

The Role of the Father in Child Development

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CHAPTER 14

Fathers' Roles in Hunter-Gatherer and Other Small-Scale Cultures

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THIS CHAPTER SUMMARIZES and evaluates recent research on the roles of fathers in child development in hunting-gathering (also known as foragers), simple farming, and pastoral (i.e., heavy reliance on cattle, camels, goats, etc.) communities around the world. In the past, these societies were referred to as *preindustrial*, *preliterate*, or *traditional* societies, but these terms were somewhat derogatory or implied the people were in some way or another less intelligent or complex than peoples in modern, literate, and industrial societies. These cultures are characterized by their relatively low population density and minimal amounts of social and economic stratification. Anthropologists have conducted most of the research in these communities, but some developmental psychologists have also contributed to the literature (e.g., Harkness & Super, 1992; Morelli & Tronick, 1992; Nsamenang, 1992).

In this chapter we review three types of studies conducted on fathers in hunting-gathering and other small-scale cultures: (a) evolutionary studies from human behavior ecology, (b) large (i.e., more than 50 cultures) cross-cultural studies of father involvement, and (c) detailed ethnographic case studies of fathers. Evolutionary studies are considered first because they examine some of the biological or reproductive bases of father involvement. Evolutionary and ethnographic case studies are similar in that they are usually long-term field-based studies of one or a few cultures. Ethnographers are more eclectic in their theory and methods, using qualitative and quantitative methods, whereas human behavioral ecologists use evolutionary theory and rely almost exclusively on systematic behavioral observations (i.e., they are interested in what fathers do rather than what they say).

This chapter also emphasizes two general theoretical orientations: *adaptationist* and *cultural*. Adaptationist studies assume that fathers' roles are functional in that they are adapting to particular social, economic, reproductive, or demographic conditions or contexts. By contrast, researchers who

utilize a cultural orientation assume that symbols, such as language, schema, ideology, or culture cores (i.e., configuration of beliefs and practices that are maintained by conservative mechanisms of cultural transmission) dramatically influence fathers' roles. Most researchers who utilize this theoretical orientation study the parental or cultural ideologies regarding fathers. Only a few researchers have emphasized the culture core and cultural transmission approach. This later approach assumes that the distribution of cultural beliefs and practices (in this case, those regarding fathers' roles) are influenced by demic diffusion—people taking their beliefs and practices with them when they move or expand to a new area. For instance, English and French peoples expanded during the period of colonialism and took their beliefs and practices regarding fathers with them even though they moved to dramatically different natural and social environments. Their beliefs and practices were maintained through conservative cultural transmission. From this perspective, fathers' roles may or may not be adaptive. This is a simple theoretical dichotomy and probably no researcher feels that fathers' roles are influenced by only one suite of factors and that fathers' roles are influenced by both approaches. The fact is, however, that researchers usually have a limited time to conduct their research so tend to emphasize one or the other theoretical orientation.

ISSUES, CONCEPTS, AND TERMS

Why should we care about studies of fathers' roles in these cultures? We cannot understand fathers' roles in every ethnic group, so why not concentrate on large cultures, such as the Chinese or Danes, with millions of members rather than on cultures with 1,000 or 2,000 members?

First, most studies of fathers described in this volume were conducted in cultures with complex levels of hierarchy, inequality, and capitalism (i.e., fathers living in global economic cash economies). Some studies are cross-cultural, but the fathers in these groups are similar to middle-class Anglo-American families in that socioeconomic inequality and the material accumulation of wealth characterize and permeate their daily lives. Differences certainly exist between stratified cultures (e.g., some, such as China and Japan, are much more sociocentric than others) but they share inequality in daily life. Second, and along the same lines, most class-stratified societies are governed by strong nation-states. This means fathers in most of the studies in this volume live in situations where their roles as protectors and educators of their children are diminished because the state provides a police or military force as well as some level of formal education. Consequently, research on fathers in stratified cultures focuses on their economic and caregiving roles. This emphasis on fathers as caregivers and providers also exists in studies of hunter-gatherers, in part, because research questions emerge from studies of fathers in urban-industrial cultures and researchers working with hunter-gatherers are influenced by concerns in their own culture. The cultures described in this chapter live in nation-states and may be affected by laws in their respective countries, but, in general, they receive

little protection or formal education from the nation-state. This does not mean that studies of contemporary stratified cultures are not relevant to understanding fathers' roles, but that there are limitations and important contexts to keep in mind, especially when universal or general features of fathers' roles are proposed.

Third, theoretically and conceptually, it seems that if we want to understand the nature of fathers' roles, we should consider fathers' roles in contexts that characterized most of human history. Global capitalism has been around for about 200 years, class stratification (chiefdoms and states) about 5,000 years, simple farming and pastoralism about 10,000 years, and hunting-gathering at least hundreds of thousands of years (at least 90% of human history). An understanding of fathers' roles in hunting and gathering societies seems especially important for understanding the nature of fathers' roles, and consequently, most of the studies reviewed in this chapter focus on foragers.

Finally, males in class-stratified cultures usually do not learn about child caregiving until they have their own children. They acquire their knowledge from specialists (e.g., pediatricians, school counselors), how-to books, friends (because they seldom live near family), or imagined others, such as images of men on TV they want to emulate. By contrast, men in the studies described in this chapter were frequently around, if not caring for, children while they were growing up (i.e., men's parenting knowledge is based on regular observations or experiences with children).

Before the three types of studies and two theoretical orientations are examined, the nature of *culture* is discussed because it is used often in this chapter and volume. Minimally, culture is defined as shared knowledge and practices that are transmitted nonbiologically generation to generation. It is symbolic, historic, integrated, and dramatically influences how we perceive and feel about the world around us. Regular interactions with others with similar schemas and styles of interaction (called *internal working models* by Bowlby, 1969) contribute to the emotional basis of culture. The emotional basis of culture often leads us to feel that our own ways are natural, universal, and usually better than others. In regards to understanding fathers' roles, it means we are likely to have ethnocentric views of what is a good or bad father, or have strong feelings about the kinds of father research that should be conducted. Most middle-class parents, developmental psychologists, and policy agencies in contemporary urban industrial cultures feel very strongly that regular and frequent father caregiving is important for healthy child development. National programs give the impression that regular direct care by fathers is natural and "good for all." Several positive benefits for active fathers in contemporary middle-class U.S. families may exist (i.e., families are more isolated from other family, so fathers assistance may be important for several reasons), but cross-cultural studies indicate dramatic variability in the importance of direct father care. In some cultures, like the Aka foragers of central Africa, father care is pervasive and sensitive, while in most African farming communities, fathers provide almost no direct care to infants and young children. Children in both groups grow up to viable, competent, and self-assured individuals.

