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CHAPTER 23

Nonparental Child Care: Context, Concepts, Correlates, and Consequences

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INTRODUCTION

What type and how much care do young children receive from adults other than their parents? What effects do such care arrangements have on their development? Although the latter question has been the focus of heated ideological debate for more than 30 years, the issues are actually more complicated than the shrill polemics suggest, and interpretation of the burgeoning literature is often difficult. In addition, researchers have learned in recent years to be wary of facile generalization across cultures or circumstances when studying such issues. It is naive to ask whether nonparental child care is good or bad for children or whether center care is better for chil-

dren than home-based child care. Instead, researchers must examine children's development in the context of the rich array of people, experiences, and settings to which children are exposed, recognizing that the effects are likely to differ from child to child, from one phase of life to the next, and from setting to setting.

Most of the published research on the effects of child care has been conducted in the United States, where ideologically driven passions have been most intense, but we have tried in this chapter to report and evaluate relevant research conducted in other countries as well. Such studies help place in context and perspective the results of research conducted in the United States and should foster caution about the universality, generalizability, and interpretability of the research literature. Unfortunately, social scientists tend to have a very myopic view of human history, often treating popular or widespread practices as basic species-typical givens

without analyzing their origins and history. Because formal schooling has been mandatory in most developed countries for several generations, for example, the potential effects of schooling on child-parent relationships are largely ignored, and concerns are raised about the potential effects of nonparental care on younger children. By contrast, the fact that formal education (or productive labor away from family members) is a much more recent and culturally restricted innovation than nonparental child care is seldom recognized. The transition to school is viewed as normal and normative; enrollment in child care, by contrast, has been widely questioned, popularly and professionally. Hrdy (1999, 2002, 2005) has argued persuasively, however, that humans evolved as cooperative breeders and thus that human child rearing has always been characterized by extensive involvement by multiple relatives and conspecifics.

Of course, preoccupation with the potentially harmful effects of nonparental care in early childhood is not accidental; it reflects the belief, partially attributable to psychoanalysis and its incorporation into popular North American belief systems, that early experiences have disproportionately powerful influences on child development. Fortunately, commitment to the early experience hypothesis is not as profound today as it was as little as 4 decades ago, when psychologists implied that major early experiences had long-lasting effects that were nearly impossible to overcome. Many researchers and theorists have since come to believe that all developmental periods are critical and that development is best viewed as a continuing process in which successive experiences modify, modulate, amplify, or ameliorate the effects of earlier experiences on remarkably plastic individuals (J. S. Kagan, 1980; Lerner, 1984; Lewis, 1998). This life span view of development undeniably complicates efforts to study longer-term effects on child development—particularly the effects of less salient and significant events—but appears to represent better the determinants and course of human development.

Over the past decade, researchers have also come to recognize the diversity and complexity of child care arrangements and their effects on children. Children grow up in a heterogeneous array of cultural and family circumstances, and many also experience multiple types of nonparental care. The diversity of family circumstances, the disparate array of nonparental care arrangements that exist, and the complex effects of endogenous differences among children all ensure that nonparental child care per se is unlikely to have clear, unambiguous, and universal effects, either positive or negative, when other important factors are taken into account (Lamb & Sternberg, 1990). Instead, researchers must focus on the nature, extent, quality, and age at onset of care, as well as the way these factors together affect children with different characteristics, from different family backgrounds, and with different educational, developmental, and individual needs. In this endeavor, contemporary researchers will need to focus increasingly on the crucial intersection between home and out-of-home care settings and their complementary impact on children.

In the first substantive section of this chapter, we attempt to place contemporary patterns of child care in their broader sociocultural and historical context. Nonparental care is a universal practice with a long history, not a dangerous innovation representing a major deviation from species-typical and species-appropriate patterns of child care (Hrdy, 2005; Lamb & Sternberg, 1992). Specific patterns of child care vary cross-culturally, of course, with different nations emphasizing different goals and mechanisms. These differences are revealing to the extent that they underscore the need to view any research on the "effects" of "child care" in the context of the goals, values, and practices of particular cultures at specific points in time.

We next sketch changing patterns of child care in the United States and other industrialized countries. Over the past 3 decades, nonparental care has become a normative experience for preschoolers in the industrialized countries, although there are broad inter- and intracultural differences in the types of care received and in the ages at which most children begin receiving such care.

The effects of day care on child development then become central. In the past 15 years, most researchers have emphasized the need to evaluate the quality of care when assessing effects on children, and the parameters of this debate, as well as the popular indices of quality, are introduced in the third section. The increasing belief that the quality of care plays a crucial role in determining how children are affected by nonparental care has fostered efforts to understand *how* care providers behave and how they should be trained to provide growth-promoting care for children (Bredekamp, 1987a, 1987b).

Unfortunately, "high-quality" alternative care is difficult to define, measure, and promote comprehensively,

even though some simple and concrete measures—including adult-child ratios, levels of care provider training and experience, staff stability and pay, and the adequacy of the physical facilities—can be used to assess structural aspects of the quality of care. These dimensions are most likely to be emphasized by state standards, which set the minimal acceptable standards on a state-by-state rather than federal basis (Phillips & Zigler, 1987). Structural characteristics affect the likelihood of high-quality care, but they do not guarantee it: Centers that are characterized by good adult-child ratios and are staffed by well-trained providers may still provide care of poor quality. Extensive training, education, and experience, like generous adult-child ratios, have to be translated into sensitive patterns of interaction, displays of appropriate emotion, and the intuitive understanding of children that make the experiences richly rewarding for them. The ease with which and the extent to which structural factors are translated into quality clearly vary depending on the culture, the context, and the alternative opportunities available to children, care providers, and parents. Furthermore, even the benefits of high-quality care may be compromised when the demands of the parents' work roles result in excessively long periods of nonparental care. It is thus impossible to write a recipe for high-quality care that is universally applicable. High-quality care needs to be defined with respect to the characteristics and needs of children and families in specific societies and subcultures rather than in terms of universal dimensions.

Debates about the effects of child care on children's development, which are the focus of the fourth section, have varied over time in response to a multitude of social, economic, and scientific factors. Initially, research efforts were focused on 3- and 4-year-old children in an attempt to address the implicit question "Is out-of-home care bad for young children?" Anxieties about the effects of nonmaternal care on child-mother attachment predominated, with professionals warning that damaged attachments would in turn lead to maladaptation in other aspects of development. Only in discussions regarding the benefits of compensatory education for impoverished children were these concerns submerged, presumably because the risks were viewed as less serious than the potential gains. By the early 1980s, however, the results of several studies, most conducted in high-quality day care centers, had fostered a widespread consensus that, contrary to the dire predictions of attachment theorists, nonparental care begun in the 3rd year of life or later need not have adverse effects on psychosocial development (Belsky & Steinberg, 1978; Belsky, Steinberg, & Walker, 1982; Clarke-Stewart & Fein, 1983). This conclusion had to be qualified, however, because most of the studies involved atypically good programs, ignored home-based child care and in-home sitter arrangements, and paid no attention to group differences in parental values or attitudes prior to enrollment in nonparental care.

These limitations notwithstanding, public concerns about child care changed in the 1980s, by which time out-of-home care had become a normative and manifestly nonharmful experience for preschoolers. Instead, concern was focused on the many infants and toddlers who began receiving nonparental care before they had time to establish and consolidate attachments to their parents. Intensive and contentious research has since established that infant day care does not typically harm infant-mother attachment, but uncertainty persists concerning the interpretation, universality, and implications of the established effects. Focus on infant-mother attachment has also fostered research concerned with the effects of infant child care of varying quality on other important aspects of development, such as compliance with adults, peer relationships, behavior problems, and cognitive/intellectual development.

Unfortunately, recent preoccupation with the way the quality of care mediates the effects of nonparental child care on young children has led researchers to overstate the demonstrated importance of quality of care. Just as quality clearly makes a difference, so, too, is it clear that the effects of quality are considerably less profound than expected. Whether this reflects difficulties measuring quality or the reality that human development is shaped by so many factors that any one factor seldom has a large and dramatic effect is not clear, but both policymakers and researchers need to address this point much more forthrightly than they have in the past.

Public and professional concerns about the effects of nonparental care have been focused on infants, toddlers, and preschool-age children, but human children remain dependent on adults through adolescence and into early adulthood. The effects of the educational system and school personnel are discussed elsewhere in this *Handbook,* but the effects of before- and afterschool care on elementary, middle, and high school students have attracted some attention recently as well. As with younger

children, increases in the rates and extent of maternal employment have forced many parents to arrange supervision and care for their children by others. The diverse effects of self-care and various forms of afterschool care are summarized in the fifth section. The chapter ends with an integrative summary and conclusion.

CHILD CARE IN CULTURAL CONTEXT

Recent media hyperbole notwithstanding, arrangements regarding nonparental child care do not represent a new set of problems for the world's parents. In fact, decisions and arrangements about children's care and supervision are among the oldest problems faced by human society. The fact that they were not discussed frequently in the past may reflect the failure of the men with political and intellectual power to discuss a "women's issue" as well as the fact that maternal care at home has been the dominant mode of early child care in the groups and eras most familiar to contemporary social and political scientists.

Unfortunately, the long history of attempts to make child care arrangements has not reduced the complexity of the issues faced by parents and policymakers today, although it has ensured that a diverse array of solutions have been tried. In this section, we sketch some of the arrangements that have developed in various parts of the world. Our goal is to provide a framework for analyzing these individual solutions and for making cautious and informed comparisons among them. In the first subsection, we place child care in the context of species-typical behavior patterns and needs. We then discuss the various purposes that nonparental child care can be designed to serve in industrial societies. In the third subsection, we describe the ideological dimensions along which countries can be arrayed and the resulting dangers of superficial generalization from one country to another. Finally, we summarize implications for policymakers, researchers, and practitioners, which we revisit later in the chapter after examining the empirical literature.

Human Evolution and Ecology

Our species is one for whom decisions about child care arrangements and the division of time and energy among child care, provisioning, and other survival-relevant ac-

tivities have always been necessary (Lancaster, Rossi, Altmann, & Sherrod, 1987). Humans are born at a much earlier stage of development than are the young of any other mammalian species, and a larger proportion of development takes place outside of the womb in humans than in any other mammal (Altmann, 1987). The period of dependency, and thus the process of socialization, is extremely prolonged among humans, with offspring dependent on conspecifics into adulthood, whereas the young of most mammals become nutritionally independent at the time of weaning. As a result, parental investment in each child is extremely high, and recent scholarship makes clear that other conspecifics typically make invaluable contributions as well (Hrdy, 2002, 2005). Humans have long been forced to develop complex and extended alliances and arrangements with others to ensure the survival of both themselves and their offspring; studies in many contemporary cultures underscore the survival value of these contributions (Hewlett & Lamb, 2005; Hrdy, 2002, 2005). Many theorists believe that pair-bonding represents one adaptation to the basic needs of human parents to cooperate in the provisioning, defense, and rearing of their offspring (Lancaster & Lancaster, 1987). In many environments, multifamily units developed to maximize individual survival in circumstances where, for example, hunting or gathering required cooperative strategies.

Studies of modern hunter-gatherers provide insight into the social organizations that might have developed in circumstances such as these (contributors to Hewlett & Lamb's, 2005, anthology describe child care practices in several foraging societies). In many such societies, within-family divisions of responsibility between men and women are paralleled by cooperative hunting strategies among men and cooperative gathering strategies among women. Depending on the task, the season, the children's ages, the availability of alternatives, and the women's condition, children accompany one or other parent at work or are left under the supervision of alloparents, often older children or adults.

Prior to weaning, mothers assume the heaviest portion of child care responsibilities in most societies, although alloparents are active long before weaning in many cultures where weaning is delayed and nursing coexists alongside other forms of feeding (Fouts, Hewlett, & Lamb, 2005; Fouts, Lamb, & Hewlett, 2004). Although the strategies of provisioning, protection, and child care are different in industrialized countries and

in those societies where pastoral or agricultural traditions have replaced nomadic hunting and gathering, similar choices must always be made. Exclusive maternal care throughout the period of dependency was never an option in what Bowlby (1969) called "the environment of evolutionary adaptedness" and was seldom an option in any phase of human society even through early childhood; it emerged as a possibility for a small elite segment of society during one small recent portion of human history. Infants in 40% of the cultures sampled by Weisner and Gallimore (1977) were cared for more than half the time by people other than their mother, for example, and rates are surely higher where toddlers, preschoolers, and young children are concerned. It is thus testimony to the power of recent mythology and ignorance of the dominant human condition throughout history that exclusive maternal care came to be labeled as the "traditional" or "natural" form of human child care, with all deviations from this portrayed as unnatural and potentially dangerous. Braverman (1989) decries this "myth of motherhood," and Silverstein (1991) has bemoaned the way the historically recent "essentializing" of maternal care has shaped the popular and scholarly approach to conceptualizing and studying various forms of nonmaternal care. Nonmaternal child care is portrayed as deviant, even though it is universal and normative. Only the need for parents in industrialized countries to leave their children in the care of paid care providers, rather than neighbors or kin, is novel, and the possible implications of this situation have received little attention from researchers or theorists (see Daly & Wilson, 1995).

Economic Influences on Child Care Practices

In contemporary industrial societies, the availability of nonparental child care is determined by economic circumstances, local social demography, history, and cultural ideology. Of these, economic factors often play the major role in determining whether and what types of nonparental care arrangements are available. To complicate matters, however, economic, demographic, ideological, and historical factors often exert inconsistent and contrasting pressures. In North America, for example, employed parents began to seek help caring for their infants and young children before such practices were popularly endorsed. Economic circumstances thus forced families to make nonmaternal care arrangements, of which many family members and neighbors disapproved.

The central prominence of economic forces can be illustrated with many examples. In agricultural societies, for example, infants are typically left in the care of siblings, relatives, or neighbors while their mothers work in the fields (e.g., Fouts, 2002; Hewlett, Lamb, Shannon, Leyendecker, & Schölmerich, 1998; Leiderman & Leiderman, 1974; Nerlove, 1974; Weisner & Gallimore, 1977). Economic factors are also important in more developed countries. Mason and Duberstein (1992) have shown that the availability and affordability of child care influences maternal employment in the United States. Similarly, Sweden's family policy was developed because rapid industrialization produced a national labor shortage. To increase the number of women who were employed and to increase the willingness of young families to bear and rear future workers, it was necessary to develop a comprehensive system in which women were paid well, in which early child care could be accomplished without professional or financial sacrifices, and in which the assured availability of parental leave and high-quality nonparental child care facilities motivated parents to have and rear children (Broberg & Hwang, 1991; Gunnarsson, 1993; Haas, 1992; Hwang & Broberg, 1992; Lamb & Levine, 1983).

The communist countries of Eastern Europe likewise made child care facilities widely available to facilitate the increased participation of women in the paid labor force (Ahnert & Lamb, 2001; Kamerman & Kahn, 1978, 1981). Similarly, the U.S. and Canadian governments became involved in the financial support and supervision of nonmaternal child care facilities during the Second World War to encourage women to work in war-time industries while male potential workers were away at war (Griswold, 1993; Tuttle, 1993).

Meanwhile, in what is now Israel, small agricultural settlements called kibbutzim were established in the early part of the twentieth century by Jewish socialists from Eastern Europe (Infield, 1944). The malaria-infested swamplands and rocky desert soils posed severe problems for the idealistic and inexperienced farmers, and the need for female labor made it expedient to have one person, usually a woman, take care of several children rather than have mothers individually care for their own children. To maximize productivity and minimize the amount of housing needed, the original kibbutznikim (inhabitants of the kibbutz) also decided that children should live in collective dormitories, visiting their parents only for several hours every day (Neubauer, 1965). Over the ensuing decades, the emer-

gence of the communal child care system has been attributed to ideological commitment (gender equality), and the role played by economic necessity has been downplayed.

The tendency to develop post hoc ideological explanations for popular behavior patterns tends to obscure the central role of economic circumstances in the development of nonparental care arrangements. Lamb, Sternberg, Hwang, and Broberg (1992) could identify no country in which the introduction of nonmaternal child care policies was not driven primarily by economic forces, although subgroups (e.g., the British upper class) occasionally sought child care assistance (e.g., nannies) for other reasons.

Other Goals and Purposes of Nonparental Child Care

Nonparental child care serves a variety of additional purposes, the most prominent of which include fostering equal employment opportunities, acculturation and ideological indoctrination, the encouragement of economic self-sufficiency, and the enrichment of children's lives.

Fostering Female Employment

As mentioned earlier, child care policies in many countries have been designed at least in part to promote female employment and to equalize the potential employment opportunities of men and women (Cochran, 1993; Lamb, Sternberg, Hwang, et al., 1992). The formerly communist countries of Asia and Eastern Europe, for example, made this a central feature of their family policies (Ahnert & Lamb, 2001; Foteeva, 1993; Kamerman & Kahn, 1978, 1981; Korczak, 1993; Nemenyi, 1993; Zhengao, 1993). Unfortunately, equality of opportunity has never been achieved anywhere despite the costly and extensive investment in child care facilities, and women do not enjoy equitable pay, whether or not their professions are integrated.

Influencing Demographic Patterns

The limited availability of high-quality child care also appears to have affected fertility rates in European countries such as Germany, with an especially dramatic effect on well-educated women (Ahnert et al., 2005; Kreyenfeld, 2004). Concerns about these demographic trends have led the government of reunified Germany not only to strengthen the child care system in the east that it had initially attempted to dismantle but also to

improve the underdeveloped child care infrastructure in the west (Ahnert & Lamb, 2001).

Acculturation and Indoctrination

Child care facilities have frequently been used to facilitate acculturation or ideological indoctrination. In northern Italy, for example, the number of children in preschools nearly doubled in the 1960s because the educational philosopher Ciari believed that preschools could be used to provide cultural foundations for children from different backgrounds (Corsaro & Emiliani, 1992). In Israel, meanwhile, the speed with which successive waves of Jewish immigrants have risen to positions of economic and political power can be attributed in the main to the participation of immigrant children in preschool programs where they learn Hebrew and the norms of Israeli culture (M. K. Rosenthal, 1992). The children in turn socialize and teach their parents. In the People's Republic of China, child care was made available in the early 1950s ostensibly to help children learn the importance of hard work and individual sacrifice (Lee, 1992). Universal day care also permitted parents to participate in reeducation programs, sponsored by the new communist government as part of its plan for the reconstruction of China. Finally, Shwalb and his colleagues (Shwalb, Shwalb, Sukemune, & Tatsumoto, 1992) point out that preschool education was made widely available to 4- and 5-year-old Japanese children in 1941 in part because the government wanted to use kindergarten as a means of fostering nationalism.

Encouragement of Economic Self-Sufficiency

Child care facilities have also been provided to encourage women to seek job training or paid employment and thus to cease being the beneficiaries of welfare; in the United States, pursuit of this goal led politicians to completely reshape the welfare system in the mid-1990s (National Academy of Science, 2003). Ironically, this goal was promoted with greatest vigor by conservative politicians who opposed governmental involvement in child care and emphasized the importance of maternal care and the "traditional family" while instituting policies that required parents to become economically self-sufficient and promoted this by subsidizing nonparental child care (Knitzer, 2001).

Enrichment of Children's Lives

The impetus to develop and invest in intervention or enrichment programs grew in the late 1950s and early

1960s, following the determination by experts that poor children experienced understimulation, overstimulation, or inappropriate stimulation, which in turn led them to perform poorly in school and on achievement tests (Clarke-Stewart, 1977; Fein & Clarke-Stewart, 1973; Hess, 1970). The development in the United States of the Head Start program in 1965 exemplified such a motivation to enrich the lives of children from the poorest and most disadvantaged families (Zigler & Valentine, 1979). Likewise, despite its strong opposition to nonmaternal care, the Catholic Church in Italy came to view preschools as a medium for socializing children from impoverished homes whose parents were considered incapable of effective socialization (Corsaro & Emiliani, 1992; New, 1993). Only later was preschool deemed acceptable for children in better socioeconomic circumstances. Until very recently, similarly, child care was widely viewed in Great Britain as a service for children at risk because their parents could not cope (Melhuish & Moss, 1992) and government funding was largely channeled to centers serving disadvantaged, troubled, and disabled children. In Canada, meanwhile, it took the recommendations of a government task force in the mid-1980s to recast day care as a service of potential value to all Canadian families, rather than as a service for disadvantaged and immigrant children (Goelman, 1992; Pence, 1993).

Exemplary programs like Head Start notwithstanding, a desire to enrich the lives of children did not motivate the initial development of nonparental care facilities in most countries. Parents and their government representatives may hope for care of adequate quality, but there is ample evidence that parents often accept care of lower quality because they simply have no choice (National Academy of Science, 1990, 2003). Where parents, groups, and societies have seriously considered the needs and best interests of children, these have often been secondary considerations. Many politicians and social commentators argue further that few societies, whether industrialized or nonindustrialized, have addressed children's needs satisfactorily.

Dimensions of Cross-Cultural Variation

Cultures clearly differ with respect to the goals—other than supervising children while their parents are employed—that nonparental child care is expected to serve. In addition, there are four major philosophical or ideological dimensions along which contemporary societies can be compared. The first is one that has already been broached: the ideology concerning *equality between men and women* and how the availability of nonmaternal care programs increases female labor participation and allows women to advance themselves economically and professionally.

Consider international variations in the extent to which the provision of child care is viewed as a *public responsibility* rather than a *private or individual concern*. The United States probably represents the extreme among the industrial societies holding that decisions about child care should be left to individual families, that the cost and quality of care should be set by competition between the unregulated forces of supply and demand, and that governmental intrusions of all kinds should be resisted on the grounds that they would simply reduce efficiency (Blau, 2000; B. Cohen, 1993; Lamb, Sternberg, Hwang, et al., 1992; Spedding, 1993). Since 1997, the United Kingdom has moved from a position alongside the United States to one in which the role of the state is ensuring access to high-quality child care has been embraced and major investments have been made in building up the child care infrastructure. At the other extreme stand the democratic socialist countries of Scandinavia and the formerly communist countries of Eastern Europe, in which society as a whole is believed to share responsibility for the care and welfare of all children (Ahnert & Lamb, 2001; Hwang & Broberg, 1992; Kamerman & Kahn, 1978, 1981; Stoltenberg, 1994). The child care systems that evolved in each country necessarily reflected that society's position regarding public and private responsibilities. Contributors to Lamb, Sternberg, Hwang, et al.'s volume suggested that the best quality nonparental care was provided or regulated by governmental agencies in the context of comprehensive family policies. By contrast, countries or regions that have failed to develop comprehensive family policies tend to provide care of much poorer average quality.

