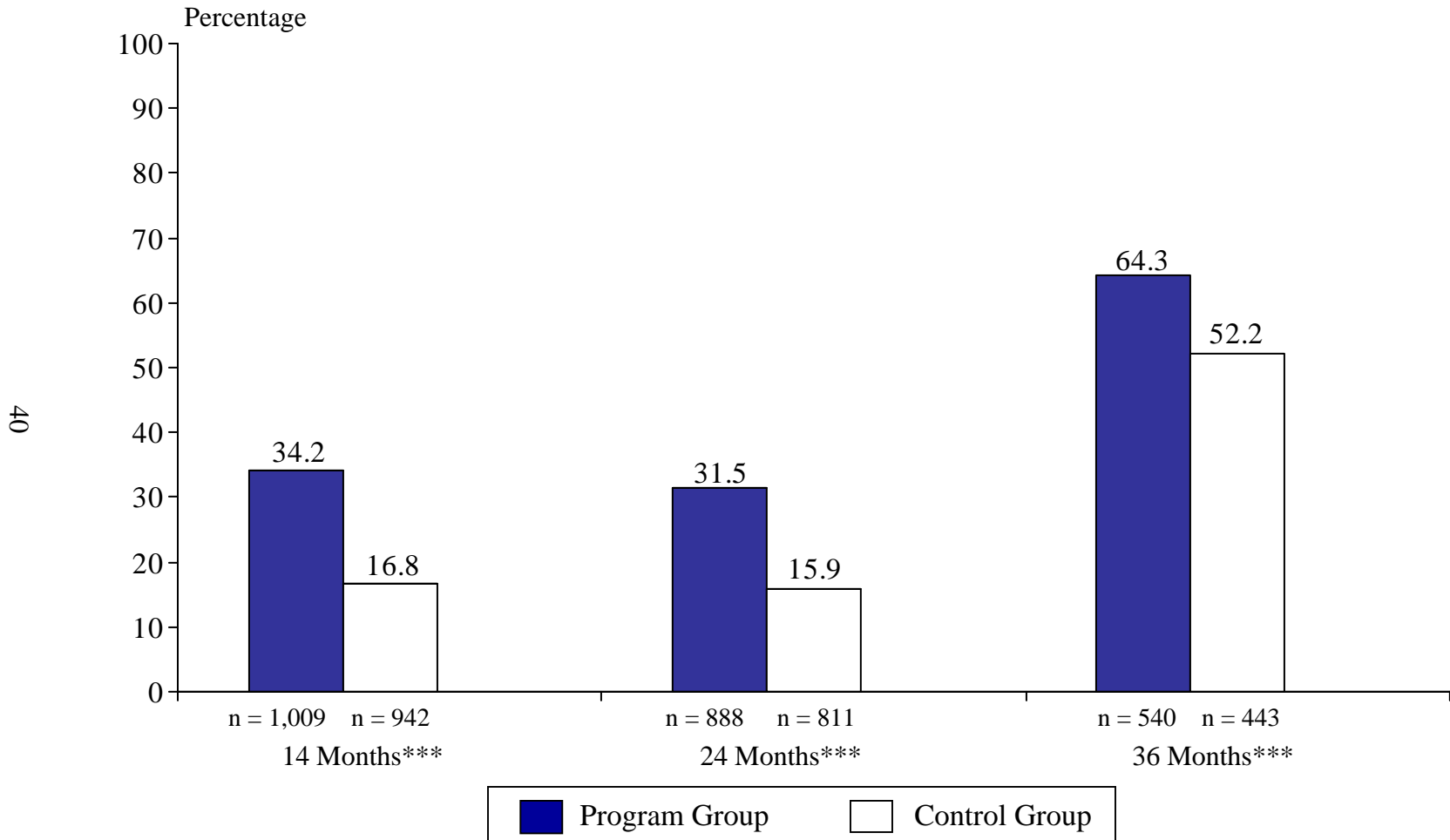
Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

FIGURE II.12

IMPACTS ON USE OF CENTER CHILD CARE AT 14, 24, AND 36 MONTHS OF AGE



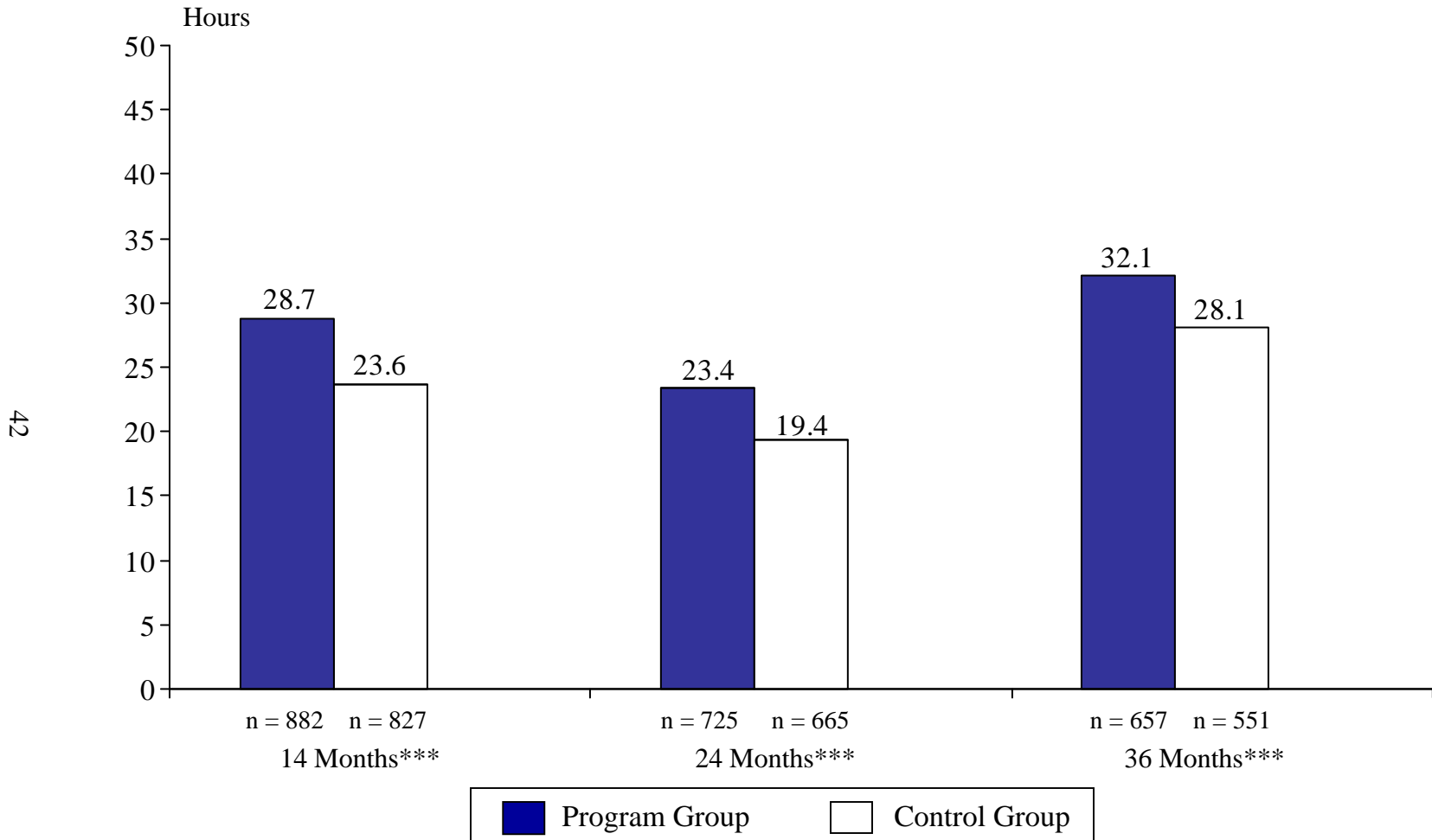
Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

FIGURE II.13

IMPACTS ON AVERAGE HOURS PER WEEK IN ANY CHILD CARE
AT 14, 24, AND 36 MONTHS OF AGE



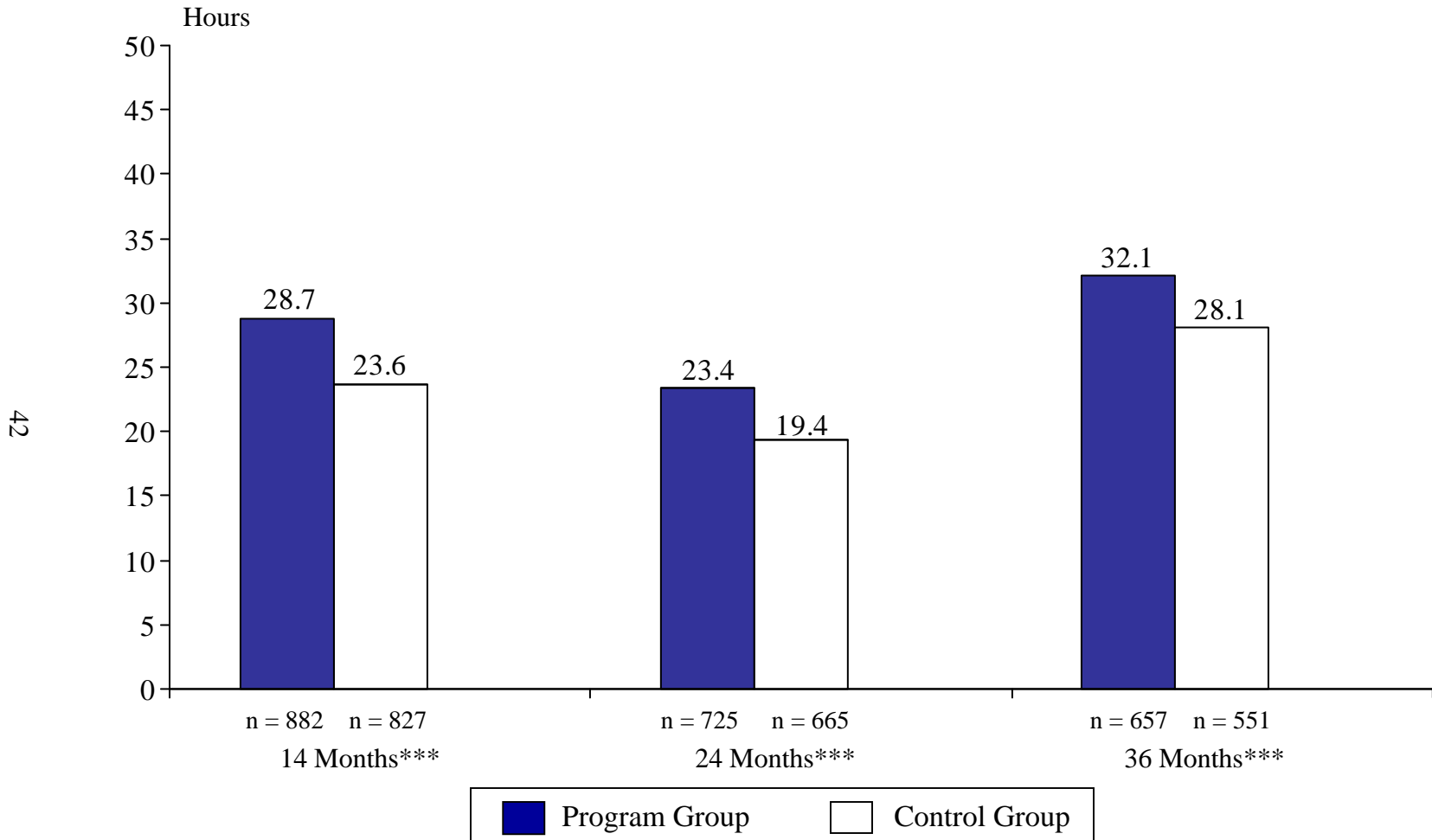
Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

FIGURE II.13

IMPACTS ON AVERAGE HOURS PER WEEK IN ANY CHILD CARE
AT 14, 24, AND 36 MONTHS OF AGE



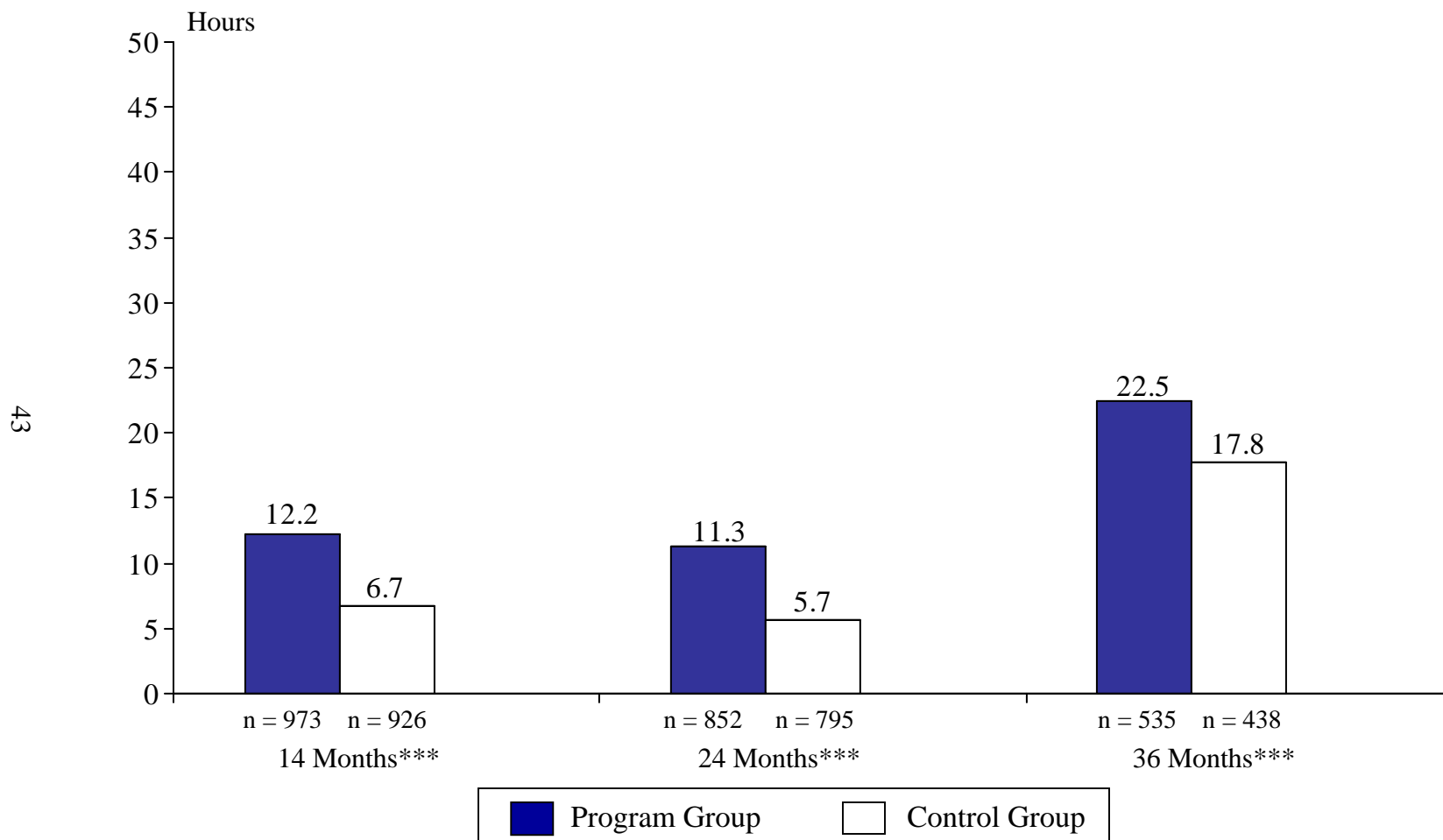
Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

FIGURE II.14

IMPACTS ON AVERAGE HOURS PER WEEK IN CENTER CHILD CARE
AT 14, 24, AND 36 MONTHS OF AGE



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment and a Parent Interview completed when children were approximately 36 months old.

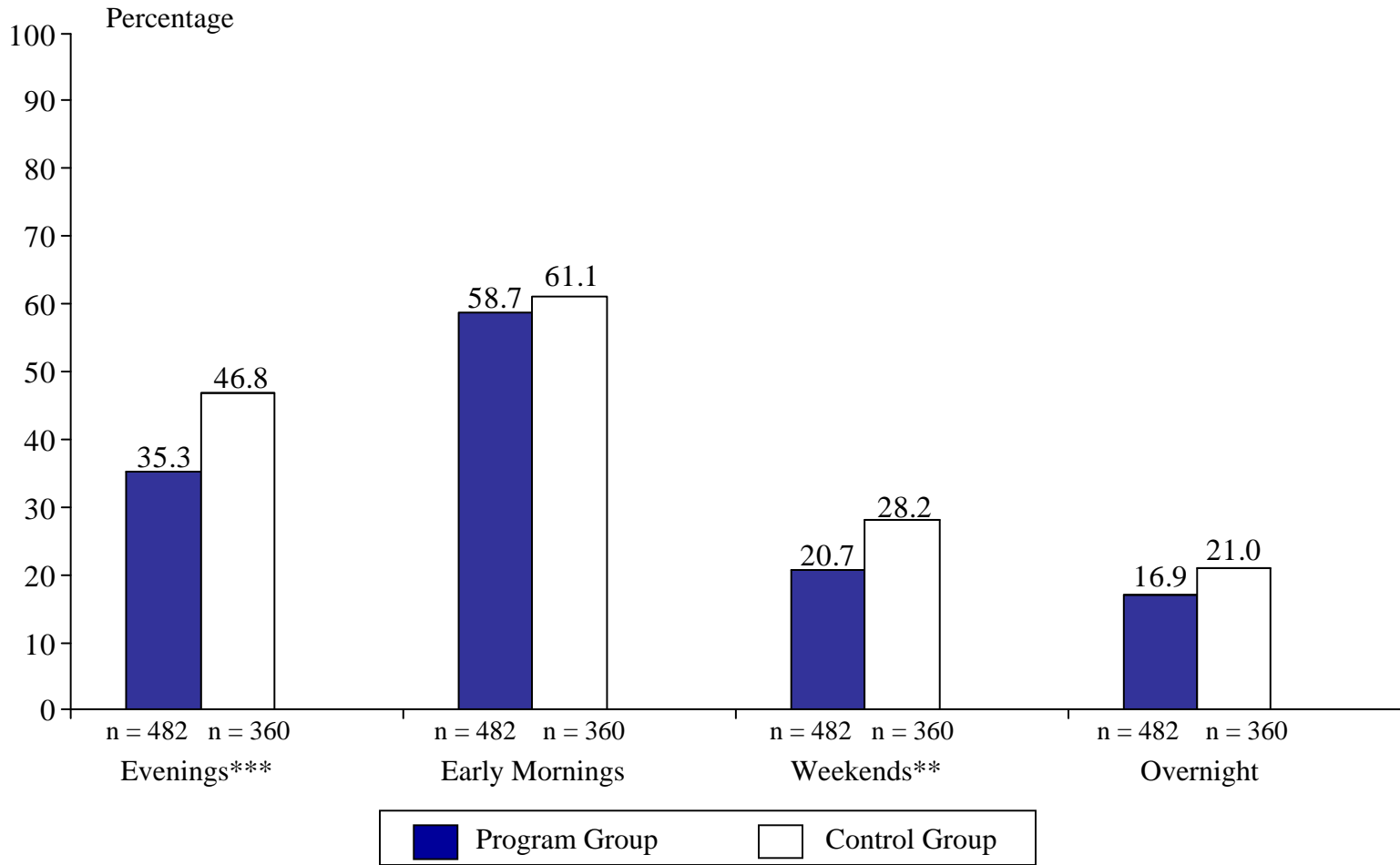
Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

FIGURE II.15

IMPACTS ON USE OF CARE DURING NONSTANDARD HOURS IN PRIMARY CHILD CARE ARRANGEMENTS AT 24 MONTHS OF AGE

44



Source: Parent Services Follow-Up Interviews completed an average of 7, 16, and 28 months after enrollment.

Note: All percentages are regression-adjusted means estimated using models that weight each site equally. The differences between program and control families are estimated impacts per eligible applicant.

** Program-control difference is significantly different from zero at the .05 level, two-tailed test.

*** Program-control difference is significantly different from zero at the .01 level, two-tailed test.

contrast, program group families were more likely to use center arrangements, which are less likely to be open during evenings and weekends.

Conclusion

This chapter has shown that the families with infants and toddlers enrolled in Early Head Start programs that were included in the national evaluation used substantial amounts of child care, and that the amount of care used increased as the children got older. Child care was provided by Early Head Start as well as by community providers, reflecting the community-oriented nature of Early Head Start's approach to child care as envisioned by the Advisory Committee on Services for Families with Infants and Toddlers. Early Head Start families used a variety of types of child care and were highly satisfied with the care they received. As hoped by the Early Head Start program designers, the program had substantial and significant impacts on the percentage of families using any child care, as well as on the amount of care they used. The impacts on the percentage of families using center care and the amount of center care used were even larger than when all types of child care arrangements were considered.

III. QUALITY OF CHILD CARE USED BY EARLY HEAD START FAMILIES AND PROGRAM IMPACTS ON THE QUALITY OF CHILD CARE FAMILIES USED

Early Head Start program designers, as reflected in the report of the Advisory Committee on Services for Families with Infants and Toddlers, anticipated that Early Head Start programs would not only enable families to access the care they needed (as we saw in Chapter II), but also enhance the quality of that care. Thus, Early Head Start was expected to increase the use of good-quality child care by low-income families with infants and toddlers, whether that care is provided by Early Head Start programs directly or by community child care providers (U.S. Department of Health and Human Services 1994). The Early Head Start evaluation was designed so that data collected on child care quality would enable us to assess the extent to which the programs included in the research made a difference in the quality of the care the families enrolled their children in. The randomized design of the evaluation enables us to present strong evidence of the extent to which Early Head Start programs created better-quality center child care experiences for the enrolled children when compared with their randomly assigned control-group counterparts.

In this chapter, after presenting our methods and procedures, we report data that describe the levels of quality of care that Early Head Start children received, using a range of quality indicators. We then use data from a subset of the programs to examine the extent to which these Early Head Start programs made a difference in the proportion of families placing their children in good-quality center care arrangements, and in the levels of quality of center child care, when the experience of Early Head Start children is contrasted with that of the control group. Finally, we discuss regression analyses conducted within the Early Head Start sample suggesting that

high levels of both child care use and child care quality may contribute to more-positive developmental outcomes for Early Head Start children.