EVOLUTIONARY STUDIES OF FATHERS

Evolutionary studies evaluate how a father's and/or a child's reproductive fitness in particular ecological and cultural contexts influences his or her interactions. For instance, one hypothesis, discussed later, is that if a man knows he is the biological father of a child, he is more likely to invest time and energy in his children than if he is not the biological father. It is not in his reproductive interests to invest in nonbiologically related children. Evolutionary research is briefly reviewed because researchers have conducted studies with hunter-gatherers (e.g., Aka, Bofi, Hadza, Aché, Martu Aborigines, Tsimane) and a few studies with simple farmers. Evolutionary studies are an example of adaptationist approaches to explaining fathers' roles. Three insightful findings have emerged in the recent literature: Male involvement in humans and other primates evolved in part because male care decreased female reproductive costs and increased the number of offspring (i.e., closer birth spacing because males assisted with care), father involvement may be mating effort rather than parenting effort, and direct care by fathers is likely to be strategic in that they invest under certain social and ecological contexts (e.g., mother absent or other adult allomaternal caregivers are present) or when specific types of care can impact the child's future reproductive success.

Evolutionary anthropologists are interested in understanding the origin of paternal investment in humans. Paternal investment is relatively rare in both mammals and primates, occurring in about 10% of species (Kleiman & Malcolm, 1981). For some time, it was thought that male investment increased infant and child survival, which is the case among !Kung and Aché hunter-gatherers (father absence triples the probability of child death among the Aché), but father investment does not increase child survival among the Hadza and several other populations. Sear and Mace (2008) conducted a study of 22 populations from a variety of subsistence systems and found that father absence did not impact child survival in the vast majority of cultures. Grandmothers and others had a greater impact than fathers in several cultures. If fathers do not increase child survival, why did paternal care evolve? Paternity certainty probably played some role in the evolution of male parental care, but research with nonhuman primates with male parental investment, such as cotton-top tamarins (*Saguinus oedipus*), marmosets (*Callithrix kuhlii*), siamangs (*Symphalangus syndactylus*), and owl monkeys (*Aotus trivirgatus*), indicate male transportation of infants increased female foraging efficiency, weight gain, and rapid return to estrus cycling, while males who transported offspring often lost substantial weight (Gettler, in press; Lappan, 2008; Sanchez, Pelaez, Gil-Burmann and Kaumanns, 1999; Tardif, 1994). In most cases, males carry more frequently if they are his offspring. Comparable energetic studies in hunter-gatherers are limited, but fathers regularly transport infants and young children among the Aka (Hewlett, 1991), who travel 5 to 15 kilometers per day, and several other hunter-gatherer groups (Marlowe, 2000). Grandmothers and older siblings are often not capable of carrying infants and young children for long distances.

Another consistent finding in evolutionary studies of men during the past 10 years of research is that in comparison to mothers, a good part of father's

time and energy in direct care or providing may be mating effort (i.e., efforts to maintain current spouse or attract other mates) rather than parenting effort (i.e., provisioning and caring for children). It was long thought that fathers were important providers and caregivers to their own biological children and that paternity certainty was a key factor for understanding father involvement (Lancaster, Altmann, Rossi, & Sherrod, 1987). Fathers would not be acting in their best reproductive interests if they cared for or provided food for children who were not their own. Biological fathers were hypothesized to be important providers, protectors, and caregivers. Evolutionists started to question this hypothesis when nonhuman primate studies indicated that males in species with low paternity certainty (e.g., multimale species where most adult males have sex with females in estrus) were more likely to provide direct care to infants than were males in species where paternity certainty was much higher (dominant male with harem, such as gorillas) (Smuts & Gubernick 1992; Van Schaik & Paul, 1996); as discussed earlier, child survival was not linked to having a father in several cultures, and males in hunting-gathering communities were found to give most of the game they captured to other families rather than their own (Hawkes, O'Connell, and Blurton-Jones, 2001). The evolutionary idea is that fathers are interested in showing-off or signaling their abilities to their spouse or potential future mates. Fathers may also invest highly in stepchildren, but only as long as they are with the mothers (Kaplan, Lancaster, Bock, & Johnson, 1995).

The emphasis on mating rather than parenting effort is consistent with developmental psychology and sociological studies that demonstrate that fathers extrinsically value parenting, whereas mothers intrinsically value parenting (LaRossa & LaRossa, 1982), and fathers are more likely to engage in direct caregiving in public places (e.g., playgrounds and grocery stores) (Mackey & Day, 1979) rather than in the privacy of their home. But this does not mean that paternity certainty does not influence father-child relations. Marlowe (1999) indicated that Hadza fathers provided more direct care to genetically related children than stepchildren, but that fathers provided even less care to biological children when their mating opportunities increase, such as when the number of reproductive women in camp increases.

While some components of father's roles may be mating effort, recent studies indicate fathers' involvement is strategic parenting effort. Winking, Gurven, Kaplan, and Stieglitz (2009) tested mating effort vs. parenting effort predictions among the Tsimane of Bolivia and found that fathers' care was consistent with parenting effort because fathers biased the delivery of their child care to when it had a greater impact on child well-being and the efficient functioning of the family, such as when mothers were absent or occupied with other chores, or no older daughters existed to assist with care. If father involvement were mating effort (i.e., signaling to maintain spouse), they should provide care when mothers could observe their care, which was not the case, and the care should be more active (e.g., playing, grooming) rather than passive (e.g., holding). Tsimane mothers held children more than fathers, but there were no differences in the proportion of time fathers and mothers dedicated to active care (grooming, playing, comforting). Fathers were more likely than mothers to devote a greater proportion of their active time with

children to playing and soothing the child while mothers were more likely to spend their time grooming the child.

Research by Meehan (2005) and Fouts (2008) also indicate that father involvement is strategic among Aka and Bofi hunter-gatherers. In both groups, fathers provide significantly less direct care when they live in matrilocal rather than patrilocal camps or when a maternal postmenopausal woman lives in the camp (Fouts). Maternal grandmothers do not always live matrilocally, as they may follow their daughter to live with the family of the husband. In both contexts, mothers have other genetic kin to assist with care. In patrilocal contexts and when the wife's mother does not live in camp, fathers' direct care increases, and fathers are more likely to hold and be proximal to their young children.

The strategic investment of fathers is also described in research by Scelza (in press) among Martu Aborigine adolescents. She suggests that mothers' child care is often easily replaceable by grandmothers and other women, whereas paternal investment that increases the social competitiveness of offspring is often unsubstitutable, such as when children inherit resources controlled by males (e.g., land or cattle). She found that Martu adolescent males with fathers present were initiated earlier than adolescent males without fathers present. Martu male initiations are complex, lengthy, and costly, and an earlier age of initiation was linked to future reproductive success—an increased likelihood of having a child and of having multiple children. The Martu research is one of the few studies with hunter-gatherers to demonstrate the importance of fathers in adolescence and later in life.

Finally, evolutionary researchers are interested in understanding stepfathers, but only a few systematic studies have been conducted. Evolutionary anthropologists have pointed out that stepfathering is common in hunter-gatherers and other small-scale cultures due to high adult mortality and divorce rates and that fathers generally invest more in biologically related than nonbiologically related children. For instance, stepparenting is common among the Yanomamo and Aka cultures as only 53% and 58%, respectively, of children between the ages of 10 and 15 live with both biological parents (Chagnon, 1982; Hewlett, 1991). The few studies that have compared step- and genetic fathers indicate that fathers are more involved with genetic children. Marlowe (1999) found that Hadza stepfathers never played with stepchildren and were more likely to be near, nurture, and communicate with biological children. Flinn (1988) found that fathers in Trinidad spent less time with stepchildren, and Anderson, Kaplan, Lam, and Lancaster (1999) found that Xhosa genetic fathers spent more time and resources (e.g., school supplies) on their children than did stepfathers.