Third, societies vary with respect to whether child care is viewed as a *social welfare program* or an *early education program*. Because all industrialized countries and most developing countries regularly assign responsibility for children older than 5 or 6 years to educational authorities, many countries have expanded the availability of care settings for young children by emphasizing the educational value of preschool care. Higher percentages of preschoolers are in nonparental

care settings when societies attribute educational rather than custodial goals to them (Olmsted, 1992). Because public education is a widely accepted concept, it has also proven relatively easy to direct public finances to the support of preschool nonparental care when such facilities are represented as the early stages of a universal educational process, as they are in France, Belgium, Italy, Iceland, New Zealand, and Spain (see next section). By contrast, when nonparental care is viewed as a custodial babysitting service addressing the goals of social welfare, it has proven harder to obtain public support and harder yet to make quality of care a relevant dimension. Thus, the presumed character of nonparental care has major and far-reaching implications for the quality, type, and public support for nonparental care services. In Italy, the United Kingdom, France, and the Netherlands, for example, the portrayal of day care or nursery schools as an educational service rather than a welfare service altered perceptions of its value by middle- and upper-class families and thus legitimized its utilization (Clerkx & van IJzendoorn, 1992; Corsaro & Emiliani, 1992; Lamb, Sternberg, Hwang, et al., 1992; Melhuish & Moss, 1992). Analogously, whereas day nurseries and kindergartens both emerged in St. Louis at the start of the twentieth century, the latter came to be seen as part of the educational process and flourished, whereas day nurseries experienced the struggle for support that continues to this day. Cahan (1989), too, has chronicled the emergence of separate child care and early childhood education pathways in the nineteenth and twentieth centuries.

The last, infrequently considered, factor concerns *basic conceptions of childhood and developmental process*. Many inhabitants of the Western industrialized countries are steeped in the Freudian and post-Freudian belief that early experiences are crucially important. Endogenous tendencies may directly affect development, too, of course and, perhaps more important, interact with and alter the impact of diverse experiences on developmental processes and outcomes. Variations in the conceptualization of developmental processes have major implications for child care practices and the seriousness of concerns about the quality of care.

Students of comparative child care practices and policies need to consider these four dimensions (ideologies concerning male and female roles, perceptions of private and public responsibilities, educational and custodial goals, and conceptions of developmental

processes) when evaluating the policies and systems of diverse countries because international differences on these dimensions make it difficult and often inappropriate to generalize from one country to another and to use any country's social policies as models for adoption by others. Only when we fully understand the social structures and the ideologies that led to the development of a particular child care system are social scientists likely to learn from the experiences of other societies.

In addition, differences in parental and national goals lead to differences in the implementation of programs and in the effects of child care, and the evaluation of those outcomes differs from society to society. In some of the Western industrial countries, for example, assertiveness is viewed as a desirable goal, whereas others view it as one manifestation of undesirable aggression. Everywhere debate persists over the relative values of individualism and cooperation: Is compliance an index of passive acquiescence or of being well socialized? As long as disagreements persist concerning these values, it becomes impossible, for example, to state objectively that any given pattern of child care has positive or negative effects on behavioral adjustment.

Few countries have actually developed integrated child care systems that address all the functions of child care equally well. Even the best-developed and most carefully integrated systems must deal with the contradictory impulses created by pursuit of these different goals, and in most countries a patchwork array of solutions has emerged over time, with different and often contradictory policies designed to address each of these needs. At its best, pursuit of the highest possible quality of care forces ideologically liberal governments into a dilemma. Better quality care almost invariably involves more adults taking care of fewer children, and this becomes expensive. In fact, it is cheaper to provide infant care at home than to provide out-of-home care of good quality. As a result, successive Swedish governments gradually extended the duration of paid parental leave permitting parents to stay at home with their children — a generous resolution that may strengthen parent-child relationships at the expense of other worthy goals for both parents and children. Does high-quality nonparental care provide some unique and valuable formative experiences of which children in exclusive parental care will be deprived? What happens to the goals of gender equality and salary equity when families almost invariably conclude that mothers rather than fathers

should withdraw from paid work to care for their children? What values are conveyed by the assignment of child care to members of an immigrant lower class (Wrigley, 1995)? How can one satisfy the competing agendas that child care policies must address?

Summary

Clearly, individuals and societies have developed a large number of solutions to age-old needs for child care. The variety and diversity of these solutions illustrate the ways historical, economic, ideological, and demographic realities shape the context in which individuals, families, and societies operate and constrain the solutions or policies they can develop. Employed parents need to obtain care for their children, and this chapter is concerned largely with the circumstances in which they make these decisions as well as with their effects on child development.

The development of child care policies has become increasingly important to governments around the world. As a result, new policies, plans, and practices are being developed worldwide. But despite the development of family policies and child care facilities, the demand for child care far outstrips the available supply in almost every country. This in turn maintains the pressure on governments, private agencies, and parents to make arrangements that are not optimal.

Interestingly, discussions of the needs for child care have, with few exceptions, portrayed child care as a women's issue, even though decisions about how and where children will be raised should concern both mothers and fathers. Swedish sociologists and policymakers recognized more than 4 decades ago (e.g., Dahlström, 1962) that major changes in maternal employment and paternal child care were unlikely unless they were preceded by changes in the underlying expectations about the appropriate roles and responsibilities of men and women and without changes in the opportunities available to men and women within the home as well as in the world of paid employment. Reformers hoped that group care settings might instill greater concern for the community and a commitment to less sexist values, but the near exclusive reliance on female care providers makes it unlikely that child care gives children a less sexist view of adult responsibility, whether or not their mother is employed.

Decades of research have made clear that one cannot make blanket statements about the superiority of any particular form of child care (Lamb, 1986; Lamb & Sternberg, 1990). In each case, the development of most children is affected by the quality of care received both at home and in out-of-home care facilities and by the extent to which the care is sensitively adjusted to children's developmental and individual needs. The implication is that societies need to provide an array of options that allow parents to choose child care arrangements that are most appropriate given their children's ages and individual styles, their economic and social circumstances, and the values and attitudes they hold.

Furthermore, nonparental child care must be viewed in the context of the whole ecology of socialization, because child care patterns are manifestations of the wider social structure. Development is a complex, multifaceted process, and thus we are only likely to understand it if we look, not simply at patterns of nonparental care, but at these patterns of care in the context of other experiences, ideologies, and practices. Nonparental child care arrangements do not exist in social vacuums and are likely to have relatively small, discrete, and direct effects on development, though they may be important parts of the web of influences and experiences that shape children's development. Because development is such a multifaceted and complicated process, it is essential to understand the role played by each of those experiences in shaping the course of human development. With that in mind, we next consider evidence concerning the extent to which children in the major industrial countries experience nonparental care in the first few years of their lives.

CHANGING PATTERNS OF CARE IN THE UNITED STATES AND EUROPE: PARENTING AND ALLOPARENTING

In this section, we review statistics concerning changing patterns of early child care in developed countries over the past few decades. As we show, these decades have been marked by the availability of increasingly detailed social statistics as well as by dramatic secular changes in marital, fertility, and employment practices that have had powerful and tangible effects on patterns of child care. Broadly similar changes and trends have been evident in most of the developed countries, although meaningful and significant international differences are evident as well. Changes in the utilization of nonparental child care of course affect the extent to which

children in these countries may be affected by non-parental child care experiences.

Patterns of Shared Care

Most is known about pattern of child care in North America and Western Europe. As a result, we begin our analysis by considering statistics concerning patterns of child care in the United States.

The United States

In the United States, child care was once viewed as a service valued primarily by single mothers and disadvantaged Black families, whereas middle-class families supplemented maternal care by sending their children to part-day nursery schools and child development centers (Phillips, 1989). The proportions of employed Black and White mothers of preschoolers were the same by 1995, however, with a larger proportion of White than Black mothers in the workforce when they had school-age children. By the mid-1990s, similarly, 48% of single mothers whose youngest child was 3 or under and 52% of those with children age 5 and under were employed, compared with 57% and 59% of married mothers, respectively (Casper & Bianchi, 2002; H. Hayghe, personal communication, October 17, 1995). By 2001, however, these groups had diverged again: 64% of single mothers with children of 3 and under and 67% of those with children age 5 or under were employed, compared with 56% and 58% of married mothers, respectively (Casper & Bianchi, 2002). Overall, most of the 22 million under-5s in the United States had an employed father and 12.2 million had an employed mother by 2000 (U.S. Bureau of the Census, 2003). Employed mothers averaged 36 hours of paid work per week in 2001, mean-

ing that the majority of employed parents had full-time paid responsibilities (Casper & Bianchi, 2002). Perhaps most important, the majority of new mothers now return to paid work before their child's 1st birthday, whereas mothers formerly remained out of the workforce for considerably longer (U.S. Bureau of Labor Statistics, 2000).

Because the majority of the parents who live with their children are now employed, formal nonparental care arrangements are experienced by almost all children, although the industrial countries differ with respect to when these arrangements tend to be initiated, with the United States distinguished as the country where nonparental home-based day care, care by relatives, in-home babysitters, nursery schools, and child care centers for anywhere between 5 and 55 hours per week is initiated earliest.

The Census Bureau's annual reports, entitled *Who's Minding the Kids?* which use survey of income and program participation (SIPP) data, provide the most extensive and up-to-date information about child care patterns drawn from nationally representative samples of the U.S. population. Information about child care has been collected as a supplement to the SIPP since 1984, and the most recently published census data on child care were collected between April 1999 and July 1999 in the 10th interview with the 1996 SIPP panel. Initially, the SIPP collected child care information only when the mothers were employed, but the data gathered in the spring of 1999, released in January 2003, are informative regarding care arrangements for all children. The 1999 National Survey of American Families also provided valuable information regarding the child care arrangements made by employed parents (Sonenstein, Gates, Schmidt, & Bolshun, 2002).

As indicated earlier, and as shown in Table 23.1, the majority of children in the United States were receiving

TABLE 23.1   Child Care Arrangements for 0- to 5-Year-Olds in the United States (1999 SIPP), Expressed in Percentages

Age of Child	Parents	Grandparents	Other Relatives[a]	Child Care Centers[b]	Family Day Care	Own Home	No Regular Arrangement	Multiple
<1 year	23.9	24.6	8.9	20.8	13.4	3.4	35.1	16.3
1-2 years	21.9	23.8	11.1	30.1	13.9	5.9	32.9	18.5
3-4 years	19.6	21.2	13.4	71.7	13.9	4.1	31.1	21.0

[a] Including sibling care.
[b] Including Head Start, day care centers, nursery schools, and preschools.
Note: Percentages in a row may sum to more than 100 because children may have multiple care arrangements.
Source: From *Who's Minding the Kids?* by U.S. Bureau of the Census, 2003, Washington, DC: U.S. Government Printing Office. Reprinted with permission.

care regularly from persons other than their parents in 1999. The number for whom the parents were the primary designated care providers fell modestly from nearly a quarter of children under 1 to around a fifth of those over 3 years of age. Home-based nonparental care arrangements were used for about one-seventh of the children, regardless of age, and the number attending some kind of center increased from just over 20% for 1-year-olds to a remarkable 72% of 3- to 4-year-olds.

Table 23.2, which summarizes information only concerning the children whose mother was employed (and thus excludes children who lived alone with their father and those whose mother was unemployed or was a full-time student) makes clear that many of the children received care from centers on a part-time basis, although the proportion of children for whom it was the primary form of care doubled between the ages of 1 and 4 years. Notwithstanding this increase, it is noteworthy that the majority of infants and toddlers were cared for primarily by relatives, and another 20% received care from an individual nonrelative. Evidently, formal or institutional forms of care are not widely utilized by American parents with children age 4 and under. The tendency to seek care providers related to the child was most marked in Native American (73%), Asian and Pacific Islander (64%), and Black (61%) families, and less common in White (54%) and Hispanic (53%) families (see also National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, 2004). In every group, however, the majority of children received care regularly from relatives. Of course, many children have more than one child care arrangement, and Table 23.2 documents only the most important for each child.

As one might expect, child care arrangements vary depending on the mother's employment status and work schedule (U.S. Bureau of the Census, 2003), and changes in maternal employment are the best predictor of changes in child care arrangements (Han, 2004), which are extremely frequent (NICHD Early Child Care Research Network, 2004). Mothers working full time in 1999 were more likely than those employed part time to use child care centers or schools (86% versus 25%) or home-based child care (24% versus 15%), although both of these differences were less marked than they had been in 1991 (U.S. Bureau of the Census, 2003). As in 1991, however, fathers were more likely to be the regular nonmaternal care providers when mothers were employed part time (38%) rather than full time (25%; U.S. Bureau of the Census, 2003), with both figures representing increases from 1991. Fathers were also more likely to be the regular nonmaternal care providers when mothers worked a nonday shift (39%) rather than a day shift, and these percentages would undoubtedly be higher if the sample was limited to children living with both of their parents; not surprisingly, fathers are less involved in care when separated from or never married to the mothers.

When mothers are not employed, families make less use of nonparental care, although it is clear from Table 23.1 that the vast majority of 3- to 4-year-olds are enrolled in some kind of center-based care, with minimal differences between families with nonemployed and employed mothers (U.S. Bureau of the Census, 1993, 2003). As would be expected, however, children of nonemployed mothers spent much less time in care than peers whose mothers were employed: According to the 1993 Census Bureau report, about 80% of children with

TABLE 23.2　Primary Child Care Arrangements for U.S. Children Age 4 and Younger Whose Mother Was Employed (Spring 1999 SIPP), Expressed in Percentages

Age of Child	Parents	Grandparents	Other Relatives[a]	Child Care Centers[b] or School	Family Day Care[c]	No Regular Arrangement
<1 year	27.7	24.1	8.3	16.0	19.7	5.8
1–2 years	24.0	22.9	7.7	20.7	24.0	4.4
3–4 years	18.9	19.6	9.1	34.1	18.9	4.9

[a] Includes sibling care.

[b] Includes Head Start, day care centers, nursery schools, preschools, and schools.

[c] Includes other nonrelatives, some of whom may care for the child at home.

Note: Percentages in a row may sum to more than 100 because children may have multiple care arrangements.

Source: From *Who's Minding the Kids?* by U.S. Bureau of the Census, 2003, Washington, DC: U.S. Government Printing Office. Reprinted with permission.

nonemployed mothers spent less than 20 hours a week in child care, whereas 55% of the children with employed mothers spent 35 or more hours a week at child care facilities. A decade later, 63% of 3- to 5-year-olds with employed mothers were in center-based programs, compared with 67% of those with nonemployed mothers (NCES Early Child Care Research Network, 2002). Participation in educationally oriented center programs continued declining among 3- to 5-year-olds through 2001 (Child Trends, 2003).

Examination of Table 23.3 reveals that, between 1977 and 1999, primary care arrangements made by employed mothers in the United States changed remarkably little in the intervening quarter-century, despite dramatic increases in the number of employed mothers with young children and concomitant increases in the proportion of young children who were thus receiving nonparental as opposed to exclusive parental care. Between 20% and 25% of contemporary families rely on parental care, and as the proportions of women who can care for their children while working have declined (from 11% to 3%), the population of children cared for by their fathers while mothers work has increased from 14% to 19%. Care by grandparents has increased by about 25%, whereas care by other relatives has remained stable at around 8%. The popularity of child care centers and nursery schools initially increased but has declined since the mid-1990s, perhaps in response to well-publicized but exaggerated concerns about the adverse effects of center care, especially on infants and toddlers (see later discussion). By contrast, the utilization of informal and formal home-based child care arrangements has increased, although it

is unclear how much of this increase may reflect changes in the way information was solicited since 1995.

Whatever the reason for the dramatic apparent increase in 1995, reliance on home-based child care has steadily declined by about 33% since that time. In-home care by nannies and babysitters was never very common, and its importance has declined over the last quarter-century.

Other Industrial Countries

As suggested in the previous section, the nonparental care picture looks quite different in most other industrial countries than it does in the United States (Tietze & Cryer, 1999). Principally, this is because most industrial countries other than the United States offer various incentives to allow or encourage new parents, particularly new mothers, to remain at home to care for their infants throughout the 1st year of life. Parental leave has only recently (1993) been mandated in the United States, but even though half the private sector workers and all public sector workers are now entitled to 12 weeks of job-protected leave, few can afford to remain out of work long because the mandatory leave is unpaid (Asher & Lenhoff, 2001). In other industrial countries, by contrast, new mothers (and, in some countries, new fathers) are entitled to extended periods of paid leave. In countries of the Organization for Economic Cooperation and Development (OECD), for example, the average paid leave is 10 months (the minimum outside the United States is 6 months), with pay levels ranging from a basic daily stipend to as much as 90% of the parent's regular salary (Kamerman,

TABLE 23.3   Historical Changes in Primary Child Care Arrangements for U.S. Children under 5 Years of Age with an Employed Mother (Percentages)

	1977	1985	1988	1990	1991	1993	1995	1997	1999
Mother	11	8.1	7.6	6.4	8.7	6.2	5.4	3.3	3.1
Father	14	15.7	15.1	16.5	20.0	15.9	16.6	19.0	18.5
Grandparents	N/A	15.9	13.9	14.3	15.8	17.0	15.9	18.4	20.8
Other relatives	N/A	8.2	7.2	8.8	7.7	9.0	5.5	7.4	8.0
Day care/school	13	23.1	25.8	27.5	23.1	29.9	25.1	21.6	22.1
In child's home	7	5.9	5.3	5.0	5.4	5.0	4.9	4.0	3.3
Family day care	22	22.3	23.6	20.1	17.9	16.6	46.0[a]	36.3	33.8
Other[b]	N/A	0.8	1.6	1.3	1.6	1.1	2.9	8.1	7.3

[a] In 1995, the Census Bureau first distinguished between all forms of care in the providers' home, family day care, and other forms of care by nonrelatives. Changes in the questions used may account for the dramatic increase in the number of children in various forms of "family day care."

[b] Includes self-care, no regular arrangement, and other arrangements.

Source: From *Who's Minding the Kids?* by U.S. Bureau of the Census, 2003, Washington, DC: U.S. Government Printing Office. Reprinted with permission.

Kafka, 1992; Kisker & Silverberg, 1991). Perhaps this trend reflects increased understanding of children's needs for intellectual and social stimulation and of the possible disadvantages associated with more informal care arrangements, as well as improvements in the available quality of center care (e.g., Johansen, Leibowitz, & Waite, 1996; NICHD Early Child Care Network, 1997a). Over the past decade, these associations between parental education and child care preferences have increasingly been moderated by child age, however: Regardless of their educational backgrounds, parents of infants and toddlers (as opposed to parents of preschoolers) emphasize health and well-being and thus seek environments likely to minimize stress rather than those that maximize educational opportunities (e.g., Britner & Phillips, 1995; Cryer & Burchinal, 1997).

Furthermore, because many families, especially in Europe, have two or fewer children, parents may fear that exclusive family care may deprive children of enriching and diverse social experiences, especially with other children (Sturzbecher, 1998). In this context, parental decisions about child care may reflect the parents' willingness to offer their children opportunities to develop additional close relationships outside the family, with some mothers feeling particularly threatened when their children develop close relationships with others.

Relationships between Parents and Other Care Providers

Within-family and out-of-home care environments obviously differ in many important ways. To what extent do parents and care providers understand the differences between their roles and these environments? Parents and child care professionals value the same care characteristics, but, perhaps because they have difficulty monitoring it, parents tend to be poorly informed about the quality of care that their children receive. Nevertheless, parents who provide solicitous, stimulating care clearly tend to select child care arrangements with these characteristics (Bolger & Scarr, 1995). Relief at finding much needed child care and anxiety about the possible risks associated with nonparental care may also prevent some parents from evaluating their children's placements accurately and lead them to deny obvious problems. This may explain why parents of all education and income levels tend to overestimate the quality of their children's programs and relationships with their care

providers, reporting that these are satisfactory even when trained observers recognize that the quality of care is poor (e.g., Brown Miller, 1990; Clarke-Stewart, Gruber, & Fitzgerald, 1994; Cryer & Burchinal, 1997). Not surprisingly, parents also tend to report that they have positive relationships with care providers even when the partnerships may not be as good as they claim.

For their part, care providers seldom see parents as partners, perhaps perceiving themselves as professionals who have greater expertise regarding child care. In addition, they may be somewhat judgmental about parents, attributing children's perceived difficulties to inadequacies on the part of the parents, for example (Kontos & Dunn, 1989; Shpancer, 1998). Care providers also believe that parents need opportunities to develop their caregiving skills (Elicker, Noppe, Noppe, & Fortner-Wood, 1997).

Even when parents and care providers are mutually appreciative and respectful, they often have divergent views of one another's confidence and collaboration. Instead of developing the types of friendships that care providers would prefer, for example, parents often decline to share information about their families or to use care providers as sources of information and guidance (Elicker et al., 1997; Kontos & Dunn, 1989). As a result, parent-care provider conversations tend to be brief, infrequent, and nonsubstantive. The two partners also tend to be most available at different times: Whereas care providers are more accessible at drop-off times in the mornings, parents are more accessible during pick-up times in the afternoons (Endsley & Minish, 1991).

The notion that parent-care provider partnerships are formatively important is intuitively appealing, but empirical data have accumulated slowly. For example, Owen, Ware, and Barfoot (2000) reported that more communication between mothers and care providers (based on mothers' and care providers' reports) was significantly associated with more sensitive and supportive interactions between care providers and children. Van IJzendoorn, Tavecchio, Stams, Verhoeven, and Reiling (1998) reported that better communication was associated with indices of child well-being. In addition, Kontos and Dunn (1989) found that care providers tended to have the lowest regard for the parenting abilities of parents who communicated less; the children of these parents were also less advanced developmentally. This underscores the difficulties that may arise when the relationships between parents and care providers are not

adequately bridged and the need for professional care providers to foster improved relationships with parents. Ghazvini and Readdick (1994) reported a positive correlation between the quality of center care and the frequency of parent-care provider communication.

Summary

Nonparental care during the preschool years has become normative in the United States and other industrialized countries. Children outside the United States often begin nonparental care as toddlers because more generous parental leave policies allow them to be cared for by their parents in infancy, whereas the majority of children in the United States begin nonparental care as infants, typically some time before their 1st birthday. American mothers often attempt to arrange for early care to be provided within the family by fathers, grandparents, or other relatives when exclusive maternal care is not possible, although care provided by relatives tends to be unstable and changing care arrangements are very common. Children who begin nonparental care before their 1st birthday and experience three or more different nonparental care arrangements may be at special risk because the instability of infant care predicts behavioral maladjustment (see later discussion). From a policy perspective, it is thus important to determine why so many young children have unstable patterns of care and why the child care available in the United States is of such uneven quality.