A. MEASURING CHILD CARE QUALITY IN THE EARLY HEAD START EVALUATION

1. Child Care Settings Included in this Study

We assessed child care quality through direct observation at the time of the child assessments, when the children were 14, 24, and 36 months old. At these ages, the child care settings eligible for observational assessment shared the following characteristics:

- ***Regular Child Care Arrangement***—We observed arrangements in which the child spent 10 or more hours per week for at least two weeks prior to the interview outside the child’s home (or by a nonrelative in the child’s home). These criteria are the same as those used in the NICHD Study of Early Child Care. The hours per week criterion ensures that the child’s exposure to the arrangement meets a minimum threshold for it to potentially influence his or her development. The two-week criterion ensures that the provider and child are minimally acquainted so that typical interactions can be observed.
- ***Relatives and Nonrelatives***—The focus of the observational study was care outside the child’s home with relatives or nonrelatives, and in-home care settings with nonrelatives. These child care arrangements provide a sufficient distinction either in the caregiver (a nonrelative) or the place (out of the child’s home) to warrant intensive data collection as a distinct aspect of the child’s environment. Care provided by a relative in the child’s own home was considered to be very similar to parental care; therefore, we excluded these settings from the observational study.
- ***“Family Child Care”***—We refer to all observed in-home care settings as family child care, whether care was provided by a relative or nonrelative caregiver. Because the regulation of home-based care settings varies from state to state, and because information about these arrangements came from parent reports, we did not collect information about whether these home-based child care settings were registered or licensed. Thus, our references to family child care include care provided by relatives and nonrelatives, as well as regulated and unregulated care.
- ***Primary Child Care Arrangement***—If more than one child care arrangement met these criteria, the arrangement used for the most hours per week was chosen for the observational study.

The total number of child care settings that could be observed was thus influenced by several factors: (1) the response rate to the birthday-related assessment (parents who were not interviewed in a particular wave of these assessments could not be asked about child care arrangements); (2) the rates of child care use; (3) the rates of use of out-of-home or nonrelative child care (settings “eligible” for observation); (4) parents’ willingness to allow interviewers to contact their child care providers; (5) our success in locating the providers; and (6) the providers’ willingness to be interviewed and observed.

2. Response Rates

Table III.1 shows how these factors combined to produce the response rates in the observational study of child care at each of the birthday-related assessment points. At each time point, between 70 and 80 percent of the parents completed an interview. Since half or fewer of the families interviewed were using an “eligible” child care arrangement for the child, only 32 to 35 percent of the original full sample of children were using child care that could be observed at any point. Observations were completed with between 53 percent and 56 percent of the “eligible” arrangements at each point, with a much higher completion rate for center care arrangements (approximately 70 percent) than for family, relative, and other home-based care arrangements (approximately 32 percent).

The pattern of response rates and the number of observations varied considerably by site, in part reflecting the mix of child care arrangements in each site and the relative difficulty of completing observations in family child care settings.¹ In some sites, the level of non-response was substantial, and in general, nonresponse was quite high among the in-home providers.

¹Appendix Tables A.1, A.2, and A.3 provide response rates by type of care and by site for the three data collection periods.

TABLE III.1
RESPONSE RATES TO THE CHILD CARE OBSERVATIONS

Description of Sample	14-Month Child Care Observations	24-Month Child Care Observations	36-Month Child Care Observations
Number of Children in the Sample	3,001	3,001	3,001
Number of Families Responding to Parent Interview/Child Assessment	2,344	2,166	2,110
<i>Percentage of all Children</i>	<i>78.1</i>	<i>72.2</i>	<i>70.3</i>
Number of Children in an Eligible Child Care Arrangement ^a	962	976	1,060
<i>Percentage of all Children</i>	<i>32.1</i>	<i>32.5</i>	<i>35.3</i>
Number Whose Provider Was Located, Agreed to Participate, and Completed the Observation	509	547	596
<i>Percentage of All Children</i>	<i>17.0</i>	<i>18.2</i>	<i>19.9</i>
Percentage of Children with Eligible Arrangements Who Had a Complete Observation	52.9	56.1	56.2
Center Care	70.4	72.9	69.4
Family Child Care	32.4	33.7	30.1
In the Subset of Sites Included in the Impact Analysis, the Percentage of Children with Eligible Arrangements Who Had a Complete Observation	66.9	65.9	68.5
Center Care	81.4	79.4	82.1
Program	85.1	85.5	84.2
Control	72.1	66.1	78.7
Family Child Care	35.4	31.2	27.7

Source: Parent Interviews and observations of child care arrangements conducted when children were approximately 14, 24, and 36 months old.

Note: Sites included in the impact analysis of child care quality include all four sites with center-based Early Head Start programs and four mixed-approach sites at all three time periods and an additional mixed-approach site at 36 months.

^aEligible arrangements include care outside the child's home (with a relative or nonrelative) and care in the child's home with a nonrelative. The child must have been in the child care arrangement for at least 10 hours per week and have 2 or more weeks' experience in that arrangement. If the child was in more than one child care arrangement that met these criteria, the arrangement used for the most hours per week was chosen for the observation.

Therefore, we focused the analysis of child care quality in sites with higher response rates overall. Not surprisingly, a higher proportion of families in center-based program sites and some mixed-approach sites were using child care, and care that met the study's eligibility criteria.

Response rates were high in these sites for center care arrangements, though not for family child care arrangements. Table III.1 shows that, in the four center-based sites and the four (at age 2) and five (at age 3) mixed-approach sites included in our analysis of the impact of Early Head Start on child care environments, between 79 and 82 percent of the eligible center child care arrangements were observed, while between 28 and 31 percent of the family child care arrangements were observed. Therefore, our characterization of the average quality of care experienced by children in the study is more reliable for children in centers than in home-based or family child care. Accordingly, we focused the impact analysis on center child care arrangements in this subset of sites, for a total of 315 to 390 child care observations. By program-control status, interviewers observed a somewhat higher proportion of center child care arrangements for Early Head Start program children than for control-group children in these sites, possibly reflecting a greater ease of access to Early Head Start-sponsored child care settings.

3. Procedures and Instruments Used

To conduct the observational assessments of child care, trained observers visited the child care settings for two to three hours in the morning. Interviewer/observers conducted interviews with center directors and providers and observed the classroom or home in order to complete several structured observation protocols. The observational measures used are described in Box III.1, and our procedures for training and achieving inter-observer reliability are summarized in Appendix B.

BOX III.1

OBSERVATIONAL MEASURES OF CHILD CARE ENVIRONMENTS USED IN THE EARLY HEAD START EVALUATION

Infant-Toddler Environment Rating Scale (ITERS; Harms, Cryer, and Clifford 1990; 14 and 24 months) – measures the global quality of child care for infants and toddlers in center child care settings. Items measure the quality of furnishings and display for children, personal care routines, listening and talking, learning activities, interaction, and program structure. (Three items on adult needs were omitted from the version used in this study.) Items are coded on a seven-point scale from inadequate (1) and minimal (3) to good (5) and excellent (7). The total score is the average across all 33 items and can range from 1 to 7.

Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, and Cryer 1998; 36 months) – measures the global quality of child care for preschoolers in center settings. Items measure the quality of space and furnishings, personal care routines, language and reasoning, activities, interaction, program structure, and provisions for parents and staff. (Four items on parents/staff were omitted from the version used in this study.) Items are coded on a seven-point scale from inadequate (1) and minimal (3) to good (5) and excellent (7). The score is the average across all 39 items and can range from 1 to 7.

Family Day Care Rating Scale (FDCRS; Harms and Clifford 1989; 14, 24, and 36 months) – measures the global quality of child care for infants, toddlers, and preschoolers in family child care settings. Items measure the quality of space and furnishings, basic care, language and reasoning, learning activities, social development, and adult needs. Items are coded on a seven-point scale from inadequate (1) and minimal (3) to good (5) and excellent (7). The total score is the average across the 31 items we used and can range from 1 to 7.

Child-Adult Ratio (14, 24, and 36 months) – Observer’s count of the number of children and caregivers in the classroom at the time of the observation. The number used in our analysis was the average of up to six observations over the 2-hour observation period.

Arnett Caregiver Interaction Scale (Arnett 1989; 14, 24, and 36 months) – measures the quality of the caregiver’s interactions with children in both center and family child care settings. Items are scored based on a 2.5 hour observation of the primary caregiver in the child care setting, and measure the extent to which the caregiver spoke warmly, seemed distant or detached, exercised rigid control, or spoke with irritation or hostility. Items are coded on a 4-point scale from “not at all” characteristic of the caregiver (1) to “very much” characteristic of the caregiver (4). We conducted factor analyses at each time point, but since no clear set of similar subscales emerged across time, we report our findings based on the full Arnett score, the average rating across all 26 items.

Child-Caregiver Observation System (C-COS; Boller, Sprachman, and the Early Head Start Research Consortium 1998; 24 and 36 months) – measures the types of caregiver interaction and child activities specifically pertaining to the focus child based on six 5-minute observations. During each 5-minute observation, observers watched the focus child for 20 seconds and then indicated whether a specific set of child and caregiver behaviors occurred (the recording phase lasted 10 seconds). Over the 2-hour observation, a total of 60 20-second child-caregiver observations were made.

Incidents of Any Caregiver Talk – the number of observation periods in which the caregiver directed an utterance to the focus child or to a group that included the child. Scores can range from 0 (no caregiver speech toward the child was observed) to 60 (caregiver speech toward the child was observed during each observation period).

Incidents of Caregiver Responding to Child – the number of observation periods in which the caregiver responded to the child’s speech or bid for attention. Scores could range from 0 to 60.

Incidents of Caregiver Initiating Talk with Child – the number observation periods in which the caregiver initiated talk without the child first speaking to the caregiver. Scores could range from 0 to 60.

Incidents of Negative Behavior – the number of observation periods in which the child was wandering or unoccupied; upset or crying; or was observed hitting, biting, or bothering another child; or was observed being hit, bitten, or bothered by another child.

Central to the structured observations was a global assessment of the quality of the child care setting using a widely used family of measures that vary by the age of the child and the type of setting. When children were 14 and 24 months of age, observations of center care were conducted using a slightly shortened version of the Infant-Toddler Environment Rating Scale (ITERS; Harms, Cryer, and Clifford 1990). For children at age 3, we used the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, and Cryer 1998). At all three age points, we observed the quality of family or home-based child care using the Family Day Care Rating Scale (FDCRS; Harms and Clifford 1989). In all settings, observers also recorded child-teacher ratios and group sizes, to obtain more reliable data than would be obtained from provider self-reports.

The observation protocol also included another frequently used global quality measure, the Arnett Caregiver Interaction Scale (Arnett 1989). Observers completed the 26-item rating scale at the end of the observation period, based on their observations of the primary caregiver's behavior toward children in the classroom throughout the observation period.

To supplement these standard, widely used global measures of quality, we developed a new measure that provided child-level data for specific teacher-child interactions: the Child-Caregiver Observation System (C-COS; Boller, Sprachman, and the Early Head Start Research Consortium 1998). The C-COS drew upon, and included features of, two existing procedures: (1) the Observational Record of the Caregiving Environment (ORCE; NICHD Early Child Care Research Network 1997) and (2) the Adult Involvement Scale (Howes and Smith 1995). C-COS was designed to capture the experiences of individual children by time-sampling aspects of caregivers' interactions with the Early Head Start sample child in the center classroom or family child care home. As described in Box III.1, interactions were coded during the same time period

that observers were completing the ITERS, ECERS-R, FDCRS, and adult-child counts. The C-COS was collected only when children were 24 and 36 months old.

B. QUALITY OF CHILD CARE USED BY EARLY HEAD START FAMILIES

This section presents descriptive data on the quality of the child care arrangements Early Head Start children were in, both in centers and family child care homes. All observations of the quality of child care experienced by children in the research sample are based on care arrangements that were determined to be eligible for observation, as described earlier. First, we present data on quality obtained using standard measures of global quality (ITERS and ECERS-R for center care, FDCRS for family child care, Arnett Caregiver Interaction Scale in both types of settings), and child-adult ratios. Then, in the second part of this section, we present the caregiver-child interaction data from the C-COS. The third part compares the quality of care Early Head Start children received in Early Head Start centers with that received by Early Head Start children in community child care centers.

1. Quality of Child Care Used (Global Measures)

We first present analyses of the average quality of care experienced by Early Head Start program children observed in any center care across all 17 sites. The settings observed include center care provided by Early Head Start center-based and mixed-approach programs, care in community child care centers that Early Head Start programs partnered with, and care in community settings that Early Head Start parents selected on their own, without the assistance of the program.² As reported in the evaluation's implementation report, *Pathways to Quality* (ACF 2002c), Early Head Start program partnerships with community child care providers

²In Section C of this chapter, we report the quality of care children experienced in Early Head Start centers.

developed over time. Thus, we expected that as children got older parents would be increasingly likely to place their child in community centers that their programs had established partnerships with and were instilling and monitoring quality in line with the Head Start Program Performance Standards.

Early Head Start children in center care consistently experienced nearly good or good-quality care on average, as measured by the ITERS and ECERS-R classroom rating scales (Table III.2). Furthermore, quality improved slightly as children got older, rising from 4.7 on the ITERS at 14 months to 5.0 on the ECERS-R at 36 months, an increase of about one-quarter of a standard deviation.³ The range in average quality ratings was wide for each time period, however. ITERS scores ranged from a low of 1.5 in one classroom to 6.8 at another (at 14 and 24 months), and ECERS-R ratings ranged from 1.2 to 6.8 across center classrooms used by Early Head Start families.

This overall quality of center care that Early Head Start programs achieved for their families, regardless of the auspice providing the child care, is rare among large-scale programs. One widely cited national study of child care quality found that the average ITERS score across infant-toddler classrooms was only 3.4, or between 1 and 1.5 standard deviations below the Early Head Start averages for those ages (Cost, Quality, and Child Outcomes Study Team 1995). The National Child Care Staffing study found average quality ratings of 3.2 and 3.6 in centers serving infants and toddlers, respectively (Whitebook, Howes, and Phillips 1989), again substantially lower than what we observed in child care centers used by Early Head Start families. Included in this group of centers were Early Head Start centers, which we discuss specifically later in this chapter.

³It should be noted, however, that because the measure of quality changed also (from the ITERS at 14 and 24 months to the ECERS-R at 36 months of age), the change in the observational instrument may have contributed to the apparent age difference found.

TABLE III.2

AVERAGE CLASSROOM QUALITY SCORES FOR CENTER CARE
USED BY EARLY HEAD START FAMILIES
(ALL SITES, WHEN CHILD WAS 14, 24, AND 36 MONTHS OLD)

Quality Measures	14 Months	24 Months	36 Months
ITERS/ECERS-R			
Average^a	4.7 (1.1)	4.9 (1.1)	5.0 (1.1)
Range ^b	1.5 – 6.8	1.6 – 6.8	1.2 – 6.8
N	274	290	316
Arnett – Full Scale			
Average^a	3.4 (0.4)	3.4 (0.5)	3.4 (0.5)
Range ^b	1.5 – 4.0	1.3 – 4.0	1.3 – 4.0
N	276	288	311
Child–Adult Ratios^c			
Average^a	2.9 (1.2)	3.5 (1.6)	5.5 (2.6)
Range	0.8 – 7.7	1.0 – 11.6	0.8 – 14.8
N	275	291	313

Source: Based on observations in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Individual observations were not conducted for all children at 14 months. Children in the same locations who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

^aStandard deviations in parentheses.

^bThe minimum possible average score on the ITERS and ECERS-R is 1.0 and the maximum possible is 7.0. The minimum possible average for the Arnett is 1.0 and the maximum is 4.0.

^cChild-adult ratios were recorded six times during each observation. The average presented here is the average of all nonmissing observations.

Analysis of the ITERS and ECERS-R scale scores shows variation in the levels of quality across the dimensions rated. At both 14 and 24 months, centers were rated highest or second highest on the ITERS Interactions scale, while several other key dimensions also scored at or near the “good” level of 5.0 (Figure III.1). At both ages, Learning Activities received one of the lowest ratings (4.2 at 14 months and 4.4 at 24 months). Levels found with the ECERS-R scales differ somewhat from those of the ITERS, but the same general pattern was found (Figure III.2).

The Arnett Caregiver Interaction Scale assesses the quality and content of the teacher’s interactions with children in both center and family child care settings. Two studies have found that Arnett scale scores predict teachers’ engagement with children and children’s language development and security of attachment (Helburn 1995; and Howes, Phillips, and Whitebook 1992). The quality of caregiver interactions with children, as measured by the Arnett scale, was constant across the three ages, at an average rating of 3.4 (Table III.2). The variation in these scores across classrooms was also wide, ranging from 1.3 to 4.0.⁴

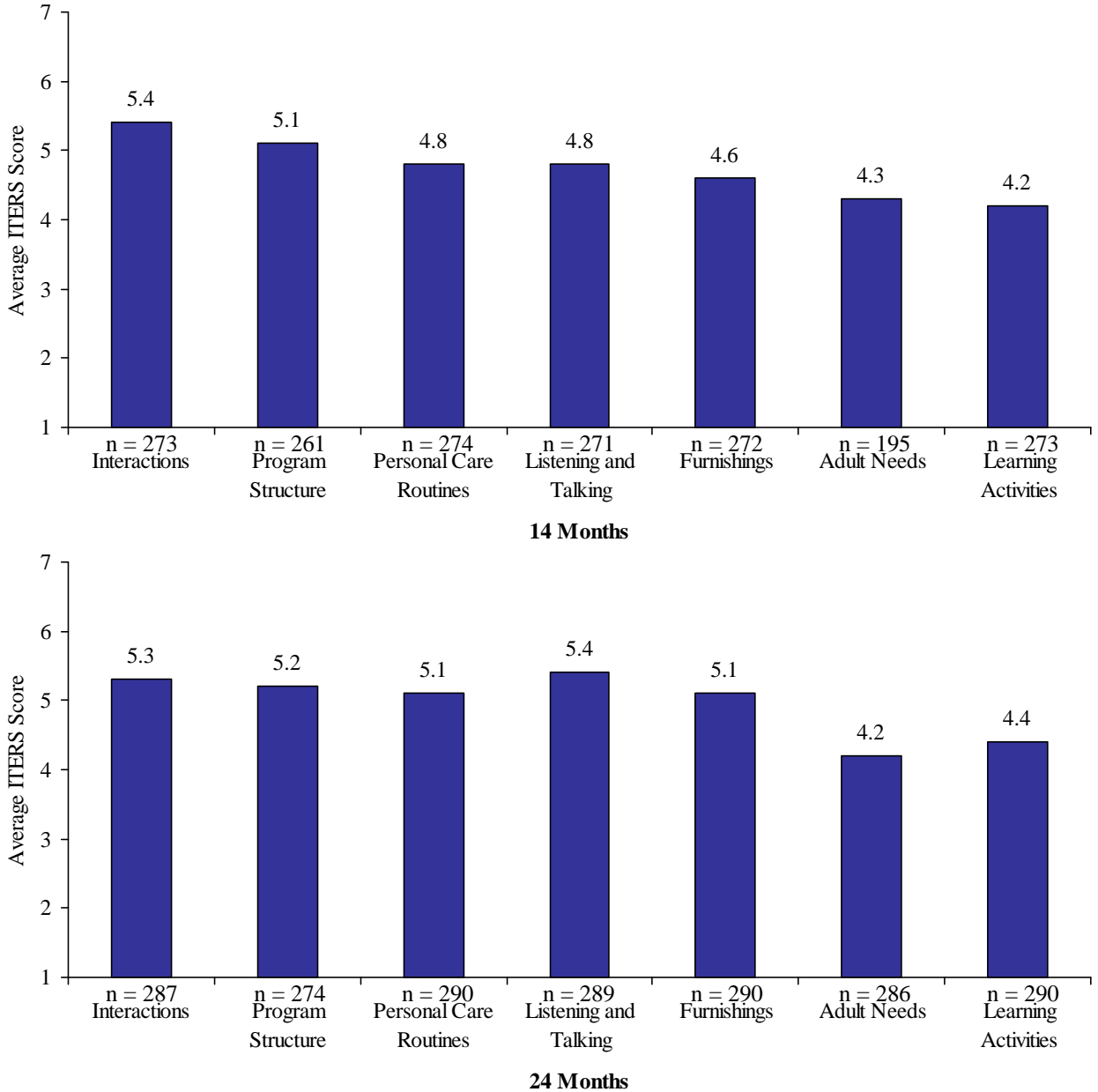
Finally, child-adult ratios averaged 2.9 children per adult at 14 months and 3.5 to 1 at 24 months, meeting the performance standards for infants and toddlers, on average. The ratio at 36 months rose to 5.5 children per adult.⁵ After children turn 3, however, higher ratios might be appropriate. Even the 5.5 ratio, however, is lower than ratios found in other studies. For

⁴We know of no standard convention in the literature to indicate the rating on the Arnett that is accepted as “good quality,” in the sense that 5.0 on the ITERS, ECERS-R, and FDCRS is. However, a rating of 3 out of a possible 4 indicates the statements (such as, “speaks warmly to children”) are “quite a bit” characteristic of the primary caregiver.

⁵The Head Start Program Performance Standards specify ratios of 4:1 for children under 3 years of age. At the 36-month age point in the Early Head Start evaluation, some children were observed when they were slightly younger than 36 months, but most were 36 months or older. Therefore, some might be subject to the performance standards for 3-year-olds, which allow 13 to 15 children for 2 adults.