SUMMARY

Human behavioral ecological studies of hunter-gatherers and other small-scale cultures suggest that men and women have different reproductive interests, and what may appear to be father involvement in part functions to attract new mates or keep an existing one, male care evolved in part to reduce female reproductive costs and increase fertility, and fathers are more

likely to invest in direct care when the care impacts the child's future reproductive success (strategic parental investment). Human behavioral ecology is one example of an adaptationist approach to father involvement.

CROSS-CULTURAL STUDIES OF FATHER INVOLVEMENT

Several cross-cultural studies have been conducted to try and identify factors that influence the level of father involvement. Many researchers utilize precoded father involvement data on hundreds of cultures. Anthropologists who write general ethnographies, which are detailed descriptions of one culture, often describe a few things about fathers' roles. Anthropologists, such as Barry and Paxson (1971), have reviewed hundreds of these ethnographies and qualitatively coded the level of father involvement and a variety of other aspects of infant and child development. Coded ethnographic samples include the Ethnographic Atlas (EA; over 1,000 cultures), the Human Relations Area Files (HRAF; over 300 cultures) and the Standard Cross-Cultural Sample (SCCS; 186 cultures). Most studies of fathers use the SCCS. The majority of cultures in these samples are hunter-gatherers, simple farmers, and pastoralists. An advantage of the cross-cultural studies is that father involvement in many cultures can be systematically compared and analyzed. Comparing father involvement in only two or three cultures can be problematic because of the potential bias in the selection of cultures. One problem with these larger studies is that the coding of father involvement is often based on a few descriptive sentences about fathers in a particular culture. The coding also masks all of the variability that often exists *within* a culture.

Given these limitations, the research provides insights into the roles of fathers in childbirth, factors associated with high father involvement and the impact of father's responsiveness to his children on adult aggression.

Cross-cultural studies have examined fathers' roles in childbirth. In the United States, fathers are expected to have an active role in so-called "natural" childbirth. This active role is far from natural and universal, as cross-cultural studies indicate that fathers are not allowed to attend the birth of their child in 60% of the world's cultures, are allowed to attend in 20%, and are allowed to attend and have some minimal role (e.g., cutting the cord) in the birth in another 20% of cultures. In no culture do fathers monitor or direct the birthing processes (Hewlett & Hannon, 1989; Lozoff & Brittenham, 1979). While fathers may not be active participants in childbirth, a recent, more detailed cross-cultural study (Huber & Breedlove, 2007) indicates that fathers provide some form of investment (help with cooking, screen off birth area, dispose of afterbirth) during prenatal, delivery, or postnatal periods in 92% of societies for which they had information. More active participation may be important in middle-class U.S. families, where fathers are seldom around the child after the birth, but in most small-scale cultures, fathers see their children during the day and their smaller direct and indirect involvement in childbirth illustrates their connection and commitment to the newborn.

Cross-cultural childbirth studies have also examined *couvade*, a term used to refer to a variety of a father's experiences and cultural practices that take

place in late pregnancy, at the birth, and postpartum. In the classic case, the father lies down when his wife starts to deliver the child; the father exhibits pains and other symptoms associated with childbirth. Another and more common form of *couvade* is when the expectant father observes food taboos in late pregnancy and goes into seclusion during and several days after the birth (Munroe, Munroe, & Whiting, 1973). An SCCS study indicates that 44% of cultures practice *couvade* (Paige & Paige, 1981). Several functional explanations have been proposed (Broude, 1976; Mason & Elwood, 1995; Munroe et al., 1973; Paige & Paige, 1981). It is more likely to occur in matrilineal societies (Paige and Paige 1981) where paternity certainty is suggested to be lower and *couvade* is hypothesized to be a way to assign paternity. While *couvade* is probably influenced by adaptationist forces, cultural forces are also significant as it occurs in more than 75% of South American cultures and less than 5% of African, Circum-Mediterranean, and East Eurasian cultures.

Cross-cultural studies have identified factors associated with high father involvement: lack of material accumulation, such as land, cattle, or money (Goody, 1973; Hewlett, 1988; Marlowe, 2000); females and males contribute equally to the family diet (Katz & Konner, 1981); regular cooperation and participation of husband and wife in economic, domestic, and leisure activities (Hewlett, 1992); low population density (Alcorta, 1982); infrequent warfare (Katz & Konner); cultures with matrilineal postmarital residence (Hewlett, 1988); and infrequent polygyny (Katz & Konner).

Since culture is integrative, it is not surprising that general patterns emerge from these studies. Hunter-gatherer cultures tend to have higher father involvement than farmers or pastoralists because:

- They have lower population densities.
- Females often contribute a substantial percentage of the calories to the family diet.
- Husbands and wives are more likely to engage in a variety of activities together (subsistence, sleep and eat together).
- Polygyny rates are low.
- Matrilineality is common because residence patterns are flexible.
- Warfare is less frequent.
- They do not accumulate land, cattle, or other material resources.

All of these factors are more likely to occur in hunting and gathering societies rather than among farmers and pastoralists. Hunter-gatherers are mobile, often moving 5 to 20 times a year. They can accumulate only so much material wealth because they must carry it with them. Hunter-gatherers also tend to practice prestige avoidance, that is, doing anything not to draw attention to themselves. They have a variety of other cultural mechanisms, such as rough joking and demand sharing, that prevent accumulation, inequality, and drawing attention to oneself (Hewlett, 1991). Hunter-gatherers also share food and child care more extensively than farmers or pastoralists, as they often give away 50 to 80% of the foods they collect during the day. Population densities are lower in part because they rely on wild food. Warfare is less common because there are fewer material resources to defend.

Farmers and pastoralists, however, generally do whatever they can to accumulate more wealth (e.g., land or cattle). Generally, it is the males who accumulate the wealth, and this limits female access to resources necessary for survival and reproduction. The accumulated resources, such as crops or cattle, also need to be defended, so lineages and clan structures develop to defend resources. Both of these factors leads to greater male control ideologies and higher frequencies of patrilocal residence and polygynous marriages even though women may contribute the majority of the calories to the diet. This is especially true in simple farming communities. Many women may be interested in marrying the same man because he controls many resources important to her and her children's survival. By comparison to hunter-gatherers, population densities are somewhat higher, warfare is more common, and husband and wife engage in fewer activities together.

Marlowe (2000) conducted an SCCS cross-cultural study of paternal investment and confirmed many of the findings described here. Table 14.1 summarizes his results. The study provides actual cross-cultural coding scores and tests of significance, but Table 14.1 lists only results. His study is consistent with the previous cross-cultural studies of fathers, but it is more detailed than were previous studies. For instance, he demonstrates that fathers' direct care is lowest in pastoral and agricultural cultures rather than in horticultural (simple farming) cultures. The table also summarizes fathers' provisioning roles in these cultures and suggests why men in pastoral societies are less likely to provide direct care. Men in pastoral societies contribute the most to family subsistence and control access to important foods and wealth (i.e., cattle) for survival.