Parents have limited insight into their children's child care experiences even when they monitor their children's responses closely, so it is misleading to assume that market forces will regulate the available quality of child care. Instead, quality of care tends to be best when it is evaluated and regulated by professionals, as in most European countries.

QUALITY OF CARE

Just as researchers have come to appreciate the diverse array of care arrangements that children experience and the possible importance of wide variations in their preenrollment characteristics and backgrounds, so, too, have they come to acknowledge vast differences in the quality of care that children experience both in and outside their homes. This realization led researchers to develop mea-

sures that have, in turn, advanced efforts to understand how quality of care affects children's development.

Process Measures of Quality

Researchers have developed both process and structural measures of quality. Process measures are observational measures of the settings and interactions between care providers and children, although some emphasize the experiences of individual children, whereas the majority assess the experiences of groups of children. The best known of these are standardized measures developed by Thelma Harms and Richard Clifford. The latest versions of the Infant/Toddler Environment Rating Scale (ITERS; Harms, Cryer, & Clifford, 2003) and the Early Childhood Environment Rating Scale (ECERS; Harms, Clifford, & Cryer, 1998) contain 39 and 43 items, respectively, on which the quality of care is rated by trained observers; from these ratings, scores on seven highly intercorrelated scales can be computed (see Table 23.4). Scores can also be reduced to two factors, Appropriate Caregiving and Developmentally Appropriate Activities, although scores on these two dimensions of the original measures tended to be highly intercorrelated as well (Phillips, Voran, Kisker, Howes, & Whitebook, 1994). The Family Day Care Rating Scale (FDCRS; Harms & Clifford, 1989) was developed to provide a six-factor assessment of the quality of home-based care using 32 items; a revision of this scale is currently in preparation. The FDCRS has been used much less than the ITERS and ECERS, not least because home-based care has been studied less extensively than center-based care. Harms, Jacobs, and White (1996) also developed a companion measure to use when evaluating the quality of afterschool programs.

Measures other than the ECERS, ITERS, and FDCRS have been used in major studies as well. Abbott-Shim and Sibley (1987, 1992) developed the Assessment Profile for Early Childhood Programs with over 150 items designed, like the measures developed by Harms and Clifford, to assess the entire setting. A briefer (26-item) Classroom Practices Inventory (CPI) was developed by Hyson, Hirsh-Pasek, and Rescorla (1990) to tap those aspects of quality subsumed under the National Association for the Education of Young Children's "Guidelines for Developmentally Appropriate Practices" (Bredekamp, 1987b). The CPI has not yet been

TABLE 23.4   Items on Some Popular Process Measures of Quality

ECERS[a]	Global Rating Scale[b]	APECP[c]
Space and Furnishings	**Positive Relationship**	**Safety and Health**
1. Indoor space	1. Speaks warmly to children	1. Classroom safe
2. Furniture for routine care, play, and learning	2. Listens when children speak	2. Supplies and materials safe
3. Furnishings for relaxation and comfort	3. Seems to enjoy children	3. Teacher prepared for emergencies
4. Room arrangement for play	4. Explains rule violations	4. Personal hygiene encouraged
5. Space for privacy	5. Encourages new experiences	5. Teacher responsible for basic health care
6. Child-related display	6. Seems enthusiastic	**Learning Environment**
7. Space for gross motor play	7. Attentive to individuals	6. Physical layout encourages independence
8. Gross motor equipment	8. Talks at appropriate level	7. Classroom respects individuality
Personal Care Routines	9. Encourages prosocial behavior	8. Outdoor materials support varied opportunities
9. Greeting/departing	10. Adopts children's level	9. Teacher active outdoors
10. Meals/snacks	**Punitiveness**	**Scheduling**
11. Nap/rest	11. Seems critical of children	10. Scheduling occurs
12. Toileting/diapering	12. Values obedience	11. Varied activities on written schedule
13. Health practices	13. Speaks with irritation	12. Teacher-organized reasoning skills
14. Safety practices	14. Threatens	13. Varied classroom activities
Language/Reasoning	15. Punishes without explanation	**Curriculum**
15. Books and pictures	16. Finds fault	14. Materials support varied experiences
16. Encouraging children to communicate	17. Prohibits many activities	15. Materials encourage cultural awareness
17. Using language to develop	18. Unnecessarily harsh	16. Alternative techniques used
18. Informal use of language	**Permissiveness**	17. Children active in learning
Activities	19. Doesn't control	18. Individualization
19. Fine motor	20. Doesn't reprimand misbehavior	**Interacting**
20. Art	21. Firm when necessary	19. Teacher initiates positive interactions
21. Music/movement	22. Expects self-control	20. Teacher is responsive
22. Blocks	**Detachment**	21. Teacher manages children positively
23. Sand/water	23. Seems distant/detached	22. Food served in positive atmosphere
24. Dramatic play	24. Spends time in other activities	23. Children happy and involved
25. Nature/science	25. Uninterested in children's activities	**Individualizing**
26. Math/number	26. Not close supervision	24. Systematic child assessment
27. Use of TV, video, computers		25. Assessments used in planning activities
28. Promoting acceptance of diversity		26. Teacher identifies special needs
Interaction		27. Teacher cooperative with adults
29. Supervision of gross motor activities		28. Provisions made for special needs
30. General supervision		29. Conferences planned regularly
31. Discipline		30. Parental activity encouraged
32. Staff-child interactions		
33. Interactions among children		
Program Structure		
34. Schedule		
35. Free play		
36. Group time		
37. Provisions for children with disabilities		
Parents and Staff		
38. Provisions for parents		
39. Provisions for personal needs of staff		
40. Provisions for professional needs of staff		
41. Staff interactions and cooperation		
42. Supervision and evaluation of staff		
43. Opportunities for professional growth		

widely used, although L. Dunn (1993) reported that higher ECERS scores were associated with more developmentally appropriate practices, as assessed using the CPI. In addition, Arnett (1989) developed an observational measure of teacher sensitivity that has been used in several large-scale studies and can be used to assess the experiences of individual children. Items on the most widely used of these process measures are listed in Table 23.4.

Many recent reports concerned with the effects of nonparental child care have used data obtained in the NICHD Study of Early Child Care (1996), for which a new process measure of the quality of child care, the Observational Record of the Caregiving Environment (ORCE), was developed to permit comparable assessments of both home- and center-based care. The ORCE lists 18 specific types of interactions between the target child and the caregiver or other children (see Table 23.5) and is distinguished from other popular measures of quality because it emphasizes the experiences of individual children rather than those of the group as a whole. The observer observes each child for three 10-minute periods, during each of which the observer alternately observes and records descriptions of the child's experiences. In addition to recording these specific experiences, the observers also take qualitative notes at the end of each 10-minute session and in a special 14-minute session after the three 10-minute sessions; these notes are used to make qualitative ratings of the care providers' behavior on the eight dimensions or scales displayed in Table 23.6. To maximize the reliability of the measures obtained in the NICHD Study of Early Child Care, furthermore, the observations described here (each comprising 44 minutes of observation, with both specific behavioral and qualitative ratings obtained) were repeated within 2 weeks. For purposes of analysis, scores on conceptually related items (e.g., those concerned with language simulation) can be combined or used individually to assess specific aspects of the quality, or the scores can be used to provide a more comprehensive assessment.

In the United States, scores on the various process measures are highly correlated with one another. This makes it possible to use composite measures of quality containing fewer items than the complete measures do (Scarr, Eisenberg, & Deater-Deckard, 1994). All of the standardized process measures have proven to be less useful as indices of the quality of care in Western Europe, however, perhaps because the quality of care available there is less variable and of higher average

TABLE 23.5   Behaviors Recorded on the Observational Record of the Caregiving Environment (Infant Version)[a]

Behavior	Definition
Share positive affect	Caregiver and infant laugh, smile, coo
Positive physical contact	Caregiver holds infant, touches warmly
Responds to vocalization	Caregiver responds verbally to infant's nondistressed vocalization
Asks questions	Caregiver directs a question to infant
Other talk	Caregiver makes declarative statement to infant
Stimulates cognitive development	Caregiver encourages a skill like rolling over or focuses infant's attention on something in the environment
Stimulates social development[b]	Caregiver plays social game with infant, moves infant so he or she can see, touch another infant
Reads	Caregiver reads aloud to infant
Facilitates behavior	Caregiver provides help, entertainment for the infant
Responds to negative affect	Caregiver responds when the infant fusses, cries (as proportion of infant fussing, crying)
Restricts infant's activities	Caregiver restricts infant's activity physically or verbally
Restricts in physical container	Infant is in a highchair, playpen, crib, etc.
Speaks negatively to infant	Caregiver speaks to infant in negative tone
Uses negative physical actions[c]	Caregiver slaps, yanks, pushes infant
Physical care	Caregiver provides physical care to the infant: feeding, bathing, diapering
Other activity	Caregiver involved in any activity with infant except physical care
Infant solitary	Infant playing or exploring alone
Infant watching or unoccupied	Infant is not involved in any activity

[a] Separate versions, with age-appropriate definitions, were available for each phase.
[b] This behavior was not recorded reliably.
[c] This behavior did not occur often enough for the frequency counts to be meaningful.

TABLE 23.6 Dimensions Rated on the Qualitative Portion of the Observational Record of the Caregiving Environment[a]

Dimension	Definition
Sensitivity/responsiveness to nondistressed communication	Caregiver responds to the infant's social gestures and is attuned to the infant's needs and moods
Detachment-disengagement	Caregiver is emotionally uninvolved, disengaged, and unaware of infant's needs
Intrusiveness	Caregiver is highly controlling and adult-centered in interactions with the infant
Stimulation of cognitive development	Caregiver engages in activities that can facilitate the infant's learning, such as talking to the infant or demonstrating a toy
Positive regard	Caregiver expresses positive feelings in interaction with the infant
Negative regard	Caregiver expresses negative feelings in interaction with the infant
Flat affect	Caregiver expresses no emotion or animation
Sensitivity/responsiveness to infant distress	Caregiver responds to the infant's distress signals consistently, promptly, and appropriately

[a] Definitions provided here apply to infants; separate versions, with age-appropriate definitions, were prepared for each phase of the NICHD Early Child Care Study.

quality (e.g., Beller, Stahnke, Butz, Stahl, & Wessels, 1996; Tietze, Cryer, Bairrao, Palacios, & Wetzel, 1996). Recognizing the need for more systematic and comprehensive measures that could be used internationally, Pierrehumbert and his colleagues (Pierrehumbert, Ramstein, Krucher, et al., 1996) in Switzerland developed measures of quality that could be used in Switzerland, Sweden, and other countries characterized by high-quality child care. Subsequent research by Pierrehumbert, Ramstein, Karmaniola, Miljkovitch, and Halfon (2002) established the validity of this measure by way of correlates with outcomes that should be (and were) affected by the quality of care. Another measure, the Child Care Facility Schedule, was developed for use in countries outside the United States where quality is highly variable (Dragonas, Tsiantis, & Lambidi, 1995). Its predictive and construct validity have yet to be established, however. Neither Pierrehumbert's nor Drogonas's measures have been used widely enough to determine whether they might have broader utility.

Structural Measures of Quality

Instead of process variables, many researchers assess quality using structural indices: measures of teacher training and experience, group size, teacher-child ratios, crowding, staff turnover, and the like (e.g., Barnas & Cummings, 1994; Howes & Olenick, 1986). Most of these factors can be, and often are, regulated, although

such factors as stability and continuity obviously cannot be regulated. Conceptually, structural and process measures differ to the extent that factors indexed by the structural measures potentiate high-quality interaction and care but do not guarantee it, whereas process measures try to quantify the actual care received by children.

Group size and staff-child ratios are popular structural measures. The Panel on Child Care Policy of the U.S. National Research Council (1991) recommended group sizes of 6 to 8 for infants, 6 to 12 for 1- to 2-year-olds, 14 to 20 for 3-year-olds, and 16 to 20 for 4- and 5-year-olds, as well as staff-child ratios of 4 to 1 for infants and 1-year-olds, between 4 and 6 to 1 for 2-year-olds, between 5 and 10 to 1 for 3-year-olds, and between 7 and 10 to 1 for 4- and 5-year-olds. These standards were not very demanding, especially where infants were concerned, and ratios of 2 or at most 3 infants per adult are now considered more appropriate (American Academy of Pediatrics, American Public Health Association, & National Resource Center for Health and Safety in Child Care, 2002; American Public Health Association & American Academy of Pediatrics, 1992a, 1992b). Standards vary dramatically internationally and among states in the United States, not surprisingly, with only about half of the states even requiring that licensed care providers be trained (Morgan et al., 1993; Phillips, Lande, & Goldberg, 1990). Licensed care providers are also more likely to offer stimulating environments and nutritious food than unlicensed providers (Fosburg et al., 1980; Stallings, 1980).

Howes (1983) suggested more than 2 decades ago that the adult-child ratio and the extent of teacher training were the best structural indices of quality in centers, whereas group size, the degree of safety, and the appropriateness of care provider behavior best measured the quality of home-based care. Care providers' salaries have also proved to be valuable, if indirect, measures of the quality of care in a number of studies in the United States (Phillips, Howes, & Whitebook, 1992; Phillips, Mekos, Scarr, McCartney, & Abbott-Shim, 2001; Phillipsen, Burchinal, Howes, & Cryer, 1997; Scarr et al., 1994). Howes also introduced an important distinction between the conventional structural measures of quality (group size, adult-child ratio, care provider training) and more comprehensive and empirically derived measures, such as number of care providers present at any given time, staff turnover, number of settings experienced by each child, care provider sensitivity and involvement, and the provision of developmentally appropriate activities. Unfortunately, site- or care provider-specific measures of quality fail to take account of the substantial frequency of moves by children from one setting to another (NICHD Early Child Care Research Network, 1995a). These transitions may adversely affect children even when all facilities provide high-quality care.

Relations between Structural and Process Measures of Quality

Because the many structural measures of quality are all believed to reflect conditions conducive to high-quality interactions and experiences, one might expect at least modest relationships among them; this is usually, but not always, the case. Scarr et al. (1994) found that scores on various structural measures of quality were poorly correlated with one another and were not correlated with scores on the process measures of quality. In their large multisite study, only teachers' wages predicted the quality of care they provided, as indexed on process measures. Petrogiannis (1995), too, reported no significant associations among the observed quality of care provider-child interaction, ITERS scores, and structural indices of quality in his study of Greek child care centers.

Other researchers, including those participating in the multisite NICHD Study of Early Child Care, have reported clearer and stronger associations between scores on structural and process measures of quality:

The better the salaries, benefits, and level of training received by care providers, the better the quality of care they provide and the less they are likely to quit their jobs (Berk, 1985; Kontos & Stremmel, 1988; Phillips, Howes, & Whitebook, 1991; Ruopp, Travers, Glantz, & Coelan, 1979). The researchers in the NICHD Child Care Research Network (1995b, 2000a, 2002a) reported that the observed quality of care provider-child interaction was higher when group sizes were smaller, child-adult ratios were lower, and care providers were better trained. Howes, Phillips, and Whitebook (1992) reported that classrooms with appropriate teacher-child ratios were more likely than those with higher ratios to provide care of better quality and to promote secure child-teacher attachments.

In four large multisite studies (one of them multinational in scope and one conducted in the United Kingdom), the quality of child care—assessed using process measures of quality—was correlated with structural measures of quality, including higher staff-child ratios, better staff training and education, and higher teacher wages (*Cost, Quality, and Child Outcomes in Child Care Centers,* 1995; Cryer, Tietze, Burchinal, et al., 1999; Phillips et al., 2001; Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggert, 2004). In the two large U.S. studies, average levels of quality within the states sampled were related to the stringency of state standards: States with more demanding licensing standards had fewer centers providing care of poor quality, thereby underscoring the benefits of demanding and well-enforced standards (Vandell & Wolfe, 2000). In an interesting natural experiment, Howes, Smith, and Galinsky (1995) reported that the introduction of stricter standards of training and provider-child ratios statewide led to improvements in the quality of child-care provider interaction and higher scores on the ECERS scale. Similarly, the NICHD Early Child Care Research Network (1999b) reported that children in classrooms that met more of the recommended guidelines regarding ratio, group size, teacher training, and teacher education were less likely to have behavior problems and more likely to have better school readiness and language comprehension scores. Except in North Carolina, where licensing regulations are quite lax and for-profit centers provided care of significantly lower quality, the *Cost, Quality, and Child Outcomes in Child Care Centers* (1995) study revealed no difference in the quality of care provided by for-profit and not-for-profit centers, in part because nonprofit church-based

centers often provided care of such poor quality. Nonprofit centers did have higher staff-child ratios, better educated, trained, and more experienced staff, and lower rates of staff turnover, however.

Similar findings were obtained in studies focused on family day care homes (Clarke-Stewart, Vandell, Burchinal, O'Brien, & McCartney, 2002). Galinsky, Howes, Kontos, and Shinn (1994) and Galinsky, Howes, and Kontos (1995) reported that home-based child care providers who received training were more likely to behave warmly, attentively, and responsively. Trained providers also received higher scores on Harms and Clifford's (1989) FDCRS, perhaps because the training enhanced their self-esteem and professionalism (Dombro, 1995; Dombro & Modigliani, 1995). In an independent sample of home-based child care providers, training was in fact the most powerful predictor of the observed quality of care as indexed on the FDCRS (Fischer & Eheart, 1991). Bollin (1993) reported that home-based care providers were most likely to continue providing care when they had held previous child care jobs and were not trying to combine paid child care work with care of their own young children. Quality of care provider-child interaction has also been linked to group size in home-based care (Kontos, 1994; Stith & Davis, 1984) and care provider-child ratios in both center and home-based care (Howes, 1983; Howes & Rubenstein, 1985). In Israel, however, M. K. Rosenthal (1991a) found little association between the quality of care provider-child interaction and the quality of the education that caregivers provided.

Overall, there is substantial evidence that scores on diverse structural and process indices of quality are intercorrelated, with Scarr et al.'s (1994) findings representing the exception rather than the rule. The convergence reported by most researchers validates the notion that structure affects function and underscores the substantial consensus regarding the components and nature of high- (or low-) quality care, despite the rather heterogeneous range of items considered as indices of quality. This consensus should also increase the amount of attention paid to reports that the average quality of care in the United States is barely adequate or mediocre (*Cost, Quality, and Child Outcomes in Child Care Centers*, 1995; Galinsky et al., 1994; Kontos, Howes, Shinn, & Galinsky, 1994; NICHD Early Child Care Research Network, 1995d, 2000a; Whitebook, Howes, & Phillips, 1989) and prompt efforts to narrow the gap between

parents' and researchers' evaluations of quality (Clarke-Stewart et al., 1994; Galinsky, 1992; Mason & Duberstein, 1992; Phillips, 1992).

The mean quality of care, as indexed by provider training and education level, improved during the 1980s in the United States, but average group size and turnover rates increased over this period (Hofferth, 1992). According to the NICHD Early Child Care Research Network (2000a, p. 116), "Positive caregiving was . . . very uncharacteristic" for 8% of children in the United States ages 1 to 3 years, "somewhat uncharacteristic" for 53%, "somewhat characteristic" for 30%, and "highly characteristic" for only 9%. This conclusion is especially alarming because the centers and care providers providing care of higher quality are likely to be overrepresented and those providing poorer quality care underrepresented in such studies, thanks to variations in their willingness to participate in research. Haskins (1992) and Clarke-Stewart (1992) have questioned the assumption that "adequate" day care quality represents a case for concern, however, and the results of the NICHD Early Child Care Research Network (1995d) suggested that three-quarters of the infants studied had sensitive care providers.

Correlates of the Quality of Care

In the early 1980s, several researchers noted a disturbing tendency in both Canada and the United States for quality of care and social class to be confounded. Children from economically and socially disadvantaged backgrounds appeared to receive nonparental care of poorer quality than those from more advantaged backgrounds. This led researchers to fear that disadvantaged children were doubly handicapped, suffering the adverse effects of poor-quality care both at home and in their out-of-home care settings (Anderson, Nagle, Roberts, & Smith, 1981; Clarke-Stewart et al., 1994; Goelman, 1988; Goelman & Pence, 1987a, 1987b; Howes & Stewart, 1987; Kontos & Fiene, 1987). Although the NICHD Early Child Care Research Network (1995c) reported that children receiving better out-of-home care had superior home environments as well, most recent research has revealed a curvilinear rather than linear relationship between social class and the quality of out-of-home care (Phillips et al., 1994; Voran & Whitebook, 1991; Waite, Leibowitz, & Witsberger, 1991; Whitebook et al., 1989; Zaslow, 1991). Centers

serving children from advantaged backgrounds indeed seem to provide care of the highest quality (see also Holloway & Reichhart-Erickson, 1989; Kontos, 1991), but the worst care tends to be provided by centers predominantly serving children from middle-income families rather than the poorest families. Centers serving children from low-income families do not differ from those serving advantaged families on most measures of quality, although the teachers in centers serving poorer children tend to be less sensitive and harsher, perhaps because the children behave more poorly. According to the survey by Phillips and her colleagues, quality varies across an especially wide range in centers serving disadvantaged families. Community-based centers had smaller groups and better teacher-child ratios, although their teachers had obtained less education and were more poorly trained. Interestingly, children from middle-income families are especially likely to attend for-profit centers, where quality is often significantly poorer (Coelen, Glantz, & Calore, 1979; S. L. Kagan, 1991; Phillips et al., 1992). In the NICHD Early Child Care Research Network (1995b) study, however, the quality of observed care provider behavior was not predicted by family income level, although it was predicted by the quality of home care (NICHD Early Child Care Research Network, 1995c).

Family social status, parental income, and parental education are not the only factors correlated with indices of the quality of care children receive. Bolger and Scarr (1995) reported that authoritarian attitudes toward child rearing were also associated with lower-quality care, and that, at least in the middle-class sample they studied, variation in the state standards for child care quality did not attenuate the powerful association between family background and child care quality. Phillips, McCartney, and Scarr (1987) reported that parents who valued social skills tended to choose centers with higher quality than those who valued conformity. Children may also end up in centers of lower quality if their parents are too preoccupied with other problems to evaluate their child care options thoroughly (Howes & Olenick, 1986).