FIGURE III.1

AVERAGE ITERS SUBSCALE SCORES FOR CENTER CARE
 USED BY EARLY HEAD START FAMILIES
 (ALL SITES, WHEN CHILDREN WERE 14 AND 24 MONTHS OLD)

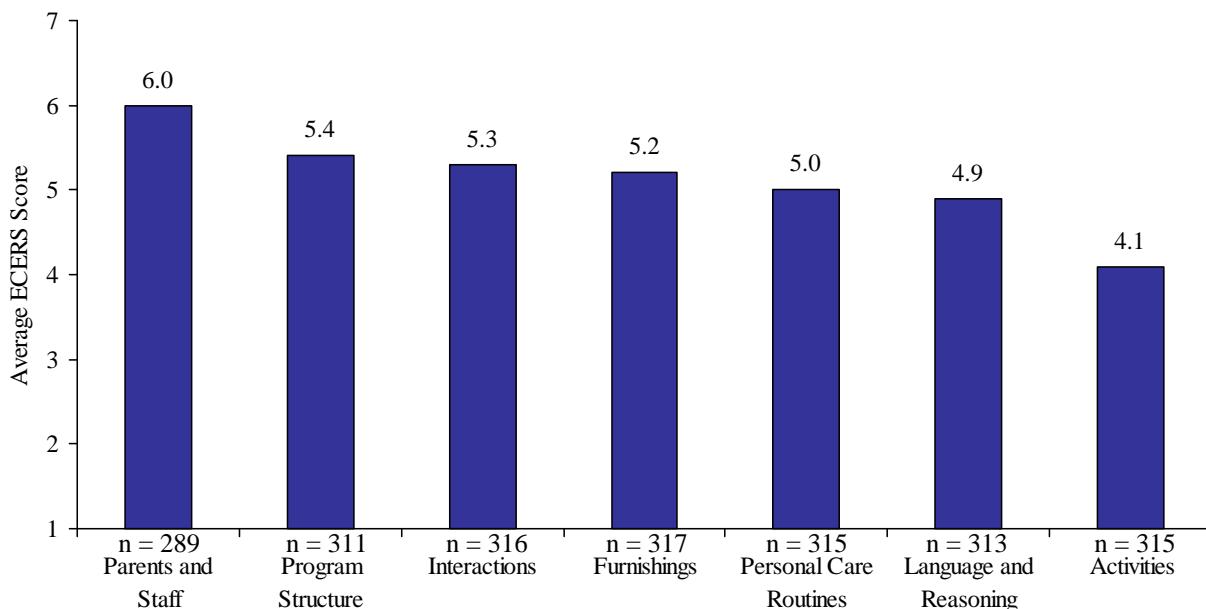


Source: Based on outside observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Individual observations were not conducted for all children at 14 months. Children in the same care setting who were scheduled to be observed within three months of each other were assigned the same classroom characteristics. The possible range on each subscale is 1.0 – 7.0.

FIGURE III.2

AVERAGE ECERS-R SUBSCALE SCORES FOR CENTER CARE
USED BY EARLY HEAD START FAMILIES
(ALL SITES, WHEN CHILD WAS 36 MONTHS OLD)



Source: Based on outside observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: The possible range on each subscale is 1.0 – 7.0.

example, the Profile of Child Care Settings Study found an average child-staff ratio of between 6 to 1 and 7 to 1 in a nationally representative sample of centers (Kisker, Hofferth, Phillips, and Farquhar 1991).

Virtually all family child care (provided by relatives and nonrelatives) used by Early Head Start parents was found in community settings, and was not directly provided by the Early Head Start programs. Nevertheless, programs were also in the process of establishing partnerships with family child care providers throughout the evaluation period, although these partnerships were not as prevalent as ones with community centers. The evaluation observed children in these family child care settings at the same three age points, using the FDCRS. As with the centers, average FDCRS ratings rose slightly over the three time periods, from 3.4 to 3.9, but remained below the level of “good” quality, as the instrument developers describe their scale (Table III.3). The range of the quality ratings was wide for each time period, between 1.2 and 6.6.

Early Head Start children whom we were able to observe in family child care consistently experienced caregivers who were rated above 3, on average, on the Arnett Caregiver Interaction Scale. The average score was 3.2 or 3.3 for each time period, which is very close to the Arnett ratings for center teachers. The variability of Arnett ratings was less for child care homes, however: the Arnett quality ratings in family child care homes ranged from 2.0 to 4.0. Child-adult ratios averaged 4.0 or lower in all three time periods, thus meeting the Head Start performance standards for this measure.

The FDCRS also allows for analysis of quality by scales, in this case six. Across all three age points, the highest ratings of the family child care homes that Early Head Start children attended were found in the areas of Adult Needs, Supports for Social Development, and

TABLE III.3

AVERAGE QUALITY SCORES FOR FAMILY CHILD CARE
USED BY EARLY HEAD START FAMILIES
(ALL SITES, WHEN CHILD WAS 14, 24, AND 36 MONTHS OLD)

Quality Measures	14 Months	24 Months	36 Months
FDCRS			
Average ^a	3.4 (1.0)	3.9 (1.2)	3.9 (1.3)
Range ^b	1.4 – 5.9	1.3 – 6.6	1.2 – 6.6
N	67	82	55
Arnett – Full Scale			
Average ^a	3.2 (0.5)	3.3 (0.5)	3.3 (0.4)
Range ^b	2.2 – 4.0	2.0 – 4.0	2.1 – 4.0
N	68	83	53
Child–Adult Ratios^c			
Average ^a	3.2 (2.1)	3.8 (2.2)	4.0 (2.1)
Range	0.5 – 10.8	0.5 – 11.0	0.3 – 9.5
N	67	83	54

Source: Based on observations in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Individual observations were not conducted for all children at 14 months. Children in the same locations who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

^aStandard deviations in parentheses.

^bThe minimum possible average score on the FDCRS is 1.0 and the maximum possible is 7.0. The minimum possible average for the Arnett is 1.0, and the maximum is 4.0.

^cChild-adult ratios were recorded six times during each observation. The average presented here is the average of all nonmissing observations.

Language and Reasoning; lowest ratings (which were more than 1 point lower than the highest scales) were in Furnishings and Basic Care (Figure III.3).

2. Quality of Child-Caregiver Interactions (as Measured by the C-COS)

We turn now from measures of global quality to examine child-caregiver interactions as indicators of the quality of the child care settings children were in. Four key C-COS variables are reported in this paper: (1) any caregiver talk to the child (combining responding to the child and initiating verbal interactions with the child)—these include requesting language or communication, requesting action, reading to the child, and other talking or singing; (2) caregiver responding to the child (including requesting language or communication, requesting action, reading to the child, or other talking or singing); (3) caregiver initiating talk with the child (same categories as responding); and (4) incidents of children’s negative behavior (including wandering, upset/crying, and hitting/biting/bothering another child or being hit/bothered by another child). Table III.4 shows average C-COS scores for Early Head Start children in center and family child care at 24 and 36 months of age. At 24 months of age, the frequency of caregiver talk to children was similar (about 30 incidents) for children in center and family child care, while at 36 months of age, caregiver talk was lower in centers. Incidents of caregiver talk to 36-month-old children were, in general, slightly lower than to 24-month-old children, and somewhat higher in family than center child care. Children in center care experienced an average of 26 incidents of any talk, while children in family child care experienced an average of 31.

Incidents of the caregiver responding to the child were much lower than initiations, averaging between seven and eight incidents per child in the 2-hour observation period. Caregivers showed slightly more responsiveness to 24- than to 36-month-old children, in both centers and family child care homes. Children in family child care at 36 months experienced

FIGURE III.3

AVERAGE FDCRS SUBSCALE SCORES FOR FAMILY CHILD CARE
USED BY EARLY HEAD START FAMILIES
(ALL SITES, WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD)

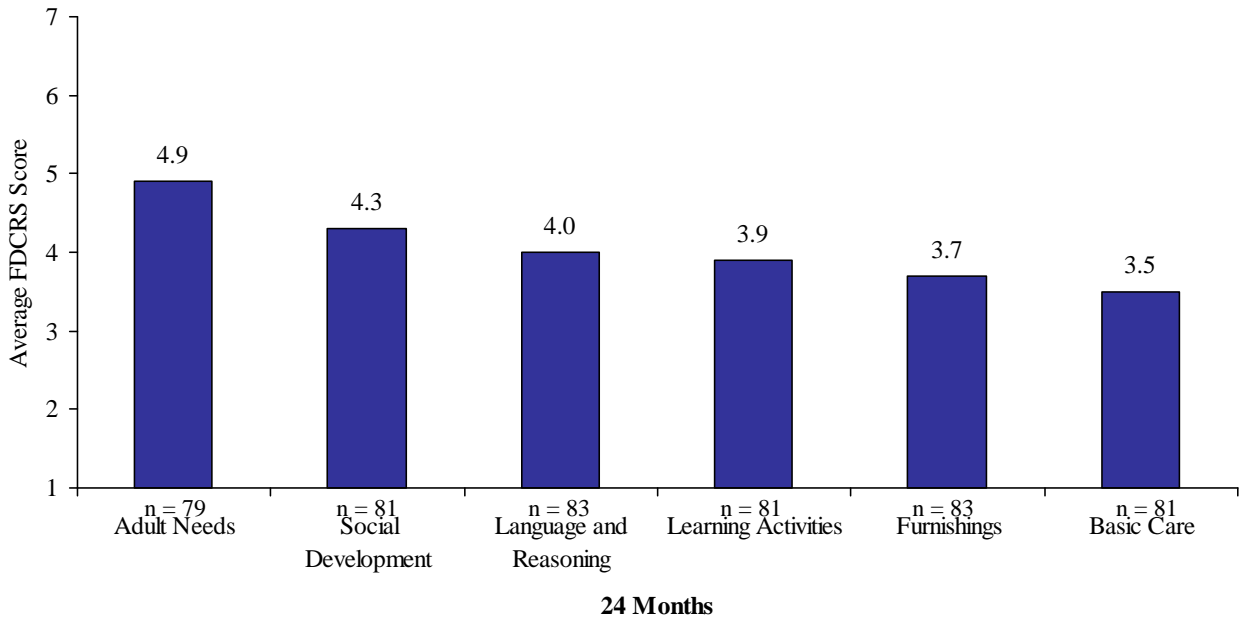
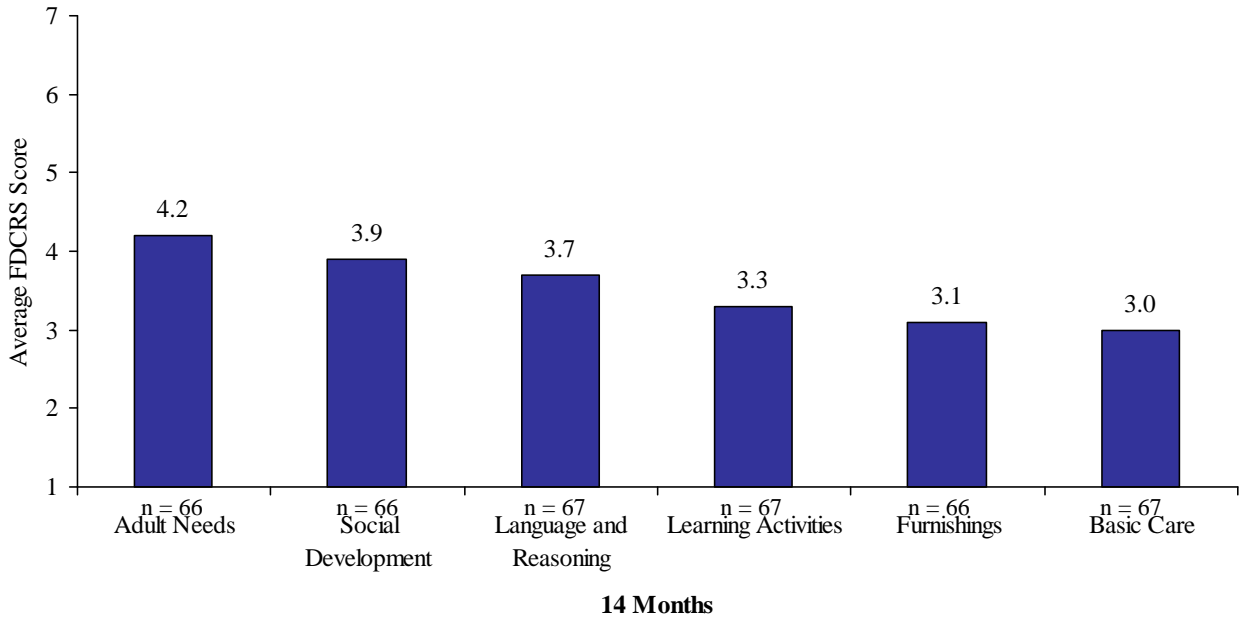
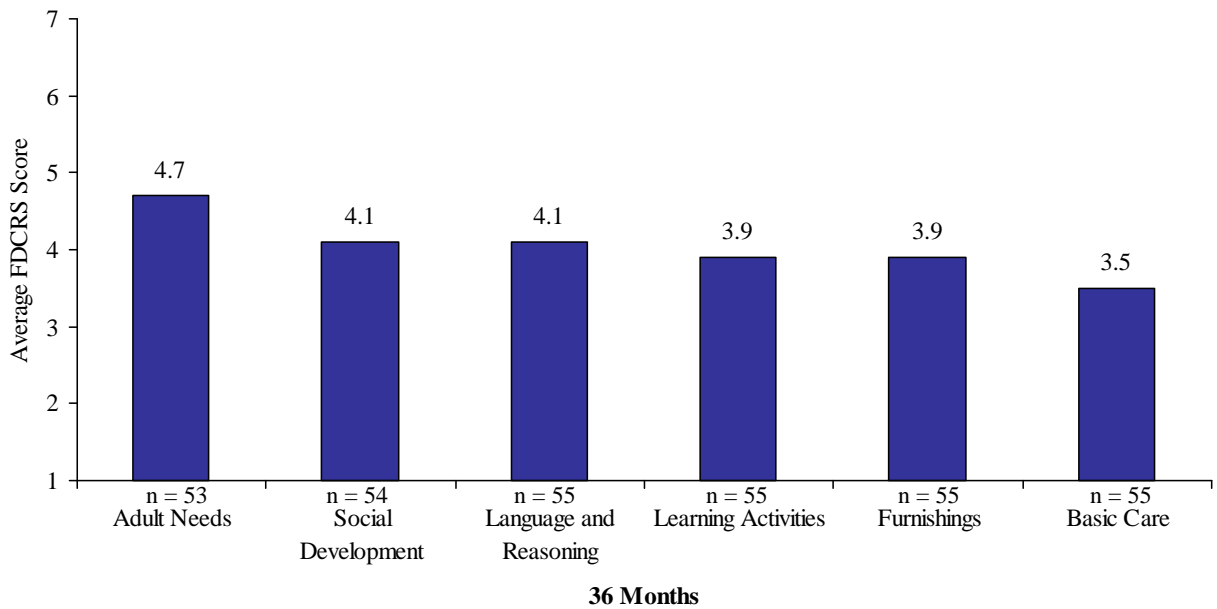


FIGURE III.3 (continued)



Source: Based on outside observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a non-relative in the child’s home. Only one arrangement per child was observed.

Note: Individual observations were not conducted for all children at 14 months. Children in the same care setting who were scheduled to be observed within three months of each other were assigned the same family care characteristics. The possible range on each subscale is 1.0 – 7.0.

TABLE III.4

AVERAGE CHILD-CAREGIVER OBSERVATION SYSTEM (C-COS) SCORES FOR
CENTER AND FAMILY CHILD CARE SETTINGS USED BY EARLY HEAD START
FAMILIES WHEN CHILDREN WERE 24 AND 36 MONTHS OLD

C-COS Variable	Center-Based Care		Family Child Care	
	24 Months	36 Months	24 Months	36 Months
Incidents of Any Caregiver Talk to Child				
Average ^a	29.7 (12.3)	25.8 (12.5)	30.4 (13.2)	31.3 (15.1)
Range	1 – 60	0 – 60	3 – 60	6 – 60
N	297	323	90	65
Incidents of Caregiver Responding to Child				
Average ^a	8.5 (9.0)	7.6 (7.2)	8.1 (10.5)	7.4 (7.7)
Range	0 – 48	0 – 38	0 – 48	0 – 28
N	297	323	90	65
Incidents of Caregiver Initiating Talk with Child				
Average ^a	21.8 (10.8)	18.8 (11.6)	22.6 (11.4)	24.2 (13.5)
Range	0 – 58	0 – 57	0 – 59	1 – 55
N	297	323	90	65
Incidents of Child Negative Behavior				
Average ^a	5.5 (5.8)	4.0 (4.8)	5.4 (5.6)	3.3 (4.4)
Range	0 – 36	0 – 36	0 – 36	0 – 17
N	297	323	90	65

Source: Based on observations “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Based on observations at all sites at 24 and 36 months. Possible range of number of incidents is 0 to 60 over a 2-hour observation period. Sample sizes are slightly larger than for the ITERS/ECERS and FDCRS due to fewer missing values.

^aStandard deviations in parentheses.

24 incidents of caregiver-initiated talk, while 36-month-old children in center care experienced about 19 incidents, on average.

We might expect more verbal interaction between child and caregiver at 36 months because children have higher verbal ability, but in general children at that age experienced fewer interactions with their caregivers in center settings. This could be due to the rising child-adult ratios or to children having more interactions with peers. Perhaps the ratio indicates the fraction of the caregiver's attention that each child in her care can receive within a fixed time period. In family child care, however, there were slightly more incidents of any caregiver talk to the child at 36 than at 24 months.

Instances of negative child behavior were observed infrequently. On average, about the same number of incidents of negative behavior were observed for 24-month-old children in centers and family child care (5.5 and 5.4, respectively, out of a possible 60 across all the observation intervals). The range and variance in the number of incidents were also similar in the two settings. Older children displayed fewer incidents of negative behavior: 36-month-old children in child care centers displayed an average of 4.0 incidents of negative behavior, compared with 5.5 incidents for 2-year-olds. Children in family child care experienced 3.3 incidents at age 3, and 5.4 at age 2. The range and variance in negative behaviors were smaller for children in family child care than for children in centers.

Two important indicators of the quality of child-caregiver interactions at age 3 were substantially higher in family child care settings than in center care: (1) incidents of any caregiver talk to child at age 3 were 31.3 and 25.8 in family and center care settings, respectively (a difference of more than one-third of a standard deviation); and (2) incidents of the caregiver initiating talk with the Early Head Start child at age 3 were 24.2 in family care, compared to 18.8 in center care (also a difference of more than a third of a standard deviation). However,

since nonresponse was so much higher for family child care than center care, it is likely that the center care we observed is more representative of all center care for Early Head Start children (both community centers and care provided by Early Head Start) than the family child care we observed is for home-based settings more generally. The family child care settings we observed are likely to be of higher quality than the in-home care provided by relatives or nonrelatives used by all Early Head Start children.

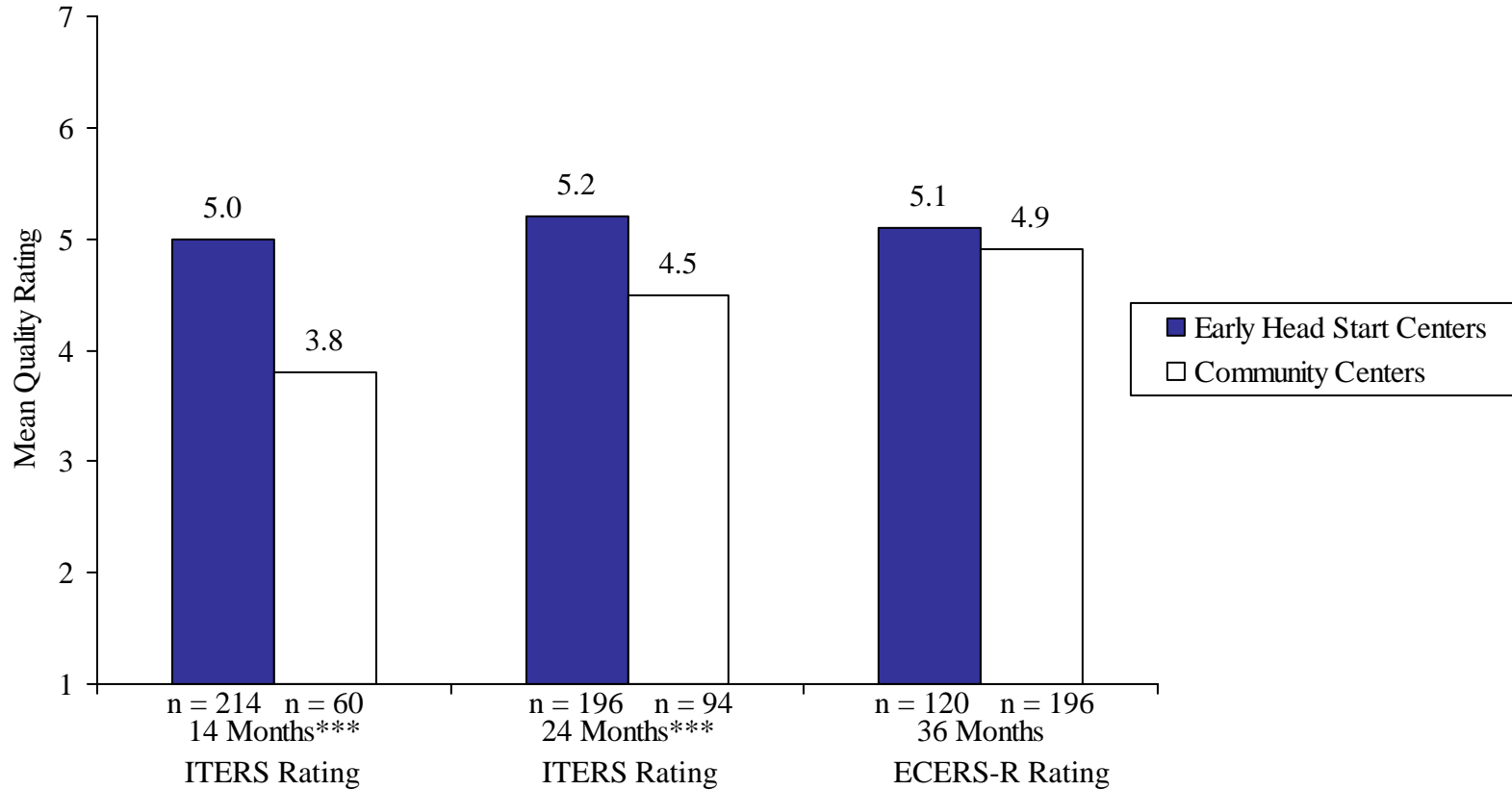
3. Quality Experienced by Early Head Start Children in Early Head Start and Community Centers

As reported in an earlier section, Early Head Start children experienced good- or nearly good-quality care averaged across all forms of center care. We further analyzed the average classroom-level quality for children in center care by contrasting the experiences of Early Head Start children in Early Head Start centers and Early Head Start children in community-based centers. The same measures were used—ITERS and ECERS-R, Arnett caregiver ratings, and child-adult ratios—when children were 14, 24, and 36 months old, and the sample includes all children whom we observed in center care across all sites. ITERS and ECERS-R scores were consistently higher, on average, for children in Early Head Start centers (Figure III.4). The average of these global quality ratings was consistently good in Early Head Start centers, ranging between 5.0 and 5.2 across the three time periods.