Stimulated by research results in the United States, some anthropologists have utilized the SCCS of preindustrial cultures to test the hypothesis that father presence leads to fewer aggressive behaviors (violence, homicide) in adulthood. Several SCCS studies have rejected this hypothesis and indicated that socialization for aggression explains aggression rather than father presence (Broude, 1990; Ember & Ember, 1994). Fathers' warmth may matter more than father presence. Veneziano's recent SCCS study (2003) examined both father proximity and father warmth (affectionate love and acceptance that

Table 14.1
Modes of Production/Subsistence and Father's Role

Mode of Production	Wealth Variation	Residence	Father's Direct Care	Father's Contributions to Family Diet	Marriage System
Hunter-Gatherers	None	Multilocal	High	Moderate/high	Monogamy
Horticulturalists ¹	Low to moderate	Patri- or matrilocal	Moderate	Low	Polygyny
Pastoralists	High	Patrilocal	Low	Very high	Polygyny
Agriculturalists	Very High	Patrilocal	Low	High	Polygyny
Industrial States	Very High	Neolocal	Moderate	Moderate	Monogamy

¹Horticulture involves simple hoe farming, while agriculture refers to intensive irrigation or plow farming. Modified from Marlowe 2000:49.

fathers have toward children) and found that only lack of fathers' warmth significantly predicted interpersonal aggression. Interestingly, he found that lack of paternal warmth had a stronger relationship on interpersonal aggression than did mothers' warmth and affection.

Coltrane (1992) also utilized the SCCS to evaluate outcomes of father proximity measures and found that close father-child relationships were related to increased gender equality—women's deference toward men, an ideology of female inferiority and men's display of manliness were less likely in cultures with close father-child relationships. Overall, the status of women increases when father involvement increases (Coltrane, 1988).

The studies mentioned thus far emphasize functional or adaptationist explanations (e.g., related to culture's mode of production) for father involvement. Most SCCS research tests functional hypotheses, but it is also important to point out that father involvement is also influenced by a culture's demic diffusion and the nature of cultural transmission and acquisition. Cultures connected by history are more likely to have similar levels of father involvement. For instance, Table 14.2 summarizes the average father involvement scores from various regions of the world. Regional grouping is based on Burton, Moore, Whiting, and Romney's (1996) analysis. Father involvement is lowest in African cultures, while it is the highest in Southeast Asia and Pacific Island cultures. Cultures are generally within a particular region because they share a particular history and demic diffusion (i.e., a particular culture expanded and differentiated to new cultures within the region, such as the expansion of Bantu-speaking people in Africa). Cultures that share an expansionist history (diaspora) often share a *culture core*—a set of values, schemas, behaviors—that are conservatively transmitted generation to generation. Recent studies have shown that many aspects of kinship and family life are more related to demic diffusion than to cultural diffusion (i.e.,

Table 14.2
Father Involvement with Infants in Various Regions of the World

Region of the World	Number of Cultures Evaluated	Mean Score	Proportion of 4–5 Scores in the Region
Sub-Saharan Africa	22	2.40	0.09
Middle Old World	12	2.87	0.33
North Eurasia and Circumpolar	12	3.17	0.25
Southeast Asia and Pacific Islands	22	3.60	0.55
Australia, New Guinea, Melanesia	12	3.42	0.50
Northwest Coast	7	3.29	0.43
Northern and Western North America	7	2.71	0.00
Eastern Americas (includes North and South America)	16	3.05	0.44
Mesoamerica, Central America, and Andes	9	3.22	0.33

¹ The mean score is the average from Barry and Paxson's coding (1971) where a 1–3 score means the father is never, seldom, or occasionally proximal to the infant, and a 4–5 score means the father is in regular or frequent proximity.

acquiring cultural belief or practice from neighbors) or natural ecology (Hewlett, de Silverti, & Gugliemino, 2002). The implication is that fathers' roles are part of a culture core in a particular region. One has to be cautious with the data in Table 14.2 because the cultures placed within a region may have divergent histories. For instance, African cultures have the lowest average father involvement, but African hunter-gatherer groups, such as the !Kung and Aka, have very separate histories from that of the Bantu groups and are very involved fathers. The average score in Table 14.2 includes hunter-gatherers and if omitted, the average involvement score in Africa and other regions with hunter-gatherers would decline.

The previous discussion of father involvement in various regions of the world points out that culture history, demic diffusion in particular, is an important factor for understanding cultural beliefs and practices regarding fathers' interactions with children. Culture cores are often maintained by conservative mechanisms of cultural transmission and acquisition. That is, these aspects of culture are transmitted early within the family and immediate community. Before mass media, such as radio, TV, and the Internet, were available, most beliefs and practices regarding child care were transmitted and acquired within the family. This form of transmission leads to highly conserved elements of culture. As a group of people migrates and expands, many elements of culture are conserved even though their natural and social environment may have changed. However, once the mass media is in place, cultures can change quite quickly.

SUMMARY

An analysis of cross-cultural studies on fathers indicates: (1) fathers seldom participate in childbirth, but demonstrate their interest and commitment to the newborn in a variety of ways; (2) *couvade* is common and another indicator of father's connection to the newborn; (3) the level of father involvement is influenced primarily by two general forces: (a) a web of factors associated with mode of production/subsistence (Hewlett, 1991; Katz & Konner, 1981; Marlowe, 2000); and (b) common culture ancestry and diaspora (i.e., via demic diffusion and conservative cultural transmission); and (4) father warmth and involvement influences adult aggression and male-female relationships. Factors 2, 3a, and 4 suggest fathers' role is adaptive to particular social, economic, reproductive, and demographic settings, whereas factor 3b suggests that fathers' roles with children have more to do with the history/diaspora and transmission of a particular culture and that fathers' roles may or may not be adaptive.

ETHNOGRAPHIC STUDIES OF FATHERS

Fathers are seldom the focus of ethnographic studies, but in some cases ethnographers have emphasized the study of fathers in order to investigate particular hypotheses. Few detailed ethnographic studies of fathers exist, but in comparison to the cross-cultural studies, they are better able to evaluate the complex web of relationships related to fathers' roles. They

can also be limiting (e.g., focus on father involvement and neglect fathers' roles as protector or provider) because they evaluate a limited number of hypotheses. Ethnographic studies examined include my own study of Aka hunter-gatherer fathers of central Africa (Hewlett, 1991), Beckerman and Valentine's study of farming-fishing fathers among the Bari and other cultures of South America (2002), and Harkness and Super's study of agropastoral Kipsigis fathers of East Africa (1992). The Aka are known for the high level of father involvement, Kipsigis for their lack of father involvement, and the Bari and other South American cultures for their beliefs and practices regarding multiple fathers.