Much of the literature reviewed next confirms that quality of care is indeed an important consideration: Children perform better on many dimensions when they have received care of higher quality. Such findings raise obvious questions: How good is good enough? Is there a linear relationship between quality of care and children's adjustment? Is there a threshold beyond which improvements in quality no longer have demonstrable effects? The results of the Goteborg Child Care Study provided an early answer to these questions (Broberg, Hwang, Lamb, & Ketterlinus, 1989; Hwang, Broberg, & Lamb, 1991; Lamb, Hwang, Bookstein, et al., 1988; Lamb, Hwang, Broberg, & Bookstein, 1988). In Sweden, nonparental care is government-subsidized and strictly regulated to ensure high quality (Broberg & Hwang, 1991; Hwang & Broberg, 1992). Despite limited variations in the quality of care across settings, however, quality of out-of-home care was one of the most important and consistent correlates of children's personality maturity, social skills, and compliance with maternal requests in the early assessments conducted as part of the Goteborg Child Care Study.

The results of the much larger and more comprehensive NICHD Early Child Care Study (2002a, 2003b) likewise revealed that the effects of quality were continuous across the wide range encountered in this study. Interestingly, however, careful analyses revealed no dose-response relations, meaning that the beneficial efforts of high-quality care and the adverse effects of poor-quality care were similar regardless of the amount of time spent in care. Similar findings were reported by Sylva et al. (2004) in the Effective Provision of Preschool Education (EPPE) Study.

Scarr and her colleagues (Scarr, 1992, 1998; Scarr, McCartney, Abbott-Shim, & Eisenberg, 1995) have not only reported poor intercorrelation among measures of quality, but were among the first to offer the more skeptical opinion that the quality of out-of-home care is much less significant than many advocates believe. Their research suggested that socioeconomic and family background variables were much more influential sources of variance than the quality of care, which explained statistically significant but small portions of the variance in behavioral adjustment. Measures of the quality of care also had small (but reliable) effects in the NICHD study: The NICHD Early Child Care Research Network and Duncan (2003) estimated that a 1 standard deviation increase in the quality of care between 36 and 54 months was associated with an increase of between .50 and 1.50 points on standardized cognitive test scores. Further research involving diverse samples and measures is obviously necessary to evaluate the merits of this argument, which has substantial implications for both parents and public authorities. Quality

matters, it seems, but not as much as researchers and policymakers hoped (Lamb, 2000). In addition, the type, quality, and extent of out-of-home care must be viewed in broader context: Child care does not replace home care and does not render family processes and family background irrelevant.

Summary

The results of both small- and large-scale studies over the past 2 decades have revealed substantial agreement among experts regarding the components of high-quality care, even though parents' assessments of quality and their appraisals of satisfaction seem to be determined very differently from experts' assessments. Researchers have distinguished between process indices of quality, which quantify development-promoting care provider behavior, and structural indices, which identify conditions in which such behavior should be more likely. Empirical evidence confirms that the many objective indices of high-quality care are highly intercorrelated, and that observable aspects of appropriate care provider behavior are more likely to be evident when the structural indices suggest auspicious circumstances for such high-quality care. Research reviewed later in this chapter also supports the assumption that high-quality care promotes adaptive development in a variety of developmental domains, although the effects of quality are much smaller than most researchers or policymakers typically acknowledge.

Unfortunately, the most popular indices of quality have proven less useful when employed in Western and Northern European countries. Their failure has been attributed to measurement insensitivity when levels of quality are very high, but cultural differences in the definition of quality may restrict the validity of these measures as well. Exploration and specification of these cultural differences would be extremely informative, not only to students of nonparental care but also to those who study cultural practices and beliefs. In addition, as noted earlier, repeated reports that the quality of care is correlated with various outcome measures often lead researchers to ignore the small size of the associations, especially in predictive analyses. At least in part, these disappointing findings can be attributed to the rather general way that quality is typically measured. In the next decade, researchers might profitably focus their efforts on attempts to identify more precisely the particular aspects of quality that promote or impede development in specific domains, and for children with particular characteristics, thereby moving beyond global indices of quality and sharpening our understanding of quality and its effects (see Kontos, Burchinal, Howes, Wisseh, & Galinsky, 2002, for an example of such research).

CORRELATES AND CONSEQUENCES

With the exception of theorists such as Piaget (e.g., 1965) and Harris (1998), who have described how regular interactions with peers promote social and moral development, early childhood educators who have endorsed enrichment programs for children from impoverished backgrounds, and sociobiologists (e.g., Daly & Wilson, 1995) warning that biologically unrelated care providers are less motivated than relatives to meet children's needs, most contemporary theories of socialization focus almost exclusively on the ways parents (especially mothers) influence their children's development, largely ignoring the possible effects of nonparental care providers and extrafamilial environments. Only attachment theorists have conceptually analyzed the developmental consequences of nonparental care in any depth, proposing that care by a single care provider is needed to promote healthy social and emotional development (Bowlby, 1951, 1958, 1969–1973). Warnings that child-parent separations might damage child-parent relationships and thereby cause social maladjustment and pathological emotional development have in turn prompted researchers to examine the ways children cope with and are affected by nonparental care. For the most part, however, research on the effects of nonparental care has been surprisingly atheoretical rather than conceptually driven.

In this section, we review research designed to illuminate the effects of nonparental child care on children's development and adjustment. We begin with an analysis of the processes whereby children adjust to novel care providers and contexts, with emphasis on emotional reactions and factors associated with individual variations in the magnitude of children's responses. We then examine the effects of these transitions on the quality of child-parent interaction before turning to the issue that has been most contentious: the effects of child care on the security of infant-parent (especially child-mother) attachment relationships.

The initiation of nonparental care of course involves opportunities as well as stresses. In particular, children in care settings are able to form and be affected by meaningful relationships with other adults (care providers) as well as other children (peers). In fact, most children do establish such relationships, which range in quality and thus have the potential to affect children's development in positive as well as less desirable ways, as we show in our analysis of these developing relationships. Children in care settings are at increased risk of developing behavior problems, as we then show, noting that the magnitude and reliability of this effect appears to be a consequence of the time of enrollment and the quality of care, including the quality of the relationships with care providers. Effects on cognitive and linguistic development, in both community and special intervention programs, are discussed in the final subsection.

Processes of Adaptation to Nonparental Care

In this section, we discuss research on children's initial reactions to the start of out-of-home care, focusing first on separation responses and then on processes of familiarization with the new setting.

Separation Responses

Bowlby (1969, 1973) initially described children's reactions to extended maternal separations by reference to successive phases of protest, despair, and detachment similar to the observable stages of bereavement in adults. Passage through these phases was believed to proceed at a pace that varied depending on the length of the separations. Bowlby's theory was informed by observations of children in orphanages and residential homes during and after the Second World War, but comparable data were obtained by professionals working in East European child care centers during the 1970s. These educators and pediatricians reported sleeping and eating disorders, infectious diseases, and declines in levels of play and communication after enrollment (Schmidt-Kolmer, Tonkowa-Jampolskaja, & Atanassowa, 1979). Bowlby's colleagues, Robertson and Robertson (1972, 1975), reported that a variety of factors modified children's emotional and physical reactions to extended separations, but little systematic research on factors affecting children's responses to repeated separations was conducted until much more recently (cf. Field, 1991b).

Most research on the transition from home to child care has been conducted in Europe, perhaps because national policies there encourage extended periods of subsidized parental care during the first years of life to ensure that most children enter nonparental care settings after child-parent relationships have already been established (Lamb, Sternberg, Hwang, et al., 1992). In Italy, Fein and her colleagues (Fein, 1995; Fein et al., 1993) observed that infants (ages ranged from 4.5 to 19.5 months) enrolled full time in high-quality centers continued to show despair-like behavior (negative affect, immobilization, and self-comforting) 6 months after enrollment. In Germany, Rauh and her colleagues (Rauh, Ziegenhain, Müller, & Wijnroks, 2000) found that infants who were enrolled in child care between 12 and 18 months of age (late entry) were more irritable and negative than those enrolled before 12 months (early entry), both at home and in child care centers. As children grow older, however, emotional reactions to child care entry become less intense, so that, for example, kindergartners regulate their emotions better and cope better with the first stressful days in child care than infants and toddlers do (Field et al., 1984).

Reactions to maternal separation may vary depending on the quality of the child-mother relationship prior to enrollment. According to attachment theorists, mothers who provide children with emotional security help children develop self-regulatory abilities that facilitate adaptation to separations (Ainsworth, 1979). Consistent with this view, infants from secure dyads appear less stressed (i.e., they have lower cortisol levels 30 minutes after the last separation) than infants from insecure dyads when observed in a setting (the Strange Situation) that involves brief mother-child separations (Spangler & Grossmann, 1993; Spangler & Schieche, 1998).

By comparison with the separations studied in the laboratory, however, nonparental child care involves longer, repeated separations which may violate children's expectations about their mother's return. The intensity of the stress involved may explain why cortisol levels were similarly elevated in securely and insecurely attached toddlers when the daily mother-child separations associated with child care began (Ahnert, Gunnar, Lamb, & Barthel, 2004). These findings suggest that enrollment in child care places a special stress on children who are too young to cope effectively with violations of expectations about the parents' availability, even when they have established attachments to their parents. M. K. Rosenthal (1994) found that Israeli toddlers in family

day care were most distressed when they had younger and more stressed mothers, when their coenrollees tended to be older than they, and when their care providers had age-inappropriate expectations.

Processes of Familiarization

Quite often, care providers can do little to modulate children's responses to stress. Fein et al. (1993) reported, for example, that the levels of negative affect 6 months after enrollment in child care were predicted by measures of immobility and reduced levels of positive affect at entry but not by variations in the care providers' behaviors, even though the care providers comforted, maintained proximity to, and initiated interactions with unhappy children more than with other children during the transitional period.

To help children adjust, many European child care centers have implemented adaptation programs in which mothers are allowed to accompany their children during the transitional period of enrollment. As expected by the proponents of such programs, Rauh and her colleagues (2000) reported that abrupt transitions to child care prolonged negative emotions and made adaptation more difficult, especially when children were enrolled as toddlers rather than infants. When mothers familiarized their children to child care in a more leisurely manner and accompanied their children in the center, by contrast, adjustment was easier. Similarly, Ahnert, Gunnar, et al. (2004) found that child-mother attachments remained secure or shifted from insecure to secure when mothers accompanied their children to child care for a longer period. In addition, securely attached toddlers had markedly lower cortisol levels than insecurely attached infants while the mothers accompanied them, suggesting that secure infant-mother relationships reduced the perceived stressfulness of the novel child care environment.

Effects on Child-Parent Relationships

In this section, we turn attention from the children's initial emotional responses to the effects of child care on the relationship between children and their parents.

Changes in Parenting

Perhaps in defensive response to widespread concerns about the riskiness of nonparental care, many researchers noted that employed and unemployed mothers behaved similarly with their children (Bornstein,

Maital, & Tal, 1997; Easterbrooks & Goldberg, 1985; Rubenstein & Howes, 1979; Rubenstein, Pedersen, & Yarrow, 1977; Stith & Davis, 1984), or they emphasized that employed mothers paid more attention, vocalized more, and expressed more positive emotions to their children than stay-at-home mothers did (Caruso, 1996; Schubert, Bradley-Johnson, & Nuttal, 1980; Schwartz, 1983). Such inconsistencies were at least partially attributable to situational variability (Crockenberg, & Litman, 1991; Zaslow, Pedersen, Suwalsky, & Rabinovich, 1989), underscoring the importance of assessing children in a variety of social situations. In addition, surprisingly few researchers studied the experiences of the same children at home and in child care centers; indeed, many researchers have implicitly failed to recognize that children in child care facilities are not only exposed daily to an additional set of experiences at child care, but also have experiences at home that differ from those experienced by peers who do not receive regular nonparental care.

Ahnert, Rickert, et al. (2000) detailed the weekday experiences of German toddlers who either attended or did not attend child care facilities. The children's social experiences differed depending on where they were observed, and the children in the two groups also had different experiences at home with their parents. At home, parents interacted more intensely with the child care children, as if attempting to make up for the time they were apart; during comparable portions of the day, they attended to, communicated with, and stimulated their children more than parents of home-only children. Similarly, Booth, Clarke-Stewart, Vandell, McCartney, and Owen (2002) reported that mothers of children in child care spent more time interacting with their children, even on weekends, than did mothers of home-only children. Burchinal, Bryant, Lee, and Ramey (1992) likewise found that mothers of children in child care were more involved with their 6- to 12-month-olds than were mothers of home-only children.

However, maternal sensitivity and levels of positive child engagement decline when children—especially infants and toddlers—spend many hours in child care facilities (NICHD Early Child Care Research Network, 2003a). This means that the quality of mother-child relationships also declines in such circumstances, especially when the child care is of poor quality (NICHD Early Child Care Research Network, 1999a; Sagi, Koren-Karie, Gini, Ziv, & Joels, 2002). For example, Ahnert, Rickert, et al. (2000) found that mothers of children in child care tended to respond hesitantly to their

children's distress signals in the evenings, even when the children indicated by intensified levels of whining that they wanted their mother's attention. Similar patterns of interaction were described by Nelson and Garduque (1991), who found that 2- to 4-year-olds behaved more negatively when interacting with their parents than with their care providers. Rubenstein and Howes (1979) likewise showed that more negative affect was displayed at home than in care settings. To foster secure child-parent relationships and promote children's emotional equilibrium, families thus need to titrate and adjust the children's experiences at home, especially when poor child care experiences further tax the children's relationship skills (Ahnert & Lamb, 2003; Lamb, 2005). Specifically, parents need to be especially attentive to children and their needs, responding sensitively to fusses and cries when they are together, thereby providing the emotion-regulating support that children typically do not obtain from care providers in group settings.

Measuring Child-Parent Relationships

Although changes in parental behavior typically accompany enrollment in child care, adverse effects on child-parent relationships are not inevitable, especially when parents and children have established harmonious relationships. Fears about adverse effects of early and extended nonparental child care have long been prominent, however.

Many of the early studies involved the Strange Situation procedure, which was designed to measure the quality of child-parent attachment by observing children's reactions to reunion with their parents following two 3-minute separations in an unfamiliar context (Ainsworth, Blehar, Waters, & Wall, 1978) and has become popular in part because it is one of few measures providing valid insight into children's early socioemotional development. Following the brief separations involved in the Strange Situation, most infants greet the returning parent warmly, either by approaching, asking to be picked up, or smiling and vocalizing. Children who behave in this fashion are deemed securely attached (Ainsworth et al., 1978). Other children are deemed insecure because they behave avoidantly (ignoring the adults' bids, failing to greet, and perhaps even withdrawing) or resistantly (ambivalently mingling bids for contact with angry rejection of contact offered to them).

In a widely cited early study, Blehar (1974) compared 2- and 3-year-old children receiving full-time child care with children of similar ages cared for exclusively at home. When the children were observed in the Strange Situation, many of those in child care appeared insecurely attached to their mother. Because Blehar's findings seemed to confirm widespread fears that child care had negative effects on child-parent relationships, several investigators attempted—unsuccessfully—to replicate her findings (e.g., Portnoy & Simmons, 1978; Ragozin, 1980).

Is it appropriate to use the Strange Situation when evaluating children whose daily experiences of separation might have affected their tolerance for brief separations like those involved in the Strange Situation? Clarke-Stewart (1989) and Thompson (1988) in fact suggested that children enrolled in child care might appear insecure even when they were securely attached to their parents. In addition, Clarke-Stewart and her colleagues (1994) reported that child care children appeared more independent than home-only children when observed in unfamiliar test situations with their mother. Because independence from mother was correlated with several measures of social competence with unfamiliar adults, Clarke-Stewart et al. worried that the children's independence might be misinterpreted as insecurity, but later assessments (at 15 months) of 1,153 infants participating in a longitudinal study revealed that infants with extensive child care experiences were neither less distressed nor more independent in the Strange Situation than peers without nonparental care experiences (NICHD Early Child Care Research Network, 1997b). The validity of the Strange Situation remains an issue when children as old as those studied by Blehar are concerned, however, because the procedure was initially developed and validated for use with toddlers under 20 months of age (Ainsworth et al., 1978).

Variation in Child-Parent Relationships

Beginning in 1986, a series of reports in both the popular media and the professional literature again fanned fears that early initiated nonparental care might adversely affect child-parent attachment and related aspects of psychosocial development (e.g., Belsky, 1986). This conclusion was largely supported by studies in which the Strange Situation was used to assess socioemotional adjustment. Reviewing the results of four such studies, Belsky (1988) reported that the proportion of insecure (especially insecure/avoidant) attachments was higher (41%) among children receiving out-of-home care than among home-only children (26%). He thus concluded that extensive nonmaternal care in the 1st year of life made insecure child-mother attachments more likely.

Noting that Belsky's (1986; see also Belsky & Rovine, 1988) review was selective (he had deliberately focused only on children from more advantaged and stable backgrounds), Clarke-Stewart (1989) combined data from all known studies in which the Strange Situation had been used, regardless of socioeconomic status. In this rather heterogeneous sample, 36% of the infants in full-time care were classified as insecure compared with 29% of the infants whose mothers were employed part-time or were not employed. Acknowledging an "elevated risk" of insecure attachment among infants in child care, Clarke-Stewart emphasized the needs (a) to explore a variety of factors other than emotional insecurity that might explain these differences in child behavior and (b) to use a wider range of measures when evaluating adjustment to child care. Shortly thereafter, Lamb, Sternberg, and Prodromidis (1992) obtained raw data from several investigators, recoded the data, and reexamined the effects of child care on the security of infant-mother attachment. Access to raw data allowed Lamb et al. to assess the effects of such factors as extent of care and age of enrollment more fully than had hitherto been possible. Their reanalysis showed that children who began receiving nonmaternal care between 7 and 12 months were more likely to be insecurely attached (37%) than were those cared for exclusively by their mother (29%). Subsequent meta-analyses by Erel, Oberman, and Yirmiya (2000) of data obtained in 59 studies revealed no significant effect of child care on the security of child-mother attachment, however, and suggested that earlier enrollment was preferable. Interestingly, adverse effects were more commonly found in earlier studies, whereas positive effects or no differences were more common in later studies.

When children in the large NICHD Study of Early Child Care (1997b) were observed in the Strange Situation at 15 months, there were no differences in the proportion of secure attachments depending on whether or not these infants had experienced nonmaternal care. In the NICHD study, furthermore, the effects of child care on attachment at both 15 and 36 months were moderated by the mother's involvement and sensitive parenting. Greater maternal sensitivity was associated with increases in the probability that children would be classified as securely attached to their mother, and maternal sensitivity moderated estimated effects of the amount, quality, and instability of child care. Children whose mothers were less sensitive were more likely to be insecurely attached to them, especially when the children spent long hours in care and the child care was of poor quality (NICHD Early Child Care Research Network, 1997b, 2001b). Such findings indicated that parenting continues to shape the quality of child-parent relationships even when children experience child care, and that sensitive parenting moderates the effects of child care on attachment security. In addition, the results of the NICHD study identified amount of early child care as a risk factor that made children more susceptible to the adverse effects of insensitive parenting, probably because these parents were unable to provide their children with the types of soothing, emotion-regulating attention in the evenings that allowed the children to return to child care the next day in states of emotional equilibrium (Ahnert & Lamb, 2003; Lamb, 2005). In Israel, however, the link between maternal sensitivity and attachment security is not evident when children attend poor-quality child care centers (Aviezer, Sagi-Schwartz, & Koren-Karie, 2003). Insecure infant-mother attachments appear more common when Israeli children attend centers providing care of poor quality (Sagi et al., 2002).

As indicated earlier, the observation of Strange Situation behavior at best provides a very narrow assessment of the effects of child care on child-parent relationships. Associations between Strange Situation behavior and measures of later performance tend to be impressive only when there is stability over time with respect to family circumstances and caretaking arrangements (Ahnert, 2004; Belsky & Fearon, 2002; Goldsmith & Alansky, 1987; Lamb, Thompson, Gardner, & Charnov, 1985). Thus, the hypothesized links between nonparental care, insecure/avoidant attachment, and subsequent behavior problems need to be evaluated more thoroughly. There is as yet no evidence that avoidant infants who have experienced nonparental care in fact behave any differently in future years than similar infants who behave securely in the Strange Situation (Grossmann, Grossmann, & Waters, in press; Lamb et al., 1985). In addition, it is obviously important to view out-of-home care in the context of other social and familial variables that affect child-parent relationships.

Because sensitive parenting continues to shape the quality of child-parent relationships when children attend child care facilities, it is important to note that sensitivity is itself conditioned by parental motivation and attitudes (see Bell & Richard, 2000). Harrison and Ungerer (2002), for example, reported that Australian mothers who returned to the workforce because they wanted to do so described many benefits for themselves, their families, and

their children, expressed less separation anxiety, and were less likely to have insecurely attached children than unemployed mothers were. Likewise, Stifter et al. (1993) found that mothers who returned to work early and reported more separation anxiety were more likely to behave intrusively and to have insecurely attached infants. Scher and Mayseless (2000) reported an association between the number of hours spent at work, separation anxiety, and insecure patterns of attachment. There is also some evidence that variables such as birth order (Barglow, Vaughn, & Molitor, 1987), temperament (Belsky, 1988; Melhuish, 1987), level of familial stress, differences in maternal personality (Belsky & Rovine, 1988), maternal role satisfaction (Hock, 1980), cultural differences in parenting values (Burchinal, Ramey, Reid, & Jaccard, 1995), and the availability of social support (Crockenberg, 1981) may mediate the effects of child care experiences on infant-mother attachment. As a result, it is important to identify, measure, and take these factors into account when interpreting the effects of child care on the quality of child-parent relationships, and to recognize that family factors remain the best predictors of children's development, even when they attend child care facilities (Lamb, 1998; NICHD Early Child Care Research Network, 1998b).

Relationships with Care Providers

Whatever happens to child-parent relationships when children begin attending out-of-home care facilities, enrollment also offers opportunities to form relationships with other adults. We consider the development of this relationship, next.

Concepts and Measures

Enrollment in child care allows children to form significant relationships with providers but does not lead care providers to displace mothers as primary attachment figures. After observing infants interacting with their mother and care providers in the laboratory, for example, early researchers reported that children overwhelmingly preferred to interact with and be near their mother and were often upset when left alone with care providers. Positive responses to care providers were more common in the presence of strangers, however (Cummings, 1980; Farran & Ramey, 1977; Fox, 1977).