The largest disparity between Early Head Start and community centers appeared at 14 months, when average ITERS quality in Early Head Start centers was 5.0 and just 3.8 in community centers. The disparity narrowed by 36 months due to the improving scores for community centers—by 36 months of age, only 0.2 points on the ECERS-R separated the quality levels of Early Head Start and community child care centers (Figure III.4).

FIGURE III.4

AVERAGE ITERS AND ECERS-R QUALITY RATINGS FOR EARLY HEAD START AND COMMUNITY CENTERS WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD



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SOURCE: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: Individual observations were not conducted for all children at 14 months. Children in the same care setting who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

***Difference is statistically significant at the .01 level.

Differences also appeared in the ITERS and ECERS-R subscales. For every subscale at every age (except for Program Structure and Language and Reasoning at 36 months), the Early Head Start-community setting differences were statistically significant (Figure III.5).

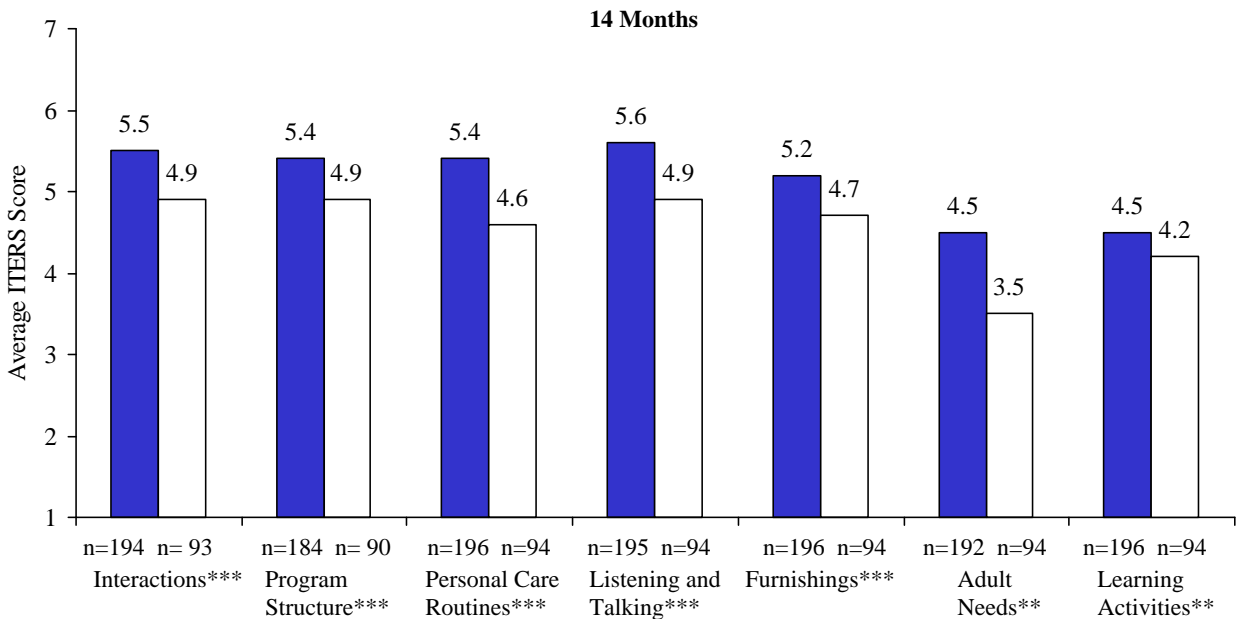
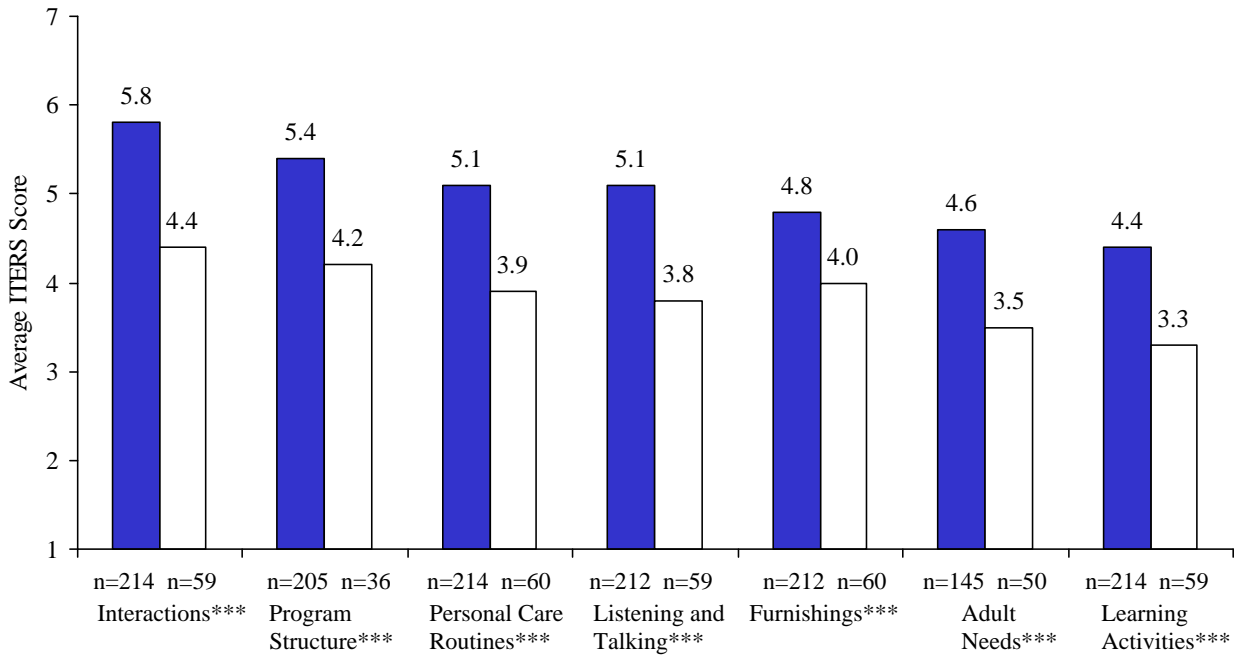
The differences between Early Head Start and community settings on the Arnett scale were less dramatic but followed the same pattern, and only the difference at 14 months was significant (Figure III.6). Average Arnett ratings at Early Head Start centers across all three time periods were between 3.4 and 3.5. Between 14 and 36 months of age, average quality in community centers by this measure increased from 3.1 to 3.4, so that by the time children were 2 and 3 years old there was little difference between Early Head Start and community centers.

In another indication of the good quality provided by Early Head Start programs, child-adult ratios were consistently lower (that is, fewer children per adult) in Early Head Start than community child care centers (Figure III.7). Average child-adult ratios were 2.6 to 1 for Early Head Start centers enrolling 14-month-old children and 3.0 to 1 for Early Head Start 24-month-old children. Average ratios increased from 2.6 to 1 to 4.5 to 1 in Early Head Start centers between 14 and 36 months of age. In community centers, ratios increased from 3.9 to 1 when children were 14 months old to 6.1 children per adult at 36 months. As noted earlier, by 36 months, many Early Head Start children had left the program and were likely to have been in preschool classrooms where higher ratios are acceptable.

Considering specific caregiver and child behaviors and interactions as quality indicators, Figure III.8 shows the average number of incidents of three caregiver interaction behaviors and one child behavior coded on the C-COS when children were 24 and 36 months old. The patterns of better quality in Early Head Start than community centers seen with the global measures appear here also, but the differences are less pronounced. Children in Early Head Start centers experienced higher levels of any caregiver talk than children at community centers at 36 months,

FIGURE III.5

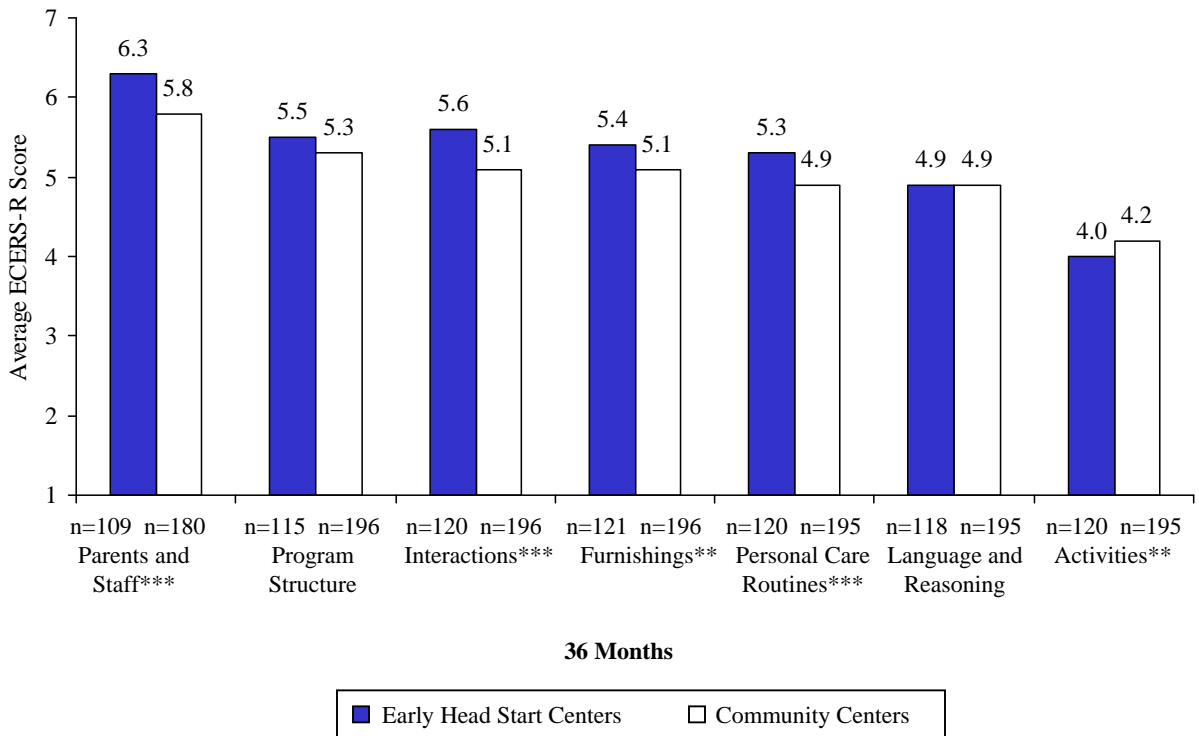
AVERAGE ITERS AND ECERS-R SUBSCALE SCORES FOR
EARLY HEAD START AND COMMUNITY CENTERS
(ALL SITES, WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD)



24 Months



FIGURE III.5 (continued)



Source: Based on outside observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a non-relative in the child’s home. Only one arrangement per child was observed.

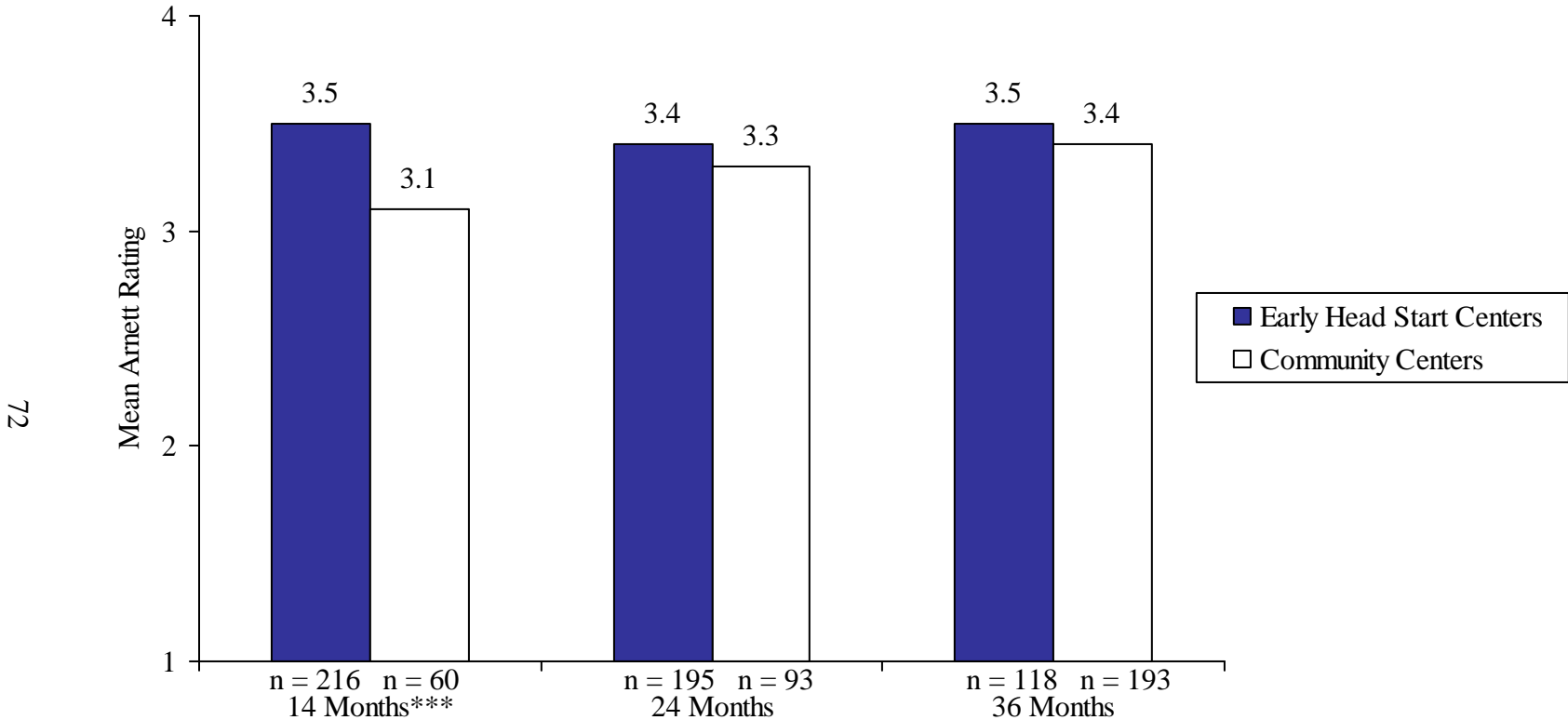
Note: Individual observations were not conducted for all children at 14 months. Children in the same care setting who were scheduled to be observed within three months of each other were assigned the same classroom characteristics. The possible range on each subscale is 1.0 – 7.0.

**Difference is significant at the .05 level.

***Difference is significant at the .01 level.

FIGURE III.6

AVERAGE CAREGIVER ARNETT SCORES FOR EARLY HEAD START AND COMMUNITY CENTERS WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD



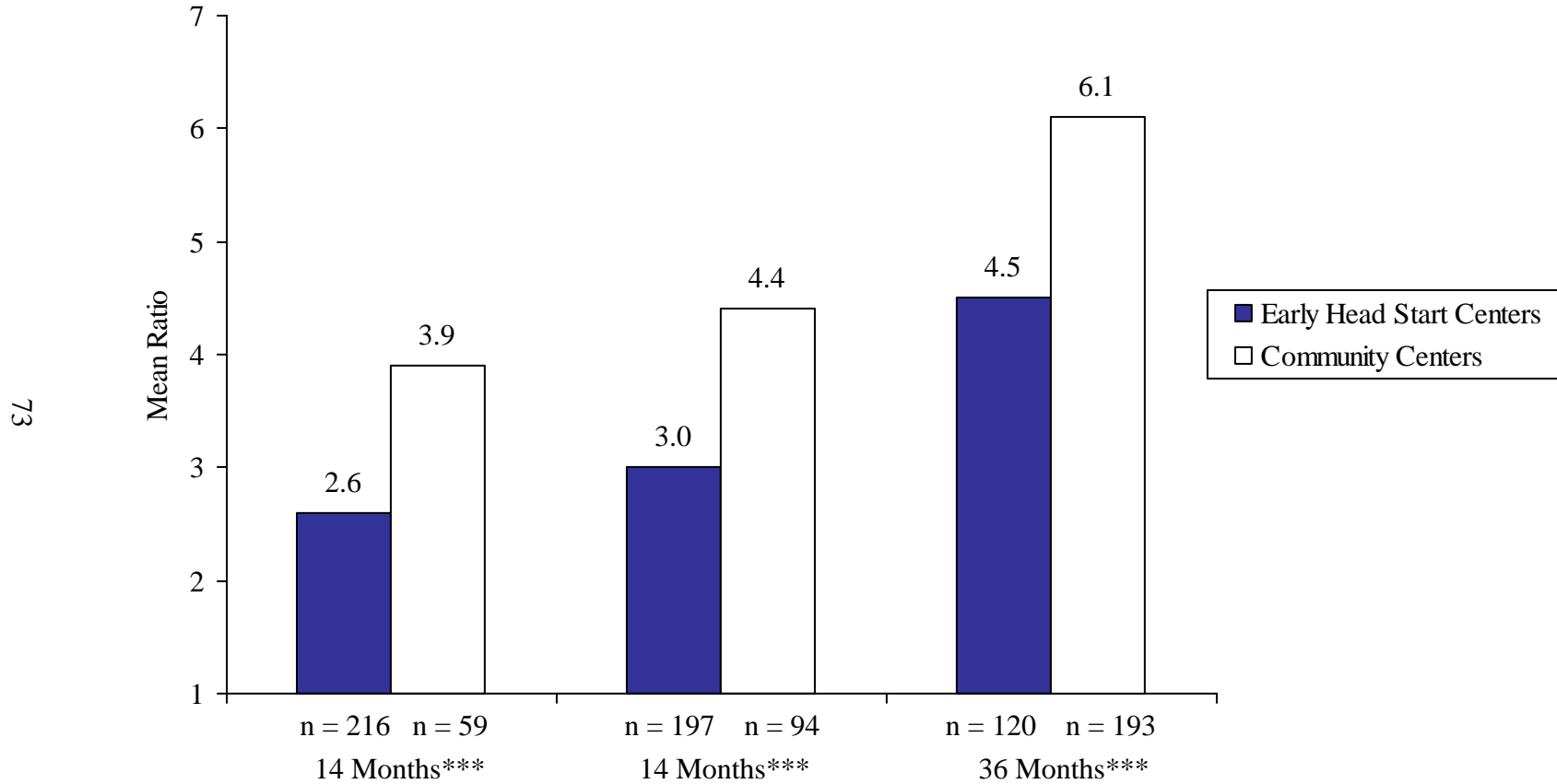
SOURCE: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: Individual observations were not conducted for all children at 14 months. Children in the same care setting who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

***Difference is statistically significant at the .01 level.

FIGURE III.7

AVERAGE CHILD-ADULT RATIOS FOR EARLY HEAD START AND COMMUNITY CENTERS
WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD



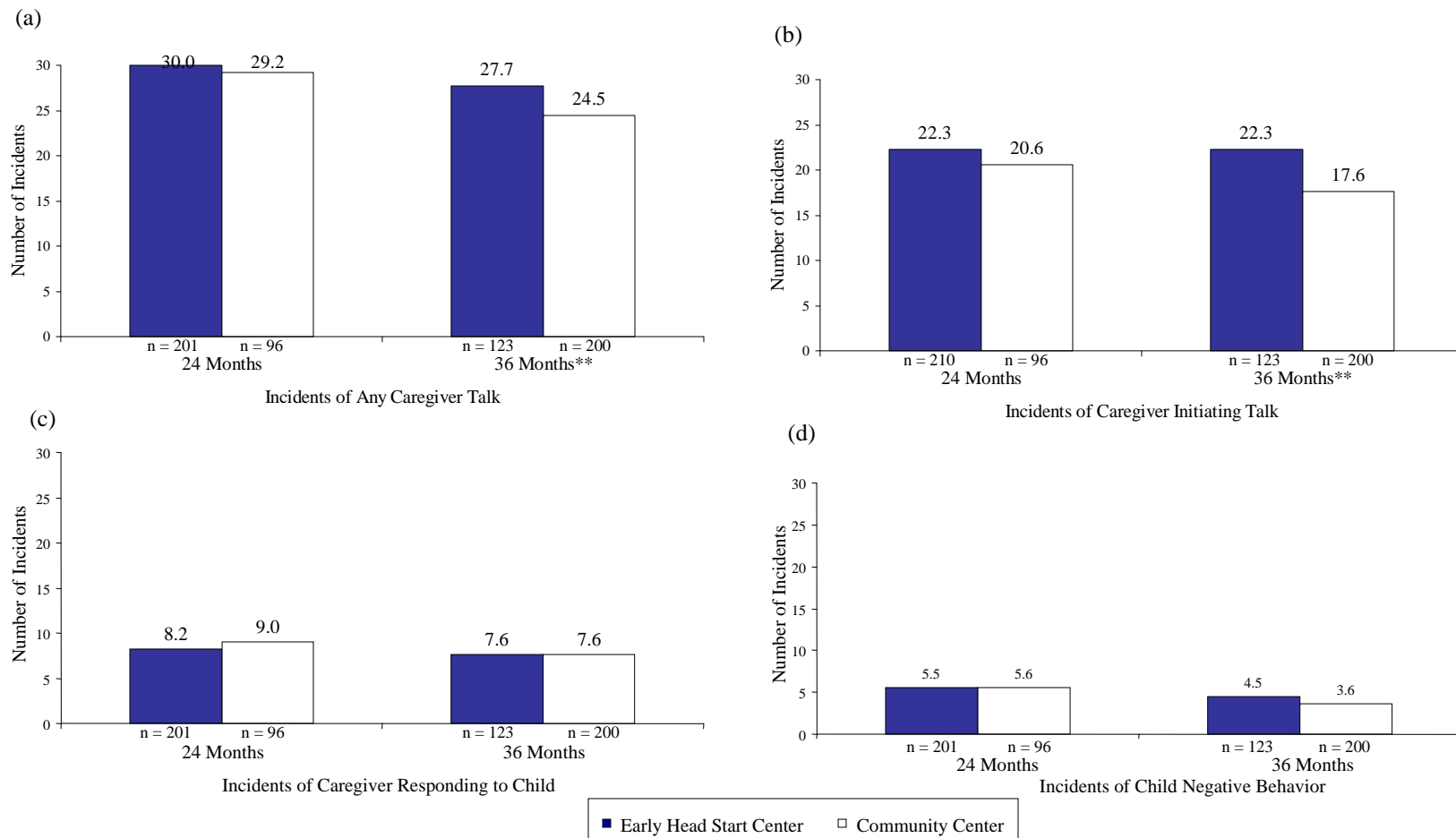
SOURCE: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: Individual observations were not conducted for all children at 14 months. Children in the same care setting who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

***Difference is statistically significant at the .01 level.

FIGURE III.8

AVERAGE CHILD-CAREGIVER OBSERVATION SYSTEM (C-COS) SCORES FOR EARLY HEAD START AND COMMUNITY CENTERS WHEN CHILDREN WERE 24 AND 36 MONTHS OLD



74

SOURCE: Based on observations in “eligible” care arrangements, defined as those that occur for at least 10 hours per week outside a child’s home, or by a non-relative in the child’s home. Only one arrangement per child was observed.