INTIMATE FATHERS

Hewlett's work (1991) with infants (3 to 18 months) among Aka foragers of central Africa focused on evaluating Lamb's (1981) hypothesis regarding the role of rough-and-tumble play in an infant's attachment to father. The prevailing hypothesis was, and often still is (but see several exceptions in this volume), that infants become attached to their fathers, in part, due to their vigorous play and interactions. Infants become attached to mothers via their regular and sensitive care, whereas fathers, who are around less frequently, develop attachment with the infant through vigorous rough-and-tumble play. Studies in urban industrial societies in many parts of the world indicated that vigorous play was a distinctive feature of fathers' versus mothers' style of interaction with infants (see Chapter 4 for further details). Unlike fathers in urban-industrial cultures, Aka fathers were frequently with their infants (i.e., holding or within an arm's reach of their infants 47% of the day), and they rarely engaged in vigorous play with their infants. Fathers engaged in physical play only once in 264 hours of systematic naturalistic father and infant focal observations. Fathers were also more likely to show affection (i.e., kiss, hug) to an infant while holding than were mothers.

Hewlett suggested that Aka fathers were not vigorous because they intimately knew their infants through their extensive care. Because Aka fathers knew their infants so well, they did not have to use vigorous play to initiate communication/interaction with their infants. They could initiate communication and show their love in other ways. Infants often initiate communication, and Aka fathers knew how to read and understand their infants' verbal and nonverbal (e.g., via touch) communication. Fathers (or mothers) who are not around their infants are less likely to be able to read and understand infant communication and therefore more likely to initiate communication, often with the use of physical stimulation and play. Aka fathers are often around their infants because men, women, and children participate together in net hunting. Women are active and important to net hunting (Noss & Hewlett, 2001) and husband-wife communication and cooperation is key to hunting success. Net hunting, in part, contributed to regular husband-wife cooperation and father's intimate knowledge of their infants.

While Aka are generally very involved fathers, there is remarkable intra-cultural variability. Some Aka fathers held their infants 2% of the time, while

others held their infants about 20% of daylight hours. Also, not all "pygmies" or hunter-gatherers of the African rainforest have highly involved fathers. Efe hunter-gatherer fathers of the Democratic Republic of the Congo held their infants 2.6% of the time in the camp setting, compared to 22.0% of the time among the Aka fathers (Winn, 1989, personal communication). Bailey (1991) found that Efe men actively engaged in child care only 0.7% (about 5 minutes per day) of daylight hours and indicated that "strong father-child attachments among the Efe were uncommon." Efe fathers were also not the secondary or even tertiary caregivers of their infants; several other females (older siblings, grandmother, mother's sister) provided more care than fathers. Efe are different from Aka in several ways: Efe do not cooperatively net hunt (men hunt with bows and arrows or small traps), Efe spend less time in the forest, and very high infertility rates exist, so there are many other adult women without children available to help with child care.

DISTANT FATHERS

Harkness and Super (1992) conducted a comparative study of East African Kipsigis and U.S. Anglo middle-upper class fathers and their infants and young children (0 to 4 years). Kipsigis fathers were somewhat more likely to be present with their infants during the day than were U.S. fathers (35% vs. 24%), but Kipsigis fathers never engaged in direct caregiving during the first 4 years of the child's life, while U.S. fathers provided 13 to 17% of the child's direct care. Kipsigis fathers never fed, dressed, bathed, or carried the infant outside the house. Kipsigis believe that the infant can be damaged by the strength of the father's gaze and the father's masculinity can be compromised by the dirtiness of the infant. When fathers were present with their infants, Kipsigis and U.S. fathers' activities were quite different. When present, U.S. fathers were actively involved with their children 24 to 46% of the time (e.g., bed and bath routines, story-telling, playing, etc.), while Kipsigis fathers were more likely to be watching the child or talking with others.

Harkness and Super also described parental ideologies in the two cultures and suggested that the different ideologies motivated and explained the observed differences in Kipsigis and U.S. father-child interactions. Kipsigis fathers viewed their roles as primarily economic—to provide school fees and cover expenses when their children were sick. Fathers also felt that they were responsible for disciplining their children and making sure their children were obedient, especially regarding when to conduct chores, deferent, and respectful of others, especially those older than they. American fathers, however, emphasized the importance of developing a close emotional relationship with their children as well as stimulating their cognitive development. They felt that bedtime and playtime were good times to develop this emotional relationship and also provide educational stimulation.

MULTIPLE FATHERS

The foregoing research and descriptions of intimate and distant fathers assumed that each infant had one father. Research methods, be they

behavioral observations of infants with fathers or informal interviews with fathers, assume that each child has one father. Most Euro-Americans, including researchers, assume that each child has a single, generally biological, father. In order to further illustrate the diverse ways in which fatherhood can be culturally constructed, the next section briefly describes cultures where it is common for a child to have more than one father.

Beckerman and Valentine (2002) describe multiple fatherhood in foraging and farming communities in several lowland South American cultures. Beckerman and his colleagues conducted research with South American groups where women had sexual relations with one or more men other than their husband and each of these men became a social father and contributed to the child in a variety of ways (e.g., feeding, holding, training). A common belief is that it takes regular amounts of sperm for a fetus to grow, and that it is not unusual that more than one man may contribute to the growth of the fetus. Beckerman calls this *partible paternity*. Hill and Hurtado (1996, pp. 249–250) describe partible paternity among the Ache of Paraguay.

A man (or men) who was frequently having intercourse with a woman at the time when "her blood ceased to be found" is considered to be the real father of the child. . . . These primary fathers are most likely to be the ones who take on a serious parenting role. . . . Secondary fathers are also generally acknowledged and can play an important role in the subsequent care of a child. . . . Secondary fathers include all those men who had sexual intercourse with a woman during the year prior to giving birth (including during pregnancy) and the man who is married to a woman when her child is born.

Beckerman and Valentine (2002) reanalyzed Hill and Hurtado's (1996) Ache data on multiple fathers and found that 70% of children with only one father survived to age 10, while 85% of children with primary and secondary fathers survived to age 10. Kinship terms also reflected the belief in secondary fathers as the Matis use the term *ebutamute* for fathers, which translates to "he with whom I procreate" (Erickson, 2002). Beckerman and Valentine also conducted detailed reproductive interviews with the Bari, a culture they had worked with for several years, and found that having a secondary father did not assist with child survival after birth, but it did increase the probability that a woman with an identified secondary father before childbirth was more likely to produce a child and that child was more likely to survive to age 15. Secondary fathers among the Bari provided meat, fish, and other food items to the pregnant woman, and this in turn increased child survival.

Beckerman utilizes multiple fathers' data to question/reject evolutionary paternity certainty theory, as discussed earlier in the evolutionary section. Paternity certainty is low in these cultures, but several fathers invest in the same child. Hrdy (1999) pointed out that females may use males' concern over paternity certainty to increase support for her and her child from several men. If a few men are led to believe that they are potentially the fathers of the child, they are likely to make some investment in the child. The South American cultures with the highest frequencies of multiple fatherhood are matrilineal, with weak male-control ideologies. In other words, where patriarchy is weak

multiple fatherhood is more common. Where patriarchy is strong it is more difficult for women to have or acknowledge sexual relations with someone other than the husband.