In child care settings, children show a preference for stable over unstable care providers when their parents are absent. They also show more positive emotions and explore more in the presence of regular care providers and those who have provided their care longer. For example, toddlers consistently seek comfort from stable and familiar care providers when distressed, interact with them preferentially when not distressed, and are more rapidly soothed by them than by unstable providers (Anderson et al., 1981; Barnas & Cummings, 1994; Rubenstein & Howes, 1979). Such differences may reflect in part some characteristics or skills of the providers because stable providers were often the head teachers and were highly involved with children. Barnas and Cummings thus speculated that the children had been able to form secure attachments to those care providers who had been reliable sources of care.

In more recent studies, many researchers have used Ainsworth et al.'s (1978) Strange Situation (SS) or Waters's (1995) Attachment Q-set (AQS) to examine the quality or security of the relationships between children and their care providers. Although scores on the two measures are highly correlated (Sagi et al., 1995), they capture different aspects of child-adult relationships. Specifically, the SS emphasizes the adequacy of adult responses to children's separation distress and children's feeling about the comfort and protection they receive, especially when distressed (Ainsworth et al., 1978; Lamb et al., 1985), whereas the AQS explores adult-child interactions in a variety of everyday situations, capturing child behaviors that include security, comfort, and attention seeking (Booth, Kelly, Spieker, & Zuckerman, 2003; Waters, 1995). In a recent meta-analysis, Ahnert, Pinquart, and Lamb (in press) found that the SS and AQS revealed equivalent proportions of secure (as opposed to insecure) child-care provider attachments, although secure relationships to care providers were less common than secure relationships to mothers or fathers. The security of children's attachments to their mother, father, and care providers were minimally but significantly intercorrelated, suggesting that children construct intertwined internal working models of significant relationships with adults. For the most part, however, the characteristics of interaction with particular individuals shape the quality of specific relationships. The security of child-care provider attachment is not simply determined by the security of child-parent attachment, as many attachment theorists once hypothesized.

Correlates and Antecedents

As with parents, the security of infant-care provider attachment is associated with the sensitivity, involvement,

and quality of the care provided by care providers, although considerable disagreement exists about the ways the qualities underlying secure child-care provider attachments should be conceptualized and assessed. Some researchers argue that, as with mother-child dyads, the security of child-care provider attachments depends on the sensitivity of the care providers' behavior with individual children. Consistent with this view, Galinsky et al. (1995) reported that infants behaved as though they were more securely attached to their providers in home-based settings after the care providers' participated in a training program designed to enhance their sensitivity.

Highly trained care providers can appear even more sensitive than mothers in one-on-one free-play situations (Goossens & van IJzendoorn, 1990), but dyadic sensitivity necessarily decreases in group settings because care providers have to divide their attention among multiple children (Goossens & Melhuish, 1996). This may explain why some researchers have found no significant associations between the security of child-care provider attachment and measures of the care providers' sensitivity in child care settings (e.g., Howes & Smith, 1995). Children in specific groups also tend to develop relationships with their shared care providers that are of similar quality (Sagi et al., 1985, 1995), and the security of child-care provider attachment remains the same even when care providers change (Howes, Galinsky, & Kontos, 1998). These findings suggest that the security of child-care provider attachments is shaped primarily by group-directed rather than individual-focused behavior, with relationships between care providers and children reflecting group dynamics rather than the dynamics of individual dyads (Ahnert & Lamb, 2000; Ahnert, Lamb, & Seltenheim, 2000).

Because some researchers have assessed the promptness and adequacy of care providers' responses to individual children, whereas others have used group-focused measures of responsiveness, Ahnert et al. (in press) were able to examine the differential impact of the two types of responsiveness on emerging child-care provider relationships. Meta-analyses revealed that children's relationships with care providers, especially in centers, were predominantly shaped by behavior toward the group as a whole. Only in small groups was the security of relationships with care providers predicted by measures of dyadic responsiveness similar to those that predict the security of children's attachments to their parents (De Wolff & van IJzendoorn, 1997).

Factors such as group size and adult-child ratio appear to moderate the associations between care providers' behavior and the security of child-care provider relationships. In group settings, sensitive care providers clearly need to monitor children's emotional needs, and in small groups (or those with high adult-child ratios) they may be able to respond to almost every social bid. They cannot do so in large groups, however, and characteristics others than group size may thus become important. For example, gender (which is normally seen as an individual characteristic) becomes a powerful group-structuring feature when many children are grouped together (Leaper, 1994, 2002; Maccoby, 1998). In such contexts, gender not only divides groups but changes the context and dynamics of the subgroups as well. Boys are more likely to be accepted if they are ranked high in dominance (e.g., Sebanc, Pierce, Cheatam, & Gunnar, 2003), whereas emotional patterns—such as happy-positive and angry-negative patterns—affect girls' popularity (Denham & Holt, 1993; Denham et al., 2001).

If care providers' activities in centers are primarily group-oriented, then group dynamics and interactions may be affected by group characteristics of this sort, as well as by the fact that care providers tend to be females whose professional attitudes might reflect (female) emphases on safety and relaxation more than (male) emphases on excitement and exploration. The meta-analyses conducted by Ahnert et al. (2005) in fact revealed that girls tended to develop secure relationships with care providers more often than boys did; similar gender-based differences are evident in other measures of the quality of child-care provider interactions (e.g., Leaper, 2002). Such findings suggest that care providers tend to provide care that fits their own gender-stereotyped attitudes and that, as a result, boys may have more difficulty forming close relationships with (female) teachers, establishing connections to the (female) world of education, and thus benefiting from later education. Antecedents of individual differences in care provider sensitivity have received little attention from researchers, although Hamre and Pianta (2004) found that care providers (especially in home-based settings) were less sensitive and more withdrawn when they were depressed.

Children's backgrounds, characteristics, and child care histories also affect the security of their attachments to care providers. For example, children with better-educated and more affluent families are more so-

cially responsive and may thus establish new social relationships more easily than less advantaged children (e.g., Belsky, Woodworth, & Crnic, 1996; Crockenberg & Litman, 1991), although this appears to be true only when the children are in home-based care arrangements (Elicker, Fortner-Wood, & Noppe, 1999); socioeconomic background appears to be less influential when children attend child care centers. Perhaps this is because care providers in center contexts are forced to focus on group integration rather than on the children's family backgrounds. Howes and Smith (1995) reported that secure child-care provider relationships were more common when children were younger, but other researchers have not found similar correlations between age and the security of child-care provider attachment (e.g., Cassibba, van IJzendoorn, & D'Odorico, 2000). Reasoning that this might be because age is often confounded with child care history, Ahnert et al. (in press) predicted and found that older children were less likely to form secure attachments to their care providers only when their child care histories had been discontinuous. This underscores the importance of stable care experiences, which allow child-care provider relationships time to develop and deepen.

Predictive Value

Relationships with care providers merit attention because they significantly affect children's development. The security of both infant-mother and infant-care provider attachment are correlated with the level of competence evident when children play with adults as well as the degree of engagement in play with peers (Howes & Hamilton, 1993; Howes, Matheson, & Hamilton, 1994). More impressive, Israeli infants who behaved securely with care providers in the Strange Situation were less ego-controlled and more empathic, dominant, purposive, achievement-oriented, and independent 4 years later than those whose relationships were insecure-resistant (Oppenheim, Sagi, & Lamb, 1988). School children's perceptions of their relationships with teachers are also predicted by the quality of their first attachment to care providers, underscoring the long-lasting impact of these early relationships (Howes, Hamilton, & Philipsen, 1998).

Relationships with Peers

Just as enrollment in child care provides opportunities to form relationships with adult care providers, so does it increase opportunities for relationships with peers and other children.

Developmental Functions of Peer Relationships

The opportunity to interact with peers in child care settings may be especially valuable for children from small families who do not have siblings and thus would not otherwise interact with developmentally matched partners who, unlike adults and children, have similar levels of social understanding and behavior. Peer interactions permit communications from which children gain insight into other children's daily lives, share experiences, and learn from one another. These exchanges most often occur during pretend play (e.g., McCune, 1995), when children as young as 2 years can relate to the fictive play scenarios of their partners, agreeing on themes, roles, and rules and adjusting them as necessary in the course of play. Pretend play is more successful when peers or siblings rather than adults (even mothers) are involved (Brown, Donelan-McCall & Dunn, 1996). Peer interactions also provide a protected environment in which children can deal with emotions and explore intimate themes. For example, when children elaborate being-afraid-of-the dark themes with their peers, the peers' emotional supportiveness determines whether the peers are trusted and whether the interactions continue (Hughes & Dunn, 1997).

Mutual interests characterize early friendships and distinguish them from other peer relationships. When Werebe and Baudonniere (1991) observed two young friends interacting in a laboratory playroom with another peer, for example, interactions between the friends were more specific, complex, and extended than interactions with the other child, even though the children interacted in a friendly manner with the unfamiliar peer. Peer interactions also provide opportunities to test social exchange strategies, explore social bids and dialogue structures, develop rules, and deal with compromises. Peer conflicts are especially important because they promote children's awareness of discrepancies between their intentions and those of their peers. Whereas conflicts with adults lead children to merely accept the adults' more competent solutions, conflicts among peers are more challenging developmentally because they force children to compromise if they want interactions to continue (Hartup & Moore, 1990). Peer interactions also play an important role in the formation of social identity, particularly with respect to gender. Peer groups tend to be structured by gender, and this may

foster the imitation of same-sex behaviors as well as gender identification (Maccoby, 1998).

Developmental Course of Peer Relations

Peers are not only attractive to growing children but also become sources of social, emotional, and cognitive stimulation and support, particularly when stable and enduring relationships develop. Patterns of reciprocal interaction are evident in child care facilities even among toddlers (e.g., Brownell & Carriger, 1990; Finkelstein, Dent, Gallacher, & Ramey, 1978; Rubenstein & Howes, 1976; Vandell & Wilson, 1987), although these early interactions typically involve simple rituals because infants and toddlers have difficulty coordinating their actions with peers. The everyday encounters with peers made possible by enrollment in child care may facilitate the acquisition of social skills, however.

As soon as children acquire the ability to reference and transform actions in ways that other children understand, they begin to imitate one another. Thereafter, imaginative play allows preschoolers to share meanings and learn from each other (e.g., Hartup & Moore, 1990; McCune, 1995; Mueller, 1989). Regular interactions with the same peers permit children to develop friendships characterized by specific patterns of interaction (Kenny & La Voie, 1984). Describing the early development of friendships among 2-year-olds over a 10-month period, Whaley and Rubenstein (1994) noted striking elements of intimacy (the dyad's tendency to separate itself from other peers), similarity (the tendency to imitate the other's behavior and to create routines based on them), loyalty (the tendency to defend one another against other peers), and support (the tendency to sooth each other when they were distressed). Based on such observations of children in child care facilities, Howes (1996) reported that the first friendships appear after age 2, mainly involve one or two same-sex peers, and are stable over periods of 1 to 2 years.

It seems likely that sensitive care providers might help young children to cope with and learn from unsuccessful interactions with peers, but little relevant research has been conducted. Interestingly, Lollis (1990) found no differences in the quality of early peer interactions when adults either intervened by offering cautious support (minimal intervention group) or by getting actively involved (interactive intervention group). When the adults left, however, peers in the interactive intervention group were able to maintain high levels of play longer. Rubin, Hastings, Chen, Stewart, and McNi-

chol (1998) found that controlling and intrusive adult behaviors were associated with aggressive interactions among peers.

Preconditions for Peer Relationships in Child Care

The development of relationships with peers is affected not only by specific developmental attainments, especially in the social-cognitive and social-emotional realms, but also by socialization practices within the family (e.g., NICHD Early Child Care Research Network, 2001a). Child-parent relationships are believed to have the greatest impact on peer relationships, such that children who experience warm parenting styles and harmonious families tend to be well adjusted socially, unaggressive, and popular (e.g., Ladd & Le Sieur, 1995). Moreover, maternal sensitivity predicts peer competence in a variety of settings, including child care facilities (NICHD Early Child Care Research Network, 2001a). Attachment theorists have further predicted that children who have secure relationships with their parents should be sociable and socially competent (e.g., Elicker, Englund, & Sroufe, 1992; Sroufe, 2000), but the empirical evidence is contradictory (e.g., NICHD Early Child Care Research Network, 1998a), suggesting that parent-child relationships are not the only family factors affecting the peer system. For example, children also benefit from relationships with siblings, from whom they learn (among other things) how to deal with disrupted interactions (J. Dunn, Creps, & Brown, 1996). Children with siblings may also have more appropriate expectations of peers and thus be better prepared to interact with peers in child care settings than children who have no siblings (Hoff-Ginsberg & Krueger, 1991; Perner, Ruffman, & Leekam, 1994).

Many of the skills that children use when interacting with parents are not directly transferable to interactions with peers (e.g., Mueller, 1989; Vandell & Wilson, 1987). It is thus important to understand the unique features of peer culture that shape group dynamics in child care settings. Clearly, to form enduring relationships with peers, children must not only understand their peers' intentions and feelings but also orient their own intentions and feelings accordingly (e.g., Brown et al., 1996). Observing preschoolers in child care, Denham and her colleagues (Denham & Holt, 1993; Denham et al., 2001) described contrasting patterns of emotional communication—happy-positive and angry-negative—that reliably differentiated groups of children. These patterns were so pervasive that they even differentiated

subgroups and affected the children's popularity. The ability to regulate emotions and adjust behavior to changing demands and circumstances also affects the quality of peer relationships (Fabes et al., 1999; Raver, Blackburn, Bancroft, & Torp, 1999; Thompson, 1993; Walden, Lemerise, & Smith, 1999).

Prosocial and Agonistic Interactions with Peers in Child Care

Empathetic and prosocial behaviors first appear between 12 and 18 months of age, when infants recognize their individuality, become aware of their feelings, and begin to realize that others have feelings as well (Eisenberg, Shea, Carlo, & Knight, 1991). In group care settings, 2-year-olds no longer respond contagiously to their peers' emotions, crying and wanting to be soothed when their peers cry. Instead, toddlers observe their peers' negative emotions carefully and attempt to respond appropriately (e.g., Bischof-Koehler, 1991). Their responses are typically prosocial (soothing, helping, giving or sharing) and gender-differentiated: Girls respond prosocially to peers more often than boys do.

The development of prosocial behaviors in group settings has been the focus of little systematic research, however. Hay and her colleagues (Hay, 1994; Hay, Castle, Davies, Demetriou, & Stimson, 1999) have shown that children adjust behaviorally to the demands of particular situations and persons and thus come to respond empathically in more clearly defined circumstances as they grow older. Other researchers have described increases in prosocial behaviors as a result of successful socialization (Eisenberg & Fabes, 1998; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), yet others have reported no associations between child age and prosocial behavior (e.g., Farver & Branstetter, 1994), even though toddlers understand the concept of empathy and base friendships on it.

Peer relationships are frequently characterized by conflicts. In the early years (1 to 4 years), conflicts often emerge when children simultaneously want the same toys (e.g., Caplan, Vespo, Pedersen, & Hay, 1991; Hay, Castle, & Davies, 2000; O'Brien, Roy, Jacobs, Macaluso, & Peyton, 1999). Caplan et al. have shown that the frequency of possession conflicts does not vary depending on the number of toys available. Indeed, conflict occurred even when identical alternative toys were available! Hay and her colleagues further distinguished between reactive (child snatches the desired toy from a peer) possession conflicts, which involve defense of the child's possessions and thus appear normal, as opposed to proactive (child attacks the peer in anticipation of the latter's desire for a toy) possession conflicts that reflect either misunderstanding of peers' intentions or social dominance strategies, and in both cases presage later aggressiveness (Calkins, Gill, & Williford, 1999).

Students of peer interaction in child care settings seldom encounter the types of intimidating or hurtful aggressiveness described by Coie and Dodge (1998) in school-age peer groups. Among preschoolers, however, researchers have identified temperaments that reflect poor inhibitory control and negative emotional expressions (such as anger) that could lead to "high approach-low avoidance" (Fox, 1994) behavior patterns. Such children appear actively involved in interactions with peers, although their social skills are inadequate. When they need to cope with conflicts and frustrations, for example, these children cannot fall back on positive interaction strategies and thus often fail to maintain constructive interactions with their peers (Rubin et al., 1998; Shaw, Keenan, & Vondra, 1994). Although such children may have difficulty being accepted by other children, they do appear to develop friendships.

The Impact of Child Care on Peer Relationships

Because many parents choose child care arrangements in the belief that peer interactions play an important role in social development, especially by fostering the development of empathy and the acquisition of social skills, it was surprising when some early reports suggested that infant child care was associated with increased aggressiveness toward peers (see review by Clarke-Stewart, 1988). However, most of these studies involved unrepresentative high-risk samples and did not control for family variables, or were conducted in facilities providing care of low quality (e.g., Haskins, 1985; Vandell & Corasaniti, 1990b). Other researchers reported no increases in aggression and assertiveness on the part of children who had experienced infant child care (e.g., Hegland & Rix, 1990).

Family experiences and children's personalities indeed affect levels of agonistic interactions with peers in child care settings. For example, Klimes-Dougan and Kistner (1990) reported that infants from disadvantaged families responded to signals of distress from their peers with anxiety, anger, and physical attacks, even when the peers had previously interacted with them prosocially. Watamura, Donzella, Alwin, and Gunnar (2003) found that shy and fearful children had special

difficulty interacting with more socially competent children. This made child care settings more stressful for them and could thus lead to social isolation and, perhaps, internalizing behavior problems if care providers did not intervene successfully.

According to Farver and Branstetter (1994), prosocial behaviors with peers are associated with positive expectations of peers' behaviors, friendship formation, and easy temperaments, suggesting that care providers may need to focus special attention on children with difficult behavioral dispositions or adverse family backgrounds. Unsatisfactory relationships with peers may develop when care providers fail to provide adequate and appropriate supervision. For example, Howes and Hamilton (1993) found significant correlations between peer aggression and staff turnover in a longitudinal study of children ages 1 to 4 years, and Kienbaum (2001) described positive associations between warm care provider behaviors and prosocial behaviors among kindergartners. In a longitudinal study, Howes, Hamilton, and Matheson (1994) followed 48 children who entered full-time child care (either center- or home-based) in the 1st year of life (the average age at enrollment was 5 months). The first data collection took place 1 year after enrollment and subsequent data gathering occurred every 6 months thereafter. The more secure the child-care provider relationship, the more complex and gregarious and the less aggressive was the play observed with peers at age 4, whereas dependence on care providers was associated with social withdrawal and hostile aggressive behaviors. These predictive associations parallel other reports that preschoolers who have secure relations with their teachers and care providers are more socially competent with peers (e.g., Howes, 1997; Mitchell-Copeland, Denham, & DeMulder, 1997; Oppenheim et al., 1988; Pianta & Nimetz, 1991). In addition, gendered cultures develop in the preschool years, influencing children's relationships with (overwhelmingly female) care providers in different ways (see "Relationships with Care Providers"). Care providers should thus be aware of these processes and strive to build secure relationships with both girls and boys in their care.

The quality of interactions with peers is also affected by group characteristics. Unstable and large groups may leave peers to negotiate conflicts in isolation, whereas stable small groups delineate domains of conflict clearly and allow care providers to intervene promptly and effectively. J. J. Campbell, Lamb, and Hwang (2000) showed that such group characteristics significantly affected the quality of early peer interactions. Stimulating programs also help to minimize peer conflict at every age. For example, M. K. Rosenthal (1994) reported that children in home-based care developed more positive relationships with their peers when care providers organized group activities on a regular basis. In selected centers providing care of excellent quality, Rubenstein and Howes (1979) noted that conflicts with peers were infrequent, whereas home-reared counterparts and peers in other centers experienced conflict more frequently. These results underscore the benefits of regular positive encounters with peers in stable small groups and may explain why children appear more sociable and popular when they have been exposed to regular child care of high quality from infancy (Andersson, 1992; Field, 1991a; Howes, 1990).

The effects of many child care characteristics remain unclear or unknown, however. For example, whereas many American researchers advocate small groups, large groups with low adult-child ratios are preferred in some countries, because small groups are believed to impede positive group dynamics (Boocock, 1995). Other researchers have asked whether same-age or mixed-age groups best support peer interactions (e.g., Goldman, 1981; Rothstein-Fisch & Howes, 1988). Howes and her colleagues reported peer interactions of higher quality in mixed-age groups in which older children can serve as models for younger children (Howes & Farver, 1987), whereas children in same-age groups experienced more reciprocal interactions (Howes & Rubenstein, 1981). Nevertheless, when Bailey, Burchinal, and McWilliam (1993) compared the development of social competence in 2- to 4-year-olds from same-age and mixed-age groups longitudinally, they found no differences. Gender and cultures in preschool may promote different pathways for boys and girls, however. If peer acceptance is correlated with age in mixed-age groups (Lemerise, 1997), for example, and, as reported earlier, peer acceptance of boys but not of girls is correlated with dominance ranking (Sebanc et al., 2003), then younger boys might do better in same-age groups, whereas girls would function equally well in same- and mixed-age groups.

Clearly, we do not understand group dynamics in child care very well and have inadequately conceptualized the ways care providers can shape children's peer

relationships while effectively supervising groups of young children. In addition to continued research on care providers' behaviors and child-care provider attachments, research is needed on group dynamics and the "connectedness" of individuals in child care centers (Maccoby & Lewis, 2003).

Behavior Problems, Compliance, and Personal Maturity

Independent of the social relationships potentiated by child care, many researchers have examined the effect on children behavioral tendencies and adjustment.

Compliance with Parents and Care Providers

Researchers such as Belsky (1988, 1989) have portrayed insecure infant-mother attachments as a likely consequence of early and extensive nonmaternal care and have argued that as a result, noncompliance is likely to follow enrollment in child care (Ainsworth et al., 1978; Arend, Gove, & Sroufe, 1979; Londerville & Main, 1981). Consistent with this hypothesis, the results of several early studies suggested that nonmaternal child care was associated with noncompliance, both at home and in child care centers (Belsky & Eggebeen, 1991; Belsky, Woodworth, & Crnic, 1996; Crockenberg & Litman, 1991; Finkelstein, 1982; Rubenstein, Howes, & Boyle, 1981; Schwarz, Strickland, & Krolick, 1974; Thornburg, Pearl, Crompton, & Ispa, 1990; Vandell & Corasaniti, 1990a, 1990b).