NOTE: The possible range for the number of incidents of negative behavior and caregiver talk is 0-60 over a 2-hour observation period.

**Difference is statistically significant at the .05 level.

28 versus 25 incidents of talk (Figure III.8a). This difference is driven by the difference in talk initiated by the caregiver (Figure III.8b), with Early Head Start children experiencing an average of about 22 incidents and children in community centers just under 18. When they were 2 years old, children across the two settings did not experience differential amounts of caregiver talk. The small differences between the number of incidents of children’s negative behavior in Early Head Start and community centers were not significant at either 24 or 36 months of age (Figures III.8c and III.8d).

In this section, we have seen multiple measures of program quality that almost unanimously demonstrate that Early Head Start children experienced higher levels of quality in centers operated by Early Head Start programs when compared with community-based centers, and higher quality in centers than in family child care settings, although we compare centers and family care cautiously because of small samples of the latter and the potential for bias in which family care settings were observed. C-COS data suggested that Early Head Start children in family child care experienced somewhat more caregiver talk than children in center care, in contrast to the global quality differences between the two modes of care. Quality in community settings, however, apparently improved somewhat as children got older. The older children became, the less difference there was in the quality of care received in Early Head Start-operated and community-based child care centers. This may be due to the efforts that Early Head Start programs expended to improve quality among community partners, or to the fact that environmental ratings are generally higher for preschoolers than for infants (Cost, Quality, and Child Outcomes Study Team 1995).

C. SUMMARY OF EARLY HEAD START QUALITY OF CHILD CARE

Considering several measures of quality, we find that Early Head Start children generally experienced good quality—quality that meets the Head Start Program Performance Standards—

in the child care centers they were enrolled in. On standard, widely used global measures, the quality of care appeared somewhat lower in family child care than in center arrangements. However, when compared using a measure of specific caregiver-child interactions, we found evidence that family care arrangements may provide advantages for children in terms of the amount of caregiver verbal interactions with the Early Head Start child. However, given the small percentage of family care arrangements we were able to observe, it is difficult to draw conclusions about the quality of family care experienced by the full sample of Early Head Start children. Community centers used by Early Head Start families were generally of lower quality than the Early Head Start centers, but their quality ratings improved over time so that by the time Early Head Start families were placing their 3-year-olds in community centers, their quality was very close to that of Early Head Start centers.

D. EARLY HEAD START PROGRAMS' IMPACTS ON CHILD CARE QUALITY

We now come to one of the central questions about the role of Early Head Start programs in providing child care opportunities for low-income families with infants and toddlers: was the program effective in ensuring that its children were in child care settings of higher quality than available to the families who had been randomly assigned to the control group. First, we examine the extent to which families' participation in an Early Head Start program increased their likelihood of using higher-quality child care. This analysis is followed by a second set of analyses in which we show how Early Head Start programs made a difference in the *levels* of quality in the child care arrangements in which they placed their children. In short, this section reports findings related to whether Early Head Start programs accomplished what they set out to do—to improve the chances for children to experience good-quality child care.

1. Approach to the Analyses of Impacts on Child Care Quality

Sample Limitations. As described in Chapter I, observations of quality in child care settings were completed for a subsample of the families who reported using child care. Not all families used child care, nor were we able to observe all those who did. The sample used for analysis of the impact of Early Head Start programs on child care quality includes all four center-based sites, four mixed-approach sites in all three time periods, and one additional site for the mixed-approach analysis at 36 months.⁶ Since we were not able to observe quality in most home-based or family child care arrangements, we did not conduct analyses of the programs' impact on the quality of family child care used by Early Head Start children. Nevertheless, we were able to address a significant part of the question the Advisory Committee posed regarding Early Head Start increasing the probability that children would receive quality child care. The analyses reported provide clear answers to the question: *Do Early Head Start programs increase the probability that children will receive good-quality center care?*⁷

Analytic Issues. Child care quality could be assessed only if families were using child care. It seems likely that the families who were using child care differed in important characteristics from those families who were not using child care. Furthermore, it is possible that the factors affecting which families placed their children in child care were different depending on whether

⁶As reported in the Early Head Start implementation study (ACF 2002c), designation of programs as mixed-approach indicated that they provided some combination of center- and home-based services. Based on the 1997 site visits, seven programs were designated as mixed-approach; four of these had sufficient samples of center observations to be included in the impact analyses. One additional mixed-approach program subsequently added a center and had a large enough observation sample to allow us to add a fifth site to our analyses during the period in which the 36-month observations were conducted.

⁷Even though the analyses we conducted to address this question were based on a subset of the research sites, the sites included in the impact analyses represent between 75 and 85 percent of all center care that children in our sample experienced.

the family was in the program or control group. Therefore, because of the potential for bias, it would not be appropriate simply to compare program and control-group quality for those children who were in child care. We already know, as presented in Chapter II, that program families were more likely to use center care, so it is possible that characteristics of families in the two groups differ, and are themselves correlated with the quality of the centers used.⁸ Additional biases could have been introduced because we were not able to complete observations in all eligible settings, and we do not know the extent to which the centers observed are representative of all centers that *could* have been observed. It is possible, for example, that the centers that allowed our observers in were of higher quality than those who refused to be observed. To minimize these selection-bias concerns, we conducted the impact analysis in two stages.

Stage 1 Analysis. To avoid the selection bias issue for this research question we conducted the first stage analysis that included *all* Early Head Start and control-group families for whom we had complete 14-, 24-, or 36-month Parent Interviews at these sites. (Data presented in the evaluation’s final report demonstrated that attrition of parent interview respondents in the full sample did not produce any bias affecting the impact analyses [ACF 2002b].) To do this, we had to find a child care quality variable that would enable us to include every family in the sample. We created a dichotomous variable equal to 1 if the child was in a good-quality child care center,

⁸Appendix Tables A.4 and A.5 show the baseline characteristics of program and control families at the sites where we conducted the impact analyses. The groups differ on a small number of demographic characteristics but are highly similar. Nevertheless, unmeasured differences due to selection factors are still possible (Duncan, Magnuson, and Ludwig in press). These factors relate to at least three different circumstances: (1) family characteristics, such as the need for and motivation to seek child care for their child; (2) child care setting characteristics, such as the provider’s willingness to allow observers into the center or home, and their stability, as some settings were no longer operating when observers arrived; and (3) the researchers’ ability to complete the observations within a reasonable time following the birthday-related interview.

and 0 if in a lower-quality center or not in child care at all. Children whose classroom received a rating of 5.0 or above on the ITERS (at 14 and 24 months of age) or the ECERS-R (at 36 months) at the time of the observation received a score of 1; if not, they were given a zero.⁹ Similar cutoffs were set for child-adult ratios and the C-COS variables (which are described when the findings for each of those instruments are described). Results are presented as the difference between the percentage of children in the program and control groups who experienced good-quality care. We recognize that the impact estimates from Stage 1 represent the *joint* effects of impacts on the use of any center child care and impacts on the use of good-quality center care among those who used care (and for whom observations were completed). Additional analyses were needed to begin to address the question of differential levels of quality in the program and control groups.

Stage 2 Analysis. In the second stage we examined differences between the program and control groups in the levels of quality among those families who used center care. Although the differences in quality levels cannot be considered true program impacts (because they are based on potentially nonrandom subsets of the program and control groups), the results are indicative of differences in quality of Early Head Start centers and the centers that were available to control-group children in the community.

⁹All families in the four center-based sites and four mixed-approach sites who completed a 14- or 24-month Parent Interview—and all families in the four center-based and five mixed-approach sites who completed the 36-month Parent Interview—are included in the analysis. Thus, these analyses provide estimates of the impacts for eligible applicants. For those children who were in an eligible child care setting but not observed, we imputed the mean value of receiving good-quality care among the children in that group (by program approach and program-control status) who were observed. In essence, this procedure assumes that the percentage of good-quality care settings was the same in the eligible settings we did not observe as in the settings we did observe.

2. Early Head Start's Impact on the Percentage of Families in Good-Quality Center Child Care—Global Measures

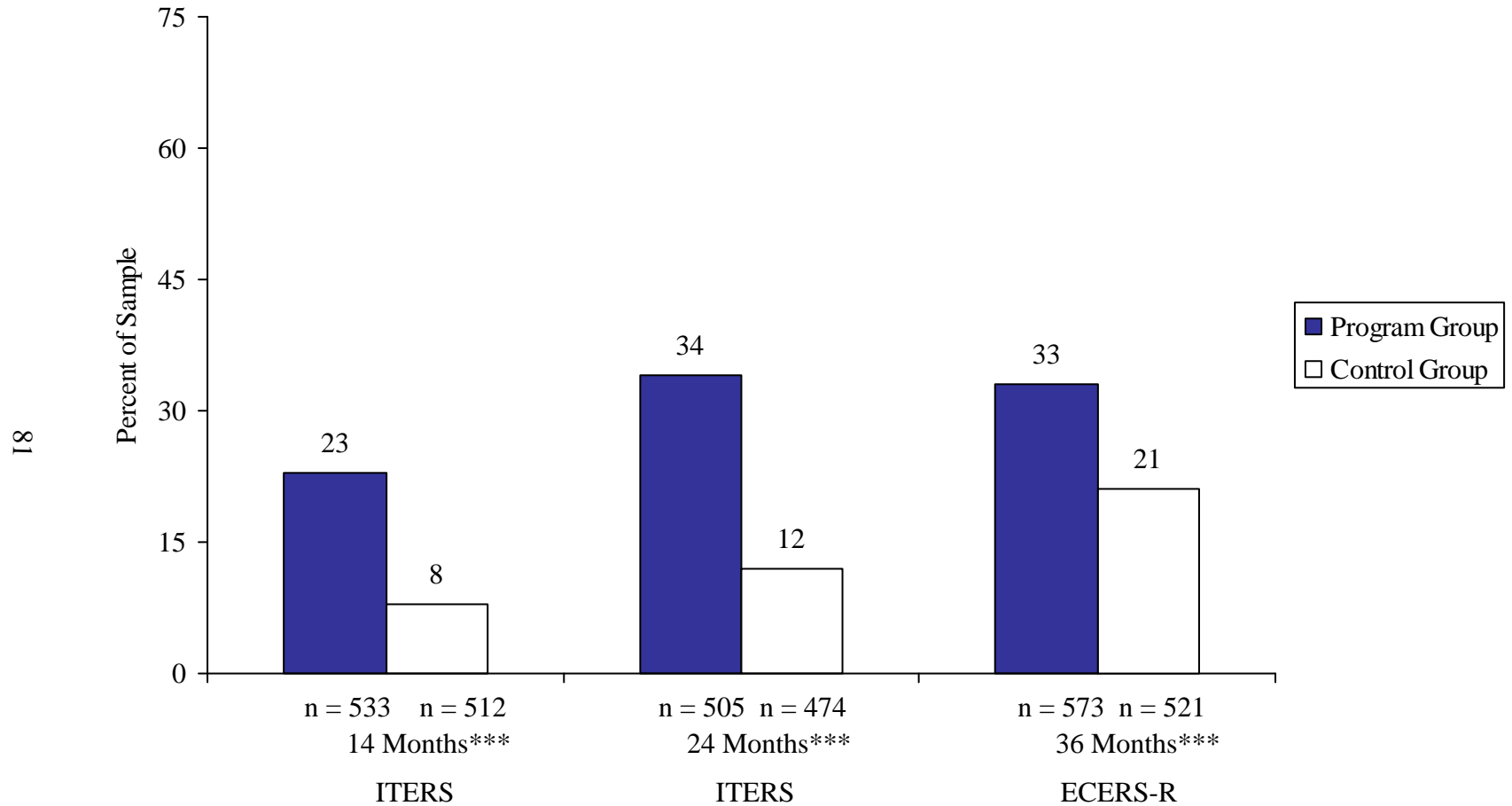
Our first analysis examined impacts across the eight sites at 14 and 24 months and nine sites at 36 months for which we had sufficiently large samples sizes and response rates; these include both center-based and mixed-approach program sites. At all three ages, Early Head Start had a large impact on the percentage of children who were in good quality center care at least 10 hours a week (Figure III.9). At 14 and 24 months of age, Early Head Start children were almost three times as likely to experience good quality (ITERS \geq 5.0) center child care as the control children (23 percent versus 8 percent at 14 months; 34 versus 12 percent at 24 months). The program-control difference narrowed slightly at 36 months, but more than 33 percent of Early Head Start children were in good-quality care when they were about 36 months old (\geq 5.0 on the ECERS-R), a percentage that was significantly greater than the 21 percent of control-group children.

Early Head Start impacts on the percentage of children in good-quality centers were greater within the sites at which the programs were center-based and somewhat smaller within the mixed-approach sites (Figures III.10 and III.11). At the four center-based sites, the percentage in good quality ranged from 26 to 37 percent of the sample, whereas only 9 to 16 percent of control-group children were in care that scored this high, a statistically significant difference at each age level. The large impact on the percentage in quality center care at mixed-approach sites was significant at 14 and 24 months, but only marginally significant at age 3 (31 versus 24 percent; Figure III.11).

The Early Head Start program's impact on the percentage of children in centers with child-adult ratios that met the performance standards was dramatic. At the four center-based sites at 14 months of age, Early Head Start children were more than twice as likely as control children (72 versus 29 percent) to be in classrooms with ratios of 4 to 1 or better (Figure III.12). At

FIGURE III.9

IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN IN GOOD-QUALITY, CENTER CARE, WHEN THEY WERE 14, 24, AND 36 MONTHS OLD



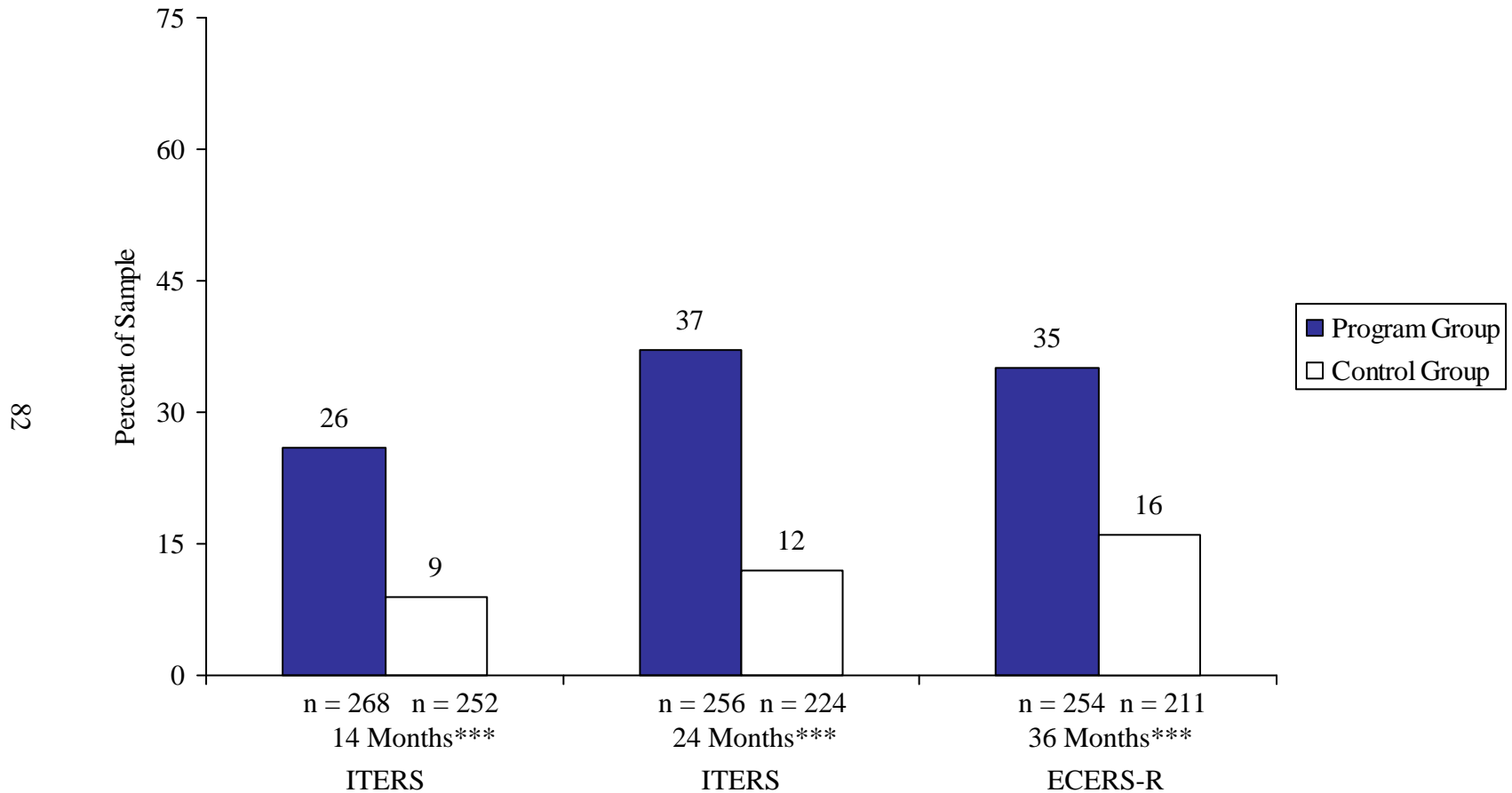
SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: High quality is defined as 5.0 or higher on the ITERS and ECERS-R. The sample includes all children at four center-based and four mixed-approach sites at all three time periods and an additional mixed-approach site at 36 months. Children in the same location at 14 months scheduled to be observed within three months of each other were assigned the same classroom characteristics. The probability of a high ITERS or ECERS-R score was imputed for children in care but not observed.

***Difference is statistically significant at the .01 level.

FIGURE III.10

IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN IN GOOD-QUALITY, CENTER CARE, AT CENTER-BASED SITES WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD



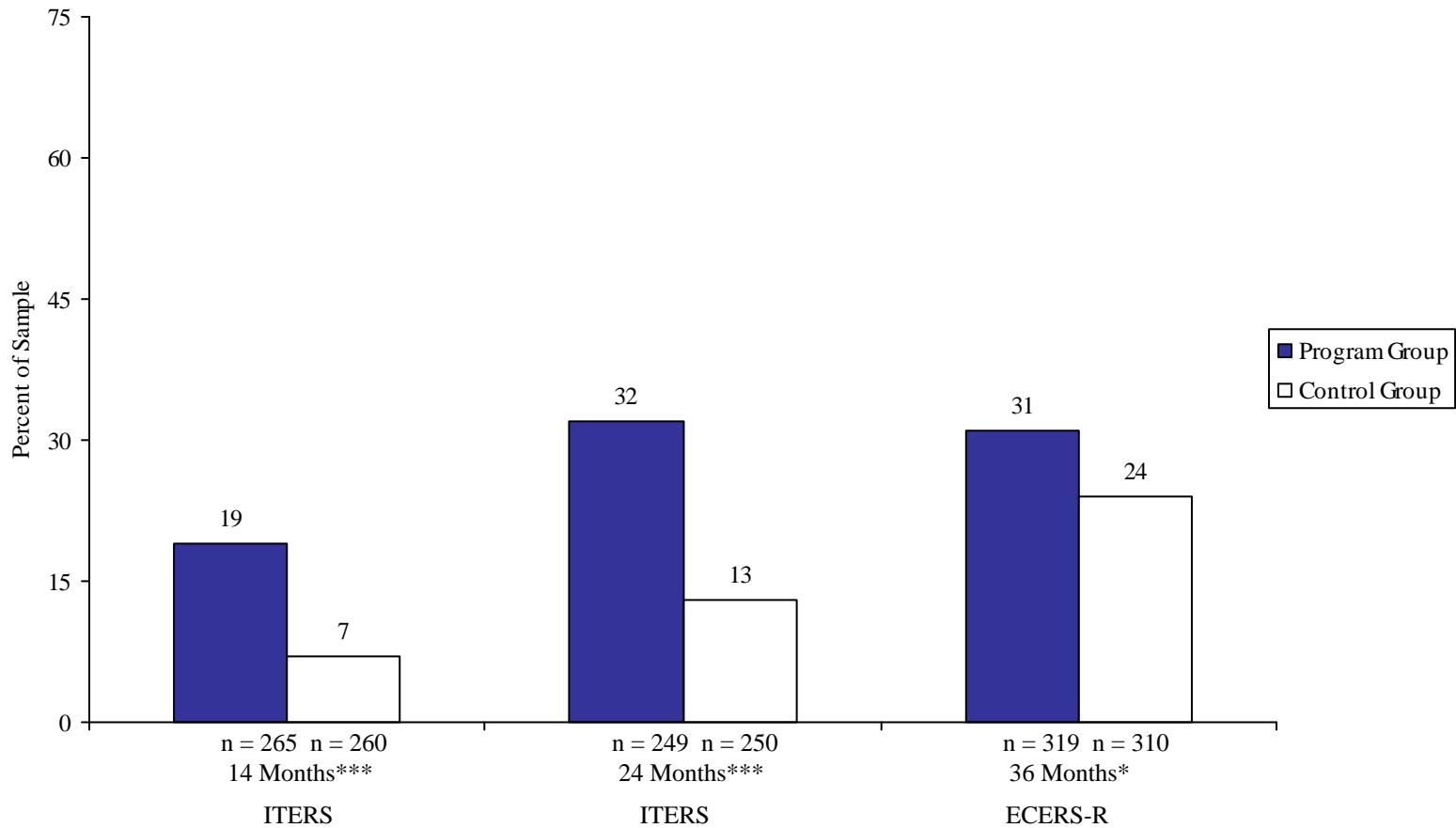
SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: High quality is defined as 5.0 or higher on the ITERS and ECERS-R. The sample includes all children at four center-based sites at all three time periods. Children in the same location at 14 months scheduled to be observed within three months of each other were assigned the same classroom characteristics. The probability of a high ITERS or ECERS-R score was imputed for children in care but not observed.