PASTORAL FATHERS

Ethnographers have noted high levels of father-child care in several pastoral groups; however, few researchers have systematically examined the quality or quantity of father-child interaction in these cultures. In a rare case where specific parenting behaviors in a traditionally pastoral population was examined, Navajo fathers were reported to be intimately involved in child care (Abraham, Christopherson, & Kuehl, 1984). Navajo children evaluated parental behaviors through the Cornell Parent Behavior Inventory (Devereux, Bronfenbrenner, & Rodgers, 1969), which examined parental behavior along four dimensions: supportive, demanding, controlling, and punishment styles. Navajo children rated Navajo parents as: (1) having greater similarity in parenting styles; (2) more protective (a subscale of controlling); and (3) more likely to deprive children of privileges than their Anglo-American child counterparts. Navajo fathers were rated significantly higher on affective punishment, but lower on physical punishment than Navajo mothers by both boys and girls. Navajo fathers' affective punishment styles (fathers were found to use guilt or shame to correct a child's behavior) was explained by the sentiment of "other-directedness" in Navajo culture, that is, the extent to which behavior is controlled by the opinions of others. Other-directedness is an important cultural quality, and paternal behaviors such as shame and guilt may be used as techniques for instilling and perpetuating this quality, since they expose the individual to the disapproval of others (Kluckhohn & Leighton, 1962). Interestingly, Navajo daughters reported greater nurturance (a subscale of supportiveness) from fathers and experienced significantly more instrumental companionship from fathers than did Navajo boys. Additionally, both Navajo mothers and fathers placed significantly greater achievement demands on Navajo girls than on boys. That parents from a matrilineal society would place greater achievement demands on daughters rather than sons is not unpredictable, especially if matriliney represents a form of daughter-biased parental investment (Holden, Sear, & Mace, 2003). An unusual feature of the Navajo case study is that it represents such a small segment of all pastoral societies: those that are matrilineal and involve high levels of father-child care. Of the approximately 242 pastoral or agro-pastoral societies, only 19 are matrilineal (Aberle, 1961).

SUMMARY

The four ethnographic examples described in this section provide more examples of the two general theoretical orientations. The South American multiple fathers and the Kipsigis distant fathers illustrate "cultural" explanations for father-child relations. Beliefs and practices in multiple fatherhood exist in Lowland South America, but seldom, if ever, in other parts of the world. This suggests demic diffusion of this belief and practice in Lowland

South America. It may have been adaptive when it was initiated in a particular group, but it demically diffused and may or may not be adaptive. Harkness and Super (1992) emphasized cultural ideology to explain why Kipsigis fathers are distant. Their distant fathering style is also common to several sub-Saharan cultures described in the cross-cultural section of this chapter and consistent with an emphasis on culture rather than adaptation. Certainly, local and individual variations and adaptations exist within these cultures, but the nature of father-child interactions in these groups are affected by culture history and transmission.

By contrast, the research on the Aka and Navaho provides examples of adaptationist explanation for father-child relations. Aka fathers are frequently around their infants, in part, because of net hunting, which in turn contributes to higher (by comparison to foragers when men go out and hunt and women go gathering) levels of husband-wife reciprocity in a wide range of activities, including childcare. Aka fathers are more intimate with their infants than other hunter-gatherer groups because of particular adaptations to local conditions (i.e., active women's role in net hunting, close husband-wife relations). Navaho fathers are involved in the care of sons and daughters in part due to their matrilineal system (i.e., less wealth accumulation in matrilineal cultures).

CONCLUSION AND DISCUSSION

This chapter described cross-cultural variability in father's role. Aka fathers held or were within an arm's reach of their infants about half of the day while Kipsigis fathers generally did not provide direct care to children until the fourth or fifth year of the child's life. Part of this variability was explained by factors associated with mode of production (accumulation of wealth, women's role in subsistence, frequency of warfare, husband-wife relations) or cultural ancestry and diaspora (demic diffusion and conservative mechanisms of cultural transmission and acquisition). Hunter-gatherer fathers were more likely to be involved with children in comparison to fathers in any other mode of production. In terms of cultural diaspora and demic diffusion, fathers with African, in particular, Bantu cultural ancestry were the least likely to have involved fathers, while cultures with Southeast Asian and Pacific Island ancestry were most likely to have involved fathers.

Although data were presented to support these generalizations, data were also presented that demonstrated enormous variability between hunter-gatherers groups (e.g., Efe fathers were not very involved) and variability within cultures (e.g., Aka father holding ranged from 2% to 20% of daylight hours). Regional, local, individual, and contexts and histories influenced this diversity.

In terms of styles of father-child interactions, fathers' physical rough-and-tumble play, characteristic of many urban industrial cultures, was infrequent among Aka fathers, suggesting that vigorous play was not necessary, biological, or the universal way by which infants became attached to fathers. Aka infant attachment to fathers seems to occur through regular and sensitive caregiving.

Finally, human behavioral ecological studies suggested that father involvement may be strategic and at least some aspects of father involvement were mating effort rather than parenting effort. Partible paternity, active step-fathers, and men's extensive giving of food items to nonbiological children in hunter-gatherer cultures, indicated that fathers (and men in general) may enhance their reproductive fitness by providing food, care, defense and other forms of investment to children who were not biologically related to them. Men may invest in children in these contexts to attract new mates or keep an existing mate.

OBSERVATIONS AND FUTURE STUDIES

There are several limitations to existing studies of fathers in hunter-gatherer and other small-scale cultures. None of the studies systematically evaluated how these different levels of involvement affect the child's social, emotional, cognitive or moral development. Obviously, systematic research in these cultures is desperately needed. Hewlett's research and observations of children in a diversity of African cultures as well as statements from hunter-gatherer ethnographers from around the world, suggest that most children in foraging, farming and pastoral cultures are socially, emotionally, cognitively and morally competent regardless of whether fathers are intimate or distant. For instance, the first author has lived with intimate Aka foragers fathers and distant Ngandu farmer fathers for 35 years, and children in both groups appear to be more self-assured, secure, and competent than children of comparable ages in the United States. Why do so many child development studies in the United States and elsewhere indicate that father presence and involvement are so important to a child's development?