In a study of 18-, 24-, 30-, and 36-month-olds assessed at home, in their child care centers, and in a standardized laboratory situation, however, Howes and Olenick (1986) reported that compliance with adult requests at home and in the laboratory did not vary depending on the quality of out-of-home care or even on whether the children had any regular out-of-home care experiences, although children without child care experiences were least likely to regulate their own behavior and emotions in the laboratory. In the laboratory, children from high-quality centers were more compliant and less resistant than children in low-quality centers. In exploratory regression analyses, the quality of center care was the most powerful predictor of compliance, but unfortunately, the different measures of compliance were not stable over situations, making it inappropriate to speak of compliance and noncompliance as traits. Simi-

lar findings were obtained in the Goteborg Child Care Study, in which compliance with mother's requests were assessed in home observations when the children were 28 and 40 months of age (Ketterlinus, Bookstein, Sampson, & Lamb, 1989; Sternberg et al., 1991). No reliable dimension of compliance was evident at 28 months, but individual differences in noncompliance at 40 months were predicted by the quality of both home and alternative care and by the amount of nonparental care received before age 2. Compliance was highly correlated with the degree of parent-child harmony, suggesting that compliance is best viewed as an aspect of cooperation with the parents rather than as a characteristic of the individual child. Subsequently, Prodromidis, Lamb, Sternberg, Hwang, and Broberg (1995) supplemented the observational measures of mother-child compliance with ratings made by teachers and parents through 80 months of age. Once again, no consistent or reliable dimension was evident at 28 months; indices of compliance with teachers and mothers loaded on the same factor but were not stable over time and were uncorrelated with any aspects of the children's child care histories. Noncompliant children received care of poorer quality at home and were more likely to have controlling parents regardless of their child care experiences.

Like Prodromidis et al. (1995) and Sternberg et al. (1991), Clarke-Stewart et al. (1994) reported that different indices of compliance did not form a single coherent dimension. In this study, middle-class 2- to 4-year-old children in child care, especially those in center care, were more compliant with unfamiliar experimenters than those in the exclusive care of their parents, especially when the children experienced intermediate amounts of high-quality care on a regular basis (10 to 30 hours per week). Observed levels of compliance with parents at home were also higher for children in child care, whereas measures of family characteristics and parental behavior had a greater impact on compliance than child care variables did. Similar results were obtained in the large multisite study undertaken by the NICHD Early Child Care Research Network (1998a, p. 1164): "Although 2-year-olds who spent more time in nonmaternal care were reported by their mothers to be less cooperative and by their caregivers to exhibit more behavior problems . . . by the time the children were 3 years of age, no significant effects of amount of child care experience could be detected." Measure of the quality of care had very little impact on measures of the

children's behavior in this study, whereas measures of the quality of home care and child-mother relationships were more strongly related to measures of the children's behavior. DeSchipper, Tavecchio, van IJzendoorn, and Linting (2003) reported that Dutch infants and toddlers were more noncompliant with care providers the more their child care schedules varied from day to day, although these effects were not statistically significant. Feldman and Klein (2003) reported that Israeli toddlers were similarly compliant with mothers, fathers, and care providers, that warm adult control was the most reliable correlate of child compliance, and that maternal sensitivity predicted compliance with care providers.

Taken together, these reports reveal a tendency for early enrollment in child care to be associated with noncompliance and less harmonious child-mother interactions at home. However, several contradictory findings and evidence that noncompliance does not constitute a coherent cross-situational trait imply that the association is context-specific and poorly understood. This signals the need for further efforts to understand the origins, reliability, and implications of these potentially important associations.

Behavior Problems

Research on the effects of child care on behavior problems other than compliance has also yielded results that at first glance appear inconsistent. On the one hand, Balleyguier (1988) reported that French infants in day care cried more, threw more tantrums, and were more oppositional at home during the 2nd year of life than were those who remained in the exclusive care of their parents. Similarly, in a large retrospective study, Bates et al. (1994) assessed associations between the extent of nonmaternal care in the 1st, 2nd to 4th, and 5th year of life and scores on multiple teacher- and mother-reported indices of adjustment after controlling for family background, gender, and other possible correlates. The extent of care in the most recent period was most influential, with children who were currently in child care appearing to be most poorly adjusted. In addition, infant care predicted less positive adjustment in kindergarten even after the effects of later care histories were taken into account. Interestingly, however, greater child care exposure was associated with teacher reports of fewer internalizing symptoms (e.g., somatic complaints, anxiety, depression). And in the multisite EPPE Project, enrollment in group care prior to the age of 2 was associated with increased behavior problems when these British

children were 3 and 5 years of age (Sylva et al., 2004). Analyzing data from the National Longitudinal Study of Youth (NLSY), furthermore, Baydar and Brooks-Gunn (1991) reported that White 4-year-olds who began receiving nonmaternal care in the 1st year were believed by their mother to have more behavior problems than those who began receiving nonmaternal care later, or not at all. By contrast, using the same data set but different statistical controls, Ketterlinus, Henderson, and Lamb (1992) reported that children who started child care in the 1st or 2nd year of life and were in day care for at least 2 years did not have more reported behavior problems than children who experienced no day care. Ephemeral effects of nonparental care on behavioral problems were also suggested by Borge and Melhuish (1995), who followed all the children in a rural Norwegian community from their 4th birthday through third grade. Behavior problems were no more common at either 4 or 8 years of age among those who had received nonmaternal care in their first 3 years. Children who experienced more center care between ages 4 and 7 had significantly fewer behavior problems at ages 7 and 10 years in the views of both mothers and teachers, even though there was little association between the behavior problems reported by mothers and teachers. Teachers, but not parents, reported that children who experienced more day care before 4 years of age behaved more poorly at age 10.

In a retrospective study of 6- to 12-year-olds in middle-class families, Burchinal et al. (1995) reported that infant day care had no effect on maternal reports of children's externalizing and internalizing behavior problems, although children with preschool experiences had higher levels of externalizing problems than did children with no preschool experiences, and preschool experiences predicted more positive ratings of social behavior in African American but not White children. High-quality child care, initiated at 12 months of age for preterm low-birthweight infants participating in an intensive intervention study, was even associated with a decline in the incidence of behavior problems reported by mothers when their children were 26 to 36 months old (Brooks-Gunn, Klebanov, Liaw, & Spiker, 1993; Infant Health and Development Program, 1990). And in annual assessments from kindergarten through sixth grade, children from impoverished families who entered child care in infancy did not have more externalizing behavior problems than children who did not receive infant day care (Egeland & Hiester, 1995).

Pierrehumbert (1994; Pierrehumbert & Milhaud, 1994) reported that Swiss children who behaved insecurely with their mother in the Strange Situation at 21 months were rated more aggressive by their mother at 5 years of age unless they had experienced more than average amounts of nonmaternal care in the first 5 years, in which case their levels of aggression were not elevated. In a later study of 89 Swiss families with 3-year-olds, however, Pierrehumbert et al. (2002) reported no association between behavior problems and either the amount or type of nonparental care experienced, although the care providers' values and attitudes were associated in the expected directions with measures of the children's behavior problems. Furthermore, Scarr et al. (1995) reported that length of time in center care had no effect and the observed quality of care had minimal effects on children's behavioral adjustment and manageability as reported by both parents and teachers. Family background (social class, parental stress, ethnicity) accounted for substantial portions of the variance in this large multisite study of infants, toddlers, and preschoolers, however. In addition, Jewsuwan, Luster, and Kostelnik (1993) reported that 3- and 4-year-old children who were rated by their parents as anxious had more difficulty adjusting to preschool, whereas children rated by their parents as sociable had a more positive reaction, especially to their peers. Similarly, DeSchipper, Tavecchio, Van IJzendoorn, and van Zeijl (2004) found that children who had easy temperaments adapted to parallel child care arrangements more readily and had fewer behavior problems than those with difficult temperaments. These results underscore the importance of considering individual differences among children when examining the effects of child care.

Against this confusing background, a recent report from the NICHD Early Child Care Research Network (2003a) attracted considerable attention because of the clear indication that the amount of nonmaternal care in the first 4.5 years of life predicted the level of externalizing behavior problems (including assertiveness, disobedience, and aggression) displayed at home or in kindergarten. The elevated risk of behavior problems on the part of children with extensive child care histories was evident in reports by mothers, care providers, and teachers, and the effects remained significant even when the effects of maternal sensitivity, family background, and the type, quality, and stability of child care were taken into account (see also NICHD Early Child Care Research Network, 1998a, 2002a).

Interestingly, much less attention has been paid to an article published in the same journal (Love et al., 2003) indicating that similar associations were not evident in three other large multisite studies. Love et al. attributed the differences to the fact that the NICHD researchers studied centers that tended to provide care of mediocre quality, whereas the centers he and his coauthors studied provided care of higher quality. Quality of care also proved to be important in another multisite study, this involving children from low-income families in three cities. Votruba-Drzal, Coley, and Chase-Lansdale (2004) reported that 2- to 4-year-old children had fewer externalizing and internalizing behavior problems the higher the quality of out-of-home care experienced, and for these children, increases in the amount of time spent in nonparental care facilities had a salutary effect, rather than the adverse effect reported by the NICHD Early Child Care Research Network (2003a). Boys, in particular, benefited from care of higher quality. In a similar multisite study of 4-year-olds, Loeb, Fuller, Kagan, and Carrol (2004) found that children in family day care settings had more behavior problems than children in other types of care, especially those who were cared for by individual relatives. In the NICHD Early Child Care Study (2004), however, high-quality child care did not appear to moderate the adverse effects of family risk factors, except that 3-year-olds from minority and single-parent families who received low-quality nonparental care were rated as less prosocial by their mother. Overall, the results of the NICHD Early Child Care Study confirmed that family background and relationship factors had a greater impact on the children's adjustment than either the extent or quality of nonparental child care, although the extent of care had a significant, negative, effect.

In sum, whether or not it is mediated through the quality of attachments to care providers, the quality of nonparental child care appears to modulate the effects of nonparental child care on many aspects of child behavior and adjustment, although family experiences appear to have the most important impact on child behavior. Thus, children who have experienced nonparental care from infancy tend to be more aggressive, more assertive, and less compliant with adults than peers who have not had these experiences, but the associations are weaker, if not nonexistent, when the quality of care is better. Effects on noncompliance with adults are not as clear, however, both because compliance and noncompliance have been studied less extensively

and because noncompliance appears to be situation- and relationship-specific rather than trait-like. Unfortunately, many of the studies focused on behavior problems have not assessed quality of care systematically, and the actual behavior problems at issue are a heterogeneous melange, including poor relationships with peers, aggression, and noncompliance.

Personal Maturity

The personal maturity of children in day care has not often been studied, although there is some evidence that nonparental care of high quality fosters personality development. In the Goteborg Child Care Study, mothers described the children's personalities at 28 and 40 months of age using Block and Block's (1980) California Child Q-set (CCQ). Their ratings were used to generate scores for the children's ego resilience, ego control, and field independence (Broberg et al., 1989; Lamb, Hwang, Bookstein, et al., 1988; Lamb, Hwang, Broberg, & Brookstein, 1988). Perceived personality maturity was quite stable over time and was best predicted by observational measures of the quality of care received at home and in the alternative care settings. The children viewed as most mature by mothers were those who had received care of higher quality from nonparental care providers as well as from their parents. There were no differences between children in the home-based care, family care, and center care groups on any of the personality measures at either age.

Most (87%) of the children in this study were reassessed immediately prior to enrollment in first grade (80 months of age) and toward the end of second grade (101 months of age). Once again, personal maturity was assessed using the CCQ, but a different pattern of results was now evident. Children who had been enrolled since toddlerhood in home-based child care settings appeared less mature than those in the other groups (Wessels, Lamb, Hwang, & Broberg, 1997). Over time, in addition, ego undercontrol decreased less, whereas ego resilience and field independence increased less in the children who had received home-based care than in those who had remained at home with their parents or attended child care centers.

No other researchers have explored type of care effects, and most have examined contemporaneous associations rather than longitudinal relations. Hestenes, Kontos, and Bryan (1993) showed that 3- to 5-year-olds expressed more positive affect when their child care arrangements were of higher quality. The appropriate-

ness of the adults' behavior, along with the extent to which they manifested high levels of engagement, was especially significant. Positive self-perceptions were also correlated with high-quality care, even after controlling for differences in social class, ethnicity, and family background, in a large-scale study of infants, toddlers, and preschoolers in child care centers (Cost, Quality, and Child Outcomes in Child Care Centers, 1995). Reynolds (1994) reported that preschool and elementary school intervention were associated with improved teacher ratings on various indices of mature adjustment to school in the fifth grade. And, as discussed earlier (see section on "Relationships with Care Providers"), children who had secure relationships with their care providers were more ego-resilient and more appropriately ego-controlled than those who had insecure relationships (Howes, Matheson, et al., 1994).

In sum, although the number of studies is quite small, the available evidence suggests that center care of high quality has positive effects on personal maturity, whereas children receiving care of lower quality tend to be less mature. Further exploration in large samples is called for, however, particularly in light of Wessels et al.'s (1997) findings that the effects of quality diminish over time.

Cognitive and Linguistic Competence

Many researchers have studied the effects of child care arrangements or children's cognitive and linguistic competence. Only over time have the findings revealed a clear pattern.

Early Findings

At first glance, research over the past 15 years on the effects of nonmaternal care on cognitive and linguistic competence appears to have yielded quite contradictory and inconsistent results. These apparent inconsistencies underscore the fact that the effects of child care must be viewed in the context of a complex constellation of phenomena, including family and parent characteristics as well as characteristics of the child care arrangements. When all of these factors are taken into account, a much clearer picture of child care and its impact emerges. In this subsection, we first review research on the effects of standard or community child care arrangements before turning to studies focused on child care programs specifically designed to enhance the development of

children whose circumstances place them at risk of later academic failure.

Some early researchers reported that child care had negative effects on cognitive development. In a retrospective study of third graders, for example, Vandell and Corasaniti (1990a, 1990b) reported that extensive care beginning in infancy was associated with poorer scores on standardized measures of cognitive development, and in a smaller study of Swiss infants, nonmaternal infant child care was associated with lower cognitive test performance at age 2 (Pierrehumbert, Ramstein, & Karmaniola, 1995). Using data from the NLSY ($N = 1,181$), Brooks-Gunn and her colleagues (e.g., Baydar & Brooks-Gunn, 1991; Brooks-Gunn, Han, & Waldfogel, 2002) reported that maternal employment during the 1st year of life was associated with poorer cognitive abilities in 3- and 4-year-olds, and Desai, Chase-Lansdale, and Michael (1989) reported poorer verbal abilities on the part of boys in the sample. The children received varying types of early nonmaternal care (often by relatives), and few of the children were enrolled in center-based care during the 1st year of life.

Other early researchers reported neither positive nor negative effects. Thornburg et al. (1990), for example, found that early child care (full or part time, initiated before or after infancy) did not affect the cognitive achievement scores of a large group of Missouri kindergartners. Likewise, Ackerman-Ross and Khanna (1989) reported no differences in receptive language, expressive language, and IQ between middle-class 3-year-olds who either remained home or received child care beginning in infancy. Burchinal et al. (1995) found only weak positive associations between preschool or center-based child care and either cognitive or linguistic performance scores Wechsler Intelligence Scales for Children-Revised and Problem Picture Vocabulary Test (WISC-R and PPVT scores) at 6 to 12 years of age in a sample of middle-class children.

By contrast, Clarke-Stewart (1987; Clarke-Stewart et al., 1994) reported that middle-class 2- to 4-year-old children in centers scored better on many measures of cognitive development than children who remained in the exclusive care of their parents, had in-home sitters, or were in home-based care, and that the effects were greater in centers of higher quality (see later discussion). Another prospective longitudinal study of children from educationally advantaged backgrounds revealed that boys, but not girls, who attended a 1-year preschool program performed better on a battery of achievement measures administered in second and third grade (Larsen & Robinson, 1989). In Sweden, Broberg, Hwang, Lamb, and Bookstein (1990) assessed verbal intelligence when the children participating in the Goteborg Child Care Study were nearing the end of second grade (average age 101 months). The children's performance on standardized measures of cognitive ability was predicted by the number of months the children had spent in center-based care before 3.5 years of age. By contrast, children in home-based care performed more poorly than those in the center-based care and home-only comparison groups. In a retrospective study, Andersson (1989, 1992) similarly found that Swedish children who entered child care in infancy scored significantly better on standardized measures of cognitive ability and teacher ratings of academic achievement at both 8 and 13 years of age, even after controlling for differences in their family backgrounds. These results were largely consistent with those of studies from Norway (Hartmann, 1991), New Zealand (A. B. Smith, Inder, & Ratcliff, 1993), and Britain (Wadsworth, 1986).

Differential rates of illness may account for some of the inconsistencies evident in this literature. For example, Feagans, Kipp, and Blood (1994) showed that, when children in child care had chronic ear infections, they were much less likely to pay attention during book-reading sessions than children without ear infections. These children were also rated more distractible and inattentive by their mother. Unfortunately, researchers have paid little attention to the role that illness may play in mediating the effects of child care. Children in group care settings are obviously more susceptible to illness and infection than children who are exposed to fewer sources of possible infection, and this might work to children's disadvantage, especially in the first 2 years of life, when the immune system is still immature.

Reflecting the inconsistencies summarized here, a meta-analysis of 59 studies conducted by Erel et al. (2000) revealed no reliable differences in cognitive competence between children with and without histories of nonparental child care. If one focuses on studies conducted in Europe, where the quality of child care tends to be higher, positive effects on children's cognitive and linguistic outcomes have been reported more consistently, however (Boocock, 1995; Scarr, 1998). For example, Sylva et al. (2004) found that preschool experiences, especially in high-quality settings, enhanced the academic and cognitive performance of children in the large multisite EPPE study, with benefits evident during

the preschool years as well as when the children were 5 and 7 years old. As we note later, effects generally appear to differ depending on the backgrounds of the children involved as well, with children from disadvantaged backgrounds more likely to benefit then those from more advantaged backgrounds unless the care is of very high quality, in which case all children may benefit.

Children from Low-Income Families

As discussed in the section on enrichment programs, many researchers in the United States have shown that children from low-income families benefit from participation in programs, such as Head Start and Early Head Start, designed to enhance the school readiness and academic performance of children from disadvantaged family backgrounds (Spieker, Nelson, Petras, Jolley, & Barnard, 2003). However, these effects are often attenuated over time when not supplemented by continued enrichment.

Child care arrangements can mitigate the adverse effects of unstimulating or confusing family environments on cognitive and linguistic development even when special intervention programs are not involved. In a study focused on low-income mothers and their second graders, for example, Vandell and Ramanan (1992) reported that maternal employment in the first 3 years was associated with superior academic performance, especially when the mother remained employed for the remainder of the preschool years. Similarly, center care of the quality typically available in poor communities in the United States had positive effects on development over the first 3 to 4 years of life for children from low-income families (Loeb et al., 2004). Some preschool enrichment programs are not stimulating enough to enhance the competencies of children from advantaged backgrounds, however. For example, Caughy, DiPietro, and Strobino (1994) reported that enrollment in child care before age 1 was associated with better reading recognition scores for 5- and 6-year-old children from impoverished backgrounds but poorer scores for children from more advantaged backgrounds. Center-based care begun in the first 3 years was also associated with higher math performance scores in children from impoverished backgrounds and lower math scores for children from more stimulating homes. Children from more disadvantaged backgrounds also benefited more from preschool experiences than did peers from more advantaged backgrounds in the large EPPE study conducted in Great Britain (Sylva et al., 2004). Likewise, African American but not White children benefited from preschool in

a study of middle-class 6- to 12-year-olds conducted by Burchinal et al. (1995).

Overall, it seems that children from low-income families benefit when they attend stimulating child care centers. By contrast, recent evaluations of both Sure Start in the UK and Early Head Start in the USA found that early intervention had negative effects on children from the most disadvantaged backgrounds (Belsky et al., 2005; Early Head Start Research and Evaluation Project, 2002a). Children from more advantaged backgrounds do not consistently profit from child care in this way, presumably because they enjoy rich stimulating environments at home. Indeed, early and extensive child care can even have negative effects, especially on language development, when the benefits attributable to growing up in advantaged families are attenuated by child care (Burchinal, Peisner-Feinberg, Bryant, & Clifford, 2000). Children from all family backgrounds appear to benefit when child care is of high quality, however. Positive family factors (such as greater family income, more sensitive mothering, and less authoritarian child-rearing attitudes) are associated with indices of more positive child functioning and continue to affect children positively even when they spend much time in child care settings (NICHD Early Child Care Research Network, 1998b, 2001c). Indeed, family factors are more reliable predictors of children's cognitive competencies than the quality or type of nonparental child care (NICHD Early Child Care Research Network, 2002a).

Quality and Types of Child Care

Higher-quality care is positively associated with better cognitive and language development, whereas lower-quality care is associated with poorer outcomes. Such findings have been obtained in the Bermuda Study (McCartney, 1984; Phillips, McCartney, & Scarr, 1987), the Chicago Study (Clarke-Stewart, 1987), the Child Care and Family Study (Kontos et al., 1994), the Cost, Quality, and Child Outcomes Study (Peisner-Feinberg & Burchinal, 1997), the Goteborg Child Care Study (Broberg et al., 1990; Broberg, Wessels, Lamb, & Hwang, 1997), the NICHD Study of Early Child Care (NICHD Early Child Care Research Network, 1994, 1999b, 2003b, in press), the EPPE Study (Melhuish, Sylvia et al., 2001; Sammons et al., 2002, 2003; Sylva et al., 2004), and in a large multisite study in Northern Ireland (Melhuish, Quinn et al., 2001; Melhuish et al., 2002a, 2002b), as well as in several smaller studies (Field, 1991a; Hartmann, 1995). Similar results have

been reported internationally regardless of how quality is measured or of the specific types of educational programs implemented (Boocock, 1995; Tietze & Cryer, 1999). The effects diminish over time, however, presumably because the beneficial effects of high-quality care are undercut by increasing exposure to less stimulating environments, both at home and at school.

With regard to the characteristics of cognitively stimulating environments, high-quality cognitive and linguistic stimulation is more likely when positive adult-child relationships (Meins, 1997; van IJzendoorn, Dijkstra, & Bus, 1995; Williams & Sternberg, 2002) and egalitarian peer interactions (see "Relationships with Peers") prevail. Not surprisingly, therefore, the NICHD Early Child Care Research Network's (2002a) structural equation model revealed that both care provider training and adult-child ratios affected cognitive competence via their impact on the quality of care (i.e., care providers' sensitivity to nondistress, detachment, stimulation of cognitive development, and intrusiveness; classroom characteristics of chaos, overcontrol, and emotional climate; see also Burchinal et al., 2000; Peisner-Feinberg et al., 2001). Likewise, home-based care providers who were better educated (more recent and higher levels of training) provided richer learning environments as well as warmer and more 9sensitive care. The associations were amplified when settings had groups of the recommended sizes (Clarke-Stewart et al., 2002).