***Difference is statistically significant at the .01 level.

FIGURE III.11
 IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN IN GOOD-QUALITY, CENTER CARE,
 AT SELECTED MIXED-APPROACH SITES WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD

83



SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

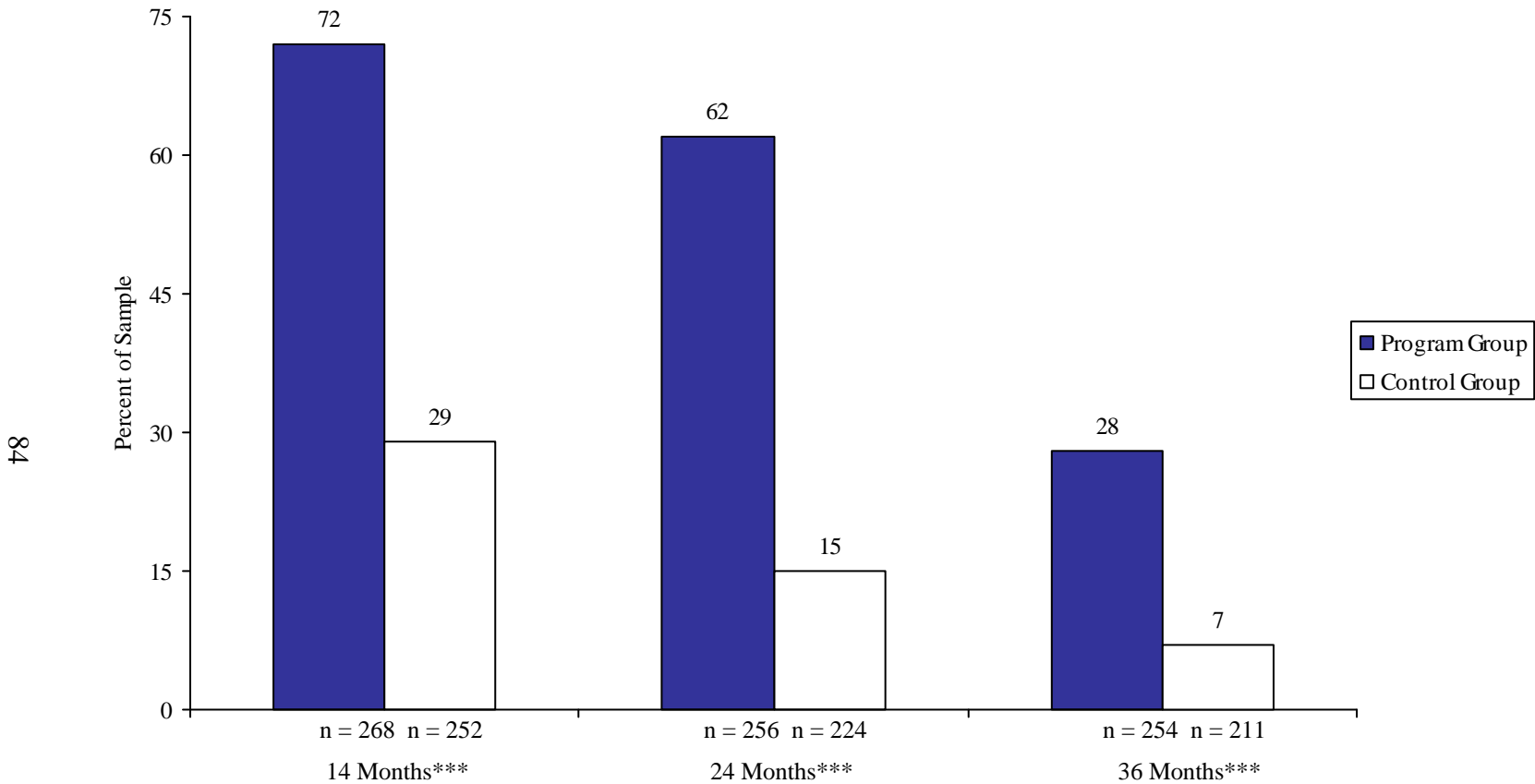
NOTE: High quality is defined as 5.0 or higher on the ITERS and ECERS-R. The sample includes all children at the four mixed-approach sites at all three time periods and an additional site at 36 months. Children in the same location at 14 months scheduled to be observed within three months of each other were assigned the same classroom characteristics. The probability of a high ITERS or ECERS-R score was imputed for children in care but not observed.

*Difference is statistically significant at the .10 percent level.

***Difference is statistically significant at the .01 percent level.

FIGURE III.12

IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN IN CENTER CARE THAT MEETS THE HEAD START PROGRAM PERFORMANCE STANDARDS FOR CHILD-ADULT RATIOS, AT CENTER-BASED SITES WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD



SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: Child-adult ratios of 4.0 or lower meet Head Start Program Performance Standards for infants and toddlers. We use the same ratio for 36-months, although higher ratios meet the performance standard for children older than 36 months. The sample includes all children at the four center-based sites. Children in the same location at 14 months scheduled to be observed within three months of each other were assigned the same classroom characteristics. The probability of a child-adult ratio of 4.0 or lower was imputed for children in care but not observed.

***Difference is statistically significant at the .01 level.

24 and 36 months, four times as many Early Head Start as control children were in such classrooms. The impacts are somewhat less within the mixed-approach programs, but still demonstrate very substantial impacts that the program had on the percentage of families whose children are in good-quality center child care at all three ages (Figure III.13).

3. Early Head Start’s Impact on the Percentage of Families in Good-Quality Center Child Care—Child-Caregiver Interactions (C-COS Scores)

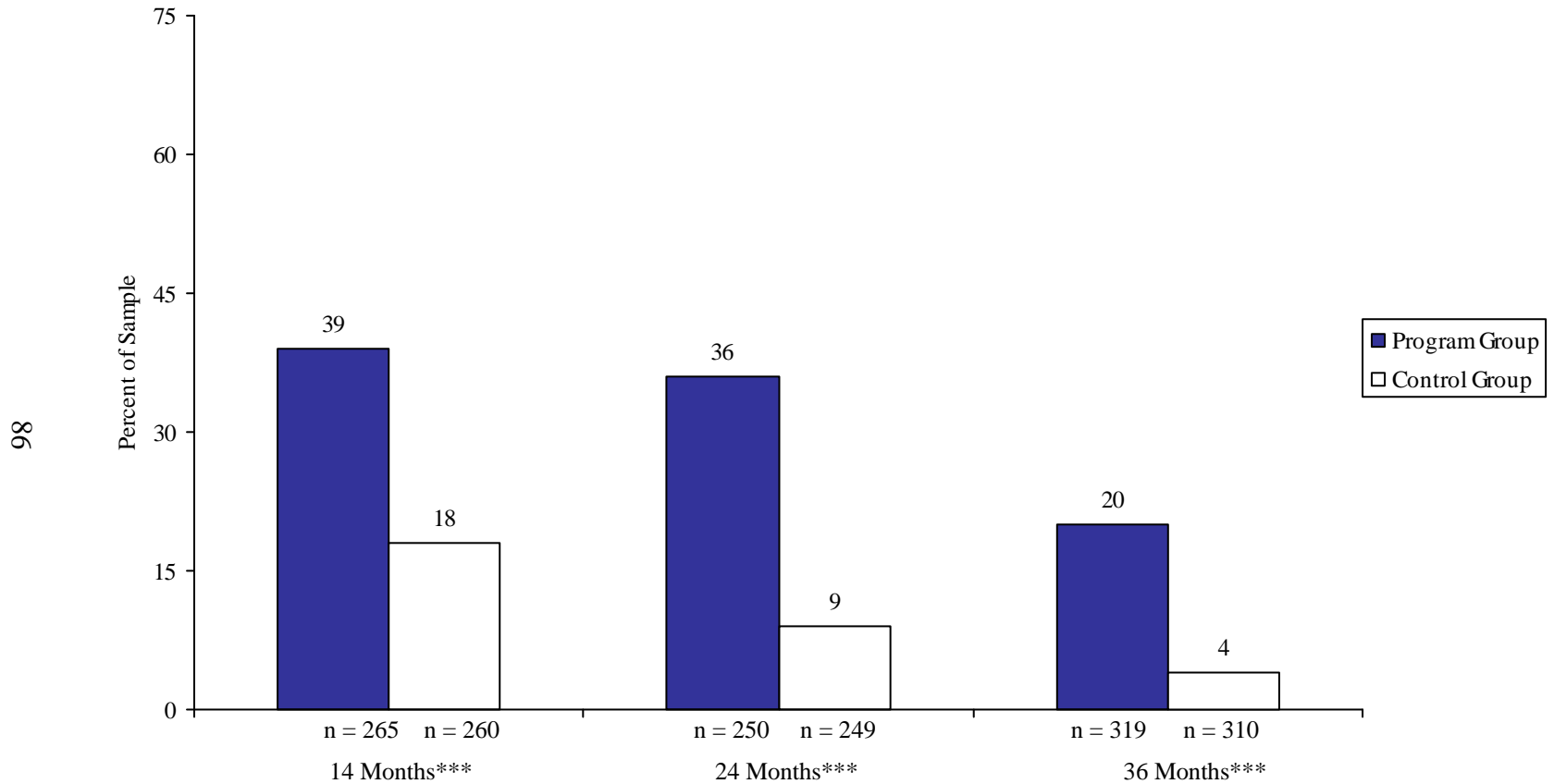
Because no established literature is available for setting “good quality” cutoff scores for the C-COS observations, we used scores that represent approximately the top quarter of the distribution of scores as a cutoff for the Stage 1 impact analyses. We set the cutoff for any talk at 34 incidents, for caregiver responding at 11 incidents, and for caregiver initiated talk at 28 incidents.

Early Head Start programs in center-based sites had a large and significant impact on total caregiver talk with child (Figure III.14a), caregiver responsiveness to child (Figure III.14b), and the caregiver’s initiation of talk (Figure III.14c) at both 24 and 36 months of age. For example, when children were 2 years old, 43 percent of Early Head Start children experienced caregiver talk above the cutoff (34 or more incidents), compared to only 19 percent of control-group children at the center-based sites. The impacts at 24 months were consistently larger and more robust than when children were 36 months old. The percentage of Early Head Start children experiencing a high level of any caregiver talk dropped to 26 percent at 36 months, while the percentage of control-group children stayed about the same (20 percent). Early Head Start had no impact on incidents of negative behavior; but, as we saw earlier (Figure III.8), very few negative behaviors were observed overall.

In the centers operated by the mixed-approach sites included in this analysis, Early Head Start programs’ impact on child-caregiver interactions were smaller but followed a similar

FIGURE III.13

IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN IN CENTER CARE THAT MEETS THE HEAD START PROGRAM PERFORMANCE STANDARDS FOR CHILD-ADULT RATIOS, AT SELECTED MIXED-APPROACH SITES WHEN CHILDREN WERE 14, 24, AND 36 MONTHS OLD



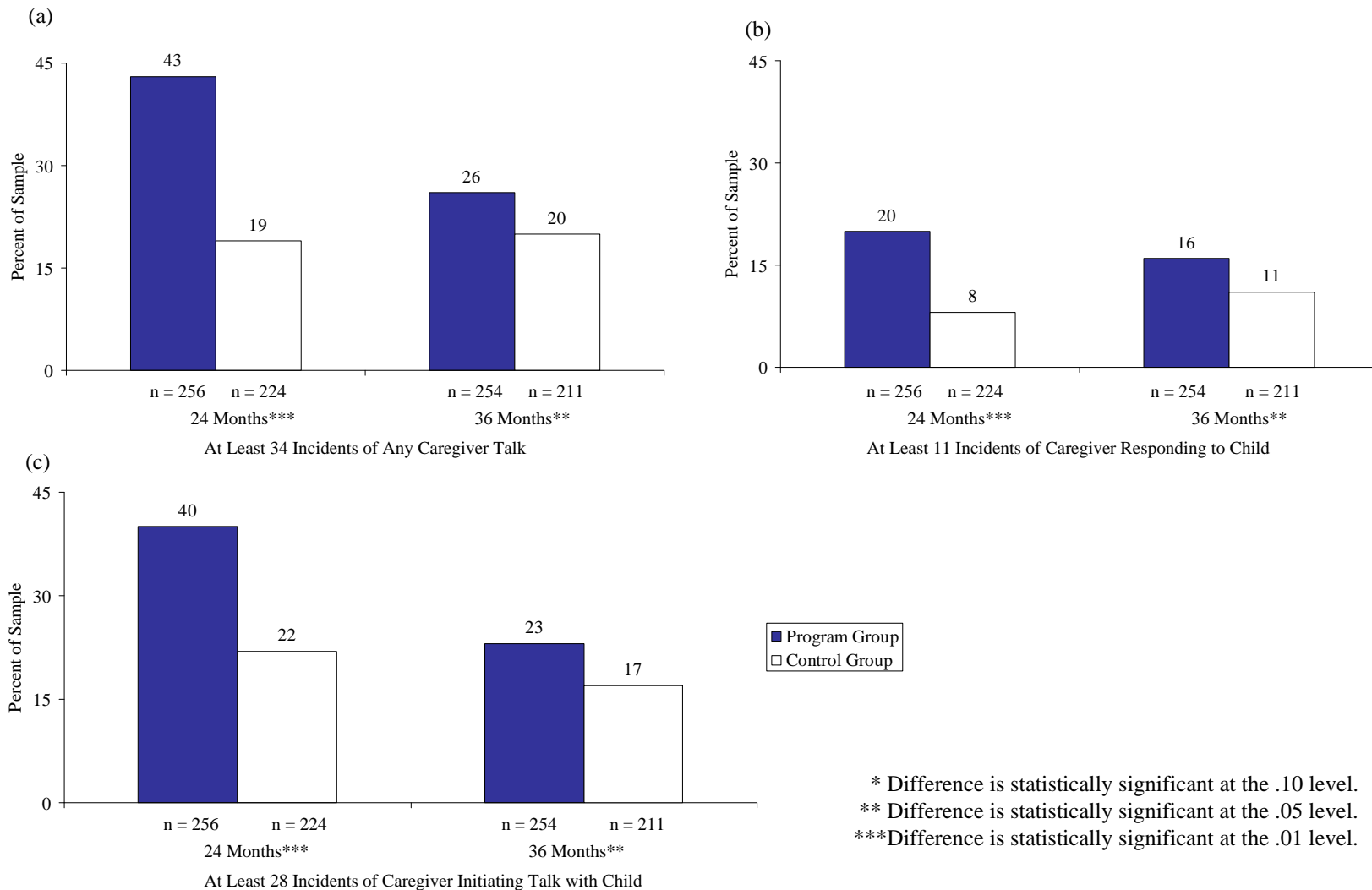
SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTE: Child-adult ratios of 4.0 or lower meet Head Start Program Performance Standards for infants and toddlers. We use the same ratio for 36-months, although higher ratios meet the performance standard for children older than 36 months. The sample includes all children at four mixed-approach sites at all three time periods and an additional site at 36 months. Children in the same location at 14 months scheduled to be observed within three months of each other were assigned the same classroom characteristics. The probability of a child-adult ratio of 4.0 or lower was imputed for children in care but not observed.

***Difference is statistically significant at the .01 level.

FIGURE III.14

IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN EXPERIENCING HIGH LEVELS OF CAREGIVER TALK IN CENTER CARE AT CENTER-BASED SITES WHEN CHILDREN WERE 24 AND 36 MONTHS OLD



87

SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTES: The sample includes all families at four center-based sites. Possible range for number of incidents of caregiver talk is 0-60 over a 2-hour observation period. The probability of high levels of caregiver talk was imputed for children in care, but not observed.

pattern with two exceptions (Figure III.15). At 36 months of age, the percentage of Early Head Start children experiencing high levels of any caregiver talk (12 versus 14 percent) and high levels of caregiver initiating talk with the child (8 versus 12 percent) was lower than that for the control group. Still, at age 2, the percentage of Early Head Start children who were in arrangements with caregivers who displayed high levels of any talking was more than twice as great as that for control children (28 versus 11 percent). Similarly, 2-year-old Early Head Start children experienced three times as much caregiver responsiveness in their classrooms as their control-group counterparts; and the program-control difference at 36 months, though smaller, was still significant.

4. Summary of Program Impacts on Percentages of Children Receiving Good-Quality Center Child Care

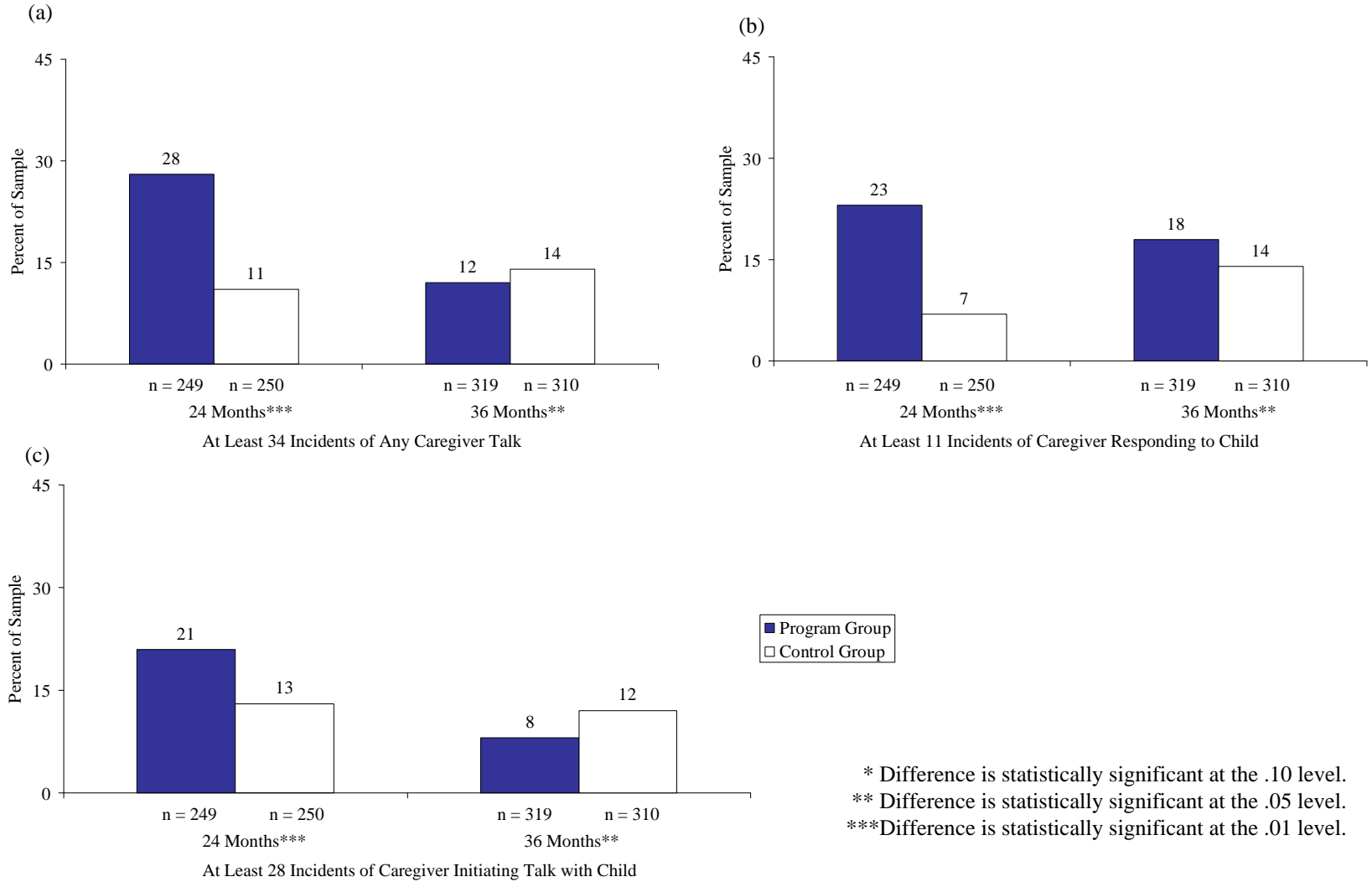
Because of their participation in a center-based or mixed-approach Early Head Start program, infants and toddlers in low-income families that we studied experienced significantly higher-quality center child care. These analyses of the impacts of Early Head Start on the percentages of children experiencing good-quality care show strong effects of the program. This is true for all measures of quality used—structural and process quality, and both global quality and specific caregiver-child interaction measures. Impacts were particularly strong for families enrolled in the four center-based programs.

5. Differences in the Average Quality of Care for Children Observed in Care

Because of the strong impacts on the percentage of children receiving good-quality care, the quality data can also be used to understand the impacts by analyzing the relationship between program participation and the levels of quality. This second stage in our analysis is not a pure impact analysis due to the selection factors described earlier. However, because we know that Early Head Start has strong impacts for the full sample, if we also find differences in *levels* of

FIGURE III.15

IMPACT OF EARLY HEAD START ON PERCENTAGE OF CHILDREN EXPERIENCING HIGH LEVELS OF CAREGIVER TALK IN CENTER CARE AT MIXED-APPROACH SITES WHEN CHILDREN WERE 24 AND 36 MONTHS OLD



69

SOURCE: Based on responses to Parent Interviews and observations on children in “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

NOTES: The sample includes all families at four mixed-approach sites in both time periods and an additional site at 36 months. Possible range for number of incidents of caregiver talk is 0-60 over a 2-hour observation period. The probability of high levels of caregiver talk was imputed for children in care, but not observed.

quality when including only those we observed in the analysis, we are in a stronger position to argue that it was participation in the Early Head Start program that is responsible for the program-control differences in observed quality.

Tables III.5 and III.6 show the average classroom quality scores (ITERS, ECERS-R, Arnett, and child-adult ratios) experienced by Early Head Start program and control-group children at sites included in the impact analyses. Classroom quality scores, measured by the ITERS and ECERS-R, were consistently higher for Early Head Start than the control group at center-based sites. Average ITERS/ECERS-R ratings ranged from 4.7 to 4.9 for Early Head Start children. Scores for control-group children rose slightly over time, from an average of 3.9 to 4.1, but were always substantially lower than those experienced by Early Head Start children at all three time periods. The program-control differences represent effect sizes of about .7, .9, and .5 at the three ages. Classroom caregiver quality, as measured by the Arnett scale, was also higher for Early Head Start program children, with ratings of 3.4 and 3.3, which are consistently higher than the 3.0 to 3.2 ratings experienced by control-group children. Child-adult average ratios were also consistently lower (more favorable) for Early Head Start children than control children at the four center-based sites. Early Head Start ratios averaged a low of 2.8 to 1 for 14-month-old children and rose to 5.6 to 1 by 36 months. The ratio for control-group children was 3.9 to 1 at 14 months and rose to 6.8 to 1 by 36 months of age.