Research in contemporary stratified market economy cultures has focused on fathers, in part, because the family and social-economic contexts are so dramatically different from the cultures that characterized most of human history. Parents in capitalistic systems move away from extended family in search of higher education and higher paying jobs, but in so doing they isolate themselves from extended family and close friends. Mothers and fathers want to move up the economic ladder and tend to have fewer children, in part, because they no longer live with extended family, where they can obtain regular, economically reasonable quality care. Less time is also spent around children because men's and women's workplaces do not permit children. Hunter-gatherer children, however, grow up with a wide range of caregivers (e.g., grandmothers and grandfathers, aunts and uncles, siblings, clan members, etc.) who know the child well. Aka fathers are very involved in direct care, but so are many other caregivers, since infants and young children are held most of the day. Western parents moving away from the extended family also leads to another relatively unusual cross-cultural pattern—husband and wife rely heavily on each other for social-emotional support. Aka couples spend a lot of time together, but both men and women tend to spend most of their time talking to members of the same gender; their social-emotional support comes from many others. Father involvement in contemporary urban-industrial cultures may be especially important to healthy social,

emotional, cognitive, and moral development of children, but this may be due to a relatively unusual (by cross-cultural standards) family context—isolation from extended family and lifelong friends. These relatively unique features of contemporary urban-industrial cultures help to explain why factors often associated with low father involvement in cross-cultural studies (e.g., high material accumulation and high population density) in small-scale cultures do not apply. The United States, Canada, Australia, and many European nations have experienced increases in father-child care from the 1960s to present (Bianchi, 2000; Gauthier, Smeedeng, & Furstenberg, 2004; Gray & Anderson, n.d.). The isolation of the family and the increasing importance of husband-wife relations in these settings contribute to the increases in father involvement. The cross-cultural studies do indicate that father's role will increase when females provide more resources to the family and husband-wife relationships are close, both of which have increased in urban-industrial cultures in the past 30 years.

Another feature of contemporary urban-industrial cultures is that parents can be very involved and sensitive caregivers and develop their child's sense of trust with self and others, but once the child moves into formal schooling and starts a living in the cultural system, he or she must deal with inequality on a daily basis (see Chapter 4 for further discussion). Students are ranked from higher to lower, and must learn to respond to social-economic inequality, such as being deferent to those who have higher rank or more resources. Those who succeed in the system tend to feel better than others and expect more from others. Those who have difficulty may feel unsure about themselves and others. One learns to be deferent toward those who have more resources or success. By comparison, hunter-gatherer children move into a system where ranking is actively discouraged and trust of self and others continues throughout childhood. Farmers and pastoralists rank by age and gender, but it is within a familiar context throughout childhood.

Context also influences how fathers acquire their parenting skills and helps to explain, in part, why Aka father caregiving lacks the vigorous play found in urban-industrial cultures. As mentioned earlier, most urban-industrial fathers learn to parent from specialists and trial and error. By comparison, a characteristic feature of hunter-gatherers is that their population density is low, but their living density is high. A group of 25 hunter-gatherers often live within a 400- to 800-square-foot area. This means everyone sees how to care for children and someone is quickly informed if they hold, clean, or feed a child in an inappropriate way. This leads to consistency of care from a large range of individuals, including fathers.

The limited data presented in this chapter suggest that father involvement must be viewed in context and that high father involvement is not natural or universal or even important in some contexts. Policy makers, in particular, need to consider context, diversity and flexibility in fathers' roles.

Finally, this discussion makes generalizations about fathers in hunter-gatherers and other cultures often to make points about the nature of father's role in urban-industrial cultures. A problem with this is that it can make seem

like fathers in hunter-gatherers and other small-scale cultures are exotic, near the limits of humanity, in that they represent the unfamiliar "other." Aka fathers are more involved than fathers in most parts of the world, Bari have multiple fathers, and Kipsigis fathers do not provide direct care to children, but fathers in all these cultures are similar in many ways to fathers in any part of the world. They love their children, are concerned about their children's health and well-being, provide less care than mothers, and generally spend a considerable amount, if not most, of their time talking to or being with other men rather than their wives or groups of women. Like fathers/men in the United States or elsewhere, forager, farmer, and pastoral fathers are trying to do the best they can in their particular cultural, natural ecological, economic, and demographic contexts.

REFERENCES

- Aberle, D. F. (1961). Matrilineal descent in cross-cultural comparison. In D. Schneider & K. Gough (Eds.), *Matrilineal kinship* (pp. 655-730). Berkeley: University of California Press.
- Abraham, K. G., Christopherson, V. A., & Kuehl, R. O. (1984). Navajo and Anglo childrearing behaviors: A cross-cultural comparison. *Journal of Comparative Family Studies*, 15(3), 373-388.
- Alcorta, C. (1982). Paternal behavior and group competition. *Behavior Science Research*, 17, 3-23.
- Anderson, K. G., Kaplan, H., Lam, D., and Lancaster, J. (1999). Paternal care by genetic fathers and stepfathers II: Reports by Xhosa high school students. *Evolution and human Behavior*, 20(6), 433-451.
- Bailey, R. C. (1991). *The socioecology of Efe pygmy men in the Ituri forest, Zaire*. Ann Arbor: Museum of Anthropology, University of Michigan.
- Barry, H., & Paxson, L. M. (1971). Infancy and early childhood: Cross-cultural codes 2. *Ethnology*, 10, 466-508.
- Beckerman, S., & Valentine, P. (2002). *Cultures of multiple fathers: The theory and practice of partible paternity in Lowland South America*. Gainesville: University Press of Florida.
- Bianchi, S. (2000). Maternal employment and time with children: Dramatic change or surprising continuity. *Demography*, 37, 139-154.
- Bowlby, J. (1969). *Attachment*. New York: Basic Books.
- Broude, G. (1990). Protest masculinity: A further look at the causes and the concept. *Ethos*, 18(1), 103-122.
- Burton, M. L., Moore, C. C., Whiting, J. W. M., & Romney, A. K. (1996). Regions based on social structure. *Current Anthropology*, 37, 87-123.
- Chagnon, N.A. (1982). Sociodemographic attributes of nepotism in tribal populations: man the rule breaker. In B. Bertram et al. (Eds.) *Current Problems in Sociobiology*. Cambridge, UK: Cambridge UP.
- Coltrane, S. (1988). Father-child relationships and the status of women: A cross-cultural study. *The American Journal of Sociology*, 93(5), 1060-1095.
- Coltrane, S. (1992). The micropolitics of gender in preindustrial societies. *Gender and Society*, 6(1), 86-107.
- Devereux, E. C., Bronfenbrenner, U., & Rodgers, R. (1969). Childrearing in England and the United States: A cross-national comparison. *Journal of Marriage and Family*, 31, 257-270.