We might expect that any effects of the type of care would vary depending on the differential opportunities for child-care provider relationships in center-based and home-based setting (see "Relationships with Care Providers"). Unfortunately, variations in the quality of care received and the fact that some children experience a variety of care settings either sequentially or simultaneously complicates research on these topics, but the results of the NICHD Early Child Care Research Network study (2000c) provide some insight into the relative merits of home-based and center-based care of equivalent quality. As in other studies (Broberg et al., 1997; Burchinal et al., 1995; Caughy et al., 1994; Clarke-Stewart et al., 1994; NICHD Early Child Care Research Network, 2002b, 2003b), center-based care appears to have some advantage over home-based care with respect to cognitive and language development, perhaps because children in centers are typically exposed to a richer language environment and have more opportunities to encounter developmentally stimulating events than children in less formal settings. Children in center-based care are also more likely than those in home-based care

to have peers who engage them in discussions and arguments that promote the effective use of language.

Researchers have also asked whether experiences in child care during specific developmental periods have distinctive effects. In the NICHD study (NICHD Early Child Care Research Network, 2000c) as well as in studies of maternal employment (Baydar & Brooks-Gunn, 1991; Brooks-Gunn et al., 2002), sensitive care and individual language stimulation during the first 2 years had a greater effect on subsequent cognitive and linguistic functioning than high-quality parenting in later years (Siegel, 1999). In addition, children whose mothers were not employed full time and children in home-based child care had better cognitive and language skills at age 3 than those who experienced other types of high-quality care. Perhaps as a result, the positive effects of home-based nonparental care on cognitive and linguistic development are evident at 24 and 36 but not 54 months, by which time peer (as opposed to adult) stimulation starts to become more important (NICHD Early Child Care Research Network, 2000c).

Enrichment Programs

The effects of child care on diverse aspects of development, but especially cognitive skills and academic performance, have also been elucidated by studying the effects of especially designed enrichment programs, particularly in the United States.

History of Head Start Programs

Numerous attempts have been made to evaluate the long- and short-term effects of compensatory enrichment programs for children from disadvantaged backgrounds. The amount of attention paid to this topic reflects in large part the tremendously optimistic fanfare that accompanied the rapid nationwide expansion of these programs in the mid-1960s as part of President Johnson's twin crusades, the Great Society and the War on Poverty (Steiner, 1976; Zigler & Muenchow, 1992; Zigler & Valentine, 1979). In this context, the establishment of Head Start in 1965 took and retains center stage in U.S. efforts to enhance the welfare of its children. Because of its tremendous costs and broad constituency, furthermore, the debates have been prolonged, although systematic efforts to study the effects of Head Start have been surprisingly inadequate.

In the late 1950s, social scientists began to marshal evidence suggesting that human abilities were more

pliable than previously recognized (e.g., Bloom, 1964; Hunt, 1961). In response to this, a small number of model preschool programs were developed and evaluated. The results obtained documented the value of compensatory education, although most researchers sought primarily to contrast the relative efficacy of different curricula and pedagogical approaches rather than the utility of compensatory preschool education per se (e.g., Bereiter & Engelmann, 1966; Caldwell & Richmond, 1968; Copple, Sigel, & Saunders, 1984; Gray & Klaus, 1965; Stanley, 1973). Before this programmatic research had advanced enough to permit the evaluation and fine-tuning of intensive model interventions, political pressures and the availability of funds led to the premature launching of Head Start on a nationwide scale. Originally intended as a summer-long pilot program for children from impoverished backgrounds, Head Start quickly became a year-round program attended by preschoolers in the year or two before they entered the school system. A half-million children were enrolled by the summer of 1965, and by 1998, some 800,000 children attended Head Start programs, mostly for a few hours per day, while some of the mothers attended parent education and skill development classes, often in the same building (Administration for Children & Families, 1999).

Head Start programs have always varied greatly, in large part because federal administrators have explicitly deferred to the grassroots clientele whose loyalty has allowed the program to prosper for 4 decades. Most programs emphasize the direct delivery of services to children, and this is viewed as most effective (S. L. Ramey & Ramey, 1992; Roberts, Casto, Wasik, & Ramey, 1991; Wasik, Ramey, Bryant, & Sparling, 1990). Similarly, parent participation is widely viewed as an important adjunct to successful early intervention programs, but its extent varies greatly from program to program (Comer, 1980; C. Powell & Grantham-McGregor, 1989; D. R. Powell, 1982; Seitz, 1990), and potentially valuable home-visiting components are provided by only a small number of Head Start programs (Roberts & Wasik, 1990, 1994).

Originally intended as a broadly focused compensatory and enrichment program, Head Start's political proponents quickly came to depict it as a program designed (in large part) to enhance children's school performance. Evaluations shortly after enrollment could not, of course, track either behavior or achievement at school, and so the fateful decision was made to measure IQ, a construct with which psychologists and educators had extensive experience and that they were able to measure quickly and reliably (J. S. Kagan et al., 1969). Unfortunately, this decision and the initial results helped foster unrealistic and simplistic views of the problems posed by poverty, and of their susceptibility to intervention (Sigel, 1990).

Despite evidence that short-term increases in IQ could be attributed to enhanced motivation rather than intelligence (Zigler & Butterfield, 1968), initial reports pleased Head Start's political and academic progenitors: The IQ scores of children in Head Start programs increased over the time they were enrolled, and the IQ scores of children attending Head Start programs were significantly higher than those of comparable children who did not attend the programs. The euphoria quickly faded following publication of the Westinghouse Report in 1969 (Cicirelli, 1969), however. The results of this large multisite evaluation confirmed that children who had attended Head Start programs indeed had higher IQs, although these advantages quickly faded after the children left the programs and entered the regular public school system. The methodological sophistication of the Westinghouse Report was widely criticized at the time (D. T. Campbell & Erlebacher, 1970; Datta, 1976; Lazar, 1981; M. Smith & Bissell, 1970), but similar findings were reported by other researchers (e.g., McKey et al., 1985). Together, these reports fueled (a) criticisms that compensatory education was a wrongheaded failure that should be abandoned (Jensen, 1969; Spitz, 1986); (b) efforts to underscore that the major—nonintellectual—goals of Head Start (such as improved medical, mental health, and dental care) had not been evaluated (D. J. Cohen, Solnit, & Wohlford, 1979; Hale, Seitz, Zigler, 1990; National Head Start Association, 1990; North, 1979; Zigler, Piotrkowski, & Collins, 1994); (c) arguments that practitioners needed to build on the acknowledged short-term contributions of Head Start by complementing them with continuing enrichment following enrollment in public school (Doernberger & Zigler, 1993; S. L. Ramey & Ramey, 1992); (d) recommendations that interventions would be more effective if children were enrolled at much younger ages (S. L. Ramey & Ramey, 1992); and (e) awareness that poverty had multiple facets and impacts, such that amelioration of its effects would require complex, multifaceted, multidisciplinary, and extensive interventions (Sigel, 1990). The emergence in the 1990s of Early Head Start for children under 3 years of age represents one be-

lated response to some of these issues, as did the earlier introduction of Parent Child Centers.

Later Evaluations of Preschool Intervention Programs

The Consortium for Longitudinal Studies (1978, 1983; Darlington, Royce, Snipper, Murray, & Lazar, 1980; Lazar, Darlington, Murray, Royce, & Snipper, 1982) followed participants in 11 early intervention studies using a uniform set of measures. Their analyses confirmed that effects on IQ quickly faded following graduation from the programs, although the researchers were able to identify impressive group differences in other aspects of school performance, including retentions in grade and premature school leaving (see also Barnett, 1995; Karoly et al., 1998). Few of these longitudinal studies involve Head Start graduates, in part because assignment to Head Start and comparison groups is not random and in part because there is so much diversity among Head Start programs that consistent effects should perhaps not be expected. Notwithstanding such methodological shortcomings, other reports suggest better school performance on the part of Head Start graduates. For example, Hebbeler (1985), McKey et al. (1985), and Copple, Cline, and Smith (1987) reported that Head Start graduates were more likely than children from comparable backgrounds who did not attend Head Start to be promoted, perform adequately at school, and have adequate nutrition and health care. Because the quality of Head Start programs is so variable, it is possible that the effects of Head Start would appear greater and more enduring if focus was placed on the good programs and their graduates (Gamble & Zigler, 1989). Consistent with this hypothesis, Bryant, Burchinal, Lau, and Sparling (1994) reported that the quality of Head Start classrooms, assessed using Harms and Clifford's (1980) ECERS scales, was correlated with scores on standardized measures of achievement, school readiness, and intelligence at the end of the Head Start year, regardless of the quality of home care. Most of the classrooms were rated "adequate" in quality; none were deemed "developmentally appropriate." Such findings, of course, underscored the need for improvements in the overall quality of Head Start (see also Gamble & Zigler, 1989).

Currie and her colleagues (Currie, 2001; Currie & Thomas, 1995, 1999, 2000; Garces, Thomas, & Currie, 2002) have examined the long-term effects of Head Start not by following graduates and nongraduates over time, but by selecting subjects retrospectively from large, nonexperimental, longitudinal studies such as the National Longitudinal Survey (NLS) and the Panel Study of Income Dynamics (PSID). In their first study, Currie and Thomas (1995) selected children in the NLS who had attended Head Start programs and compared them with siblings who had not been in Head Start, reasoning that the sibling comparisons would control for family background effects. Their analyses revealed the expected increases in test scores associated with Head Start attendance. Currie and Thomas were the first researchers able to compare outcomes for individuals from different racial backgrounds, and they found that the gains associated with Head Start attendance persisted into adolescence for the White children, who continued to experience less in-grade retention, whereas they faded out in the early elementary grades for African American children, probably because the African American children studied attended poorer-quality elementary schools—poorer even than the schools attended by African American children on average (Currie & Thomas, 2000). Similar findings regarding the greater benefits of early intervention for children at greatest risk have been reported by other researchers (Brooks-Gunn, 2003).

In a later study, Whites and African Americans born between 1965 and 1977 were interviewed in the 1995 wave of the PSID, when they ranged between 18 and 29 years of age. After controlling for background variables, Garces et al. (2002) found that Whites who attended Head Start were 20% more likely to complete high school and 28% more likely to attend college than siblings who did not, whereas Head Start attendance had no comparable effect on African Americans. On the other hand, African Americans who attended Head Start were 12% less likely to report being booked or charged with a criminal offense than siblings who did not attend Head Start, and in this case there was no comparable difference among Whites. Using an innovative analytic technique, general growth mixture modeling, Kreisman (2003) likewise showed that different groups of children who attended Head Start had different developmental trajectories, but she was unable to explore the characteristics (e.g., racial background) of children in the different groups.

Of the early intervention programs that have managed to follow their graduates over extended periods of time, most attention has been paid to the Perry Preschool Program in Ypsilanti, Michigan, which began in 1962 (Barnett, 1985, 1993a, 1993b; Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984). One

hundred and twenty-eight African American children from low-income families were randomly assigned to control and intervention groups. Beginning when they were 3 to 4 years old, children in the intervention group received 2.5 hours of class instruction per day throughout a 30-week school year, 13 of them for 1 year and 45 of them for 2 years. In addition, mothers and children were visited at home weekly for about 90 minutes. The children and their official records were reevaluated annually through 11 years of age as well as at 14, 15, 19, and 28 years of age using a battery of measures primarily focused on achievement, ability, and school performance (Schweinhart, Barnes, & Weikart, 1993). These data revealed that children in the program had higher achievement scores at ages 9 and 14, were more likely to graduate from high school, were more likely to be employed and not to have been arrested by age 19, earned more, were less likely to have a history of frequent arrests by age 28, and were less likely to go on welfare than those in the comparison group.

Much of the popular attention paid to this program reflects the decision to estimate in dollar terms the costs and benefits of enrollment in the preschool program (Barnett, 1993a, 1993b). The most widely publicized figures suggest that an average investment of $12,356 per child who participated in the program resulted in benefits through age 28 of $70,876. These benefits reflected the additional costs of completed education and higher wages and the lower costs of incarceration and welfare. Benefits are projected to continue as well, presumably justifying an initial investment that was substantially greater than the average cost of typical preschool programs or Head Start programs.

The results of the Perry Preschool Project underscore the potential value of an extended preschool intervention of high quality, but do not reflect the likely effects of large established programs like Head Start, which serve a somewhat different clientele over a briefer period of time with much less rigorous control over quality (Zigler & Styfco, 1994). Greater attention to quality might improve the average effectiveness of early intervention programs like Head Start. Likewise, extension of the programs by enrolling children at younger ages, providing full-day services, and/or continuing to provide enriching services after school enrollment typically enhance the effects of preschool on the intellectual performance of children from impoverished backgrounds (see also Clark & Kirk, 2000; Cryan, Sheehan, Wiechel, & Bandy-Hedden, 1992; Elicker & Mathur, 1997; Fusaro, 1997; Gullo, 2000;

Sheehan, Cryan, Wiechel, & Bandy, 1991; Vecchiotti, 2003), although the large EPPE study showed no differences between the effects of full-day and part-day programs in the United Kingdom (Sylva et al., 2004).

European Intervention Programs

In most European countries, preschool programs (often akin to American kindergarten) are mandatory in the year or years before school officially begins; as a result, the effects of preschool programs on school preparedness have not been studied extensively. Nevertheless, considerable public debate about the structure, components, and goals of these preschool programs is now taking place throughout Europe. Some educators want emphasis placed on cognitive competencies rather than socialization and exploration, and the debate has only become more intense in response to evidence of major cross-cultural variation in the basic reading and mathematics competencies of eighth graders in the 39 industrialized countries studied (OECD, 2002). This has raised questions not only about the quality of the different school systems but also about how preschool programs should prepare children for school. Sure Start programs in the UK have modest but positive effects on most children and mothers, although effects on the most disadvantaged children were negative (Belsky et al., 2005).

Earlier Intervention

C. T. Ramey and his colleagues (C. T. Ramey, 1992; C. T. Ramey & Smith, 1977) have continued to study a small cohort of children who entered the Abecedarian intervention project in North Carolina as infants in the late 1960s. All of the children came from impoverished African American backgrounds. When they were 3 months old, half of the children were enrolled in a full-time, full-year, center-based intervention program designed to prepare them for school, and this program continued until kindergarten. Upon enrollment in kindergarten, half of the children in each group began an intervention program that continued through the first 3 years of elementary school.

In every assessment between 6 and 54 months, a greater proportion of the children in the intervention group had an IQ in the normal range (Martin, Ramey, & Ramey, 1990), and at the time of entry into kindergarten, the children in the experimental group had IQ scores 8.5 points higher than those of children in the comparison group, although the difference narrowed to 5 IQ points by second grade (C. T. Ramey & Campbell,

1984, 1987, 1991, 1992). At the beginning of kindergarten, the children in the enrichment group also performed better on measures of narrative skills than children in the control group, but these differences were no longer evident by the spring (Feagans & Farran, 1994), and other children in their classrooms performed better on measures of paraphrasing than did children from either the enrichment or comparison groups. Children in the intervention group also performed better on tests of conservation at ages 5, 6, and 7; their school performance and academic achievement were better; they were less likely to repeat grades; and they were less likely to have special education needs when they received the preschool intervention as well (F. A. Campbell et al., 1995; F. A. Campbell & Ramey, 1990; Hovacek, Ramey, Campbell, Hoffman, & Fletcher, 1987). Later assessments showed that children in the intervention group completed more years of school than those who did not (F. A. Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001; F. A. Campbell, Ramey, Pungello, Sparkling, & Miller-Johnson, 2002). Somewhat surprisingly, the elementary school enrichment component had little impact (F. A. Campbell & Ramey, 1994, 1995).

Wasik et al. (1990) later showed that the Abecedarian intervention was even more influential when it was supplemented by a home-based family education program, which became Project CARE. At every assessment through 54 months of age, children receiving both center- and family-focused intervention in Project CARE performed better than those receiving only center-based intervention. According to C. T. Ramey, Ramey, Hardin, and Blair (1995), however, intensive home visits by themselves had no effect on the children's performance or on their families, even though home visiting has proven effective in other studies (Seitz, 1990).

Burchinal, Lee, and Ramey (1989) compared the developmental trajectories of Black children from impoverished backgrounds who (a) entered the intensive intervention programs at 2 to 3 months of age, (b) were enrolled in community child care at an average of 20 months, or (c) had minimal or no child care experiences. Semiannual assessments between 6 and 54 months using the Bayley Mental Development Index (MDI), the Stanford-Binet, and the McCarthy scales revealed that the children in the intervention group consistently performed the best, followed by those in community care settings, followed by those who had minimal child care experiences. This suggests that community child care can have beneficial effects on the cognitive performance of children from impoverished unstimulating homes, although the lack of random assignment to the two nonexperimental comparison groups compromises the assessment of causality. The same is true of the New York City Infant Day Care Study (Golden et al., 1978), in which disadvantaged children whose parents chose to enroll them in day care centers had higher IQ scores at 18 and 36 months than children whose parents chose to keep them primarily at home.

Sparling et al. (1991) later developed an intensive intervention program modeled after the Abecedarian program for a large-scale randomized control study of low-birthweight premature babies, the Infant Health and Development Program (1990). Mothers and infants in this study were randomly assigned to either program (intervention) or control groups. The program involved weekly home visits for 3 years after hospital discharge, high-quality educationally oriented day care from 12 to 36 months of age, and parent group meetings on a bimonthly basis. Enrollment in this program led to significant improvements in the IQs of infants at age 36 months (Brooks-Gunn et al., 1993; C. T. Ramey et al., 1995). The effects on the heavier babies was greater than on the lighter babies, but was statistically significant in either case at the time of the 3-year follow-up (C. T. Ramey et al., 1995), although by 5 years of age, significant effects were evident only among those who were heavier at birth (Brooks-Gunn et al., 1994). Intervention had substantially more powerful effects on the infants of mothers with the lowest education, and had no effect on the infants of mothers who were college graduates (C. T. Ramey et al., 1995). Subsequent analyses showed that the magnitude of the effects on IQ varied depending on the extent to which the families participated and took advantage of the services offered to them (Blair, Ramey, & Hardin, 1995; C. T. Ramey et al., 1992). This is consistent with other evidence suggesting that more intensive programs have a greater impact on child development than less intensive programs do (S. L. Ramey & Ramey, 1992). Furthermore, the results of the Infant Health and Development Program, the Abecedarian Program, and Project CARE all underscore the importance of providing care and stimulation directly to children in out-of-home contexts.

Responding to calls that intervention for children at psychosocial risk should begin as early as possible, the U.S. Administration for Children, Youth, and Families (ACYF) developed Early Head Start in 1994 and funded

the first 143 programs in 1995. By 2002, 664 programs nationwide were serving 55,000 children. As with Head Start, programs vary widely depending on local needs and resources, with some programs providing home-based, some center-based, and some both home- and center-based services to infants, toddlers, and their parents from pregnancy through the 3rd year of life (Early Head Start Research and Evaluation Project, 2002b). To assess the implementation and effectiveness of Early Head Start, ACYF also commissioned a random assignment study of families who were and were not offered services through local programs. The Early Head Start Research and Evaluation Project (2001, 2002a) found that Early Head Start services had a significant impact on the supportiveness and positiveness of the mothers' and fathers' behavior as well as on the cognitive performance, language development, and social-emotional behavior of the children at ages 2 and 3. Effects tended to be stronger when families were enrolled in programs that had implemented a wider range of services, especially when they provided both home- and center-based services. African American children tended to benefit the most and White children the least, and children from the most disadvantaged programs were adversely affected. Although children receiving Early Head Start services performed much better than peers in the control groups, it is noteworthy that they continued to score far below national norms, whereas children in the more intensive and extensive Abecedarian Project performed at around national norms.

Supplementary Enrichment for Graduates of Preschool Programs

Unfortunately, public school enrichment programs (such as Program Follow Through) designed to attenuate the IQ decline that typically occurs when children leave enrichment programs (Doernberger & Zigler, 1993; Kennedy, 1993) have never been well funded, and thus implementation has been limited despite a small but persuasive body of evidence showing that programs of this sort can indeed be beneficial. Abelson, Zigler, and DeBlasi (1974) and Seitz, Apfel, Rosenbaum, and Zigler (1983) showed that one cohort of children who went from Head Start to Follow Through programs in New Haven, Connecticut, maintained higher scores on measures of IQ, school achievement, and social-emotional development than children who attended traditional school programs through grade 9. A comparable demonstration program involving comprehensive preschool and school-age intervention, complemented by parental involvement during the preschool and early elementary years, was conducted in Chicago, although, as in New Haven, children were not assigned randomly to the two groups. Fuerst and Fuerst (1993) and Reynolds (1992a, 1992b, 1994, 1998, 2000; Reynolds, Temple, Robertson, & Mann, 2001; Temple, Reynolds, & Miedel, 2000) reported that, after controlling for family background, graduates had better reading and mathematics achievement scores, were significantly less likely to be retained in grade, were less likely to be referred for special education, were less likely to engage in criminal activities, and were more likely to graduate from high school than children who received traditional schooling. Reynolds (1994) further found that participation in the elementary school component of the program had beneficial effects independent of the preschool component. Interestingly, there was very little difference between the effects of 1- and 2-year enrollment periods, suggesting that it might be more effective to expand the number of children served rather than to extend the length of time each was enrolled (Reynolds, 1995). Taylor and Machida (1994) reported that parental participation in school activities was associated with learning skills and more strongly associated with classroom behavior after several months in Head Start. Maintenance of parental involvement also played an important role in ensuring the long-term continuity of effects on the children's performance in the Chicago Child-Parent Centers (CPC; Reynolds, 1992b), although site-level factors, such as location, curriculum, parental participation rates, family stability, and the proportion of children who came from low-income families, had much less impact on the children's outcomes than preschool participation (Clements, Reynolds, & Hickey, 2004).

Summary

The onset of nonparental child care stresses children, especially those who enter child care after becoming attached to their mother. Secure child-mother relationships do not appear to help children cope with these stresses as much as attachment theorists originally believed, and thus familiarization programs and supportive child-care provider relationships are needed to help children adjust to the onset of child care.