Quality was also higher in the classrooms attended by Early Head Start children than control children at the mixed-approach sites (Table III.6). The program-control differences in the ITERS/ECERS-R ratings were not quite as dramatic as in the center-based sites, however. The largest difference occurred at 14 months of age, when Early Head Start children experienced an average of 4.7, while control children experienced classrooms rated at 3.7. The difference at 36 months was no longer statistically significant. Program-control differences in classroom

TABLE III.5

AVERAGE QUALITY SCORES OF CHILD CARE CENTERS USED BY EARLY HEAD START AND CONTROL CHILDREN AT CENTER-BASED SITES

Quality Measure	14 Months		24 Months		36 Months	
	Program	Control	Program	Control	Program	Control
ITERS/ECERS-R						
Average (S.D.)	4.8 (1.0)	3.9 (1.3)***	4.9 (1.0)	3.8 (1.2)***	4.7 (1.0)	4.1 (1.3)***
Range	1.9 – 6.8	1.8 – 6.5	1.7 – 6.6	1.9 – 6.3	1.2 – 6.8	1.1 – 6.9
N	168	52	162	48	153	72
Arnett						
Average (S.D.)	3.4 (0.3)	3.1 (0.5)***	3.3 (0.4)	3.0 (0.6)***	3.3 (0.5)	3.2 (0.6)**
Range	2.4 – 4.0	1.5 – 3.9	2.0 – 4.0	1.8 – 3.8	1.3 – 3.9	1.8 – 3.9
N	171	50	161	47	150	72
Child-Adult Ratios						
Average (S.D.)	2.8 (1.0)	3.9 (1.7)***	3.2 (1.1)	5.5 (2.6)***	5.6 (3.0)	6.8 (2.7)***
Range	1.0 – 6.8	1.0 – 7.4	1.0 – 8.8	1.0 – 14.0	1.7 – 14.8	1.0 – 14.5
N	162	45	159	47	152	72

Source: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Based on observations at the four center-based sites at all three time periods. Individual observations were not conducted for all children at 14 months. Children in the same locations who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

** Program-control difference is statistically significant at the .05 level.

*** Program-control difference is statistically significant at the .01 level.

TABLE III.6

AVERAGE QUALITY SCORES OF CHILD CARE CENTERS USED BY EARLY HEAD START AND CONTROL CHILDREN AT MIXED-APPROACH SITES

Quality Measure	14 Months		24 Months		36 Months	
	Program	Control	Program	Control	Program	Control
ITERS/ECERS-R						
Average (S.D.)	4.7 (1.2)	3.7 (1.2)***	4.9 (1.3)	4.3 (1.3)**	5.0 (1.1)	4.7 (1.2)
Range	1.5 – 6.6	1.9 – 6.4	1.6 – 6.7	2.3 – 6.4	2.3 – 6.7	1.6 – 6.9
N	63	26	67	34	93	72
Arnett						
Average (S.D.)	3.4 (0.5)	3.0 (0.7)***	3.4 (0.7)	3.4 (0.5)	3.5 (0.5)	3.4 (0.4)
Range	1.5 – 4.0	1.4 – 3.9	1.3 – 4.0	2.0 – 4.0	1.7 – 4.0	2.0 – 4.0
N	63	26	67	34	90	72
Child-Adult Ratios						
Average (S.D.)	2.8 (1.6)	4.4 (1.7)***	3.8 (2.0)	5.7 (2.0)***	5.1 (2.3)	7.3 (2.8)***
Range	0.8 – 7.7	1.0 – 8.7	1.1 – 10.3	1.7 – 11.2	0.8 – 11.4	2.6 – 13.8
N	63	26	67	34	89	72

Source: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Based on observations at four mixed-approach sites at all three time periods and one additional site at 36 months. Individual observations were not conducted for all children at 14 months. Children in the same locations who were scheduled to be observed within three months of each other were assigned the same classroom characteristics.

**Program-control difference is statistically significant at the .05 level.

***Program-control difference is statistically significant at the .01 level.

caregiver Arnett ratings were also less pronounced than at the center-based sites. The only statistically significant difference occurred at 14 months, when Early Head Start children experienced higher average quality. Differences in child-adult ratios were somewhat larger at the mixed-approach sites. Early Head Start children experienced ratios of 2.8 to 1, on average, when they were 14 months old, compared to 4.4 to 1 for control-group children. A large difference persisted through to 36 months, when Early Head Start children experienced an average ratio of 5.1 to 1 compared to 7.3 to 1 for control-group children.

Tables III.7 and III.8 show C-COS scores for incidents of caregiver talk and negative child behavior. Although fewer program-control differences were significant than we saw with the global quality measures, almost all the differences are in the expected direction. Program children at the four center-based sites experienced more incidents of any caregiver talk (33.4) and caregiver responding to the child (8.1) than control-group children (30.6 and 5.9) when they were 24 months old. The same pattern was found at the four mixed-approach sites at 24 months, but the program-control differences were a bit larger, and more were statistically significant (Table III.8). Early Head Start program children experienced an average of 33.8 incidents of any caregiver talk, while control-group children experienced 27.6 incidents. Similarly, Early Head Start caregivers in the mixed-approach sites responded to the focus child 11.9 times, compared with 6.4 incidents of caregiver responding in the control group. None of the program-control differences in the child-caregiver interaction variables was significant when the children were 3 years old in either center-based or mixed-approach sites.

6. Summary of Program-Control Differences in Quality of Center Care Received

Because of the study's experimental design and the analytic approach taken, we can conclude that it is highly likely that the center-based and mixed-approach Early Head Start programs included in this analysis succeeded in ensuring that their children received significantly

TABLE III.7

AVERAGE NUMBER OF INCIDENTS OF CAREGIVER AND CHILD BEHAVIORS
CODED BY THE CHILD-CAREGIVER OBSERVATION SYSTEM (C-COS)
IN CHILD CARE CENTERS AT CENTER-BASED SITES

	24 Months		36 Months	
	Program	Control	Program	Control
Incidents of Any Caregiver Talk	34.4 (12.4)	30.6 (13.3)**	30.2 (12.4)	27.8 (14.4)
Range	10 – 60	9 – 60	5 – 59	0 – 60
N	161	58	154	79
Incidents of Caregiver Responding to Child	8.1 (8.8)	5.9 (7.2)*	6.9 (5.9)	6.7 (5.7)
Range	0 – 48	0 – 30	0 – 28	0 – 23
N	161	58	154	79
Incidents of Caregiver Initiating Talk with Child	27.0 (11.9)	25.3 (13.6)	23.8 (11.4)	21.4 (13.9)
Range	0 – 55	0 – 59	3 – 57	0 – 55
N	161	58	154	79
Incidents of Negative Behavior	5.7 (5.7)	5.1 (6.0)	4.4 (4.5)	4.5 (4.3)
Range	0 – 32	0 – 35	0 – 28	0 – 23
N	161	58	154	79

Source: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Based on observations at the four center-based sites at 24 and 36 months. Possible range of the number of incidents is 0 to 60 over a 2-hour observation period.

*Program-control difference is statistically significant at the .10 level.

**Program-control difference is statistically significant at the .05 level.

TABLE III.8

AVERAGE NUMBER OF INCIDENTS OF CAREGIVER AND CHILD BEHAVIORS
CODED BY THE CHILD-CAREGIVER OBSERVATION SYSTEM (C-COS)
IN CHILD CARE CENTERS AT SELECTED MIXED-APPROACH SITES

	24 Months		36 Months	
	Program	Control	Program	Control
Incidents of Any Caregiver Talk	33.8 (12.4)	27.6 (13.2)***	26.7 (12.2)	28.8 (13.3)
Range	6 – 59	6 – 59	5 – 60	5 – 59
N	90	47	93	73
Incidents of Caregiver Responding to Child	11.9 (13.0)	6.4 (6.3)***	8.7 (8.2)	8.4 (7.7)
Range	0 – 58	0 – 31	0 – 38	0 – 35
N	90	47	93	73
Incidents of Caregiver Initiating Talk with Child	22.8 (11.3)	21.9 (9.4)	19.1 (10.3)	21.4 (11.3)
Range	0 – 58	5 – 42	0 – 55	0 – 56
N	90	47	93	73
Incidents of Negative Behavior	4.5 (5.8)	3.4 (4.5)	3.0 (4.2)	3.0 (4.4)
Range	0 – 36	0 – 20	0 – 17	0 – 21
N	90	47	93	73

Source: Based on observations of “eligible” care arrangements, defined as care that occurs for at least 10 hours per week outside a child’s home, or by a nonrelative in the child’s home. Only one arrangement per child was observed.

Note: Based on observations at four mixed-approach sites at 24 months and five sites at 36 months. Possible range of number of incidents is 0 to 60 over a 2-hour observation period.

***Program-control difference is statistically significant at the .01 level.

higher levels of quality center care than control children received. In the four center-based sites, average classroom global quality was consistently higher for the centers attended by Early Head Start children than for the centers control children attended. Early Head Start children experienced better child-adult ratios than their control counterparts, and their caregivers were rated more favorably. Early Head Start children in sites with mixed-approach programs also benefited from being in the program, but the program-control differences in levels of classroom quality were smaller than those in the center-based sites.

E. RELATIONSHIPS BETWEEN CHILD CARE QUALITY AND INTENSITY AND CHILD OUTCOMES AMONG EARLY HEAD START CHILDREN

We examined whether associations between child care quality and the intensity of child care use among Early Head Start children were related to three key child outcomes at 24 and 36 months of age. These analyses included a different sample than the impact analyses just described, as we included available observational data obtained from the settings of all children in center care across all types of Early Head Start programs (center-based, home-based, and mixed) and included children who had been observed at least once. Child care quality was measured by the ITERS or ECERS-R and by child-adult ratio. Intensity was measured by average hours in center child care.

Child outcomes were assessed when children were 24 months old, using the Bayley Scales of Infant Development Mental Development Index (BSID-MDI), the MacArthur Communicative Development Inventory (CDI) language production scale, and the Child Behavior Checklist (CBCL) aggressive behavior scale (see ACYF 2001, Chapter V, for details). At 36 months, children were assessed on the BSID-MDI, the Peabody Picture-Vocabulary Test-Third Edition (PPVT-III), and the CBCL aggressive behavior scale (see ACF 2002b, Chapter V, for details).

Using Ordinary Least Squares (OLS) regression analyses, we examined how indices of child care quality (ITERS or ECERS-R and child-adult ratio), and intensity of child care (average hours in care) were related to child outcomes at 24 and 36 months. Mean quality and intensity scores at 14 and 24 months were used to predict 24-month outcomes; mean quality and intensity scores at 14, 24, and 36 months were used to predict 36-month outcomes. All regression analyses controlled for child gender, child age at time of assessment, maternal race/ethnicity, mother's education and marital status, whether mother was a teenager (under 19 years of age) at the time of the child's birth, and whether the site was urban. Appendix Table A.6 presents descriptive statistics for the child outcome measures and child care quality and use measures included in these analyses. Results of the regression analyses are shown in Appendix Table A.7.

Among the Early Head Start children who attended child care centers, those in higher-quality center care showed enhanced developmental outcomes. Mean child care quality over time predicted higher scores on the 24-month Bayley MDI and 36-month PPVT-III. Mean child-adult ratio over time did not significantly predict child outcomes. Mean hours in center care over time predicted higher scores on the 24- and 36-month Bayley and the 36-month PPVT-III. Neither the quality nor the intensity of child care predicted child aggressive behavior at 24 or 36 months.

Three interactions were tested separately for each outcome at each age level: (1) quality by hours in care, (2) quality by child-adult ratio, and (3) hours in care by child-adult ratio. Of the interactions tested, only one was significant: hours in care by ratio predicted 24-month aggressive behavior problems and the 36-month Bayley. For children in centers with higher child-adult ratios (that is, with *less-favorable* ratios), more hours in care was related to more behavior problems at 24 months. For children in centers with more-favorable child-adult ratios, more hours in care was not significantly related to behavior problems at 24 months.

Consistent with previous research, these findings demonstrate that among this sample of Early Head Start children, the quality of the child care centers they attend was positively associated with children's cognitive and language development. Further, (1) spending more time in center-based child care was associated with higher cognitive scores at 24 and 36 months and higher language scores at 36 months; and (2) more time in child care was related to increased behavior problems only if children were in settings with worse child-adult ratios (and only at 24 months).

As with all studies of such relationships, we must interpret the associations with some caution, in that selection factors could at least partially account for the relationships between quality and child outcomes. In this analysis, however, it is reasonable to expect selection bias to be less an issue than in most child care studies. All children in the sample included here were in families who applied for, and were enrolled in, Early Head Start programs. A substantial portion of their child care settings either were provided by the Early Head Start program or were arrangements to which the program referred families. Thus, it is less likely that selection factors affected which classrooms children attended.¹⁰ Follow-up analyses will consider such issues as child care mediating the impact of Early Head Start on child outcomes in the full sample of Early Head Start and control-group children, corrections for potential selection factors, and quality of child care in home and family-based settings.

¹⁰In addition, the 24- and 36-month child care quality observations were conducted at approximately the same time as the 24- and 36-month child outcomes were assessed, making it difficult to draw a casual inference between the quality measures and child outcomes.

IV. SUMMARY AND CONCLUSIONS

Finding good-quality child care is a challenge all parents face, but is especially difficult for low-income families. From its very beginning, the national Early Head Start program has taken on the challenge of ensuring that all settings used by Early Head Start families, whether provided directly by the program or not, meet the high quality standards embodied in the Head Start Program Performance Standards. In carrying out the national Early Head Start Research and Evaluation project, we collected extensive data on the child care settings used by Early Head Start and control group families for their children. This policy report has described the patterns of child care used by Early Head Start families, the levels of quality in the centers and family child care homes that Early Head Start families used, and the degree of parents' satisfaction with the care received. It has also described the impacts of Early Head Start on child care use and quality, based on analyses that take advantage of the randomized design of the national evaluation.

A high proportion of Early Head Start families placed their children in child care during the evaluation period, with higher child care use among those in center-based sites. This was to be expected because center-based programs recruited families who were looking for full-time child care. Compared with families not using child care, those who did were more likely to be single parents, employed, and have more education. How much child care they used (the intensity of child care use) increased somewhat as children got older, going from an average of 29 hours a week in any child care around the time the Early Head Start children were 14 months old to 32 hours when they were 36 months. Nearly two-thirds of 3-year-old Early Head Start children spent at least 30 hours per week in some kind of child care arrangement. Children's primary child care arrangement was most likely to be a child care center, with 48 percent of children

having a center as their primary arrangement at age 3; 35 percent were in less-formal settings, with about one-third of those in nonrelative care, one-third cared for by grandparents, and the other third by other relatives.¹

Using standard, objective measures of child care process quality, we found that Early Head Start children attending classrooms in Early Head Start centers consistently experienced good quality care, on average, across the three age points, with only slight variation among centers (between average ratings of 5.0 and 5.2 on the ITERS and ECERS-R). The quality of community centers Early Head Start children attended was somewhat lower, but improved over time, going from a mean of 3.8 on the ITERS at 14 months to 4.9 on the ECERS-R at 36 months. Overall, at age 3, Early Head Start children in center child care, whether operated by Early Head Start programs or not, experienced good quality, averaging 5.0 on the ECERS-R. Child-adult ratios in Early Head Start centers consistently met the stringent requirements of the Head Start Program Performance Standards, but increased from ratios of 2.6 children per adult at 14 months to 3.0 to 1 at 24 months and 4.5 to 1 at 36 months. Furthermore, child-adult ratios in Early Head Start centers were all consistently lower (more favorable) than the ratios children experienced when they were in community centers.

Unfortunately, we cannot characterize the quality of care in informal or family child care as reliably as center care—because we were not as successful in gaining access to less-formal settings, the sample is smaller and subject to potential bias. Nevertheless, the process quality of family child care used by Early Head Start children generally appeared to be lower than the quality in centers Early Head Start children used. As with center care quality, quality in family

¹We defined “primary” child care arrangement as the one the child was in for the most hours per week among arrangements that were at least 10 hours per week and that lasted for 2 weeks or more.

child care also improved slightly over time, but it but remained substantially lower than center quality in the sample we observed. Average FDCRS ratings increased from 3.4 at 14 months to 3.9 at age 3, still well below what is typically considered good quality care. Child-adult ratios in family child care were good, increased somewhat as children got older (from 3.2 to 1 at 14 months of age to 4.0 to 1 at age 3), but remained within the range of acceptable quality for child-adult ratios.

A unique feature of the Early Head Start child care data were observations of specific interactions of the focus child with his or her caregiver in the child care settings where the global quality ratings were conducted at 2 and 3 years of age. In about half the observation periods coded using the Child-Caregiver Observation System (C-COS), Early Head Start caregivers were observed talking with the focus child, and the frequency of caregiver talk was greater in Early Head Start than in community centers when children were 3 years old (but not when they were 2). Early Head Start caregivers also initiated talk with the child more than caregivers in community centers did, but at age 3 only. Incidents of negative child behavior were very low for all Early Head Start children, and the incidence was not different in Early Head Start and community centers at either age. C-COS data suggested that Early Head Start children in family child care experienced somewhat more caregiver talk than children in center care, in contrast to the global quality differences between the two modes of care.

Although these observational measures of quality are important, the perceptions of the consumers—the Early Head Start parents—are also important. Across all types of providers used, of all the Early Head Start parents with children in child care at 28 months after enrollment, very high percentages reported being satisfied with their recent primary child care arrangement—they liked the arrangement in terms of how much attention the child received, how much he or she was learning, its safety features, and how “good” they thought the provider

was with children. Even with high levels of satisfaction, however, 29 percent of parents said they would like to change the arrangement, if cost were not a factor (at 28 months after enrolling in Early Head Start). This finding applies to parents with children in community centers, as well as to those in Early Head Start centers. Over time, the parents across all program approaches who were using child care found their child care arrangements more acceptable (at 7 months after enrollment, 38 percent had said they wanted to change arrangements). The longer families were enrolled in Early Head Start (and the older their children were), the more likely they were to be using a child care arrangement they liked. When parents expressed an interest in changing arrangements, the overwhelming preference was for center care (80 percent of parents at 28 months after enrollment), although small percentages of parents did prefer relative care or other arrangements. When parents wanted to switch to center care, their main reasons were that they wanted their child to learn better and to be with other children. When parents wanted to change to relative care, it was mainly to ensure the child's safety and for convenience.

In the impact analyses, using all 17 sites in the research sample, we found that at all ages Early Head Start programs significantly increased the percentage of families using any child care, the percentage using center care, and the average hours per week that children were in care. Program participation also led to a smaller percentage of parents with primary care arrangements during nonstandard hours—during both evening and weekend hours. Whether this is helpful to families depends on their work schedules. Most important, however, Early Head Start programs significantly, and dramatically, increased the percentage of children who were in good-quality center care at all ages at the four center-based sites and selected mixed-approach sites. Based on the analysis of ITERS scores, Early Head Start children were three times more likely to be in good-quality center care than were control group children at 14 and 24 months of age (and about one and a half times more likely to be in a good-quality centers at 36 months, according to the

ECERS-R scores). These impacts occurred with all our measures of process quality—the global measures of quality (ITERS and ECERS-R), child-adult ratios, and the specific child-caregiver interaction measures.

This paper also has provided evidence of the likelihood that participation in the Early Head Start program is responsible for the program-control differences in quality that we observed at a subset of sites. Children in Early Head Start centers experienced significantly higher quality than did control group children in the same sites—on the ITERS at 14 and 24 months of age and on the ECERS-R at 36 months, on the Arnett scale at all three ages, and on child-adult ratios at all age points. Except for the 36-month age point, where the differences were smaller, though still statistically significant, the program-control differences were substantial. For example, at 14 and 24 months of age, the program group was about one point higher on the ITERS. Program-control differences in child-adult ratios were also dramatic: Early Head Start children experienced center settings in which there was about one fewer child per adult than the control group experienced (for example, 2.8 to 1 versus 3.9 to 1 at 14 months, and 5.6 to 1 versus 6.8 to 1 at 36 months).

Program-control differences were not as large on the child-caregiver interaction measures, although almost all differences favored Early Head Start centers. The significant differences included a higher number of incidents of any caregiver talk in both center-based and mixed-approach sites at 24 months and incidents of caregiver responding in mixed-approach sites when children were 24 months old.

Analyses within the Early Head Start program sample demonstrate that amount and quality of center care are associated with positive developmental outcomes for the children, a finding that is consistent with an extensive child care research literature.

Taken together, the results reported in this policy paper demonstrate the highly important role Early Head Start programs have played in responding to the vision of the Advisory Committee on Services for Families with Infants and Toddlers. Early Head Start families were not only receiving more child care but substantially more good-quality center child care than they would have received without the intervention of the Early Head Start programs. Along critical dimensions, the quality of Early Head Start center child care was higher than the quality control group children experienced, and evidence suggests that this quality is important for enhancing the children's development.

REFERENCES

- Administration for Children and Families. *Child Care and Development Fund (CCDF) Report of State Plans FY 2002-2003*. Washington, DC: Child Care Bureau, U.S. Department of Health and Human Services, December 2002(a).
- Administration for Children and Families. *Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start*. Washington, DC: DHHS, June 2002(b).
- Administration for Children and Families. *Pathways to Quality and Full Implementation in Early Head Start*. Washington, DC: DHHS, 2002(c).
- Administration on Children, Youth and Families. *Leading the Way: Characteristics and Early Experiences of Selected First-Wave Early Head Start Programs. Volume I: Cross-Site Perspectives*. Washington, DC: DHHS, 1999.
- Administration on Children, Youth and Families. *Leading the Way: Characteristics and Early Experiences of Selected First-Wave Early Head Start Programs. Volume III: Program Implementation*. Washington, DC: DHHS, 2000.
- Administration on Children, Youth and Families. *Building Their Futures: How Early Head Start Programs Are Enhancing the Lives of Infants and Toddlers in Low-Income Families. Volumes I-II*. Washington, DC: DHHS, 2001.
- Arnett, J. "Caregivers in Day-Care Centers: Does Training Matter?" *Journal of Applied Developmental Psychology*, vol. 10, 1989, pp. 541-552.
- Boller, K., S. Sprachman, and the Early Head Start Research Consortium. "The Child-Caregiver Observation System Instructor's Manual." Princeton, NJ: Mathematica Policy Research, Inc., January 1998.
- Capizzano, Jeffrey, Gina Adams, and Freya Sonenstein. "Child Care Arrangements for Children Under Five: Variation Across States." *Assessing the New Federalism*, Series B, No. B-12. Washington, DC: The Urban Institute, March 2002.
- Capizzano, Jeffrey, and Gina Adams. "The Hours that Children Under Five Spend in Child Care: Variation Across States." *Assessing the New Federalism*, Series B, No. B-08. Washington, DC: The Urban Institute, March 2000.
- Carnegie Corporation of New York. *Starting Points: Meeting the Needs of Our Youngest Children*. New York: Carnegie Corporation of New York, 1994.
- Collins, Ann M., Jean I. Layzer, J. Lee Kreader, Alan Werner, and Fred B. Glantz. "National Study of Child Care for Low-Income Families: State and Community Substudy Interim Report." Cambridge, MA: Abt Associates, Inc., 2000.