- Ember, C., & Ember, M. (1994). War, socialization, and interpersonal violence. *Journal of Conflict Resolution*, 38(4), 620–646.
- Erickson, P. (2002). Several fathers in one's cap: Polyandrous conception among the Panoan Matis (Amazon, Brazil). In S. Berkerman and P. Valentine (Eds.), *Culture of Multiple Fathers: The Theory and Practice of Partible Paternity in Lowland South America* (pp. 123–136). Gainesville: University Press of Florida.
- Flinn, M. V. (1988). Step and genetic parent/offspring relationships in a Caribbean village. *Ethology and Sociobiology*, 9, 335–369.
- Fouts, H. N. (2008). Father involvement with young children among the Aka and Bofi foragers. *Cross-Cultural Research*, 42(3), 290–312.
- Gauthier, A. H., Smeedeng, T. M., & Furstenberg, F. F., Jr. (2004). Are parents investing less time in children? Trends in selected industrialized countries. *Population and Development Review*, 30, 647–671.
- Gettler, L. T. (in press). Direct male care and Hominin evolution: Why male-child interaction is more than a nice social idea. *American Anthropologist*.
- Goody, J. (1973). Bridewealth and dowry in African and Eurasia. In J. R. Goody & S. J. Tambiah (Eds.), *Bridewealth and dowry*. Cambridge, UK: Cambridge University Press.
- Gray, P., & Anderson, K.G. (2010). *Fatherhood: The Evolution of Human Paternal Care*. Harvard: Harvard University Press.
- Harkness, S., & Super, C. M. (1992). The cultural foundations of fathers' roles: Evidence from Kenya and the United States. In B. S. Hewlett (Ed.), *Father-child relations: Cultural and biosocial perspectives* (pp. 191–212). New York: Aldine de Gruyter.
- Hawkes, K., O'Connell, J. F., & Blurton-Jones (2001). Hunting and nuclear families. *Current Anthropology* 42, 681–710.
- Hewlett, B. S. (1988). *Dad and cad strategies: Father's role in human evolution*. Paper presented at Evolution and Human Behavior Program, University of Michigan, Ann Arbor.
- Hewlett, B. S. (1991). *Intimate fathers*. Ann Arbor: University of Michigan Press.
- Hewlett, B. S. (1992). Husband-wife reciprocity and the father-infant relationship among Aka pygmies. In B.S. Hewlett (Ed.), *Father-child relations: Cultural and biosocial perspectives* (pp. 153–176). New York: Aldine de Gruyter.
- Hewlett, B. S., & Hannon, N. (1989). *Myths about "natural" childbirth*. Paper delivered at annual meeting of the Society for Cross-Cultural Research. New Haven, CT.
- Hewlett, B.S., de Silvertri, A. & Gugliemino, C.R. (2002) Semes and genes in Africa. *Current Anthropology* 43, 313–321.
- Hill, K., & Hurtado, M. (1996) *Ache life history: The ecology and demography of a foraging people*. New York: Aldine de Gruyter.
- Holden, C. J., Sear, R., & Mace, R. (2003). Matriliny as daughter-biased investment. *Evolution and Human Behavior*, 24, 99–112.
- Hrdy, S. B. (1999). *Mother nature: Maternal instincts and how they shape the human species*. New York: Ballantine Books.
- Huber, B. R., & Breedlove, W. L. 2007. Evolutionary theory, kinship, and childbirth in cross-cultural perspective. *Cross-Cultural Research*, 41, 196–219.
- Kaplan, H. S., Lancaster, J. B., Bock, J. A., & Johnson, S. E. (1995). Does observed fertility maximize fitness among New Mexican men? A test of an optimality model and a new theory of parental investment in the embodied capital of off-spring. *Human Nature*, 6, 325–360.
- Katz, M. M., & Konner, M. L. (1981). The role of father: An anthropological perspective. In M. E. Lamb (Ed.), *The role of father in child development* (2nd ed., pp. 155–181). New York: Wiley.
- Kluckhohn, C., & Leighton, D. (1962). *The Navajo*. Garden City, NY: Doubleday

- Kleiman, D.G., & Malcolm, J.R. (1981). The evolution of male parental investment in mammals. In D.J. Gubernick and P.H. Klopfer (Eds.) *Parental Care in Mammals*. New York: Plenum.
- Lamb, M. E. (Ed.). (1981). *The role of the father in child development* (2nd ed.). New York: Wiley.
- Lancaster, J.B., Altman, J., Rossi, A.S., & Sherrod, L.R. (1987). *Parenting Across the Lifespan*. Hawthorne, NY: Aldine
- Lappan, S. (2008). Male care of infants in a siamang (*Symphalangus syndactylus*) population including socially monogamous and polyandrous groups. *Behavioral Ecology and Sociobiology*, 62(8), 1307–1317.
- LaRossa, R., & LaRossa, M. M. (1982). *Transition to parenthood: How infants change families*. Beverly Hills, CA: Sage.
- Lozoff, B., & Brittenham, G. (1979). Infant care: Cache or carry. *Journal of Pediatrics*, 95, 478–483.
- Mackey, W. C., & Day, R. (1979). Some indicators of fathering behaviors in the United States: A cross-cultural examination of adult male-child interaction. *Journal of Marriage and Family*, 41, 287–299.
- Marlowe, F. (1999). Showoffs or providers? The parenting effort of Hadza men. *Evolution and Human Behavior*, 20, 391–404.
- Marlowe, F. (2000). Paternal investment and the human mating system. *Behavioural Processes*, 51, 45–61.
- Mason, C. & Elwood, R. 1995. Is there a physiological basis for the couvades and onset of paternal care? *International Journal of Nursing Studies* 32: 137–148.
- Meehan, C. L. (2005). The effects of residential locality on parental and alloparental investment among the Aka Foragers of the Central African Republic. *Human Nature*, 16(1), 58–80.
- Munroe, R. L., Munroe, R. H., & Whiting, J. W. M. (1973). The couvades: A psychological analysis. *Ethos*, 1, 30–94.
- Morelli, G. A., & Tronick, E. Z. (1992). Male care among Efe foragers and Lese farmers. In B. S. Hewlett (Ed.), *Father-child relations: Cultural and biosocial perspectives* (pp. 231–262). New York: Aldine de Gruyter.
- Nsamenang, B. A. (1992) Perceptions of parenting among the Nso of Cameroon. In B. S. Hewlett (Ed.), *Father-child relations: Cultural and biosocial perspectives* (pp. 321–344). New York: Aldine de Gruyter.
- Noss, A. & Hewlett, B.S. (2001). The contexts of female hunting in central Africa. *American Anthropologist* 103, 1024–1040.
- Paige, K. E., & Paige, J. M. (1981). *The politics of reproductive ritual*. Berkeley: University of California Press.
- Sanchez, S., Pelaez, F., Gil-Burmann, A., and Kaumanns, W. (1999). Costs of infant-carrying in the cotton-top tamarin (*Saguinus oedipus*). *American Journal of Primatology*, 48(2), 99–111.
- Scelza, B. A. (in press). Father's presence speeds the social and reproductive careers of sons. *Current Anthropology*.
- Sear, R. & Mace, R. 2008. Who keeps children alive? A review of the effect of kin on child survival. *Evolution and Human Behavior* 29, 1–18.
- Smuts, B. B., & Gubernick, D. J. (1992) Male-infant relationships in nonhuman primates: Paternal investment or mating effort? In B. S. Hewlett (Ed.), *Father-child relations: Cultural and biosocial perspectives* (pp. 1–30). New York: Aldine de Gruyter.
- Tardif, S. D. (1994). Relative energetic cost of infant care in small-bodied neotropical primates and its relation to infant-care patterns. *American Journal of Primatology*, 34(2), 133–143.

- Van Schaik, C. P., & Paul, A. (1996). Male care in primates: Does it ever reflect paternity? *Evolutionary Anthropology*, 5, 152–156.
- Veneziano, R. A. (2003). The importance of paternal warmth. *Cross-Cultural Research*, 37, 265–281.
- Winking, J., Gurven, M., Kaplan, H., & Stieglitz, J. (2009). The goals of direct paternal care among a South Amerindian population. *American Journal of Physical Anthropology* 139, 295–304.