Parental sensitivity remains a key determinant of children's adjustment even after the onset of child care, and the life changes that accompany the onset of mater-

nal employment and child care often affect the quality of parental behavior. Families need to find ways to compensate for the time they spend apart and to respond sensitively to children's needs to minimize or avoid adverse effects on attachment security. Supportive and secure child-care provider relationships can also play an important role in promoting children's well-being. Care providers are not mother substitutes, however. Whereas dyadic interactions are central to parent-child relationships, the quality of care providers' behavior in relation to groups of children is crucial. Both child-care provider interactions and group dynamics define the climate that powerfully affects children's adjustment, for good and for ill.

For children without siblings, child care may provide unique opportunities for socialization with and by peers on a regular basis. However, the development and significance of relationships with peers are affected not solely by enrollment in child care but also by social-cognitive and social-emotional characteristics that are significantly shaped by socialization in the family. In addition, child care practices can foster good and hinder poor interaction skills, which in turn affect later behavioral adjustment and personality maturation. Extensive experience of mediocre or poor-quality care is associated with increased behavior problems.

Longitudinal studies are disappointingly rare, but all show that the positive cognitive effects of high-quality intervention are attenuated over time unless maintained by continuing care or education of high quality. Of course, success at school demands cognitive and linguistic competencies that are affected by experiences both at home and in child care facilities. High-quality child care can thus counteract the adverse effects of poorer experiences with parents. High-quality child care is not as helpful for children from more advantaged backgrounds, however. Instead, care of poorer quality has effects that vary depending on its quality relative to the quality of care and stimulation that children would receive at home. As a result, the performance of some children from supportive and stimulating families may be affected adversely by out-of-home care experiences.

Unfortunately, few attempts have been made to evaluate the relative effectiveness of different curricula or pedagogical approaches, so we cannot identify which features of successful programs are particularly valuable for which children. Likewise, the literature permits us to offer only the most general conclusions about the beneficial effects of high-quality care rather than empirically supported conclusions about the value of particular programs and approaches. Research on particular programs and approaches will be particularly helpful in the face of growing evidence that the effects of quality are considerably less powerful than expected. It is also surprising that such little evidence exists concerning the effects of Head Start, particularly considering the enormous cumulative and annual public costs of the program.

AFTERSCHOOL CARE

The need for nonparental care does not end when children enter the elementary education system at around 6 years of age (enrollment ages vary across cultures and communities), particularly as parental employment rates continue to rise in association with children's ages, and have always been higher for parents with school-age rather than preschool-age children or infants (see "Changing Patterns of Care in the United States and Europe: Parenting and Alloparenting"). In the United States, an estimated 78% of the mothers with school-age children were employed outside the home by 1997, compared with 40% in 1970 and 75% in 1995 (H. Hayghe, personal communication, October 17, 1995; Hofferth & Phillips, 1987; U.S. Bureau of Labor Statistics, 1987, 1998). The typical school day extends for only 6 hours, and in many European countries, some children go home for lunch at the end of or in the middle of the school day. These practices were institutionalized at a time when mothers were expected to be working in and around the home, able to care for their children when they were not in school. Obviously, these conditions no longer exist in most industrialized countries. Instead of returning from (or going to) school from a home supervised by their mother, many children attend formal afterschool programs, are supervised informally by neighbors, relatives, or babysitters, or are left unsupervised. By 1999, 49% of the 6- to 11-year-olds in the United States whose primary caregivers were employed received some kind of regular afterschool care, including care by relatives (25%), before- and afterschool programs (15%), or home-based child care (7%: Sonenstein et al., 2002). Before- and afterschool nonmaternal care arrangements are more common when mothers are single or work longer hours (NICHD Early Child Care Research Network, 2004), and two somewhat unconnected bodies of literature have emerged, one concerned with the

characteristics of children who are unsupervised, and one with the effects of formal afterschool programs. These literatures are reviewed separately here.

Self-Care

According to the 1999 National Survey of America's Families (NSAF), 3.3 million school-age children (15% of the 6- to 12-year-olds in the United States) stay at home, unsupervised by an adult, on a regular basis (Vandivere, Tout, Zaslow, Calkins, & Capizzano, 2003). Closer analysis of the NSAF data shows that self-care becomes more common as children grow older: 7% of 6- to 9-year-olds but 26% of 9- to 12-year-olds and 47% of 14-year-olds were left regularly to care for themselves in 1999 (K. Smith, 2002; Vandivere et al., 2003), and the average amounts of time spent unsupervised also increase as children grow older (Vandivere et al., 2003). Contrary to popular belief, unsupervised children are not more likely to be found in impoverished, minority communities. In fact, Vandivere et al. reported that low-income and less-educated parents were less likely to leave their children unsupervised after school than were parents with higher incomes or higher levels of education. Similarly, Vandell and Ramanan (1991), using data from the NLSY, reported that children were more likely to be supervised after school when family income and social support levels were lower. Self-care is also more common when mothers work full time or parents are divorced/separated (K. Smith & Casper, 1999; Steinberg, 1986; Vandivere et al., 2003). Hispanic children are much less likely than non-Hispanic children to be left unsupervised (Vandivere et al., 2003).

Since the 1970s, great concern has been expressed about the safety and welfare of unsupervised young children (Bronfenbrenner, 1976; Genser & Baden, 1980), whose circumstances fit the legal definition of child neglect in most states. Perhaps because this legal characterization makes parents unwilling to admit the care status of their children, there has been much less research on the psychosocial and behavioral adjustment of young children than on the status of children in middle school, with surprisingly little attention paid to their differing developmental needs. Whereas a case can be made that eighth graders benefit from learning to be responsible and independent during periods of unsupervised self-care, for example, the same argument should not be made with respect to first graders living in urban communities.

Much of the concern about "latchkey" children was prompted by Woods (1972), who studied African American fifth graders in the inner city and found that the latchkey girls scored more poorly on measures of cognitive/academic, social, and personality adjustment than did peers in the care of adults. In particular, unsupervised girls had poorer achievement test scores and poorer relationships with their peers at school. On the basis of open-ended interviews with children in self-care arrangements, furthermore, Long and Long (1983, 1994) concluded that latchkey children were at risk for a wide variety of social, academic, and emotional problems. Richardson et al. (1989) later reported that eighth graders in the Los Angeles and San Diego metropolitan areas were more likely to abuse illicit substances when they spent more time in self-care. Similarly, adolescents who were regularly unsupervised after school were more likely to smoke cigarettes, consume alcohol, and use drugs (Mott, Crowe, Richardson, & Flay, 1999; Mulhall, Stone, & Stone, 1996). Vandell and Posner (1999) reported that third graders who cared for themselves regularly had more behavior problems in both third and fifth grade, whereas self-care by fifth graders was not associated with behavior problems. Pettit, Laird, Bates, and Dodge (1997) reported that sixth graders were less socially competent and performed more poorly in academic contexts when they had spent more time in self-care as first and third graders. These associations remained even after controlling for differences in earlier child adjustment and family social class. As in Vandell and Posner's study, the amount of self-care in fifth grade was not associated with problematic behavior in sixth grade. Colwell, Pettit, Meece, Bates, and Dodge (2001) also reported that self-care beginning in the first grade was associated with behavior problems in the sixth grade. Socioeconomic status affects these associations; children in less-advantaged families are more likely to be characterized by significant correlations between self-care and either behavior problems or poorer academic performance (Marshall et al., 1997; Vandell & Posner, 1999).

By contrast, Galambos and Garbarino (1983) reported no differences in achievement, classroom orientation, adjustment to school, and fearfulness on the part of fifth and seventh graders who were either adult-supervised or cared for themselves after school in a rural community; neither did Rodman, Pratto, and Nelson (1985), who studied fourth and seventh graders matched on age, gender, family composition, and socioeconomic status. There were no differences in locus

of control, behavioral adjustment, and self-esteem. Similarly, Vandell and Corasaniti (1988) reported that White suburban middle-class third graders in self-care after school did not differ from children in the care of their mother on any dimensions. In fact, the latchkey children appeared to function better at school and in the peer group than peers who went to formal afterschool programs. The mother's marital status did not moderate any of these differences or nondifferences.

Vandell and Ramanan (1991) later studied third to fifth graders whose mother was a participant in the NLSY; the children were thus disproportionately likely to be born to adolescent, poor, minority parents, but only 28 of the 390 children were unsupervised after school, which limits the strength of the conclusions that can be drawn from the study. There were no differences between latchkey and mother- or other-care children in the total number of behavior problems, although those who were unsupervised after school were rated as more headstrong and hyperactive than those in other- (but not mother-) care after school. Children in other-care after school had fewer behavior problems and higher PPVT scores than children cared for by their mother after school. All of these differences disappeared following statistical controls for family income and emotional support, however, presumably because mother-care was the arrangement most likely to be chosen by the poorer, less emotionally supported families. Likewise, analyses of nationally representative data gathered in the 1999 NSAF showed no differences in behavior problems in 6- to 12-year-olds depending on whether or not they regularly cared for themselves (Vandivere et al., 2003).

As Steinberg (1986, 1988) pointed out, researchers need to distinguish among several groups of children who are all unsupervised by their parents after school: some stay home alone; some go to a friend's house, where they may be but typically are not supervised by the friend's parent; some "hang out" in the mall or some other public place. These differences may be associated with important differences in the psychosocial status of the children concerned, argued Steinberg, particularly if they lead to differences in exposure to antisocial peer pressure. As predicted, suburban fifth, sixth, eighth, and ninth graders appeared more susceptible to antisocial peer pressure (as indexed by the children's responses to hypothetical vignettes on a measure developed by Berndt, 1979) when they tended to hang out in public places, and those who went to a friend's house were more susceptible than those who stayed home alone (Steinberg, 1986). Children who stayed home alone did not in fact differ from those who were under adult supervision. Steinberg also reported group differences in the children's reports of their parents, with the parents of boys in self-care being more permissive than those of boys in adult care of some sort, and the permissiveness of girls' parents being correlated with the degree to which they were unsupervised (adult care, self-care at home, at friend's house, hanging out). Parental permissiveness was itself associated with the susceptibility to peer pressure, whereas authoritative parental practices (Baumrind, 1968) were associated with greater resistance to peer pressure.

Comparable results were obtained by Galambos and Maggs (1991) in a longitudinal study of sixth graders living with both of their parents in suburban Canadian communities. Children who were not at home after school were more involved with peers, and unsupervised girls were more likely to have deviant peers, poor self-images, and be at risk of problem behavior, although the risks were reduced by less permissive and more accepting parental behavior. As earlier reported by Steinberg (1986) and Rodman et al. (1985), children who stayed at home unsupervised did not differ from those who were under adult supervision.

Formal Afterschool Programs

Just as self-care may have varied effects depending on the children's characteristics and circumstances, afterschool care likely has diverse effects on children's adjustment, but unfortunately these issues have not been well explored. School-age child care (SACC) programs serving several million children in the United States operate in diverse locations, and the types and quality of care vary widely. In one study of 30 SACC programs, R. Rosenthal and Vandell (1996) reported that children and parents evaluated the programs more positively when they were smaller, staff-child ratios were lower, the staff was more emotionally supportive, the variety of possible activities was greater, and negative staff-children interactions were less common. Pierce, Hamm, and Vandell (1999) similarly found that lower child-adult ratios were associated with more positive staff-child interactions and more time spent in constructive activities. These variations in quality are obviously important: High-quality programs are associated with more positive academic and social outcomes, whereas programs have negative or ambiguous effects when the quality is poorer (Vandell & Pierce, 1999, 2001; Vandell, Shuman, & Posner, 1999).

Focusing on 6-year-olds in a variety of programs, Pierce et al. (1999) found that children, especially boys, in programs characterized by positive interactions with the staff had fewer behavior problems, better academic grades, and better social skills than children in settings characterized by negative staff-child and peer relationships even after controlling for family background characteristics. Subsequent assessment of these children and programs revealed that the majority of programs provided care of mediocre or barely adequate quality (Vandell & Pierce, 2001) and that the higher the quality of afterschool care received by those children through fourth grade, the better their academic performance and the less they reported feeling lonely. In addition, girls, but not boys, had better work habits and social skills when they had attended higher-quality programs. Better peer relations in the SACC programs were associated with less depression.

In an earlier study of third graders in Milwaukee in which single-parent, African American, low-income families were oversampled, Posner and Vandell (1994) sought to describe the components and effects of formal afterschool programs. Formal care was more likely when mothers were better educated and family incomes were lower; Whites were more likely to leave their children unsupervised, and African Americans were more likely to count on informal afterschool care arrangements. After controlling statistically for these factors, Posner and Vandell found that children attending formal afterschool programs received better grades for mathematics, reading, and conduct than did peers in the mother-care and other-care groups. The former also had better work habits and better peer relations than those in the other-care group. These results are perhaps attributable to the fact that, in comparison with the other children, children in the formal settings spent more time in academic and enrichment activities with both adults and peers, but less time watching television or playing with siblings. Unlike Vandell and Ramanan (1991), Posner and Vandell found that children in the other-care group performed more poorly than those in mother-care with respect to reading grades, work habits, and behavior problems, perhaps because these arrangements seemed quite inconsistent and variable from day to day. The more time these children spent in unstructured outdoor activities, the poorer their grades, work habits, and emotional adjustment. When reassessed as fourth and fifth graders, children who were performing better and were better behaved as third graders engaged in more constructive afterschool activities as fifth graders (Posner & Vandell, 1999). In addition, African American children who engaged in more nonsport activities over the study years were better adjusted in fifth grade. White children had poorer grades and more behavior problems when they spent more time in unstructured activities. Finally, in the multisite NICHD Study of Early Child Care (2004), kindergartners and first graders had higher standardized test scores when they participated in extracurricular activities after school, but all other types of before- or afterschool arrangements were unrelated to measures of the children's functioning after controlling for background factors.

Summary

Overall, the data suggest that the lack of direct supervision in afterschool hours has effects on children that vary depending on their age, what they are doing, and the extent to which they are monitored by their parents. Direct adult supervision appears to remain an important determinant of children's adjustment at least through midadolescence, although researchers have paid inadequate attention to developmental differences and have failed to study the psychosocial adjustment of the youngest children left unsupervised. Self-care is associated with poorer outcomes among 8- to 9-year-olds (American third graders) but is not consistently associated with poor outcomes among older preadolescents. Among adolescents, there are few consistent effects when children are at home alone and are (loosely) monitored by their parents, but those who are not monitored and especially those who hang out with peers unsupervised are most likely to get into trouble, have behavior problems, and perform poorly at school. It is not clear whether the widespread availability of cell or mobile phones may affect the level of supervision or give parents a false sense of security regarding their children's whereabouts and activities.

In light of demographic data suggesting that some kindergartners are left alone regularly, it is noteworthy that the research literature has focused on children in third grade or higher, with most studies concerned with young adolescents. From the fifth grade, children who are regularly at home after school behave and perform similarly whether or not an adult is present, but the distance from adult supervision explains differences in the outcomes of unsupervised children who do not go home after school. Parental disciplinary practices appear to

modulate these differences in predictable ways. Unfortunately, all of these findings are compromised by the absence of longitudinal data and the strong possibility that differences among children (in their preferences to be and do things with their peers, for example) may precede rather than be consequences of the differing types of supervision.

Third and fourth graders seem to do better academically and behaviorally when they are in formal after-school programs, although this may not be true of children from more affluent families. Participation in formal programs by such children appears to promote more constructive uses of time as the children mature, though there has yet to be much research on children older than 10 or 11 years. Interestingly, however, recreational programs for disadvantaged teenagers and teenagers considered at risk for antisocial behavior have tended not to have the expected positive effects on adolescents (McCord, 1990).

CONCLUSION

After nearly 3 decades of intensive research on nonparental child care, considerable progress has been made, although we still have much to learn about the mechanisms by which out-of-home care affects children's development. In large part, our continuing ignorance about developmental processes reflects the extent to which researchers were preoccupied too long with the wrong questions—first asking "Is day care bad for children?" instead of "How does child care affect children's development?"—and later remained focused on the effects of child care and the effects of child care quality instead of recognizing that child care has myriad incarnations and must always be viewed in the context of children's intrinsic characteristics, developmental trajectories, and other experiences. We should not be surprised that children's experiences away from home are formatively significant, although simplistic assessments of these experiences and limited opportunities for truly experimental research have impeded progress. In addition, there is vast (and often poorly specified) variability within and among studies with respect to the actual care arrangements studied, the amount and quality of care received, the age at which it began, the number and type of changes in the patterns of care, and the ways outcomes were assessed. Even when the same outcomes are assessed, variations in the ages of assessment and en-

rollment, means of quantification, and the composition and selection of comparison groups often preclude anything more than tentative conclusions about specific care arrangements.

Clumsy investigative strategies notwithstanding, we can actually answer a few of the simpler questions with some confidence. We now know, for example, that child care experiences *need not* have harmful effects on children's development and on their family relationships, although they *can* do so. Most children's relationships with their parents do not differ systematically depending on whether or not they receive regular nonparental care. Most children in out-of-home facilities remain attached to their parents and still prefer their parents over teachers and care providers. Meaningful relationships are often established with peers and care providers, however, and these can affect children's later social behavior and personality maturity. In addition, exposure to peers may offer some children (e.g., those who are singletons or have shy temperament) opportunities they could not experience at home, thereby launching them on different developmental trajectories.

Early exposure to nonparental care of poorer quality also fosters excessive assertiveness, aggression, and behavior problems in some children for reasons that are not yet well understood. Insecure parent-child attachments do not modulate these effects, as once believed, because nonparental care experiences are not reliably associated with insecure infant-mother attachment, but poor relationships with care providers do appear to mediate the effects of nonparental care on children's aggressiveness. Children in higher-quality facilities who enjoy good relationships with stable providers are not more aggressive than peers who have experienced care only from their parents.

The onset of regular nonparental care for infants and toddlers has complex psychobiological and behavioral effects on their functioning both at home and in child care centers. As a result, maladaptive behavior on the part of children who spend many hours in child care may reflect not the direct effects of nonparental care, but the inability of parents to buffer the enhanced levels of stress occasioned by the time spent in child care. Successful adaptation demands careful equilibration of the contrasting limitations and benefits of the two environments, with parental care characterized by stress reduction and emotional regulation, whereas care providers emphasize cognitive stimulation and behavioral regulation. Home remains the center of children's lives even

when children spend considerable amounts of time in child care, and thus parents who fail to recognize and respond to their children's need for emotion regulation when they are reunited after long hours in stress-inducing child care arrangements are at least partly responsible for the dysregulation that becomes manifest in misbehavior.

Assertions that nonparental care does not consistently or inevitably have either positive or adverse effects on children's development must be further qualified on a number of grounds. Some of the most important stem from the fact that, with few exceptions, quasi-experimental studies have not been possible. Because the children and families studied are not assigned randomly to nonparental and exclusive parental care groups, preexisting group differences—particularly those that led to the enrollment of some but not other children in nonparental care settings in the first place—may continue to explain at least some of the between-group variance discerned. Statistical controls for some of the known group differences and potentially influential factors (such as social class) reduce but do not completely eliminate the problem, limited as they are to imperfect measures of factors that are operationalized as linear and independent sources of influence. Still, it is comforting to note that researchers are continuing to refine their understanding of these factors.

In addition, although researchers have more recently done a much better job of sampling the range of settings experienced by most children, settings providing care of the poorest quality are disproportionately excluded from studies. The most intensive studies still tend to overrepresent middle-class White North Americans in placements of better-than-average quality, whereas the larger multisite studies and surveys include more diverse and ethnically representative groups. For a variety of reasons, the large multisite studies (but not the NICHD study) are least likely to include microanalytic components, however, so sampling limitations are an especially important consideration when behavioral observations are at issue.

Over time, researchers' focus has clearly shifted from between-group to within-group (correlational) strategies. Most researchers embracing such strategies have attempted to assess the predictive importance of the quality of care, and there is a clear consensus that the quality of care, broadly defined and measured, modulates the effects of nonparental child care on child development. Interestingly, improvements in quality appear to

have significant positive effects even at the highest end of the range sampled, suggesting that there is no threshold beyond which quality of care no longer matters. The magnitude of the effect is considerably smaller than expected, however, although the fact that researchers must estimate the importance of quality in the context of complex correlational models that also include a range of other potential influences makes it doubtful that we will ever really know how important quality is in an absolute sense. The recent and widespread focus on the quality of care has also led researchers to neglect many of the other factors that affect children's development. Developmentalists now know that all aspects of behavioral development are multiply and redundantly determined; as a result, the absolute magnitude of each individual influence is likely to be quite small when all important factors are taken into account simultaneously. It would thus be a mistake to conclude, for example, that quality of care is not really important because its coefficients are small; by this logic, almost any factor could be deemed insignificant. A realistic appreciation of how complex developmental processes really are should instead foster a shift from the simplistic search for magic bullets to the patient but tedious evaluation of complex models of development. By the same token, however, researchers have a responsibility not to misrepresent either the costs or the benefits of variations in the quality of care, particularly in the face of political pressures to do so. For similar reasons, it is important to determine why early intervention programs with generally positive effects sometimes affect the most disadvantaged children negatively.

Nonparental care of superior quality is clearly beneficial to children and preferable to care of poor quality; parents and regulators need to evaluate the relative costs and benefits of incremental improvements in quality, however. Researchers, meanwhile, need to shift their attention to more detailed considerations of quality so as to define, more clearly than has been possible with the current generation of measures, what characteristics of care providers and out-of-home care settings have the greatest impact on specific aspects of development. Nonparental care needs to be designed to serve the needs of children and, in particular, to recognize that children of different ages and backgrounds have different needs and experience stress for different reasons. Thus, the global indices of quality that have served a first generation of researchers and regulators so well must now yield center stage to a generation of more refined measures and concepts that allow practitioners to

determine whether and how specific practices have unique effects on children's learning and development.

Type of care may also have varying effects depending on the age at which children enter nonparental care settings, with the planned curricula of child care centers become increasingly advantageous as children get older. It also appears likely that different children will be affected differently by various child care experiences, although we remain ignorant about most of the factors that modulate these differential effects. Child temperament, parental attitudes and values, preenrollment differences in sociability, curiosity, and cognitive functioning, gender, and birth order may all be influential, but reliable evidence is scanty.

In all, we have learned a great deal about the effects of out-of-home care and, in so doing, we have learned that these effects are a good deal more complex than was once thought. The challenge for the next decade is to determine how different experiences inside and outside the home are associated with specific outcomes for children in defined contexts and cultures.

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