- Cost, Quality, and Child Outcomes Study Team. *Cost, Quality, and Child Outcomes in Child Care Centers; Public Report*. Denver: University of Colorado at Denver, January 1995.
- Duncan, Greg, Katherine Magnuson, and Jens Ludwig. "The Endogeneity Problem in Developmental Studies." *Research in Human Development*, vol. 1, no. 1. (in press).
- Ehrle, Jennifer, Gina Adams, and Kathryn Tout. "Who's Caring for Our Youngest Children? Child Care Patterns of Infants and Toddlers." *Assessing the New Federalism, Occasional Paper Number 42*. Washington, DC: The Urban Institute, 2001.
- Emlen, Arthur C. "From a Parent's Point of View: Flexibility, Income, and Quality of Child Care." Background Paper for the SEED 2000 meeting, "Child Care in the New Policy Context," NIH Campus, Bethesda, MD, April 30 and May 1, 1998. Portland, OR: Portland State University, 1998.
- Emlen, Arthur C., Paul E. Koren, and Kathryn H. Schultze. "From a Parent's Point of View: Measuring the Quality of Child Care." Final Report to the Child Care Bureau. Portland, OR: Portland State University, 1999.
- Harms, Thelma, and Richard Clifford. *Family Day Care Rating Scale*. New York: Teachers College Press, 1989.
- Harms, T., R. Clifford, and D. Cryer. *Early Childhood Environment Rating Scale-Revised*. New York: Teachers College Press, 1998.
- Harms, Thelma, Debra Cryer, and Richard Clifford. *Infant/Toddler Environment Rating Scale*. New York: Teachers College Press, 1990.
- Helburn, S.W. (Ed.). *Cost, Quality, and Child Outcomes in Child Care Centers: Technical Report*. Denver: Department of Economics, Center for Research in Economic and Social Policy, University of Colorado, 1995.
- Howes, C., D. Phillips, and M. Whitebook. "Thresholds of Quality: Implications for the Social Development of Children in Center-Based Child Care." *Child Development*, vol. 63, 1992, pp. 449-460.
- Howes, C., and E. Smith. "Relations Among Child Care Quality, Teacher Behavior, Children's Play Activities, and Cognitive Activity in Child Care." *Early Childhood Research Quarterly*, vol. 10, 1995, pp. 381-404.
- Kisker, Ellen Eliason, Sandra L. Hofferth, Deborah A. Phillips, and Elizabeth Farquhar. "A Profile of Child Care Settings: Early Education and Care in 1990." Washington, DC: U.S. Department of Education, 1991.
- Larner, Mary, and Deborah Phillips. "Defining and Valuing Quality as a Parent." In *Valuing Quality in Early Childhood Services: New Approaches to Defining Quality*, edited by Peter Moss and Alan Pence. New York: Teachers College Press, 1994.

- Love, John M., Helen Raikes, Diane Paulsell, and Ellen Eliason Kisker. "New Directions for Studying Quality in Programs for Infants and Toddlers." In *Infants and Toddlers in Out-of-Home Care*, edited by Debby Cryer and Thelma Harms. Baltimore: Paul H. Brookes Publishing Co., 2000.
- Love, John M., Linda Harrison, Abraham Sagi-Schwartz, Marinus H. van IJzendoorn, Christine Ross, J.A. Ungerer, Helen Raikes, Christy Brady-Smith, Kimberly Boller, Jeanne Brooks-Gunn, Jill Constantine, Ellen E. Kisker, Diane Paulsell, and Rachel Chazan-Cohen. "Child Care Quality Matters: How Conclusions May Vary with Context." *Child Development*, vol. 74, 2003, pp. 1021-1033.
- Mitchell, Anne, E. Cooperstein, and Mary Lerner. *Child Care Choices, Consumer Education, and Low-Income Families*. New York: National Center for Children in Poverty, 1992.
- Mitchell, Anne, Louise Stoney, and Harriet Dichter. *Financing Child Care in the United States: An Illustrative Catalog of Current Strategies*. Kansas City, MO, and Philadelphia, PA: The Ewing Marion Kauffman Foundation and The Pew Charitable Trusts, 1997.
- NICHD Early Child Care Research Network. "Early Child Care and Self-Control, Compliance, and Problem Behavior at 24 and 36 Months." *Child Development*, vol. 69, 1998, pp. 1145-1170.
- NICHD Early Child Care Research Network. "The Relation of Child Care to Cognitive and Language Development." *Child Development*, vol. 71, 2000, 960-980.
- Paulsell, Diane, Renee Nogales, and Julie Cohen. *Quality Child Care for Infants and Toddlers: Case Studies of Three Community Strategies*. Washington, DC: Mathematica Policy Research, Inc. and ZERO TO THREE, April 2003.
- Phillips, D.A. (Editor). *Child Care for Low-Income Families: Summary of Two Workshops*. Washington, DC: National Academy Press, 1995.
- Porter, Toni. *Just Like Any Parent: The Child Care Choices of Welfare Mothers in New Jersey*. New York: Bank Street College of Education, 1991.
- Raikes, Helen, John Love, Ellen Kisker, Rachel Chazan-Cohen, and Jeanne Brooks-Gunn. "What Works: Improving the Odds for Infants and Toddlers in Low-Income Families." In *Early Head Start: Beacon of Hope for America's Youngest Children*, edited by J. Lombardi and M. Bogel. Washington, DC: ZERO TO THREE, in press.
- Schumacher, Rachel, Mark Greenberg, and Janellen Duffy. "The Impact of TANF Funding on State Child Care Subsidy Programs." Washington, DC: Center for Law and Social Policy, September 2001.
- Smith, Kristin. "Who's Minding the Kids? Child Care Arrangements: Spring 1997." *Current Population Reports, P70-86*. Washington, DC: U.S. Census Bureau, July 2002.

- U.S. Department of Health and Human Services. *The Statement of the Advisory Committee on Services for Families with Infants and Toddlers*. Washington, DC: U.S. Government Printing Office, September 1994.
- U.S. Department of Health and Human Services. "Head Start Program: Final rule." *Federal Register*, vol. 61, no. 215, November 1966, pp. 57186-57227.
- U.S. Department of Health and Human Services. "Head Start Program: Proposed Rule." *Federal Register*, vol. 65, no. 168, August 29, 2000, pp. 52394-52400.
- Whitebook, Marcy, Carollee Howes, and Deborah Phillips. "Who Cares? Child Care Teachers and the Quality of Care in America: Final Report: National Child Care Staffing Study." Berkeley, CA: Child Care Employee Project, 1989.

APPENDIX A
SUPPLEMENTARY TABLES

TABLE A.1

RESPONSE RATES FOR OBSERVATIONS OF EARLY HEAD START AND CONTROL GROUP CENTER
AND FAMILY CHILD CARE ARRANGEMENTS AT 14 MONTHS OF AGE

Site	Number of Center Arrangements Observed		Center Response Rate ^a (Percentage)		Number of Family Child Care Arrangements Observed		Family Child Care Response Rate ^a (Percentage)	
	EHS	Control	EHS	Control	EHS	Control	EHS	Control
Center-Based								
Site #1	44	17	83	74	0	3	0	23
Site #2	55	16	92	84	0	4	0	31
Site #3	25	6	86	100	1	3	33	33
Site #4	44	13	86	76	4	8	50	31
Center Total	168	52	87	80	5	18	33	30
Home-Based								
Site #5	2	1	25	50	7	5	64	45
Site #6	1	0	25	0	3	4	13	18
Site #7	1	0	13	0	8	6	62	43
Site #8	13	4	87	44	5	0	29	0
Site #9	5	0	45	0	1	3	10	23
Site #10	0	3	0	75	3	7	19	58
Site #11	3	2	43	40	3	2	25	40
Home Total	25	10	45	30	30	27	29	28
Mixed								
Site #12	13	8	72	62	3	6	21	43
Site #13	11	2	73	17	13	9	62	45
Site #14	3	0	20	0	0	1	0	7
Site #15	31	7	91	54	3	0	43	0
Site #16	11	2	79	50	7	8	64	57
Site #17	12	11	71	69	6	7	50	50
Mixed Total	81	30	72	49	32	31	43	33
Sample Total	274	92	76	58	67	76	35	31

^aResponse rates indicate the percentage of eligible center or family child care arrangements we were able to locate and observe.

TABLE A.2

RESPONSE RATES FOR OBSERVATIONS OF EARLY HEAD START AND CONTROL GROUP CENTER
AND FAMILY CHILD CARE ARRANGEMENTS AT 24 MONTHS OF AGE

Site	Number of Center Arrangements Observed ^a		Center Response Rate ^b (Percentage)		Number of Family Child Care Arrangements Observed ^a		Family Child Care Response Rate ^b (Percentage)	
	EHS	Control	EHS	Control	EHS	Control	EHS	Control
Center-Based								
Site #1	48	17	94	65	0	1	0	11
Site #2	50	11	88	79	0	0	0	0
Site #3	19	5	76	83	4	1	67	14
Site #4	45	15	96	65	1	11	13	69
Center Total	162	48	90	70	5	13	24	30
Home-Based								
Site #5	8	1	50	50	13	7	100	64
Site #6	6	2	55	33	6	9	24	41
Site #7	3	1	75	25	10	5	48	42
Site #8	13	9	68	60	4	0	24	0
Site #9	0	0	0	0	0	1	0	6
Site #10	1	7	100	100	7	2	54	22
Site #11	4	4	57	100	3	5	23	56
Home Total	35	24	49	55	43	29	39	32
Mixed								
Site #12	15	3	71	43	0	2	0	15
Site #13	9	8	64	62	15	4	54	20
Site #14	10	0	91	0	1	0	17	0
Site #15	30	9	86	53	1	4	17	27
Site #16	17	7	100	64	10	2	71	25
Site #17	12	17	52	74	7	5	50	36
Mixed Total	93	44	77	61	34	17	44	22
Sample Total	290	116	78	63	82	59	39	28

^aNumber of observed arrangements were determined by the number of valid ITERS or FDCRS scales we were able to calculate. Sample sizes for variables developed from the C-COS are slightly larger.

^bResponse rates indicate the percentage of eligible center or family child care arrangements we were able to locate and observe.

TABLE A.3

RESPONSE RATES FOR OBSERVATIONS OF EARLY HEAD START AND CONTROL GROUP CENTER AND
FAMILY CHILD CARE ARRANGEMENTS AT 36 MONTHS OF AGE

Site	Number of Center Arrangements Observed ^a		Center Response Rate ^b (Percentage)		Number of Family Child Care Arrangements Observed ^a		Family Child Care Response Rate ^b (Percentage)	
	EHS	Control	EHS	Control	EHS	Control	EHS	Control
Center-Based								
Site #1	43	25	91	83	1	3	20	30
Site #2	47	14	100	74	0	0	0	0
Site #3	17	18	65	90	1	1	33	20
Site #4	46	15	102	75	2	4	20	57
Center Total	153	72	93	81	4	8	19	26
Home-Based								
Site #5	20	5	63	45	9	6	150	60
Site #6	9	4	100	50	4	9	15	43
Site #7	19	15	86	94	5	8	29	50
Site #8	12	4	36	22	0	0	0	0
Site #9	0	0	0	0	0	0	0	0
Site #10	3	3	50	75	3	5	25	45
Site #11	6	4	75	80	5	6	63	55
Home Total	69	35	55	42	26	34	28	38
Mixed								
Site #12	20	8	80	50	0	0	0	0
Site #13	10	7	67	41	11	2	46	25
Site #14	10	2	67	17	1	2	9	40
Site #15	25	19	78	86	1	1	17	13
Site #16	15	8	63	73	6	3	75	27
Site #17	14	22	58	76	6	2	46	25
Mixed Total	94	66	70	62	25	10	36	19
Sample Total	316	173	74	62	55	52	30	30

^aNumber of observed arrangements were determined by the number of valid ECERS or FDCRS scales we were able to calculate. Sample sizes for variables developed from the C-COS are slightly larger.

^bResponse rates indicate the percentage of eligible center or family child care arrangements we were able to locate and observe.

TABLE A.4

BACKGROUND CHARACTERISTICS OF PROGRAM AND CONTROL-GROUP FAMILIES
WITH CHILDREN IN CENTER CHILD CARE AT CENTER-BASED SITES
(Percentages)

Age of Child	14 Months		24 Months		36 Months	
Characteristic at Enrollment	Program	Control	Program	Control	Program	Control
Pregnant	10	12	9	13	8	15*
Child Was 5+ Months Old	61	55	65	52	63	50*
Primary Language Was not English ^a	11	12	9	13	7	17**
Parent Lived with Partner	13	24*	15	31***	14	22*
Family Income 67% to 99% of Poverty Line	21	22	22	33*	22	27
Other Race	2	10**	3	4	4	11**
Parent Unemployed	27	14*	24	13	24	15
Welfare Work Requirements ^b	85	88	88	90	89	75***
Sample Size	165	51	162	48	153	72

Source: Sample is based on families who reported being in an eligible care arrangement whom we were able to observe for a valid ITERS or ECERS-R score Baseline characteristics taken from the HSFIS enrollment data.

^aParent reported English was not primary language spoken, but could speak English well.

^bFamily lived in a state with TANF work requirement for women with children younger than 12 months.

*Difference is statistically significant at the .10 level.

**Difference is statistically significant at the .05 level.

***Difference is statistically significant at the .01 level.

TABLE A.5

BACKGROUND CHARACTERISTICS OF PROGRAM AND CONTROL-GROUP FAMILIES
WITH CHILDREN IN CENTER CHILD CARE AT SELECTED MIXED-APPROACH SITES
(Percentages)

Age of Child Characteristic at Enrollment	14-Months		24-Months		36-Months	
	Program	Control	Program	Control	Program	Control
Child Was 5+ Months Old	31	25	27	22	31	29
Child had Environmental Risks	52	22**	30	33	43	39
Pregnant	30	32	36	39	34	38
Teenage Mother	61	36	49	43	45	51
Parents had Less than 9 Years of Education	10	0*	9	8	4	4
Primary Language Was not English ^a	3	11	3	3	6	4
Parent Lived with Partner	10	18	10	22*	9	19**
Adult Male in Household	27	54***	27	47**	23	42***
Family Income 33% to 67% of Poverty Line	33	14*	38	31	33	35
Family Income 67% to 99% of Poverty Line	16	36**	14	28*	13	17
Family Received Welfare	67	42**	64	50	71	49***
African American	55	36*	49	36	46	38
Parent in School or Training	45	18***	35	20*	31	20*
Parent Was Unemployed	22	36	25	37	23	42***
Urban = Setting	37	68***	37	56*	57	63
Welfare Work Requirements ^b		29	21	8*	42	32

Source: Sample is based on families who reported being in an eligible care arrangement whom we were able to observe for a valid ITERS or ECERS-R score. Baseline characteristics taken from the HSFIS enrollment data.

^aParent reported English was not primary language spoken, but could speak English well.

^bFamily lived in a state with TANF work requirement for women with children younger than 12 months.

*Difference is statistically significant at the .10 level.

**Difference is statistically significant at the .05 level.

***Difference is statistically significant at the .01 level.

TABLE A.6

DESCRIPTIVE STATISTICS FOR CHILD CARE AND CHILD OUTCOMES
FOR EARLY HEAD START CHILDREN IN CENTER CARE
AT LEAST ONCE FROM 14 TO 36 MONTHS OF AGE

	Mean	SD	Minimum	Maximum
Child Care Quality				
Mean ITERS (14 Months)	4.7	1.12	1.50	6.80
Mean ITERS (24 Months)	5.0	1.08	1.65	6.76
Mean ECERS (36 Months)	5.0	1.11	1.24	6.82
Mean ITERS (14 to 24 Months)	4.8	1.10	1.57	6.76
Mean ITERS/ECERS (14 to 36 Months)	4.9	1.07	1.24	6.79
Child-Adult Ratio (14 Months)	2.9	1.23	0.83	7.70
Child-Adult Ratio (24 Months)	3.5	1.56	1.00	11.58
Child-Adult Ratio (36 Months)	5.5	2.64	0.78	14.83
Child-Adult Mean Ratio (14 to 24 Months)	3.3	1.37	0.93	11.58
Child-Adult Mean Ratio (14 to 36 Months)	4.2	1.87	0.78	13.10
Child Care Intensity				
Average Weekly Center Hours, 14 Months	22.9	17.67	0.0	75.0
Average Weekly Center Hours, 24 Months	26.9	17.39	0.0	80.0
Average Weekly Center Hours, 36 Months	28.3	17.01	0.0	60.0
Average Weekly Center Hours, 14 to 24 Months	24.7	15.49	5.50	55.0
Average Weekly Center Hours, 14 to 36 Months	26.1	12.75	1.33	55.0
Child Outcomes^a				
24-Month BSID-MDI	90.8	13.01	49.0	118.0
24-Month CDI:Language	57.1	23.17	3.0	100.0
24-Month CBCL: Aggressive Behavior	21.2	10.64	0.0	57.0
36-Month BSID-MDI	91.9	11.83	51.0	121.0
36-Month PPVT-III	84.5	15.03	40.0	125.0
36-Month CBCL	18.2	10.64	0.0	62.0

^aBSID = Bayley Scales of Infant Development Mental Development Index

CDI = Communicative Development Inventory

CBCL = Child Behavior Checklist

PPVT-III = Peabody Picture Vocabulary Test, Third Edition

TABLE A.7

SUMMARY OF OLS REGRESSIONS PREDICTING CHILD OUTCOMES
AT 24 AND 36 MONTHS OF AGE

	24-Month Outcomes			36-Month Outcomes		
	BSID-MDI	CDI Language	CBCL Aggression	BSID-MDI	PPVT-III	CBCL Aggression
Mean ITERS/ECERS-R	1.58** (.74)	.53 (1.37)	-.79 (.61)	.49 (.64)	1.34* (.83)	.37 (.60)
Mean Child-Adult Ratio	.32 (.64)	-1.15 (1.12)	.48 (.50)	.40 (.33)	.10 (.43)	-.27 (.31)
Mean Hours in Center Care	.13** (.06)	.06 (.12)	-.03 (.05)	.15*** (.05)	.15** (.06)	-.05 (.05)
Adj R ²	.13***	.04**	-.01	.13***	.17***	-.01
Sample Size	284	308	306	336	293	328

Note: Unstandardized beta coefficients (with standard errors) presented. Mean scores from 14 to 24 months were included in models predicting 24-month outcomes; mean scores from 14 to 36 months were included in models predicting 36-month outcomes. All models control for the following: child gender, child age at time of assessment, maternal race/ethnicity, education and marital status, whether mother was teenage (<19 years) at child's birth, and whether site was urban.

* $p < .10$; ** $p < .05$; *** $p < .01$.

APPENDIX B

**PROCEDURES FOR TRAINING AND ESTABLISHING RELIABILITY ON THE
CLASSROOM OBSERVATION QUALITY MEASURES**

Mathematica Policy Research (MPR) trained more than 80 observers to collect child care quality data in preparation for the first set of observations (conducted when the children were 14 months old). Prior to attending centralized training sessions, observers reviewed detailed training manuals that described the instruments and study procedures. The first day of training included a combination of lecture, interactive discussion, and viewing and discussion of the Infant-Toddler Environment Rating Scale (ITERS) or Family Day Care Rating Scale (FDCRS) videotaped training materials. On the following two days of training, MPR group leaders (who had established inter-rater reliability with two of the instruments' developers, Thelma Harms and Debby Cryer, prior to the training session) accompanied small groups of observers into the local community to conduct one center and one family child care observation. After the observation, the group leader answered questions about any information needed to score items that could not be observed. All observers independently scored each item. The group leader then facilitated a discussion of each item, spending time discussing items on which there was disagreement about the score. The group came to a consensus score for each item and the group leader computed the percent agreement for each observer against the consensus score. To be certified to collect Early Head Start child care observation data, observers had to have rated items within one scale point of the consensus score on 80 percent of the ITERS, FDCRS, and Arnett Caregiver Interaction Scale (CIS) items. After returning to their sites, observers were also required to conduct one center and one family child care within-site reliability practice visit with another observer from their site and again meet the certification requirements. MPR reviewed the reliability data from those visits. Almost all observers met the certification criteria in their first attempt. We worked with those who did not to further explain items and indicators and asked the observers to conduct additional practice visits until they met the certification requirements of establishing reliability on two post-training observations.

Given that the main child care observation measures did not change from 14 to 24 months, we focused the 24-month child care data collection training on preparing observers to conduct the Child-Caregiver Observation System (C-COS). Following one day of classroom instruction on the C-COS, five MPR group leaders led groups of head trainers/lead observers from each site in conducting visits to community child care settings to establish reliability on the ITERS, FDCRS, and Arnett CIS and to practice the C-COS in the context of a full child care quality observation. After training and any local training of additional observers, we also asked them to conduct two within-site reliability visits. Again, very few observers did not meet the reliability criteria. For the C-COS, we developed test videotapes and compared observers' codes with the codes developed by a team of gold standard coders to establish reliability. For the 36-month observations, we adopted a site-based training model and distributed detailed training manuals and videotapes to the sites, where experienced local site coordinators conducted the training. Training in conducting the Early Childhood Environment Rating Scale-Revised (ECERS-R) followed the same pattern described for the ITERS and FDCRS. The criteria for certification were the same as described above and almost all observers met them on the first attempt. As before, if an observer did not meet the criteria, we worked with him or her to answer any questions and required that he or she conduct additional practice reliability visits until they met the criteria.